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Preface

Welcome to the Informatica MDM Multidomain Edition Provisioning Tool Guide. This guide explains how to use the Provisioning tool to configure business entities and business entity views, transformations, tasks, and smart search. It also describes how to create an Informatica® Data Director (IDD) application and how to design pages and views to display master data.

This guide is intended for people with the following roles:

- technical specialists who are responsible for configuration tasks
- IDD application developers

Informatica Resources

Informatica Network


As a member, you can:

- Access all of your Informatica resources in one place.
- Search the Knowledge Base for product resources, including documentation, FAQs, and best practices.
- View product availability information.
- Review your support cases.
- Find your local Informatica User Group Network and collaborate with your peers.

Informatica Knowledge Base

Use the Informatica Knowledge Base to search Informatica Network for product resources such as documentation, how-to articles, best practices, and PAMs.

To access the Knowledge Base, visit https://kb.informatica.com. If you have questions, comments, or ideas about the Knowledge Base, contact the Informatica Knowledge Base team at KB_Feedback@informatica.com.

Informatica Documentation

To get the latest documentation for your product, browse the Informatica Knowledge Base at https://kb.informatica.com/_layouts/ProductDocumentation/Page/ProductDocumentSearch.aspx.
If you have questions, comments, or ideas about this documentation, contact the Informatica Documentation team through email at infa_documentation@informatica.com.

Informatica Product Availability Matrixes

Product Availability Matrixes (PAMs) indicate the versions of operating systems, databases, and other types of data sources and targets that a product release supports. If you are an Informatica Network member, you can access PAMs at https://network.informatica.com/community/informatica-network/product-availability-matrices.

Informatica Velocity

Informatica Velocity is a collection of tips and best practices developed by Informatica Professional Services. Developed from the real-world experience of hundreds of data management projects, Informatica Velocity represents the collective knowledge of our consultants who have worked with organizations from around the world to plan, develop, deploy, and maintain successful data management solutions.

If you are an Informatica Network member, you can access Informatica Velocity resources at http://velocity.informatica.com.

If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

Informatica Marketplace

The Informatica Marketplace is a forum where you can find solutions that augment, extend, or enhance your Informatica implementations. By leveraging any of the hundreds of solutions from Informatica developers and partners, you can improve your productivity and speed up time to implementation on your projects. You can access Informatica Marketplace at https://marketplace.informatica.com.

Informatica Global Customer Support

You can contact a Global Support Center by telephone or through Online Support on Informatica Network.

To find your local Informatica Global Customer Support telephone number, visit the Informatica website at the following link: http://www.informatica.com/us/services-and-training/support-services/global-support-centers.

If you are an Informatica Network member, you can use Online Support at http://network.informatica.com.
Introduction

This chapter includes the following topics:

- Provisioning Tool Overview, 9
- Architecture, 10
- Prerequisites, 10
- Key Concepts, 11
- Logging In to the Provisioning Tool, 11

Provisioning Tool Overview

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

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. After you have updated all the configuration files, you publish your changes to a table in the repository.

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

As you work on the configuration files, you save your changes to a temporary workspace. 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.

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 Informatica 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 Informatica Master Data Management 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 the Informatica 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 Informatica 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 Hub administrator.

The MDM Hub must be running on the same application server as the Provisioning tool.

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/

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.
Establishing a Root Node

This chapter includes the following topics:

- Establishing a Root Node Overview, 13
- Root Node Properties, 14
- Establishing a Business Entity Root Node, 15
- Establishing a Reference Entity Root Node, 16
- Enabling State Management Validation, 17
- Setting Strategies for Record Deletion and Record Checking, 18

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 Informatica Data Director (IDD), you must generate business entities through subject areas in the IDD Configuration Manager. Business entities created directly in the Provisioning tool do not work in IDD.

If you do not use IDD, 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 Informatica MDM Multidomain Edition Configuration Guide.

Root Node Properties

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

Name

The node name in the business entity configuration file.

Label

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

Description

A description of the root node. Optional.

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 that is associated with the root node.

Label format

The format of the node name that displays in multiple views in Informatica Data Director. Optional.
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:
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.

1. On the modeling page of the Provisioning tool, 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 node properties panel, go to 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**.
   **Note**: The lookup base objects are created in the MDM Hub before you create a reference entity root node.
8. Click **Apply**.
   The changes are saved but are not published to the MDM Hub.
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 3

Defining the Business Entity Model

This chapter includes the following topics:

- Defining the Business Entity Model Overview, 19
- Prerequisites, 20
- Constraints, 20
- Node Types, 21
- Creating a Node with a One-to-Many Relationship, 22
- Creating a Node with a One-to-One Relationship, 23
- Creating a Lookup Node with a One-to-One Relationship, 23

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 Informatica MDM Multidomain Edition 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:

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>}{<primary 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 `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 `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. 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 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 referenceOne 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.

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 referenceOne under the parent node, and then click Create.
3. In the node properties panel, select the base object that contains the lookup child node data. For example, select the lookup base object LUGender.

   **Note:** The lookup 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_PARTY(GENDER_CD).C_LU_GENDER(GENDER_CODE).

   **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 Gender for the node name and node display name.

6. Click **Apply**. The changes are saved but are not published to the MDM Hub.
CHAPTER 4

Configuring Business Entity Properties

This chapter includes the following topics:

- Configuring Business Entity Properties Overview, 25
- Field Properties, 25
- Custom Data Types, 27
- Node Labels in Informatica Data Director, 28

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 Smart Search.

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 field is not enabled, the user can edit the field in the Entity View if
the user has 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 Informatica 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 Informatica Data Director.

For information about configuring resource privileges, see the Informatica MDM Multidomain Edition
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.

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.

Searchable
A smart search request searches only the fields that you configure as searchable fields. Before you
perform a smart search, ensure that you configure the required fields 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 a search request, so avoid configuring insignificant searchable fields.

When you enable the Searchable property, select one or more of the following additional properties for
Smart Search:
• Suggester
• Sortable
• 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 Smart Search chapter in the Informatica MDM Multidomain Edition
Configuration Guide.
Filter

Defines filters to regulate the data that users can enter in a field. 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.

To add multiple filter values, separate each value by a comma.

**RELATED TOPICS:**

- "[Custom Data Types](#) on page 27"

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. 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 **City_Name** 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 label name.
   For example, enter **City** for the field name and field label name.
6. Optionally, configure the Read only, Required, Type, URI, Searchable, and Filter properties.
   If you enable the Searchable property, additional search properties appear. For information about the search properties, see the Smart Search chapter in the Informatica MDM Multidomain Edition Configuration Guide.
7. Click **Apply**.
   The changes are saved but are not published to the MDM Hub.

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.

Informatica provides some predefined custom data types in the schema `co-types.xsd`. You can find custom data types from the `co-types.xsd` schema in the `urn:co-types.informatica.mdm` namespace.
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 want to associate an image 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 field.
3. In the tree view, click Create.
4. From the New Field form in the node properties panel, enter a field name and a field label name.
   For example, enter Picture for the field name and field label name.
5. Enter the URI for where your custom data types are defined.
   For example, enter urn:co-types.informatica.mdm.
6. In the Type field, enter the name of the custom data type that you defined in the URI.
   For image data type, select ImageURL.
   Note: The custom data types are created in the namespace before you add a data type to a field.
7. Select the base object column to associate with the field from the Column list.
   For an image data type, select Photo_URL from the Column list.
   Note: The base object column is created in the MDM Hub before you add a field to a node.
8. Optionally, configure the Read only, Required, Searchable, and Filter properties.
   If you enable the Searchable property, additional search properties appear. For information about the search properties, see the Smart Search chapter in the Informatica MDM Multidomain Edition Configuration Guide.
9. Click Apply.
   The changes are saved but are not published to the MDM Hub.

Node Labels in Informatica Data Director

You can configure the node labels to define the business entity titles in Informatica 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 Informatica 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 5

Configuring Reference Entity Properties

This chapter includes the following topics:

- Configuring Reference Entity Properties Overview, 31
- Lookup Types, 31
- Field Properties, 32
- Configuring a Lookup, 33

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 Smart 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 field is not enabled, the user can edit the field in the Entity View if the user has 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 Informatica 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 Informatica Data Director.

*For information about configuring resource privileges, see the Informatica MDM Multidomain Edition 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.

**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.

**Searchable**
A smart search request searches only the fields that you configure as searchable fields. Before you perform a smart search, ensure that you configure the required fields 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 a search request, so avoid configuring insignificant searchable fields.

When you enable the Searchable property, select one or more of the following additional properties for Smart Search:
- Suggester
- Sortable
- Fuzzy
- Filterable
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. 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 Gender_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 label name.
   For example, enter Gender_Code for the field name and field label name.
6. Optionally, configure the Read only, Required, Type, URI, Searchable, and Filter properties.
   If you enable the Searchable property, additional search properties appear. For information about the search properties, see the Smart Search chapter in the Informatica MDM Multidomain Edition Configuration Guide.
7. Click Apply.
   The changes are saved but are 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 Smart Search chapter in the *Informatica MDM Multidomain Edition 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 Smart Search chapter in the *Informatica MDM Multidomain Edition 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 6

Transforming Business Entities and Views

This chapter includes the following topics:

- Transforming Business Entities and Views Overview, 36
- Transformation Sources and Targets, 37
- Cleanse Transformations, 38
- Transformations in Read and Write Processes, 38
- Modeling Business Entity Views, 40
- Configuring Business Entity to View Transformations, 41
- Configuring View to Business Entity Transformations, 42
- Configuring Business Entity to Business Entity Transformations, 43
- Deleting Transformations, 44

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 IDD or a web application reads from or writes to a business entity view, the read or write service performs the transformation. If you use business entity views in IDD 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. Any cleanse transformations for a business entity to business entity transformation are applied during any write process for all business entity views.

**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 *Informatica MDM Multidomain Edition 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
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 **field** 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 25.
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.

**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 **group** 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 group 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 **MDM 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 group 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 MDM 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, 45
- Related Records (View Mode), 46
- Related Records (Edit Mode), 46
- Additional Attributes Associated with a Relationship, 47
- Prerequisites, 47
- Configuring Many-to-Many Relationships, 47

Business Entity Relationships Overview

Relationships describe the affiliation between two 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. You 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 Informatica Data Director user interface layout and create an Entity view. Add a related records component to view the entities that directly relate to the entity that is open in the Entity view.

You can add standard and custom related records components to an Entity view. Use the standard related records component to view the entities directly related to an entity. Use the custom related records component to view, add, edit, and delete the relationships between a business entity and other records.
Related Records (View Mode)

The Related Records component with the view mode is a standard component that you can add to an Entity view layout. The component lists business entities that are directly related to the business entity that is open in the Entity view. Each related business entity in the component is a link that you can open in an Entity View.

To display related records in an Entity view, ensure that relationships are defined for the business entity model on which you base the Entity 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 that lists business entities related to a person business entity in an Entity view:

![Related Records (View Mode)](image)

Related Records (Edit Mode)

The Related Records component with the edit mode is a custom component that you can add to an Entity view layout. The component lists business entities that are directly related to the business entity that is open in the Entity view. Each related business entity in the component is a link that you can open in an Entity View.

You can use the Related Records component with the edit mode to add, edit, and delete relationships for business entities that appear in the Related Records component. Before you add the Related Records component to an Entity 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 in an Entity view, ensure that relationships are defined for the business entity model on which you base the Entity 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 that lists business entities related to a person business entity in an Entity view:

![Related Records (Edit Mode)](image)
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 Informatica 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 an Entity view. If required, create multiple related records components, one for each type of relationship.
3. If you want to filter the related records by an entity or a relationship type, add filters to the related records component.
4. Design an Entity 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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique name for the relationship.</td>
</tr>
<tr>
<td>Label</td>
<td>Label for the relationship that appears in the Informatica Data Director user interface.</td>
</tr>
<tr>
<td>Description</td>
<td>A meaningful description for the relationship.</td>
</tr>
<tr>
<td>Display name</td>
<td>Name that appears in the Entity layout.</td>
</tr>
<tr>
<td>Bidirectional</td>
<td>Indicates whether the direction of the relationship goes both ways.</td>
</tr>
<tr>
<td>State management enabled</td>
<td>Indicates whether state management is enabled.</td>
</tr>
</tbody>
</table>

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 **field** under the tree node, and click **Create**.
   b. Specify the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the field.</td>
</tr>
<tr>
<td>Label</td>
<td>Display name for the field in the user interface.</td>
</tr>
<tr>
<td>Read only</td>
<td>Indicates whether the field is read only.</td>
</tr>
<tr>
<td>Required</td>
<td>Indicates whether you must specify the field when you create a relationship.</td>
</tr>
<tr>
<td>URI</td>
<td>URI for where your custom data types are defined, if you want to associate a custom data type with the business entity field,</td>
</tr>
<tr>
<td>Type</td>
<td>Name of the custom data type that you define in the URI. Used with the URI property.</td>
</tr>
<tr>
<td>Column</td>
<td>Business entity field.</td>
</tr>
<tr>
<td>Searchable</td>
<td>Indicates whether the field is searchable. <strong>Note:</strong> If you enable the Searchable property, the Searchable Configuration fields appear. For information about the search properties, see the Smart Search chapter.</td>
</tr>
<tr>
<td>Filter</td>
<td>Regulates the data that users can enter in the field. <strong>Note:</strong> If you enable the Filter property, the properties related to filter behavior appear. Specify the filter behavior property and the filtered value.</td>
</tr>
<tr>
<td>Operator</td>
<td>Specify <strong>IN</strong> to ensure that filter values are the only values allowed in the field. Specify <strong>NOT IN</strong> to ensure that filter values are not allowed in the field.</td>
</tr>
<tr>
<td>Value</td>
<td>Filter value.</td>
</tr>
</tbody>
</table>

c. Click **Apply**.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the Related Records component that appears in the Components panel.</td>
</tr>
<tr>
<td>Label</td>
<td>Label of the Related Records component that appears in the component list for the component in the Layout Designer workspace.</td>
</tr>
</tbody>
</table>

   c. Click **Apply**. The Related Records component that you created appears in the Components panel and in the Tree View panel.
   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 Type list, choose one of the following filter types:

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td>Filter based on a relationship type.</td>
</tr>
<tr>
<td>Entity</td>
<td>Filter based on an entity.</td>
</tr>
</tbody>
</table>

If you select the Relationship filter type, the relationship names appear in the Value list. If you select the Entity filter type, the 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 change confirmation dialog box appears that prompts you to confirm the changes.
   b. Review the changes, and click Confirm.
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. Click one of the following buttons:
      - Publish. Saves the changes to the MDM Hub.
      - No. The changes remain in the temporary workspace.

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

Designing an Entity View Layout with Related Records

You can design an Informatica Data Director Entity view in the Layout Designer. Design an Entity view layout to display a business entity with the related records.

**RELATED TOPICS:**

- "Designing an Entity View Layout" on page 94
 CHAPTER 8

Task Configuration

This chapter includes the following topics:

• Task Configuration Overview, 52
• Configuring Task Types, 53
• Configuring Task Templates, 54
• Configuring Workflow Triggers, 55
• Descriptive Task Titles, 57
• Default Task Configuration, 58
• Changing the Approver for Tasks, 60

Task Configuration Overview

You can define which roles initiate tasks upon performing an event in IDD, which roles accept tasks for processing, and what properties tasks have by default.

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

Define who can launch workflows

You configure task triggers so the appropriate ActiveVOS® task workflow is launched after certain events.

Define who can accept tasks

The task type configuration defines which user roles can claim or be assigned ActiveVOS tasks.

Define the default task properties

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.
Configuring Task Types

The task type configuration establishes which roles can claim or be assigned tasks. To configure task types, add the task type for the workflow people activity, and then establish which user roles can be assigned the people activity.

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 Informatica MDM Multidomain Edition Security Guide.

Note: If you configure a role to trigger an unmerge task and configure the same role to process the unmerge task, an error occurs when an unmerge task is triggered, and the task is not processed.

1. Click Business Entity > Tasks.
2. In the Tasks panel, select Task Types, and then click Create.
3. In the name field in the properties panel, enter the name of the ActiveVOS task. 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 .bpe1 file.

The following table describes the task names for the default business entity workflows:

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

4. Optionally, enter a label.
5. Click Apply.
6. In the tree view, expand the task type, select role, and then click Create.
7. In the properties panel, from the Name list, select an MDM Hub role.

Users who belong to the role can be assigned and can perform the people activity associated with the task type.
8. Click Apply.
9. Repeat step 6 to step 8 for additional roles.
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:

<table>
<thead>
<tr>
<th>Type of Parameter</th>
<th>Description</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>sign</td>
<td>Determines if the due date is set to a date after the task is created or before the task is created.</td>
<td>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.</td>
</tr>
<tr>
<td>number</td>
<td>The amount of units to add or subtract from the current date when establishing the due date.</td>
<td>Any integer value.</td>
</tr>
<tr>
<td>unit</td>
<td>The number of days, weeks, or months that the due date is from the date the task is triggered.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>The task status is Open. Default is OPEN.</td>
</tr>
<tr>
<td>CLOSED</td>
<td>The task status is Closed.</td>
</tr>
</tbody>
</table>

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 and configure the same role to process the unmerge task, an error occurs and the task is not processed.

You can configure triggers with the following options:

**You can configure a trigger for more than one event.**

For example, you can configure a trigger so new business entities and updated business entities go through the two step approval review process. You can configure a trigger so new business entities go through the one step approval process, or you can configure a trigger so updated business entity to go through the update with approval process.
You can configure specific task triggers for particular roles.

For example, you can configure a business entity to go through the two step approval process when the entity is updated by a data steward or through the one step approval process when the entity is approved by a senior manager.

You can configure specific task triggers for particular business entities.

For example, you can specify that a new Person business entity goes through a one step approval process and that a new Organization business entity goes through a two step approval process.

You can configure the trigger so tasks are processed without requiring approval.

For example, you can specify that when a user with the role of Manager triggers a merge task, the records are merged without having to pass through a workflow to get approval.

### Configuring Trigger Properties

Configure trigger properties so that task workflows are launched after create, update, or merge events occur.

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. Enable **Start workflow** so that the event trigger launches a task workflow. If you do not enable **Start workflow**, changes are made directly to the data without first going through a review process.
5. Configure the following parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task template</td>
<td>The name of the task template to use when the task is created.</td>
</tr>
<tr>
<td>First task type</td>
<td>The first People Activity in the workflow.</td>
</tr>
<tr>
<td>Task kind</td>
<td>Can be MERGE, UMMERGE, or REVIEW.</td>
</tr>
</tbody>
</table>
   | process         | The name of the ActiveVOS service. Corresponds to the Partner Links Service property in the ActiveVOS PDD file.  
                   | The following table 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. Click **Apply**.
Configuring Events

Associate the event in Informatica Data Director to the task 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:

<table>
<thead>
<tr>
<th>Event name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CreateBE</td>
<td>Occurs when a user creates a record.</td>
</tr>
<tr>
<td>UpdateBE</td>
<td>Occurs when a user updates a record.</td>
</tr>
<tr>
<td>MatchedBE</td>
<td>Occurs when the MDM Hub identifies two records as a match.</td>
</tr>
<tr>
<td>MergeBE</td>
<td>Occurs when a user merges records.</td>
</tr>
<tr>
<td>UnMergeBE</td>
<td>Occurs when a user unmerges records.</td>
</tr>
</tbody>
</table>

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

Configuring Roles for a 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. Repeat step 2 to step 4 for additional roles.

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:

![Task Manager with Available Tasks](image)

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**

<table>
<thead>
<tr>
<th>Task Type</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVOSBeUnMerge</td>
<td>DataSteward</td>
</tr>
<tr>
<td>AVOSBeMerge</td>
<td>DataSteward</td>
</tr>
<tr>
<td>Task Type</td>
<td>Role</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AVOSBeFinalReview</td>
<td>SrManager</td>
</tr>
<tr>
<td>AVOSBeNotification</td>
<td>DataSteward</td>
</tr>
<tr>
<td>AVOSBeUpdate</td>
<td>DataSteward</td>
</tr>
<tr>
<td>AVOSBeReviewNoApprove</td>
<td>Manager</td>
</tr>
</tbody>
</table>

### Trigger configuration

The table describes the default triggers:

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Details</th>
</tr>
</thead>
</table>
| DefaultApproval | event: CreateBE and UpdateBE  
role: Applies to all roles                  |
| Default Merge  | event: MergeBE  
role: Applies to all roles                  |
| Default UnMerge | event: UnMergeBE  
role: Applies to all roles                  |
| Matched        | start workflow process: BeMergeTask  
task kind: MERGE  
task template: MergeTaskGenerator  
first task type: AVOSBeMerge  
event: UnMergeBE  
role: System                  |

### Task template configuration

The table describes the configuration for the default task templates:

<table>
<thead>
<tr>
<th>Task Type</th>
<th>Details</th>
</tr>
</thead>
</table>
| DefaultApproval  | title: Review changes in {taskRecord[0].label}  
priority: Normal  
due date: +7d  
status: Open                  |
| MergeTaskGenerator | title: {taskRecord[0].label} - Merge  
priority: Normal  
due date: +7d  
comment: Merge task autogenerated by Hub.  
status: Open                  |
Changing the Approver for Tasks

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

For example, previously you configured the DataSteward role as the approver of unmerge tasks. You want to change the task configuration so users who belong to the Manager role instead of the DataSteward role approve merge tasks.

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 Unmerge event.
   a. In the Tree View panel, expand the DefaultApproval node.
   b. Select event, and then click Create.
   c. In the properties panel, select UnMergeBE from the Name field, and then click Apply.
5. Associate the Manager role with the trigger.
   a. In the Tree View panel, expand the DefaultApproval node.
   b. Select role, and then click Create.
   c. In the properties panel, select Manager from the Name field, and then click Apply.
6. Optional: Specify the business entities to which the trigger applies.
   a. In the Tree View panel, expand the role node.
   b. Expand the Manager 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 9

Integrating Data as a Service

This chapter includes the following topics:

- Overview, 61
- WSDL File for a DaaS Service, 62
- Transformations, 62
- SOAP Services, 63
- DaaS Providers, 63
- DaaS Providers Component, 64
- Integrating a DaaS Provider, 64

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 entities.

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 entities 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 an Informatica Data Director entity view layout. When you open the entity view for a business entity, 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 *MDM Multidomain 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 entities 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 an Entity view layout.
DaaS Providers Component

The DaaS Providers component is a component that you can add to an Entity view layout. The component lists the DaaS providers that you configure for the business entity that is open in the Entity 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 entities 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 an Entity 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 an Entity 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 an Entity 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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the WSDL file.</td>
</tr>
</tbody>
</table>

5. Click Apply.

The details of the WSDL appear in the tree view.

The following image shows a WSDL file for a DaaS service:

![WSDL File](image)

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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the transformation.</td>
</tr>
<tr>
<td>URI</td>
<td>Identifies the namespace where the SOAP operation is defined.</td>
</tr>
<tr>
<td>Business Entity</td>
<td>Business entity for which you request the service.</td>
</tr>
<tr>
<td>Type</td>
<td>Type in the namespace.</td>
</tr>
<tr>
<td>Target</td>
<td>Request element. Click the Browse button ( ) and select the root element.</td>
</tr>
</tbody>
</table>

5. Click Apply.

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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the transformation.</td>
</tr>
<tr>
<td>Status Output</td>
<td>Name of the cleanse output parameter. Used in cleanse transformations. Not applicable to transformations for DaaS.</td>
</tr>
<tr>
<td>Status Success</td>
<td>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.</td>
</tr>
<tr>
<td>Type</td>
<td>Type of transformation to map data from a business entity field to the XML field. Direct transformations keep the data unchanged.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the transformation.</td>
</tr>
<tr>
<td>URI</td>
<td>Identifies the namespace where the SOAP operation is defined.</td>
</tr>
<tr>
<td>Type</td>
<td>Type in the namespace.</td>
</tr>
<tr>
<td>Business Entity</td>
<td>Business entity you want to transform.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Expose as Service</td>
<td>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.</td>
</tr>
<tr>
<td>Source</td>
<td>Element in the response object. Click the Browse button (…) to search for the element.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the transformation. For example, transformation for root.</td>
</tr>
<tr>
<td>Status output</td>
<td>Name of the cleanse output parameter. Used in cleanse transformations. Not applicable to transformations for DaaS.</td>
</tr>
<tr>
<td>Status success</td>
<td>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.</td>
</tr>
<tr>
<td>Type</td>
<td>Type of transformation to directly map data from a business entity field to the XML. Direct transformations keep the data unchanged.</td>
</tr>
</tbody>
</table>

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 **group** 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 **transformation**, 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:

![Sample Transformation and Mapping of Fields](image)

### 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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the SOAP service.</td>
</tr>
<tr>
<td>WSDL</td>
<td>URL of the WSDL file for the SOAP service.</td>
</tr>
<tr>
<td>SOAP header</td>
<td>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.</td>
</tr>
<tr>
<td>Namespace</td>
<td>Namespace associated with the SOAP service.</td>
</tr>
<tr>
<td>Service name</td>
<td>Name of the service.</td>
</tr>
<tr>
<td>Port name</td>
<td>Port name through which a client application can access the SOAP service.</td>
</tr>
<tr>
<td>Endpoint address</td>
<td>URL or address where a client application can access the SOAP service.</td>
</tr>
</tbody>
</table>
5. Click **Apply**.

The following image shows a sample SOAP service configuration:

![Sample SOAP service configuration](image)

### 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:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the DaaS provider.</td>
</tr>
<tr>
<td>Type</td>
<td>Type of service that the provider uses, whether READ or SEARCH.</td>
</tr>
<tr>
<td>Business entity to XML</td>
<td>Business entity to XML transformation that you want to use.</td>
</tr>
<tr>
<td>XML to business entity</td>
<td>XML to business entity transformation that you want to use.</td>
</tr>
<tr>
<td>SOAP service</td>
<td>SOAP service that you want to use.</td>
</tr>
<tr>
<td>SOAP operation</td>
<td>SOAP operation that you want to perform.</td>
</tr>
<tr>
<td>Business entity</td>
<td>Business entity for which you want to request data from the DaaS provider.</td>
</tr>
<tr>
<td>Score field</td>
<td>Additional information for each row in the search results. You map a field of the incoming XML data to this field.</td>
</tr>
<tr>
<td>Label format</td>
<td>Format that will appear in the search result. Not applicable to DaaS.</td>
</tr>
<tr>
<td>System name</td>
<td>Source system name, such as Sales Force Automation system (SFA).</td>
</tr>
</tbody>
</table>

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 Informatica Data Director Entity 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:

![Sample DaaS Provider Configuration](image)

**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 an Entity View Layout with DaaS

You design an Entity view layout to display a business entity with the DaaS Provider. You can design the Entity view in the Layout Designer and add the DaaS Provider component to it. You can request the DaaS provider for data for the business entity that is open in the Entity view.

**RELATED TOPICS:**

- "Designing an Entity View Layout" on page 94

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.
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 Informatica MDM Multidomain Edition 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:

![WSDL file in Provisioning tool]

RELATED TOPICS:

- "Uploading a WSDL File" on page 64

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:

The following image shows a sample external call configuration:

**RELATED TOPICS:**
- "Registering a SOAP Service" on page 70

**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:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the external call.</td>
</tr>
<tr>
<td>SOAP service</td>
<td>SOAP service that you want to use.</td>
</tr>
<tr>
<td>SOAP operation</td>
<td>SOAP operation that you want to perform.</td>
</tr>
</tbody>
</table>

5. Click Apply.
6. Publish your changes.

The following image shows a sample external call configuration:
Designing the Informatica Data Director User Interface Overview

You can design the Informatica Data Director user interface to add, edit, and manage business entities. To design the user interface, create an application and user interface components, and then assemble the components.

When you design the Informatica Data Director user interface, you design layouts for the Start page and Entity view. If the user interface requirements change, you can update the layouts that you created.

You design the Informatica Data Director user interface layouts in the Provisioning tool. 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 standard and custom components. Create the custom components you want 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 Example

You are an Accounts Manager in an enterprise. You need to track the profile of your customers. You visualize the layout of the Informatica Data Director user interface that you want to use to manage customer profiles.

Before you design a layout, create the user interface components that you want. To design the layout, you select a template in the Layout Designer that matches your needs, drag the components you require, and publish the layout. When you log in to the application, you can find the entity view layout that you created in the views list, and you are ready to manage customer profiles.

User Interface Design Prerequisites

Before you design the Informatica Data 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. Define the business entity models.
5. If you want to use the user interface to manage business entity relationships, create the relationship types that you want to manage.
6. If you want to design the user interface to display a view of a business entity, create business entity views.

Informatica Data Director Application

An Informatica Data Director application is the main configuration and deployment unit for Informatica Data Director. The application is what business users see when they launch and log in to Informatica 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.

When you add, modify, or delete an application, to see the changes in Informatica 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 Informatica Data Director application name.
User Interface Layouts

The Informatica Data Director user interface consists of a Start page, Entity views, and views associated with the Entity views. You can design layouts for the Start pages and Entity views in the Layout Designer.

When you access an Informatica Data Director application, the Start page appears. The Start page can contain overviews and reports. A typical Start page layout consists of a single panel.

You can view the details of a business entity in an Entity view. A typical Entity view layout consists of two panels. An Entity view has associated views such as the Cross-reference, History, Hierarchy, and Match Merge Comparison views. The associated views are standard views that appear in the Informatica Data Director user interface. You do not need to configure the views associated with an Entity view. You use the associated views to manage information related to the business entities.

You can design multiple Start page and Entity view layouts. You can choose to create layouts that are applicable to multiple user roles or applicable to unique user roles. When users log in to Informatica Data Director, layouts that are applicable to their user roles appear in the application.

You can define a layout to appear when a specific task is performed, such as creating a business entity or viewing a business entity. For example, you can create an Entity view layout that appears when you want to create a business entity. You can create another Entity view layout that appears when you want to view and edit a business entity.

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 Informatica Data Director application. If required, you can edit the layouts in the Provisioning tool.

Start Page

A Start page appears when you log in to Informatica Data Director. You can design the Start page to contain the task inbox and external resources such as maps and reports.

When you design a Start page, ensure that you select a suitable template to be able to display the components that you want. For example, to display data reports in the Start page, the template must have a panel or section of a size that can contain the reports.

The following image shows a typical Start page:

![Start Page](image-url)
Entity View

The Entity view displays details of a business entity. You can design an Entity view to create, edit, and view business entities. You can add components to view information related to business entities such as matched records and related tasks.

When you design an Entity view, ensure that you select a suitable template to be able to display the components that you want. For example, to display business entities in the Entity view, the template must have a panel or section that is big enough to display the business entity details.

The following image shows a typical Entity View with business entity details and related information:

![Entity View Image]

Note: If you do not design any layouts for an Entity view, business entities can appear in a default layout without related data components and external resources.

Standard User Interface Components

You can add standard components to the Informatica Data Director user interface layout. Standard components do not require any configuration to appear in the Layout Designer.

The following table describes the standard components that appear in the Layout Designer:

<table>
<thead>
<tr>
<th>Standard Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Entity</td>
<td>Displays a business entity.</td>
</tr>
<tr>
<td>Dashboard Reports View</td>
<td>Displays a Jaspersoft report. Use the component if you are a customer that already has Jaspersoft reports configured for subject areas in Informatica Data Director.</td>
</tr>
<tr>
<td>Matched Records</td>
<td>Displays records that match the business entity.</td>
</tr>
<tr>
<td>Related Records (View Mode)</td>
<td>Displays the records that are related to a business entity.</td>
</tr>
<tr>
<td>Related Tasks</td>
<td>Displays all tasks that are related to the business entity. Only tasks created in the BE-AVOS adapter appear.</td>
</tr>
</tbody>
</table>
### Business Entity

The Business Entity component is a standard component that you can add to an Entity view layout. The component displays a business entity. You can use all the fields of a business entity or include fields that you require. Ensure that you add the component only once, in each Entity view layout.

The Business Entity 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 Business Entity component to show the information you want such as telephone numbers, email IDs, and addresses. If you want to display multiple child entities that contain large amount of information, to help with navigation, enable the business entity menu.

The following image shows a sample Business Entity component that includes a vertical menu:

![Business Entity Example](image)

### Dashboard Reports View

The Dashboard Reports View is a standard component that you can add to a Start page layout. If you use the business intelligence tool Jaspersoft to develop and analyze reports, add the component to the layout. The component displays the reports generated in Jaspersoft.

Use the Dashboard Reports View if you are a customer that already has Jaspersoft reports configured for subject areas in IDD. The component acts as an inline frame for all reports configured in the Informatica Data Director configuration file.

**Note:** If you want to display the Dashboard Reports View in a Start page, use Template 1 to design the Start page.

---

<table>
<thead>
<tr>
<th>Standard Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Systems</td>
<td>Displays the source systems that contributed to the business entity data.</td>
</tr>
<tr>
<td>Task Inbox</td>
<td>Displays the task inbox that contains task notifications.</td>
</tr>
</tbody>
</table>
The following image shows a sample Dashboard Reports View:

![Dashboard Reports View](image)

**Matched Records**

The Matched Records component is a standard component that you can add to an Entity view layout. The component lists the business entities that are potential matches of the business entity that is open in the Entity view. Each matched business entity in the component is a link that you can open in an Entity View.

The following image shows a sample Matched Records component that appears for John E. Smith in an Entity view:

![Matched Records](image)

**Related Records (View Mode)**

The Related Records component with the view mode is a standard component that you can add to an Entity view layout. The component lists business entities that are directly related to the business entity that is open in the Entity view. Each related business entity in the component is a link that you can open in an Entity View.

To display related records in an Entity view, ensure that relationships are defined for the business entity model on which you base the Entity 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 that lists business entities related to a person business entity in an Entity view:

![Related Records](image)
Related Tasks

The Related Tasks component is a standard component that you can add to an Entity view layout. The component lists all the tasks that are related to the business entity that is open in the Entity 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 an Entity view:

![Related Tasks Component](image1)

Source Systems

The Source Systems component is a standard component that you can add to an Entity view layout. The component displays a horizontal bar graph of the source systems that contributed to the business entity data. 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 an Entity view:

![Source Systems Component](image2)
Task Inbox

The Task Inbox component is a standard component that you can add to a Start 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 Start page:

![Sample Task Inbox](image)

Custom User Interface Components

You can add custom components, such as external resources, to the Informatica Data Director user interface layouts. You can configure custom components that you require 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:

<table>
<thead>
<tr>
<th>Custom Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Resources</td>
<td>Displays external resources such as a Twitter feed and web page.</td>
</tr>
<tr>
<td>Related Records (Edit Mode)</td>
<td>Displays the records that are related to a business entity. You can use the component to add, edit, or delete relationships for business entities.</td>
</tr>
<tr>
<td>Similar Records</td>
<td>Displays a component that allows users to search for similar business entities before they create one. Displays business entities that are similar to the business entity that you create.</td>
</tr>
</tbody>
</table>

**Important:** Ensure 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 Resources

The External Resources component is a custom component that you can add to the Start page layouts and the Entity view layouts. 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 business entities. 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 Resources components to a layout, create the components in the Component Editor. When you create the External Resources 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.

**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:

```html
<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:

![Bing Search Page](image-url)
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:

```html
<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 {{displayLabel}}
</a>

<script>
for d,s,idd=document.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';
jsh=document.createElement(s);
jsh.id=id;
jsh.src=p+"/platform.twitter.com/widgets.js";
jsh.parentNode.insertBefore(js,fjs);
(document,"script","twitter-widget");

</script>
</div>

The following image shows the Twitter feed that appears in the Entity view:

![Twitter Feed Image]

For more information about the Twitter API code in the example, see the Twitter documentation regarding embedded timelines.

Related Records (Edit Mode)

The Related Records component with the edit mode is a custom component that you can add to an Entity view layout. The component lists business entities that are directly related to the business entity that is open in the Entity view. Each related business entity in the component is a link that you can open in an Entity View.

You can use the Related Records component with the edit mode to add, edit, and delete relationships for business entities that appear in the Related Records component. Before you add the Related Records component to an Entity 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 in an Entity view, ensure that relationships are defined for the business entity model on which you base the Entity 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 that lists business entities related to a person business entity in an Entity view:

![Related Records Component](image)

**Similar Records**

The Similar Records component is a custom component that you can add to an Entity view layout that is used to create business entities. The component lists business entities that are similar to the business entity that you create in an Entity view.

Each business entity in the component is a link and has an information icon. You can preview and open each business entities in an Entity View. To ensure that the business entity that you create is not a duplicate, review the similar business entities that appear in the component.

To display similar business entities in an Entity view, ensure that smart search is configured in the MDM Hub environment. Before you add the Similar Records component to an Entity view layout, create the component in the Component Editor. Ensure that you base the search for similar records on field names in the business entity model that are configured as searchable. After you create the component, the component appears in the Layout Designer. For more information about configuring smart search, see the [Informatica MDM Multidomain Edition Configuration Guide](#).

**Similar Records Component Configuration Example**

You want to configure the Similar Records component and want to base the search for similar business entities on the first name and last name fields.

You use the following code, which includes the first name and last name fields, to configure the Similar Records component:

```xml
<config>
  <searchableFields>
    <field name="firstName"/>
    <field name="lastName"/>
  </searchableFields>
  <label existsFormat="[1] [2] [3]"
    <column columnUid="firstName" />
    <column columnUid="middleName"/>
    <column columnUid="lastName" />
  </label>
</config>
```

**Note:** In the example, the first name and last name fields are configured as searchable fields in the business entity model. You configure the business entity model in the Modeling page.
The following image shows the Similar Records component, which contains three business entities that are similar to the business entity, John Smith, that is created:

<table>
<thead>
<tr>
<th>Similar Business Entities (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOHN ANDREW SMITH</td>
</tr>
<tr>
<td>JOHN ANDY SMITH</td>
</tr>
<tr>
<td>JOHN SANDERS SMITH</td>
</tr>
</tbody>
</table>

How to Design and Update Layouts

Design and update layouts for the Informatica Data Director Start page and Entity view.

Perform the following tasks to design and update layouts:

1. If you do not have an existing Informatica Data Director application, create an application.
2. If you need custom components to display data related to business entities, create the custom components.
3. Design a layout, add components to the layout, and then publish the changes.
4. If the layout needs further changes to meet requirements, you can update the layout and publish the changes.

Creating an Informatica Data Director Application

The Informatica Data Director user interface layout that you want to design must be associated with an Informatica Data Director application. To create an Informatica 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 UI Configuration > Application Editor.
   The Application Editor appears.
3. Click Create.
4. In the Properties panel, specify the following application properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the application that appears in the Applications panel.</td>
</tr>
<tr>
<td>Display Name</td>
<td>Name of the application that appears in Informatica Data Director.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Source System</td>
<td>Source system with which you want to associate the application.</td>
</tr>
<tr>
<td>Session timeout (minutes)</td>
<td>Time in minutes to wait before an idle Informatica Data Director session can time out.</td>
</tr>
</tbody>
</table>

5. Optionally, to configure the business entities within the application, in the *Tree view* panel, click the *beConfiguration* node.
   a. To create a configuration for a business entity within the application, click *Create*.
   b. In the *Properties* panel, select the business entity you want to configure and specify the following business entity properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible</td>
<td>Specifies whether the business entity is visible from the Create menu when users create records through the Entity 360 framework.</td>
</tr>
</tbody>
</table>

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

7. Publish the changes to the MDM Hub.
   a. Click *Publish*.
      A change confirmation dialog box appears that prompts you to confirm the changes.
   b. Review the changes, and click *Confirm*.
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. Click one of the following buttons:
      - *Publish*. Saves the changes to the MDM Hub.
      - *No*. The changes remain in the temporary workspace.

### 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 *UI 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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the Related Records component that appears in the Components panel.</td>
</tr>
<tr>
<td>Label</td>
<td>Label of the Related Records component that appears in the component list for the component in the Layout Designer workspace.</td>
</tr>
</tbody>
</table>

c. Click Apply.

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

   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 Type list, choose one of the following filter types:

      | Filter Type | Description             |
      |-------------|-------------------------|
      | Relationship| Filter based on a relationship type. |
      | Entity      | Filter based on an entity. |

      If you select the Relationship filter type, the relationship names appear in the Value list. If you select the Entity filter type, the 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 change confirmation dialog box appears that prompts you to confirm the changes.

   b. Review the changes, and click Confirm.

      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.

   c. Click one of the following buttons:

      - Publish. Saves the changes to the MDM Hub.
      - No. The changes remain in the temporary workspace.

      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 **UI 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:
   ```xml
   <config>
   <searchableFields>
   <field name="<field name 1/>
   <field name="<field name 2>">
   ....
   <field name="<field name n>"></searchableFields>
   </config>
   <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 change confirmation dialog box appears that prompts you to confirm the changes.
   b. Review the changes, and click **Confirm**.
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. Click one of the following buttons:
      - **Publish**. Saves the changes to the MDM Hub.
      - **No**. The changes remain in the temporary workspace.

Creating the External Resources Component

Create the External Resources components in the Component Editor. After you create the External Resources components, the components appear in the Layout Designer.

1. In the Provisioning tool, click **UI Configuration > Component Editor**.
   The **Component Editor** appears.
2. From the Component type list, select **External Resources**, and click **Create**.
The property fields appear in the Properties panel.

3. Specify the following component properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the External Resources component that appears in the Components panel.</td>
</tr>
<tr>
<td>Code</td>
<td>Code to display the external resource. You can use an inline frame to embed an external web page, or use HTML code and Javascript. <strong>Note:</strong> 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.</td>
</tr>
</tbody>
</table>

4. Click Apply.

   The External Resources 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 change confirmation dialog box appears that prompts you to confirm the changes.
   b. Review the changes, and click Confirm.
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. Click one of the following buttons:
      - Publish. Saves the changes to the MDM Hub.
      - No. The changes remain in the temporary workspace.

### Designing a Start Page Layout

You can design a Start page for Informatica Data Director in the Layout Designer. For example, you design the Start page layout to display task notifications and data reports.

1. In the Provisioning tool, click UI Configuration > Layout Designer.
   The Layout Designer appears.
2. Click Create > Start Page.
   The Define Layout Properties page appears.
3. To define and identify the layout that you want to design, specify the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout name</td>
<td>Label for the layout that you design. After you design and publish the layout, the label appears in the layout list in the Layout Designer.</td>
</tr>
<tr>
<td>Unique label</td>
<td>Label used for generating a system ID.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Optional. A meaningful description to identify the layout.</td>
</tr>
<tr>
<td>List option name</td>
<td>Label for the option that you want in the Informatica Data Director views list.</td>
</tr>
</tbody>
</table>

4. Click Next.
   The Define Purpose page appears.

5. Select the user roles that can access the layout.
   The user roles that appear on the Define Purpose page are configured in the MDM Hub environment.

6. Click Next.
   The Select a Template page appears.
   The following image shows the Select a Template page:

   ![Select a Template page]

7. Select a template that is suitable to display the components you want in the Start page, and click Next.
   The Design page appears.

8. Drag the components that you want in the Start page layout into the workspace.
   For example, drag the Task Inbox and the Dashboard Reports View components into the workspace.
The following image shows the Design page with the Task Inbox and the Dashboard Reports View components in the workspace:

9. Click Save.
   The Start page that you designed appears under the Start page layout category.
10. Publish the changes to the MDM Hub.
    a. Click Publish.
       A change confirmation dialog box appears that prompts you to confirm the changes.
    b. Review the changes, and click Confirm.
       A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
    c. Click one of the following buttons:
       • Publish. Saves the changes to the MDM Hub.
       • No. The changes remain in the temporary workspace.

Designing an Entity View Layout

You can design an Informatica Data Director Entity view in the Layout Designer. For example, you design an Entity view layout to display a business entity, the related records, and an address map.

1. In the Provisioning tool, click UI Configuration > Layout Designer.
   The Layout Designer appears.
2. Click Create > Entity View.
   The Define Layout Properties page appears.
3. Define properties for the layout that you want to design.
   a. Specify the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout name</td>
<td>Label for the layout that you design. After you design and publish the layout, the label appears in the layout list in the Layout Designer.</td>
</tr>
<tr>
<td>Unique label</td>
<td>Label used for generating a system ID.</td>
</tr>
<tr>
<td>Description</td>
<td>Optional. A meaningful description to identify the layout.</td>
</tr>
<tr>
<td>List option name</td>
<td>Label for the option that you want in the Informatica Data Director views list.</td>
</tr>
<tr>
<td>List option icon</td>
<td>Icon for the list option that appears in the views list.</td>
</tr>
<tr>
<td>List order</td>
<td>Order of Entity view in the views list.</td>
</tr>
</tbody>
</table>

   b. Choose a type of business entity or business entity view for which you want to design the layout. For example, choose Person.

   The following image shows the Define Layout Properties page with the properties specified:

   ![Layout Designer](image)

4. Click Next.
   The Define Purpose page appears.

5. Specify the purpose of the layout that you want to design.
   a. Select the user roles that can access the layout.

   The user roles that appear on the Define Purpose page are configured in the MDM Hub environment.
b. Select one of the following tasks for which you want to use the layout.
   - Create entities
   - Edit entities
   - Create and edit entities

6. Click Next.

   The Select a Template page appears.
   The following image shows the Select a Template page:

The following image shows the Select a Template page:

7. Select a template that is suitable to display the components you want in the Entity view, and click Next.
   The Design page appears.

8. Drag the components that you want in the Entity view into the workspace.
   a. Drag the Business Entity component into the workspace.
      Drag only one instance of the Business Entity component into the workspace.
   b. If you want to view information related to business entities in the Entity view, drag related data components and external resources that you need into the workspace.

For example, drag the Business Entity, Related Records, and the Address Map components into the workspace.
   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 an Entity 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 entities that you want to display in an Entity 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:

![Data Component Designer](image)

1. If you want selected fields of the child entities to appear in the Entity view, click the **Configure** icon next to the child entity.

   The **Data Component Designer** appears where you can design the child entity.

2. Click **Done**.

   The **Design** page appears.

3. **Click Save**.

   The changes are saved to the temporary workspace.

4. **Publish the changes to the MDM Hub**.
   a. **Click Publish**.
      
      A change confirmation dialog box appears that prompts you to confirm the changes.
   b. **Review the changes, and click Confirm**.
      
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. **Click one of the following buttons**:
      
      - **Publish**. Saves the changes to the MDM Hub.
      - **No**. The changes remain in the temporary workspace.

   The Entity view that you designed appears in the layout category, under the Person business entity type.

**Updating a Start Page Layout**

You can update a Start page for Informatica Data Director in the Layout Designer. For example, you can update the Start page layout to display additional components.

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 Start Page layout category, and select the Start page layout that you want to update**.

3. **Click Edit**.
The Design page appears.

4. Drag the components that you want in the Start page into the workspace.
   For example, drag the Task Inbox and the Dashboard Reports View components into the workspace.

5. If you want to add a component to the Start page layout, drag the component into the workspace.

6. If you want to remove a component from the Start 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 change confirmation dialog box appears that prompts you to confirm the changes.
   b. Review the changes, and click Confirm.
      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.
   c. Click one of the following buttons:
      • Publish. Saves the changes to the MDM Hub.
      • No. The changes remain in the temporary workspace.

Updating an Entity View Layout

You can update an Informatica Data Director Entity view in the Layout Designer. For example, you can update an Entity view layout to display additional related data components or remove a component that you do not require.

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 layout category related to the Entity view layout, and select the Entity view layout.

3. Click Edit.
   The Design page appears.

4. If you want to add or remove fields in the data component of the Entity view layout, 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 Entity 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 Entity 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 Entity 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 Entity 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 Entity 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 Entity view layout, drag the component into the workspace.

6. If you want to remove a component from the Entity 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 change confirmation dialog box appears that prompts you to confirm the changes.

   b. Review the changes, and click Confirm.

      A validation process runs on the application. A confirmation dialog box appears that prompts you to publish the changes.

   c. Click one of the following buttons:

      • Publish. Saves the changes to the MDM Hub.
      • No. The changes remain in the temporary workspace.
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 Informatica 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.
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