**Summary**

Many companies want to manage custom objects in a central Master data system to be able to harmonize this information across the landscape. Custom objects can be individual defined objects such as assets or locations. Custom objects are typically less complex master data object with a small and simple data model. They are often used as reference data in major objects such as material, suppliers and customers.

This How-To Guide describes the necessary steps to implement a custom object in SAP MDG. The guide is based on an object called “Location” and includes the following steps during the implementation phase:

- Create a new Data Model
- Define a new Business Object and Activity
- Create a custom User Interface
- Process Modeling
- Test of the custom object

The audience of this document can be customers, technology consultants and architects.

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**Author Bio**

Steffen Ulmer is a SAP Principal Consultant who works at SAP (Schweiz) AG. In this role he has been a trusted advisor for several large enterprises on topics and product like: SAP NetWeaver Master Data Management, SAP BPM/BRM, SAP Business Object Information Steward, Web Dynpro Java development and SAP NetWeaver Portal. Presently he is working within the SAP MDG Product Management Team on a study for cross system workflow monitoring and visualization.
Table of Contents

Introduction .......................................................................................................................... 3
Prerequisites ........................................................................................................................ 3
Scenario ................................................................................................................................ 3
  High Level Requirements ................................................................................................. 4
  Data Model ......................................................................................................................... 4
  Governance process ........................................................................................................... 4
Implementation .................................................................................................................... 4
  Definition of the Data Model, Business Object and Business Activity ............................... 5
    Create new data model ..................................................................................................... 5
    Define Business Object .................................................................................................. 7
    Create Business Activity ................................................................................................. 8
    Create User Interface ...................................................................................................... 9
  Definition of Change Request Type & Workflow assignment .............................................. 16
Run and Test the MDG Custom Object ............................................................................. 19
Additional Information ....................................................................................................... 21
  View generated Data Model ............................................................................................. 21
  Display data in staging table ............................................................................................. 22
  Delete a Data Model ......................................................................................................... 22
Appendix ............................................................................................................................... 23
  Create a new data model in View Cluster of MDGIMG ..................................................... 23
Related Content .................................................................................................................. 24
Copyright ............................................................................................................................. 25
Introduction

SAP Master Data Governance is a Master Data Management solution within the Business Suite and is integrated into the ABAP Application Server of SAP. I already wrote several articles and How-To Guides in the SAP NetWeaver MDM space on the topics "Governance Process in MDM" or "How To configure customer specific data model and corresponding processes". You can see a list of these articles and blogs in my SDN profile.

I really think that lots of you will have similar requirements in a MDG based environments and lots of you want to develop custom objects and processes which are not (and cannot be) delivered within the standard content.

This document will describe how to develop a custom object in SAP MDG. It will show you in some very basic steps what you have to do to

- Get your own data model into the system,
- Configure your own User Interface with the FPM (Floor Plan Manager),
- Reuse a preconfigured Business Workflow within your own Change Request Type and finally
- How to test your new custom object.

It’s planned to release more of these MDG How-To guides and this article can be seen as the starting point or basic documentation. In following documents topics like “Configure individual UIs per workflow steps” and “Build a custom Search & Display UI” will be explained on top of the process which is developed in this guide.

Prerequisites

For this How-To Guide you should have access to a Sandbox of your MDG Hub Application Server with appropriate access rights. You need access to the MDG-Hub client and to the client in which you do the cross system configurations.

The ERP System must run on EhP (Enhancement Package) 6.

You need some basic understanding in:

- SAP MDG
- SAP Business Workflow
- SAP Floorplan Manager (FPM)

Scenario

Let’s assume that you have already successfully implemented the SAP MDG standard objects such as Material, Suppliers, Financials and Customers. You are replicating this data to several ERP and None ERP System for the usage within transactional matters.

Your business department is generally happy with the solution but they have an issue with some of the reference data. Reference data is information which is used within master data objects itself or in transactions or programs as supporting information. In SAP NetWeaver MDM such data is typically stored in lookup tables. An example of such reference data is

- the list of plants which is used to assign a material or products to a physical facility, or
- the list of countries which is used within many transactions and referenced in many data models.

Your business users identified that these lists of valid reference data is not harmonized within the landscape. This gap causes issues regarding data quality which ends up in inefficient business processes. A concrete example is the information object “location” which is a valid list of geographical places where the company can have plants, unloading points or just generally assets.
High Level Requirements

The business requests the following:

1. A central system in which the valid list of values for locations is managed,
2. A governance process to be able to carefully add or change location objects and
3. A web based application to enter and govern the data in a User Interface.

Data Model

The data model of the object location includes:

- Unique ID
- Name of the location
- Country
- City
- ZIP Code
- Street (incl. House Number)
- Description

The Unique ID and the Name are mandatory fields and must be entered.

Governance process

The governance process is as well simple and includes only a 3-Step approval. The following graphic explains the governance process on high level:

Implementation

This implementation process consists of the following main points:

1. Definition of the Data Model, Business Object and Business Activity
2. Creation of the User Interface
3. Definition of Change Request Type & Workflow assignment

Data Modeling in MDG is fundamentally different to what you might know from SAP NetWeaver MDM because MDG is built with ABAP technology and hence you can reuse all the data structures which are already defined in your Data Dictionary. Of course you can also define new elements in case you need to do so.

If you want to compare a MDG Data Model with a NetWeaver MDM Model, you can say that:

- A MDG Data Model is like a repository in NW MDM.
  Please notice that in MDG a Data Model is more like a namespace and you can create as much Entities as you want within one data model. For instance you can create one data model which includes more than 20 Entity Type of Type 1 or others. You do not have to create multiple data models.
- A MDG Entity Type is like a table in NW MDM
  o SU Type 1 is like a Main table
SU Types 4 are dependent Entities on Type 1 as you might know it from a UML composition. You can only maintain data in the context of a type 1 entity.

- Relationships are really relationships between database tables.

MDG Entity Type Attributes are like fields of a table in NW MDM.

Most of the settings in this guide are done in the MDGIMG transaction which is the central entry point for the configurations in MDG.

### Definition of the Data Model, Business Object and Business Activity

This guide is showing EhP6 functionality. It uses the newly introduced Configuration Workbench. You can do the same configurations in the “View Cluster” which is accessible through the MDGIMG transaction. If you use the View Cluster you can do the same in a EhP5 environment.

### Create new data model

<table>
<thead>
<tr>
<th></th>
<th>Start SAP GUI and login into <strong>cross system</strong> client</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Start transaction <strong>MDGIMG</strong></td>
</tr>
<tr>
<td>3</td>
<td>Start Configuration Workbench</td>
</tr>
<tr>
<td></td>
<td><strong>Attention:</strong> In EhP5 no Configuration Workbench is available. You should use the View Cluster functionality in Data Modeling to do the data modeling.</td>
</tr>
<tr>
<td>4</td>
<td>Click on ![New](Configuration Workbench) to create a new data model</td>
</tr>
</tbody>
</table>

* Please check the appendix Create a new data model in View Cluster of MDGIMG. If you want to create a new data model in the View Cluster
5. Enter Data Model and Description. Choose a data model of the customer namespace (e.g. ZK). Please remember this code since it will be used almost all the time within this guide.

   Leave the Reuse Active Area empty.

   Click on Save.

6. If not already done: Go to Edit Mode.

7. In this example we will only model one Entity Type.

   Click on NEW and enter the 3 values:
   - Entity Type
   - SU Type
   - Data Element

   SU Type 1 is for this main object type.

   The Data Element ORTID is an element which already exists in the Data Dictionary and which fits well to the requirements. (se11)

   Data Element on this level should be maintained and is the KEY field of this table.


   Click on Tab Attributes and use the New button to create the attributes. The attribute Data Element type can be checked in Data Dictionary.

9. Save and activate Data Model.
### Define Business Object

This step is still in the cross system client.

1. **Start “Define Business Objects”**

   ![Display IMG](image)

   - General Settings
     - General Settings for Financials
     - General Settings for Material
     - General Settings for Business Partner
     - Technical Settings for Master Data
     - Data Modeling
     - UI Modeling
     - Data Quality and Search
     - Process Modeling
     - Data Replication
     - Define Parameters
     - Define Filter Objects
     - Define Business Objects and Object Identifiers
     - Assign Filter Objects to Business Objects

2. **New Entries & Enter the Name for your Business Object ZK_BO1**

   ![New Entries: Overview of Added Entries](image)

<table>
<thead>
<tr>
<th>BO Type</th>
<th>Description</th>
<th>Constant Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZK_BO1</td>
<td>Location Business Object for Data Model ZK</td>
<td>ZK_BO1_LOCATION</td>
</tr>
</tbody>
</table>

3. **Save**
Create Business Activity

This step is still in the cross system client.

1. Start Create Business Activity

![Display IMG]

- General Settings for Financials
- General Settings for Material
- General Settings for Business Partner
- Technical Settings for Master Data
- Data Modeling
- UI Modeling
- Data Quality and Search
- Process Modeling

- Create Edition Type
- Business Activities
- Define Logical Actions
- Define Available UI Applications
- Create Business Activities

2. New Entries & Enter the Name for your Business Activity

![New Entries: Overview of Added Entries]

3. Save
Create User Interface

This step is still in the cross system client.

In this step you will create a User Interface for the newly created Data Model. No coding is necessary for this step. You will use the SAP Floorplan Manager to configure a Web Dynpro ABAP UI on top of your Data Model. This basic How-To Guide will only cover the configuration of a simple UI.

1. Start **Edit UI Configuration** from the MDGIMG.
   The application will open in an Internet Browser Window.

2. Click on **Create** to start the configuration
   An additional pop up will appear

3. Change **Target Configuration ID**:
   Change Target Configuration ID to a custom name as described on the screenshot

4. Click on **Start Deep-Copy** button

5. Save as **local object**
   In this How-To guide the object is saved as a local object.
   The System will now copy the template as the new application
6. After success: Open the configuration screen for the outer application by clicking on the link in the column **Target Configuration ID**
   A pop up will appear

7. Switch to Edit Mode and Enter USMD Model: Click on Edit and then do the following changes:
   - Enter the USMD Model
   - Inspect the other setting while leaving them on the default setting

8. Click on **Save** on the upper left hand side

9. Open the OIF Component
10. The system will display a screen like the following one.

11. Click on the left hand side: Navigation → New → Variant.

12. Delete old variants:
   The wizard has created 2 variants by default: You should delete these two variants.

13. Confirm the deletion.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>Open UIBB</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Component Configuration Screen" /></td>
</tr>
<tr>
<td>15.</td>
<td>Enter a name for the Component like ZK_Config_01. The system will inform you that this component does not yet exist. <strong>Attention:</strong> In EHP5 you must not use the component FPM_FORM_UIBB_GL2. You should use FPM_FORM_UIBB instead.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Standard Attributes Screen" /></td>
</tr>
<tr>
<td>16.</td>
<td>Delete old UBB</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Object Instance Schema Screen" /></td>
</tr>
<tr>
<td>17.</td>
<td>Select a Form Component</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Object Instance Schema Screen" /></td>
</tr>
</tbody>
</table>
18. Save
The error message is expected. You will create the configuration in the next steps.

19. Configure UBB

20. In popup click on new

21. Enter a description and add to LOCAL OBJECT
   Click on OK on pop up

22. Enable Attribute viewing
23. Scroll down and add an Element Group

24. Enter a name/heading for the group and add elements at Next Level within group

25. Select the attributes you want to see of Location
26. Configure the UI Element as you want using Floor Plan Manager

27. SAVE & Back to IDR

28. Save
**Definition of Change Request Type & Workflow assignment**

This step is client specific: Please login into the corresponding MDG-Hub client.

In this step you will do the process modeling for the new custom object. This How-To Guide uses a pre-defined workflow definition which is shipped with the MDG application itself.

The workflow WS75700040 has the following setup. (High Level diagram)

![High Level diagram of workflow](image)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Start MDGIMG and Create Change Request Type</td>
</tr>
<tr>
<td>2.</td>
<td>Add new Entry &amp; Enter Details as mentioned</td>
</tr>
<tr>
<td>3.</td>
<td>Create Entity Types</td>
</tr>
</tbody>
</table>

- Select the new entry and double click on Entity Types
- Enter the value LOCATION
- Enter the value LOCATION

Type of Change Request: ZCRSK_01

<table>
<thead>
<tr>
<th>Entity Types</th>
<th>Scenario</th>
<th>Configuration Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION</td>
<td>ZK_APPL</td>
<td></td>
</tr>
</tbody>
</table>
ZO_SU_APPL as the Configuration Name
- Leave STANDARD as the Message Output

4. Enter Business Activity
   - Double click the Business Activities
   Enter ZKBA from the previous step

5. Save, you will get the following warning
6. Assign Processor to workflow: In this step you assign a single user to the workflow steps. You may enter your user to all the steps.

Start the following view: Assign Processor to Change request Step (Simple Workflow)

7. Add a new entry:
Select button:
New Entries

You will enter your userId in the field Agent ID. You can also add organizations.

8. Save
### Run and Test the MDG Custom Object

1. **Add a new Favorites entries to your SAP GUI:**

   ![Favorites Adding](image1)

2. **Choose Web Dynpro Application**

   ![Web Dynpro Application](image2)

3. **Enter the values as shown**

   ![Entry Values](image3)

4. **Double Click on Item: The Application will be shown in a popup**

   ![Application Popup](image4)
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Choose Entity type and enter a new UniqueId for your location. Choose the only CR-Type. Click on Continue.</td>
</tr>
<tr>
<td>6.</td>
<td>Enter some example data in the next form. You can add Notes and attachments as well.</td>
</tr>
<tr>
<td>7.</td>
<td>Open “Show My Change Request” and select the newly received task. Continue with the approval.</td>
</tr>
</tbody>
</table>
### Additional Information

**View generated Data Model**

1. **View generated tables:**
   - Execute Report USMD_DATA_MODEL in se80
   - Enter Data Model

![Image of Data Model](image)

2. The generated tables are displayed.

![Image of generated tables](image)

3. 

---

**View generated tables:**

- Execute Report USMD_DATA_MODEL in se80
- Enter Data Model

![Image of Data Model](image)

2. The generated tables are displayed.

![Image of generated tables](image)

3. 

---
**Display data in staging table**

1. Just double click on the Physical Name and you will get forwarded to the content.


   ![Data Browser: Initial Screen](image)
   
   Table Name: `/1MD/MD___1EX`

3. Execute.

   ![Data Browser: Table /1MD/MD___1EX](image)

4. Inspect the result.

   ![Data Browser: Table /1MD/MD___1EX Select Entries](image)

---

**Delete a Data Model**

If you want to delete a Data model (and all dependent objects) you might do the following:

1. Act in the cross system client MDGIMG → General Settings → Data Modeling → Edit Data Model
2. Select the corresponding data model and delete the line. If this is not possible because of a active version:
3. Open SE80 and run USMD_DELETE_DATA_MODEL. This will delete the active version and all dependent objects (except UI Configurations)
4. Repeat Step3
5. Important: You must SAVE and EXIT the MDG IMG
## Appendix

### Create a new data model in View Cluster of MDGIMG

1. **Start function Edit Data Model**
   
   ![Display IMG](image1)

   - **General Settings**
     - General Settings for Financials
     - General Settings for Material
     - General Settings for Business Partner
   - **Technical Settings for Master Data**
     - Define Entity Type to Be Used by Business Object Type
     - Define Prefixes for Internal Key Assignment
     - Define Authorization Relevance per Entity Type
     - Generate Data Model Specific Structures
   - **Data Modeling**

2. **Click on New Entries and create a new Data Model by entering a new Code and Description. Use for instance ZK**

   ![New Entries: Overview of Added Entries](image2)

3. **Save your data and go one level up in the navigation**

   ![Save data and navigate](image3)
Related Content

Guide on SDN: How to Configure Data Replication for MDG Custom Objects (Flex Option)

Master Data Management homepage