Customizing Synchronization between MDG and ERP - Overview

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**Document History**

<table>
<thead>
<tr>
<th>Document Version</th>
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<tr>
<td>1.00</td>
<td>First official release of this guide – April 2013</td>
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<td>1.01</td>
<td>Update of applicable releases information and update of Object List – February 2013.</td>
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### Typographic Conventions

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<td>Example Text</td>
<td>Emphasized words or phrases in body text, graphic titles, and table titles</td>
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<td>File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.</td>
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<td>User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.</td>
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<td>Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.</td>
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### Icons

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1. Introduction

In most cases SAP customers implementing SAP Master Data Governance (SAP MDG) need to think about the synchronization of customizing across at least two systems in order to keep consistent business processes that span multiple systems. This in particular is true if the SAP customer follows the SAP MDG Hub approach (MDG deployed on a different system than the operational ERP system). The intention of this document is to support SAP MDG implementation projects with general guidelines, templates and links to documentation that can be a basis for the synchronization process – including lists of customizing objects that might be affected.

In most cases a customizing synchronization between SAP MDG and one or more SAP ERP systems is necessary, but there might be other systems as well. This is not an uncommon situation as many customers already are using two or more SAP ERP systems that need consistent customizing in order to execute processes that span multiple systems. Depending on the use case a different set of customizing needs to be synchronized and there might be several systems acting as the source for this data. This will be discussed in the next section: General Considerations.

Following the general considerations the synchronization process needs to be defined including the tools that are useful to support such a process. See section Initial and Ongoing Synchronization for some deeper discussion about these topics.

After all of this, the most time consuming task is probably to identify the relevant customizing objects. The last section covers available documentation from SAP as well as detailed lists which can be used as templates when deriving the project specific object lists. See section Object Lists.

For a high-level overview of synchronization considerations, see the following presentation.
2. General Considerations

Synchronizing customizing data means identifying the relevant data, determining where to maintain it and deciding how the synchronization process is managed. The following section provides some general guidelines with regard to these topics.

Customizing data is data configured in the Implementation Guide (IMG) of the development system and imported into test and productive systems through the transport management system. It includes for example organizational units (e.g. company code, division, plants), units of measurement and many others. It should be identical in certain areas before data can be exchanged between connected systems. For non-identical customizing, value mapping in the data replication process can be used to overcome this restriction but should be minimized if possible.

In most scenarios the customizing data will be maintained on the ERP system and will be distributed to other systems (like MDG). This ensures that the customizing is maintained close to the business processes and avoids release dependencies as the ERP system will usually be on a lower release level. Synchronization of customizing generally is done between the development systems and is separately transported (in a controlled fashion) in the ERP and in the MDG landscape.

For more detailed considerations it is helpful to think about different clusters of SAP customizing data. Some customizing data is “generic” and not closely bound to customer specific processes. Examples for these are codes that follow a common definition from standardization organizations (e.g. language, country, currency codes or units of measurement). This type of customizing data (often called “reference data”) is probably best suited to be maintained on a central system like an MDG system. There are many others that might be classified to be maintained on the MDG system but also others that fall into a grey area in between “generic” and “customer specific” customizing. For a list of some very common reference data objects see section: Object Lists. Depending on the industry and other dimensions a specific group of customers would define some customizing objects as “clearly customer specific” and other customers would identify them as “generic”. There is no complete list that can be used - there is always an individual point of view.

Besides “reference data”, which might be best suited to be managed on the MDG system other types of customizing objects need to be taken into consideration. Some of them are connected to master data (probably best managed on the MDG system) and some are closer connected to transactional data (probably best managed on the ERP system). And there is the last type which is MDG specific and needs to be maintained on the MDG system (e.g. Change Request specific customizing).

Apart from the question regarding where it should be maintained, there are other dimensions to be taken into consideration in order to define the best synchronization process. For example the maintenance effort would be minimal if everything would “just be maintained on the ERP system and sent to MDG”. This could include customizing data that might not even be used on the MDG system as it is not used for the master data maintenance process at all. The cleaner approach which only synchronizes data that is needed on the MDG system leads to more effort. Having some data maintained in ERP and some in MDG also leads to more effort.

Some more effort has to be expected if the systems to be synchronized are not on the same release (because in general it cannot be assumed that SAP Customizing does not change – although it rarely does). There are also differences between the systems if they are built following different data models (like SAP ERP and SAP CRM which is using e.g. the CRM Business Partner data model instead of the ERP Customer and ERP Vendor data models). Here (and in general) the SAP Solution Manager can help with the definition of synchronization groups. Apart from the SAP Solution Manager there are other tools that might help to automate the process if needed.
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It also has to be decided how to execute customizing changes from a timing perspective. An example of how a synchronization process could look is shown below (here: including the Solution Manager). More details will be discussed in the next section: **Initial and Ongoing Synchronization**.

Example: all customizing managed on the ERP system supported by the SAP Solution Manager
3. Initial and Ongoing Synchronization

The customizing synchronization has to be done initially and on an ongoing basis. For both processes ideally the relevant customizing objects have to be identified and distributed.

3.1 Initial Synchronization

The Transport Management System (TMS) and Business Configuration Sets (BC Sets) are the technical foundation for the distribution of customizing. They can be used for the initial synchronization when the MDG system has been installed and the object lists (see section: Object Lists) have been identified.

In this process the TMS might issue warnings informing the user about different releases of source and target system. This is because the TMS in general cannot assume that the customizing table structure has not changed – although it rarely does. BC Sets help to overcome release dependencies by providing export, import and activation functionality for customizing data. They are used in other scenarios (e.g. when a preconfigured SAP system should be set up or when SAP Rapid Deployment Solutions (RDS) including customizing data are delivered) and are therefore future proven.

Because MDG is based on ECC (technical basis of ERP), there are at least four MDG installation options that can be considered:

a. Install ECC -> Initial synchronization from operational ERP -> Upgrade ECC -> Install MDG
b. Install MDG (based on ECC) -> Initial synchronization from operational ERP
c. Install ECC -> Client copy (w/o data) -> Cleanse customizing -> Upgrade ECC -> Install MDG
d. Copy ERP system -> Cleanse customizing and data -> Upgrade ECC -> Install MDG

Options a and b cover an “explicit synchronization” (using TMS or BC Sets) whereas options c and d achieve an “implicit synchronization”.

The recommended approach of an explicit synchronization and a minimal but complete object list guarantees that only relevant customizing will be used in MDG. Based on this a clean and complete ongoing customizing synchronization process can be defined. Only if this approach is not feasible an implicit synchronization could be considered which guarantees that all relevant customizing is synchronized even without a complete object list. Bear in mind that this approach leads to a higher risk as it might not be possible to cleanse the system. In the ongoing synchronization process only customizing included in the objects list will be refreshed from the operational ERP system and other customizing data might become outdated.

Notes:

- Installation of ECC has to be on the same release as the operational ERP
- Installation of MDG means either installation or activation dependent on the release
3.2 Ongoing Synchronization

Defining how to synchronize the customizing on an ongoing basis is a more difficult topic spanning options that are purely manual to options that are highly automated. Automation with the tools described below takes place on different levels:

- Capturing the relevant customizing data that changed since the last synchronization
- Organizing the distribution (from a technical and an organizational point of view)

From a technical point TMS or the BC Sets should be used (just as for the initial synchronization). Therefore the remaining part of this section mostly covers the options that do have an influence on the organizational processes. These options are based on feedback from MDG implementation projects ranging from “very manual” to “almost completely automated” processes.

3.2.1 Manual or Semi-Automatic Synchronization

Not using the options mentioned further below – especially ALE Customizing Distribution and SAP Solution Manager - or any other homegrown or 3rd party tool means organizing the synchronization process manually. This means that (manual) workflows have to be defined, emailing chains and forms have to be set up and processes have to be established throughout the organization. Without closely following these processes errors are likely to occur.

Combining the manual option with some additional functionality can lead to more stable processes. In one implementation example BC-Sets are created manually based on transport requests in the ERP landscape (filtered against the object list). The BC sets are exported and imported into the MDG development systems. After checking and activating, the data is transported through the MDG landscape (from development to test and productive system). Using Quality Gate Management (QGM) it is guaranteed that customizing in the MDG landscape is not imported earlier into the productive system than the customizing in the ERP landscape. This process could probably be enhanced by automatically creating the BC Sets.

3.2.2 Homegrown Solution: Pull Approach

A simple and lean way to synchronize the customizing data is used in another MDG implementation. In this scenario neither TMS nor BC Sets are used. Instead, they use a custom built job in the MDG system which reads the corresponding customizing data from the ERP production system(s) via RFC. This job runs based on a defined object list and updates the corresponding tables in the MDG system periodically. An advantage of this method is that the master data related customizing is only available and usable in the MDG system when it is already in the productive system. This means no inconsistent data can be created on the MDG hub based on non-aligned transports between the different system landscapes.

3.2.3 ALE Customizing Distribution

The ALE Customizing Distribution – a component in the SAP Application server basis – can be configured without major additional effort and helps to automate the process of capturing the relevant customizing. This would have to be done manually if only TMS were used to synchronize the customizing. As it uses the TMS as the technical basis for the customizing distribution the implications mentioned above with regards to different releases apply here. This option is a predecessor of the
SAP Solution Manager based Customizing synchronization (see next section) and currently no MDG implementation is known where this technology is used.

### 3.2.4 SAP Solution Manager

The more advanced – and therefore recommended - model is to use the SAP Solution Manager based Customizing Synchronization which uses BC Sets as the underlying technology. This approach is followed by several MDG implementation projects and in many other projects. It automates the customizing synchronization but does not necessarily mean that all customizing data has to be included into this process. Some customizing data also requires manual steps.

Using the Solution Manager also includes more options. For example it also supports customizing mappings and the System Landscape Directory (SLD) which might be needed anyway. Additionally Solution Manager Change Request Management (ChaRM) and Solution Manager Retrofit are available. ChaRM can be used to align the timing of customizing transports between the ERP and the MDG landscape and the Retrofit can be used if parallel system landscapes (one productive landscape and one project landscape) need to be synchronized.

When the SAP Solution Manager is available to the MDG implementation team the configuration is straight forward, getting the access to such a central system is sometimes hard to get. Additionally it puts more requirements on the SAP Solution Manager operation as it assumes that this system is almost always available.

4. Object Lists

In order to define your project specific object list consider the documentation and the attached object list template below.

4.1 Documentation

For MDG-M 6.1 you can have a look at http://help.sap.com/mdg61 -> "Application Help" -> "Configuration of MDG for Material" -> "Impact of Material Master Customizing" to get a first idea about what needs to be synchronized. To learn more about the relevant customizing and which objects might be important see also:

SAP Customizing Implementation Guide
- SAP NetWeaver / General Settings
- Enterprise Structure
- Logistics - General / Material Master / Basic Settings
- Logistics - General / Material Master / Settings for Key Fields
- Sales and Distribution / Master Data
- Production / Material Requirements Planning / Plant Parameters

For MDG-S and MDG-C 6.1 you can have a look at the MDG Implementation Guide (transaction MDGIMG in the SAP MDG system):

Business Partner (relevant for MDG-S and MDG-C)
- Master Data Governance -> MDG for Business Partner -> Set up Business Partner

Supplier (MDG-S)
- Master Data Governance -> MDG for Supplier -> Integration with Vendor Master in ERP
  -> Set up Vendor Master for Master Data Governance for Supplier

Customer (MDG-C)
- Master Data Governance -> MDG for Customer -> Integration with Customer Master in ERP
  -> Set up Customer Master for Master Data Governance for Customer

4.2 Object List Template

Be aware that the attached customizing object lists should be understood as a template which can help to define the project specific list. There might be missing objects or there might be objects listed that would not be on the project specific list. Additionally you might want to restrict the values in these tables (e.g. because you do not want to govern all material types).

Depending on the governance scope you can use a filter in the column “Level” for MDG-M to limit the number of relevant objects.

You can access the object list template here.
5. More Information

- Presentation: Customizing Synchronization between ERP and MDG
- Extensibility Options for Master Data Governance