Integration of SAP ERP or SAP S/4HANA with SAP Digital Supply Chain Management, Edition for SAP S/4HANA in a Single Client
# Document History

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<tr>
<td>Version 1.0</td>
<td>First published version for SAP Digital Supply Chain Management, edition for SAP S/4HANA in a single client</td>
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1 Purpose of This Guide

In today’s uncertain economic climate, companies cannot wait years or even months to realize the benefits of supply chain digitalization. They require modular, interoperable solutions that can be implemented quickly to deliver responsiveness and resilience. This modular interoperability is a main tenet of SAP Digital Supply Chain Management, edition for SAP S/4HANA®, which helps you to accelerate innovation and time to value. As a composable package of solutions for supply chain professionals, the edition can be deployed independently from other solution implementations and ERP transformations on either SAP S/4HANA or SAP S/4HANA Cloud. This means it can be used as a stepping-stone to broader enterprise transformation with SAP S/4HANA, while helping you to focus immediately on urgent supply chain needs. The edition of SAP Digital Supply Chain Management for SAP S/4HANA includes several modular solutions that – jointly with an underlying ERP system – tightly integrate and work with other SAP products to support scenarios that span the Plan to Fulfill cycle.

Plan to Fulfill, a subprocess within Design to Operate, describes the journey of information through the stages of supply and demand planning, manufacturing, and logistics. When engineering designs a new product or redesigns an existing one, supply chain planners need to consider the impact on demand, supply, and production. They must also collaborate with their suppliers to purchase newly defined components or materials. Manufacturing receives information about the new or modified product from engineering and makes the appropriate adjustments to the required production steps. The finished product is warehoused and then transported when customer orders are received.

The following modular solutions support the Plan to Fulfill cycle and can be part of SAP Digital Supply Chain Management, edition for SAP S/4HANA®, depending on your system and business process needs:

- SAP Extended Warehouse Management (SAP EWM) application
- SAP Transportation Management (SAP TM) application
- SAP Yard Logistics application
- SAP S/4HANA Manufacturing solution for planning and scheduling (MP&S)
- SAP S/4HANA Manufacturing solution for production engineering and operations (PEO)
- SAP S/4HANA Supply Chain solution for extended service parts planning (eSPP)
Each of these modular solutions can run in the same system in its own client – or alternatively in the same client– as a sidecar to the existing ERP system (either SAP ECC or SAP S/4HANA). When combining some or all of these individual solutions into SAP Digital Supply Chain Management, edition for SAP S/4HANA in a single, joint client, some settings deviate from those in the individual guides, whereas other settings remain unchanged.

This guide covers the topics where some of the settings deviate from the settings in the individual guides and describes the overarching implementation steps required. Each modular solution has its own implementation guide with solution-specific setup details. You should use this guide in combination with the individual guides that cover additional solution-specific setup tasks.

The following detailed guides are available for the integration technologies:

- TM Integration Guide for DSC Edition
- Integration of SAP ERP or SAP S/4HANA with Decentralized EWM based on SAP S/4HANA
- How To Integrate Extended Warehouse Management (EWM) and Transportation Management (TM) in One Client for SAP Digital Supply Chain Management, edition for SAP S/4HANA
- SAP S/4HANA Manufacturing for Planning & Scheduling - Implementation Guide
- Extended Service Parts Planning within SAP S/4HANA - Implementation Guide
- Administration Guide for SAP Yard Logistics for SAP S/4HANA
- Master Data Governance: Set Up Data Replication
- Data Replication Framework
- SAP S/4HANA Cookbook Customer/Vendor Integration

You can find the latest version of all of these guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on the SAP Help Portal.
2 Background Information

2.1 Terminology

In this guide, we refer to

- SAP Digital Supply Chain Management, edition for SAP S/4HANA as DSC edition
- the system that the DSC edition and the selected modules are running on as DSC system
- the system that your ERP is running on (SAP ECC or SAP S/4HANA) as ERP system
- the modules within the DSC edition as DSC solutions

In this section, you are given an overview of prerequisites and limitations, as well as the system landscape entities used in the integration of SAP ERP with the DSC edition.

2.2 Prerequisites

The following minimum system requirements allow you to combine all the DSC solutions, or a selection of the solutions, in a single client:

<table>
<thead>
<tr>
<th>System</th>
<th>Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP Digital Supply Chain Management, edition for SAP S/4HANA</td>
<td>SAP S/4HANA 2021 FPS2 or higher or SAP S/4HANA, Cloud Edition, 2021 FPS2 or higher</td>
</tr>
<tr>
<td>SAP Yard Logistics add-on</td>
<td>SAP Yard Logistics 2021 for SAP S/4HANA</td>
</tr>
<tr>
<td>ERP system: SAP ECC or SAP S/4HANA</td>
<td>ERP 6.0 EHP 7 SP23 or higher or EHP 8 SP17 or higher SAP S/4HANA 2021 FPS0 or higher</td>
</tr>
</tbody>
</table>

If you are implementing fewer than the 6 possible DSC solutions in a single client, it may be possible to implement them in lower releases. However, this should be considered carefully and analyzed together with your SAP experts.

Individual standalone applications that you want to run in separate clients in the DSC edition may have lower minimum system requirements. Please refer to the individual application-specific documentation to determine the minimum system requirements.

Please check the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on the SAP Help Portal for system releases, support packages, and additional prerequisites.

Customer vendor integration (CVI) is a prerequisite within your ERP system when connecting to your DSC system. Since SAP S/4HANA contains the business partner concept and CVI by default, this prerequisite is especially important when you use ECC as your ERP system. Your customer and vendor master data and corresponding settings need to be checked to define a business partner concept. This concept should be established in a pre-project before starting the implementation of the DSC edition. Since customer or vendor master data is used differently across SAP customers, this guide cannot give a detailed implementation recommendation. Therefore, section 3.13 Configure Customer or Vendor Integration and Make Business Partner Settings in the ERP and DSC System only provides a short overview of this topic.

For some master data objects (for example, work centers), you use different integration technologies (for example, core interface (CIF) vs. data replication framework) based on the usage within the DSC edition. Therefore, you establish a concept of which data to integrate and in which way, depending on the usage, and determine the corresponding filter criteria to set up integration accordingly in the respective chapters.

2.3 Limitations

With the current releases, SAP Digital Supply Chain Management, edition for SAP S/4HANA cannot be used in so-called hub scenarios. This means that connecting multiple ERP systems to one central system for the DSC edition is not supported - even though some of the individual solutions may be used in hub scenarios when deployed as standalone solutions.

The usage of SAP Digital Supply Chain Management, edition for SAP S/4HANA with retail-specific master data (for example, material masters) is not supported.

Advanced Shipping and Receiving is not supported for use in SAP Digital Supply Chain Management, edition for SAP S/4HANA.
# 2.4 Overview of System Landscape Entities

The following table provides an overview of the system landscape entities that are required for the integration:

<table>
<thead>
<tr>
<th>Entity</th>
<th>Setting Level</th>
<th>Customizing Transport</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC destination</td>
<td>Cross-client</td>
<td>No</td>
<td>Technical setting for RFC and qRFC communication Naming convention: <code>&lt;SID&gt;CLNT&lt;CLIENT&gt;</code>&lt;br&gt;See section 0 <a href="#">Create RFC Connections from ERP to DSC and Vice-versa</a>.</td>
</tr>
<tr>
<td>Example: ERPCNT001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSCCLNT001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logical system</td>
<td>Cross-client</td>
<td>Yes</td>
<td>Technical setting for RFC and qRFC communication Naming convention: <code>&lt;SID&gt;CLNT&lt;CLIENT&gt;</code>&lt;br&gt;Can be created in the System Landscape Directory&lt;br&gt;The logical system is assigned to the RFC destination&lt;br&gt;Own logical system is assigned to the client&lt;br&gt;See section 4.2 <a href="#">Configure Logical Systems in SAP ERP</a>.</td>
</tr>
<tr>
<td>Example: ERPCNT001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSCCLNT001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business system group</td>
<td>Client</td>
<td>No</td>
<td>Used in the DSC system for master data 1:N relationship to logical system&lt;br&gt;See section 3.11 <a href="#">Maintain Business System Group</a>.</td>
</tr>
<tr>
<td>Example: BSG1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business system</td>
<td>Client</td>
<td>No</td>
<td>Used in the DSC system for transactional data Naming convention: <code>&lt;SID&gt;_&lt;_CLIENT&gt;</code>&lt;br&gt;The business system is assigned to a logical system&lt;br&gt;Can be created in the System Landscape Directory&lt;br&gt;Own business system is assigned to the client&lt;br&gt;See section 0 <a href="#">Setup of Data Replication Framework (DRF)</a>.</td>
</tr>
<tr>
<td>Example: ERP_001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSC_001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 2.5 Overview of Integration Technologies by Domain

In contrast to standalone implementations of DSC solutions, we follow a consolidated approach to data integration in the context of SAP Digital Supply Chain Management, edition for SAP S/4HANA, which can deviate for certain objects.

<table>
<thead>
<tr>
<th>Object / Domain</th>
<th>Integration Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business partner</td>
<td>Data replication framework (DRF) via service (CVI is required in the ERP system as a prerequisite)</td>
</tr>
<tr>
<td>Locations (for example, plants, shipping points)</td>
<td>DRF via service (for more information, see the <a href="https://help.sap.com/mem026467">TM Integration Guide for DSC Edition</a>)&lt;br&gt;Note: <code>/SAPAPO/CREATE_LOCATION</code> is not required for location types 1001 and 1003 in this case</td>
</tr>
<tr>
<td>Classes and characteristics</td>
<td>Application Link Enabling (ALE) via IDoc</td>
</tr>
<tr>
<td>Material masters</td>
<td>DRF via IDoc&lt;br&gt;CIF for SAP S/4HANA Manufacturing solution for planning and scheduling (MP&amp;S) and SAP S/4HANA Supply Chain solution for extended service parts planning (eSPP) (for more information, see the solution-specific guides on the <a href="https://help.sap.com/mem026467">SAP Digital Supply Chain Management, edition for SAP S/4HANA product page</a>)&lt;br&gt;Note: <code>/SAPAPO/CREATE_LOCATION</code> is not required for location types 1001 and 1003 in this case</td>
</tr>
<tr>
<td>Batches</td>
<td>ALE via BAPI</td>
</tr>
<tr>
<td>Serial numbers (piece of equipment)</td>
<td>ALE via BAPI</td>
</tr>
<tr>
<td>Work centers</td>
<td>CIF via RFC calls (see <a href="https://help.sap.com/mem026467">SAP S/4HANA Manufacturing for Planning &amp; Scheduling - Implementation Guide</a>)&lt;br&gt;DRF via IDoc for non-MP&amp;S work centers</td>
</tr>
<tr>
<td>BOM, routing, production versions</td>
<td>See the <a href="https://help.sap.com/mem026467">PEO Implementation Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA</a>&lt;br&gt;Production data structure (PDS) can be generated from ERP via CURTO_CREATE or directly within the DSC edition via CURTOADV_CREATE if versioned master data is required for planning</td>
</tr>
<tr>
<td>Others (for example, transactional data)</td>
<td>See the solution-specific guides on the <a href="https://help.sap.com/mem026467">SAP Digital Supply Chain Management, edition for SAP S/4HANA product page</a> on the SAP Help Portal</td>
</tr>
</tbody>
</table>
3 Cross-Solution Customizing Settings

3.1 Activate Business Functions

You activate business functions that enable your ERP system to communicate with your DSC system in the Switch Framework.

Each DSC solution requires the activation of specific business functions that may depend on system releases in some cases. For more information, see the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on the SAP Help Portal and activate the required business functions according to your needs.

This guide covers only the business function relevant for integration.

As of EHP8, you activate the following business function to enable immediate data integration:

<table>
<thead>
<tr>
<th>Business Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRF_FOUNDATION</td>
<td>Data Replication</td>
</tr>
</tbody>
</table>

For more information, see the business function documentation in transaction SEFW5.

Business function DRF_FOUNDATION is shipped in SAP ERP 6.0 with enhancement package 8 and is not available in earlier enhancement packages. It enables changes to the material master to be replicated when the material is saved. If the business function has not been activated or is not available, the system only writes a change pointer when a material is saved. You can replicate all materials that have a change pointer by using transaction DRFOUT or report RDRF_MESSAGE_OUT (replication mode Changes). It is recommended that you schedule a job to run the report RDRF_MESSAGE_OUT periodically to replicate all material changes since the previous replication.

3.2 Check Basic Table Entries

**Context**

Basic tables — such as units of measures, currencies, countries, and languages — are used both in the ERP system and the DSC system. You check that the required entries (especially the ISO codes) are identical in all systems that are part of your system landscape.

**Procedure**

Carry out the following steps in your DSC system Customizing client:

1. On the SAP Easy Access screen, choose Tools > Administration > Administration > Client Administration > Customizing Objects > Object Comparison.
2. Compare the information in the following table between the DSC system client and the ERP system customizing client. Compare the entries you plan to use in your DSC system processes.
3. Adjust the tables in the ERP system or DSC system Customizing, if necessary, as follows:

<table>
<thead>
<tr>
<th>View/Table</th>
<th>Description</th>
<th>Usage in DSC Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>T002</td>
<td>Language keys</td>
<td>Material master and others</td>
</tr>
<tr>
<td>T005</td>
<td>Countries or Regions</td>
<td>Material master and others</td>
</tr>
<tr>
<td>T006</td>
<td>Unit of measure</td>
<td>Material master and others</td>
</tr>
<tr>
<td>TCURC</td>
<td>Currency codes</td>
<td>Material valuation data</td>
</tr>
</tbody>
</table>
3.3 Create Factory Calendars in the DSC System

You create factory calendars in the Customizing of the DSC system.

Procedure
1. In Customizing, choose Advanced Planning > Master Data > Calendar > Maintain Factory Calendar.
2. On the next screen, select Factory Calendar and choose Change.
3. On the next screen, choose Create.
4. Define the factory calendar as needed.

Important
Factory calendars are not client specific. Each change takes effect directly in all clients.

3.4 Define Material Number Length

The ERP system and DSC system use the same material number length and formatting options.

Procedure
Carry out the following steps in the DSC system:
1. Launch Change View Material Number Format (transaction OMST).
2. Adopt the ERP system settings.

Note
If you connect the DSC system to an SAP ERP system supporting 40 characters, you also have to activate the field length extension for the communication to this system in Customizing for Cross-Application Components under General Application Functions > Field Length Extension > Activate Extended Fields (transaction FLETS).
If your ERP system is an SAP S/4HANA system, PEO supports a 40-character SAP S/4HANA material ID.
If your ERP system is an SAP ERP 6.0 system with a corresponding enhancement package, PEO only supports the 18-character SAP ECC material ID, regardless of whether you’ve activated the 40-character long material ID for discrete industries (DIMP LAMA) in the ERP system. No option is currently available to map the 40-character SAP S/4HANA material ID to the DIMP-LAMA material ID.

3.5 Define Material Types

You define material types in the ERP system and DSC system while preventing accounting requirements in the DSC system.

Procedure
1. Determine the material types that you need for your processes.
2. Create the required material types both in the ERP system and in the DSC system in Customizing, under Logistics - General > Material Master > Basic Settings > Material Types > Define Attributes of Material Types. For more information, see How to Create Material Types for Major Assembly Production on the SAP Help Portal.
3. Accounting and sales are done in the ERP system. The DSC system only supports production engineering and operations, warehouse tasks, and so on. Accounting- or sales-related material attributes are not needed in the DSC system. Make sure the material types in the DSC system do not require accounting data and do not update inventory values (for more information, see Deselect quantity/value updating for
material types in your valuation area in Customizing under Logistics > General > Product Lifecycle Management (PLM) > Material Master > Basic Settings > Define Attributes of Material Types.

For further details refer to section 6.7 Create a BAdI Implementation to Clear Data When Replicating Materials (ERP System).


3.6 Define Plants and Storage Locations in the DSC System

You create the plants and storage locations that you need in the DSC system.

**Context**

A plant and an assignment to a company code must exist to receive material master with plant-specific data (database table MARC) in the DSC system. The company code itself is not required in the DSC system for further processing, therefore it is sufficient to create it with minimal or “dummy” data.

**Procedure**

Carry out the following steps in your DSC Customizing client:

1. Create required plants as a copy of, for example, plant 0001 (transaction EC02) in Customizing under Enterprise structure > Definition > Logistics - General > Define, copy, delete, check plant.

2. Maintain storage locations in Customizing under Enterprise structure > Definition > Materials Management > Maintain Storage Location.

3. Check if plants were assigned to a company code (if not, assign them) in Customizing under Enterprise structure > Assignment > Logistics - General > Assign Plant to Company Code.

4. Assign a company code to a fiscal year variant in Customizing under Financial Accounting (New) > Financial Accounting Global Settings (New) > Ledgers > Fiscal Year and Posting Periods > Assign Company Code to a Fiscal Year Variant. Here you assign the new company code to a fiscal year variant, for example, K4.

5. If the fiscal year variant does not exist yet, create it in Customizing under Financial Accounting (New) > Financial Accounting Global Settings (New) > Ledgers > Fiscal Year and Posting Periods > Maintain Fiscal Year Variant.

6. Assign a company code to a chart of accounts in Customizing under Financial Accounting (New) > General Ledger Accounting (New) > Master Data > G/L Accounts > Preparations > Assign Company Code to Chart of Accounts. Here you assign the new company code to a chart of accounts, for example, INT.

7. If the chart of accounts does not exist yet, create it in Customizing under Financial Accounting (New) > General Ledger Accounting (New) > Master Data > G/L Accounts > Preparations > Edit Chart of Accounts List.

8. Maintain company codes for Materials Management in Customizing under Logistics - General > Product Lifecycle Management (PLM) > Material Master > Basic Settings > Maintain Company Codes for Materials Management. Here you set up the new company code for material management, for example, fiscal year and posting period.

9. Deselect quantity/value updating for material types in your valuation area in Customizing under Logistics - General > Product Lifecycle Management (PLM) > Material Master > Basic Settings > Define Attributes of Material Types. Here you deselect the checkboxes for quantity updating and value updating for material types used in the material master. The valuation area is created automatically in step 2 “Assign plant to company code”. It has the same number as the plant.

10. Check if the sales organization was assigned to plants by copying (if not, assign it) in Customizing under Enterprise structure > Assignment > Sales and Distribution > Assign Sales Organization > Distribution Channel > Plant.

11. Check if the standard purchasing organization was assigned to plants (if not, assign it) in Customizing under Enterprise structure > Assignment > Materials Management > Assign Purchasing Organization to Plant.
3.7 Create MRP Areas for Plants or Storage Locations (for MP&S and eSPP)

MRP areas for storage locations have to be created in both systems with the same settings.

**Procedure**

1. In Customizing, choose *Production > Material Requirements Planning > Master Data > MRP Areas > Define MRP Areas for Plant/Storage Locations.*
2. Create a new entry by specifying a name, description, and plant.

3.8 Create MRP Areas for Subcontracting

MRP areas for subcontracting have to be created in both systems with the same settings.

**Prerequisites**

Business partners have been transferred to the DSC system and vendor numbers are available in the DSC system.

**Procedure**

1. In Customizing, choose *Production > Material Requirements Planning > Master Data > MRP Areas > Define MRP Areas for Subcontractors.*
2. Create a new entry by specifying a name, description, and vendor.

3.9 Create Production Supply Areas

**Context**

Production supply areas (PSA) serve as a location for interim storage on the shop floor and are used to make material directly available for production purposes. PSAs are maintained in work centers for storage location determination. For this reason, they are also needed in the DSC system, for example, when transferring the PDS from PEO to MP&S.

**Procedure**

Carry out the following steps in the DSC system:

1. Launch *Edit Table Views* (transaction PK05).
2. Enter your plant.
3. Create relevant PSAs corresponding to your ERP system settings.

3.10 Create Model and Planning Version in the DSC System

**Context**

Before any master data can be transferred, model 000 and planning version 000 must be created manually in the DSC system. Transferred data is then automatically assigned to this model and planning version.

**Procedure**

2. Choose *Create Model/Planning Version.*
3. Create model 000 and select it.
4. Create planning version 000 for this model with the following values:
### 3.11 Maintain Business System Group

1. Launch **Maintain Business System Group** (transaction /SAPAPO/C1).
2. Define a business system group by specifying an ID and a description. For example, BSG1 – Business System Group 1.

### 3.12 Configure Customer or Vendor Integration and Make Business Partner Settings in the ERP System and DSC System

For some solutions, business partners must be transferred from the ERP system via DRF services. Therefore, the activities included in BP_Conversion_Guide.pdf, which is attached to SAP Note 2265093, are mandatory in your ERP system. Inbound settings are also required for business partners in the DSC system.

The business partner concept raises important conceptual topics, such as groupings and number ranges, which should be outlined in a pre-project.

---

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Planning Active</td>
<td>Selected</td>
</tr>
<tr>
<td>Standard Planning Horizon (Days)</td>
<td>999</td>
</tr>
<tr>
<td>Copy</td>
<td>In Foreground</td>
</tr>
<tr>
<td>Determine Priority</td>
<td>According to your business needs</td>
</tr>
<tr>
<td>Take Safety Stock into Account</td>
<td>According to your business needs</td>
</tr>
<tr>
<td>No Order Without Source of Supply</td>
<td>According to your business needs</td>
</tr>
</tbody>
</table>

---

**Note**

The model is also relevant for SAP TM, and creation of the model is described in the respective guides. However, when using both MP&S and TM in the DSC system, creation of the model needs to follow the MP&S approach.
4 Configure System Connection and Global Settings

You configure the system landscape settings required for the queued remote function call (qRFC) communication between the DSC system and ERP system. The DSC system communicates with the ERP system via queued remote function call (qRFC) for parallel processing, using system resources in parallel to increase business throughput and to reduce processing time.

4.1 Activate Change Pointers

4.1.1 Activate Change Pointers at the Client Level in the ERP System

You activate change pointers at the client level.

Procedure

2. Launch Activate Change Pointers Generally (transaction BD61) in the system from which materials are to be replicated.
3. Select the checkbox to activate change pointers in general.
4. Save your settings.

4.1.2 Activate Change Pointers per Message Type in the ERP System

You activate change pointers for all message types assigned to your distribution model.

Context

The change pointers are needed to log changes to the master data and to distribute them to the receiver system. To ensure that changed master data can be identified, activate change pointers in the system from which the master data is to be replicated.

Procedure

1. Launch Activate Change Pointer Generally (transaction BD50) and activate change pointers for the following message types:
   - MATMAS
   - BATMAS
   - CHRMAS
   - CLSMAS
   - CLFMAS
2. Save your settings.
Important

The activation of change pointers per message type creates entries for the fields of the message type in another table. For batches (message type BATMAS), it is possible that an entry for the batch status is missing, because the setup of the system determines whether batch status management is activated or not. To verify this, launch transaction BD52 for message type BATMAS and check that an entry exists for object CHARGE, table name MCHA, field name ZUSTD.

4.2 Configure Logical Systems in the ERP System

Configure logical systems in your ERP system to enable Application Link Enabling (ALE) communication between your ERP system and DSC system.

Procedure

1. Define a logical system for your ERP system and assign it to a client.
2. Define a logical system for your DSC system and client.
   
   Note
   Logical systems must adhere to the naming convention <SSS>CLNT<CCC>, where SSS is the 3-character system ID and CCC is the client.
3. Log on to your ERP system.
4. Launch Display ALE Customizing (transaction SALE).
5. Define a logical system for your ERP system and client by choosing Basic Settings > Logical Systems > Define Logical System.
6. Save your entries and exit the activity.
7. Assign the ERP logical system to a client by choosing Basic Settings > Logical Systems > Assign Logical System to Client.
8. Select the client in which you’re running ERP and assign the logical system that identifies the ERP system and client.
9. Save your settings and exit the activity.
10. Define a logical system for your DSC system and client by choosing Basic Settings > Logical Systems > Define Logical System.
11. Save your entries and exit the activity.

4.3 Configure Logical Systems in the DSC System

Configure logical systems in your DSC system to enable ALE communication between your DSC system and ERP system.

Procedure

1. Define a logical system for your DSC system and assign it to a client.
2. Define a logical system for your ERP system and client.

   Note
   Logical systems must adhere to the naming convention <SSS>CLNT<CCC>, where SSS is the 3-character system ID and CCC is the client.
3. Log on to your DSC system.
4. Launch Display ALE Customizing (transaction SALE).
5. Define a logical system for your DSC system and client by choosing Basic Settings > Logical Systems > Define Logical System.
6. Save your entries and exit the activity.
7. Assign the DSC logical system to a client by choosing Basic Settings > Logical Systems > Assign Logical System to Client.
8. Select the client in which you're running the DSC system and assign the logical system that identifies the DSC system and client.
9. Save your settings and exit the activity.
10. Define a logical system for your ERP system and client by choosing Basic Settings > Logical Systems > Define Logical System.
11. Save your entries and exit the activity.

4.4 Create an RFC User (ERP System and DSC System)

Create an RFC user with the required authorizations in your DSC system and ERP system to enable message-based data replication between the systems.

**Procedure**

1. Launch User Maintenance (transaction SU01) in your ERP system and identify the user. (Naming conventions suggest calling the RFC user **ALEREMOTE**.)
2. On the Logon Data tab, select user type **Service** and provide a password.
3. Launch Role Maintenance (transaction PFCG) to create a role with the necessary authorizations for this user.
   For example, in the ERP system, the RFC user must have authorizations for the following authorization objects for PEO:
   - S_RFC
   - B_ALE_MODL
   - C_PDC
   - M_MSEG_BWA
   - M_MSEG_WWA
   - C_AFRU_AWK
   Check the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on the SAP Help Portal for a complete list of required authorizations.
4. Launch User Maintenance (transaction SU01) in your DSC system and identify the user (Naming conventions suggest calling the RFC user **ALEREMOTE**).
5. On the Logon Data tab, select user type **Service** and provide a password.
6. To create a role with the necessary authorizations for this user, use Role Maintenance (transaction PFCG).
   In the DSC system, the RFC user must have authorizations that include the following authorization objects:
   - S_RFC
   - B_ALE_MODL
   Check the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on SAP Help Portal for a complete list of required authorizations.
4.5 Create RFC Connections from the ERP to the DSC System and from the DSC to the ERP System

**Prerequisites**

System administrators must make specific settings for the remote function all (RFC) connection between the ERP and DSC system before any Customizing activity is carried out. Contact your system administrator to ensure the following prerequisites are met:

- An RFC user exists in each target system/client defined as an RFC destination. For example, for the DSC system client to use the RFC destination to the ERP test client, an RFC user exists in the ERP client.
- RFC destinations exist between the corresponding ERP system and DSC system clients.

**Procedure**

1. Launch *Configuration of RFC Connections* (transaction SM59).
2. Create the RFC connection to the DSC system if it doesn’t exist yet.
3. To create the RFC connection, select *ABAP Connection* and choose *Create*.
4. Enter the following data and then choose *Enter*.
   - **Destination**: Specify the logical system of the DSC system as the destination.
   - **Connection**: Type 3
5. On the *Technical Settings* tab, make the following settings:
   - For load balancing, select *Yes*.
   - Enter the target system, message server, and group.
   - If necessary, copy this information from the system entry properties in SAP Logon.
6. On the *Log on & Security* tab, define the following settings:
   - Enter the language and client of the target system.
   - Specify the logon data for the RFC user that you created.
   - Set the trust relationship to *No*.
7. On the *Unicode* tab, make sure the connection type is *Unicode*.
8. Save your RFC connection.
9. Verify your settings by choosing *Remote Logon* and *Connection Test*.

Repeat steps 1 to 8 in the DSC system to create the connection to the ERP system.
4.6 Assign DSC Logical Systems to RFC Destinations in the ERP System

You assign the logical systems defined in the ERP system to RFC destinations in SAP ERP.

**Context**

These settings cannot be transported from your ERP Customizing client to other SAP ERP systems and clients. Therefore, you must repeat the steps in every ERP system client connected to the DSC system.

**Procedure**

Carry out the following steps in each ERP system client you want to connect to the DSC system:

1. In Customizing for *SAP NetWeaver*, choose *Application Server > IDoc Interface/Application Link Enabling (ALE) > Communication > Determine RFC Destinations for Method Calls*.
2. Select the DSC logical system, for example, DSCCLNT001.
3. Choose *Standard BAPI* destination.
4. Enter the RFC destination created by your system administrator for the corresponding DSC system and choose *Enter*.
5. Repeat the steps in the DSC system to assign ERP logical systems to RFC connections.
5 Setup of Application Link Enabling (ALE)

Note

The following description contains only an example for the ALE IDoc setup. ALE offers far more settings and possibilities. Therefore, you need to become familiar with ALE in general. For more information, see IDoc Interface/ALE on SAP Help Portal.

5.1 Create a Port for RFC Connections

Create a port from your DSC and ERP system to the corresponding RFC destination to define the channel through which data is to be exchanged.

Procedure

1. Launch Ports in IDoc Processing (transaction WE21).
2. Create a transactional RFC port:
   - As the port name, specify the technical name of the RFC destination.
   - Enter a description of the port.
3. As the version, select IDoc record types SAP Release 4.x.
4. As the RFC destination, enter the RFC destination of your ERP or DSC system respectively.
5. Save your entries.

5.2 Define a Data Distribution Model and Distributing Views

You define the messages in the distribution model in the sender system.

Procedure

 Carry out the following steps in the ERP system:

1. Launch Maintenance of Distribution Model (transaction BD64).
2. Choose Distribution Model > Switch Processing Mode.
3. Choose Create Model View to create a new model view.
4. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Text</td>
<td>For example, DSCCLNT001: DSC Edition (replace DSCCLNT001 with the logical system name for DSC edition)</td>
</tr>
<tr>
<td>Technical Name</td>
<td>For example, DSCCLNT001 (replace DSCCLNT001 with the logical system name for DSC edition)</td>
</tr>
</tbody>
</table>

5. Choose Continue.
6. Choose Add Message Type and select the new model to add message types.
7. For each message type, enter the data as shown in the following table:
Integration of SAP ERP or SAP S/4HANA with SAP Digital Supply Chain Management, Edition for SAP S/4HANA in a Single Client

8. Select the model view and define the following message flows by choosing *Add BAPI:* The object name and method are case-sensitive entries.

<table>
<thead>
<tr>
<th>Business Object</th>
<th>Message Type</th>
<th>Sender</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>MATMAS</td>
<td>Specify the logical system of the ERP system.</td>
<td>Specify the logical system of the DSC system.</td>
</tr>
<tr>
<td>Work centers</td>
<td>LOIWCS</td>
<td>Specify the logical system of the ERP system.</td>
<td>Specify the logical system of the DSC system.</td>
</tr>
<tr>
<td>Production orders</td>
<td>LOIPRO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy message type</td>
<td>SYNCH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is a mandatory message type that is used to determine RFC destinations.

9. If you use batches or characteristic-dependent planning, you also need the following message types:

<table>
<thead>
<tr>
<th>Business Object</th>
<th>Object/Interface</th>
<th>Method</th>
<th>Sender</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>PieceOfEquipment</td>
<td>Create</td>
<td>Specify the logical system of the ERP system.</td>
<td>Specify the logical system of the DSC system.</td>
</tr>
<tr>
<td>Batch</td>
<td>Batch</td>
<td>SaveReplica</td>
<td>Specify the logical system of the ERP system.</td>
<td>Specify the logical system of the DSC system.</td>
</tr>
</tbody>
</table>

10. To create a filter group for message type CLSMAS (classes), choose *No filter set or Data Filter Active* under message type CLSMAS in the tree, then choose *Create Filter Group* on the dialog box.

11. Choose filter object type *Class Type* and enter the class types 022 and 023 for batch classes (depending on your system settings the value help may not show both values. You still can enter both values).

12. If Characteristic Dependent Planning (CDP) as part of MP&S is relevant, you need to set your batch level to *material or client specific.* As a result, class type 023 will become relevant for batches.

13. Choose *Continue.*

14. To create a filter group for message type CLFMAS (classifications), choose *No filter set or Data Filter Active* under message type CLFMAS in the tree.

15. Choose *Create Filter Group* in the dialog box.

16. Choose filter object type *Class Type* and enter the class types 022 and 023 for batch classes (depending on your system settings the value help may not show both values. You still can enter both values).

17. Choose *Continue.*

18. Save your distribution model.

For the message types LOIPRO (production orders), MATMAS (materials), and LOIWCS (work centers), and for the BAPI PieceOfEquipment (equipment), you can use DRF filter objects to further refine the data that is to be replicated.

DRF filter objects are not yet supported for filtering batches to be replicated.

19. To create a filter group for BAPI method Batch.SaveReplica (batches), choose *Receiver determination* under BAPI Batch.SaveReplica in the tree.

20. Choose *Create Filter Group* in the dialog box.

21. Choose *Continue.*

22. Save the distribution model.

23. Choose *Edit > Model view > Distribute* to transport the distribution model to other systems.
5.3 Define Partner Profiles

You can generate the partner profile in *Display Distribution Model* (transaction BD64) automatically or create it using *Partner Profile* (transaction WE20) manually. You use this to create the partner profile manually.

5.3.1 Generate a Partner Profile in the ERP System

Generate a partner profile to define the parameters for exchanging data with your DSC system based on the information in the distribution model.

**Prerequisites**

You configured the basic settings for the system landscape and created a distribution module from the ERP system to the DSC system.

**Procedure**

Carry out the following steps in the ERP system:

1. Launch *Display ALE Customizing* (transaction SALE).
2. Choose *Modeling and Implementing Business Processes > Partner Profiles > Generate Partner Profiles*.
3. In the *Model View* field, select the distribution model that you created for distributing data from the ERP system to the DSC system.
4. As the partner system, select the logical system of your DSC system.
5. Enter the ALE user (the default value is ALEREMOTE) along with the following values:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>3</td>
</tr>
<tr>
<td>Pack. Size</td>
<td>100</td>
</tr>
</tbody>
</table>

6. Make the following settings:
   a. Under *Output Mode*, select the *Pass IDoc Immediately* radio button.
   b. For inbound processing, select the *Trigger immediately* radio button.
7. Execute the report.
8. Verify the generation of the partner profile as follows
   a. Launch *Partner Profiles* (transaction WE20).
   b. Under *Partner Profiles*, expand the *Partner Type LS* folder and select the logical destination system.
   c. Verify that the outbound and inbound parameters match the distribution model and you have the required IDoc versions. You can drill down into an outbound message type to change the IDoc version.
   d. Check the solution-specific guides on the *SAP Digital Supply Chain Management, edition for SAP S/4HANA* product page on SAP Help Portal for details on required versions.
   e. If you want inbound IDocs to be processed immediately rather than asynchronously by report RBDAPP01, drill down into the inbound message type and make sure that *Trigger Immediately* is selected.
   f. If you want outbound IDocs to be processed immediately rather than asynchronously by report RSEOUT00, drill down into the outbound message type and make sure that *Pass IDoc Immediately* is selected.
5.3.2  Replicate a Distribution Model (ERP System to DSC System)

Replicate your distribution model from your ERP system to your DSC system.

**Prerequisites**

Before distributing the model, ensure that:
- You’ve generated the partner profile and the SYNCH message type exists as an outbound parameter.
- The technical name of your distribution model is unique within your system landscape.

**Procedure**

Carry out the following steps in the SAP ERP system:
1. Launch Display ALE Customizing (transaction SALE).
2. Choose Modelling and Implementing Business Processes > Maintain Distribution Model and Distribute Views.
4. Select the logical system of the receiving DSC system and choose Continue.

**Results**

The system displays a list of messages each with a status that indicates whether the action was successful.

5.3.3  Generate a Partner Profile in DSC System for the Distribution Model (ERP System to DSC System)

Generate the partner profile for the distribution model that you replicated to your DSC system. Then define the parameters for exchanging data based on the information in the distribution model.

**Prerequisites**

You’ve successfully replicated the distribution model from the ERP system to the DSC system.

**Procedure**

Carry out the following steps in the DSC system:
1. Launch Display ALE Customizing (transaction SALE).
2. Choose Modeling and Implementing Business Processes > Partner Profiles > Generate Partner Profiles.
3. In the Model View field, select the distribution model that you replicated to your DSC system from your ERP system.
4. As the partner system, select the logical system of your ERP system.
5. Enter the ALE user (the default value is ALEREMOTE) along with the following values:
   
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>3</td>
</tr>
<tr>
<td>Pack. Size</td>
<td>100</td>
</tr>
</tbody>
</table>

6. Make the following settings:
   a. Under Output Mode, select the Pass IDoc Immediately radio button.
   b. For inbound processing, select the Trigger immediately radio button.
7. Execute the report.
8. Verify the generation of the partner profile as follows:
   a. Launch Partner Profiles (transaction WE20).
b. Under Partner Profiles, expand the Partner Type LS folder and select the logical destination system.

c. Ensure that the outbound and inbound parameters match the distribution model and you have the required IDoc versions. You can drill down into an outbound message type to change the IDoc version.

d. Check the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on SAP Help Portal for details on required versions. To determine the latest IDoc version in your system, call transaction WE30 and enter the IDoc name with an asterisk (*) instead of the two-digit version suffix (for example, enter LOIPRO*). The input help lists the available IDoc versions. All IDoc versions are downwards compatible, but we recommend that you use the latest available IDoc version.

e. Drill down into the inbound message type and ensure that the correct process code is entered under Inbound options. For example, use process code MATM for materials.

Note

The process code specified in the partner profile determines which function module is used to process the inbound message. The process codes are configured in transaction WE42. Multiple inbound function modules exist for some message types. For example, materials and articles (retail solution) are replicated using the MATMAS IDoc but use different process codes. For more information, see chapter “Define Inbound Processing (ERP and PEO)” in the PEO Implementation Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA.

f. If you want inbound IDocs to be processed immediately rather than asynchronously by report RBDAPP01, drill down into the inbound message type and make sure that Trigger Immediately is selected.

g. If you want outbound IDocs to be processed immediately rather than asynchronously by report RSEOUT00, drill down into the outbound message type and make sure that Pass IDoc Immediately is selected.

5.4 ALE Integration from the DSC System to the ERP System

For some processes, data integration from the DSC system to the ERP system via ALE is required. For the respective settings, see the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on the SAP Help Portal (for example, PEO Implementation Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA).

5.5 IDoc Serialization

Consider the settings described in Set Up Data Replication on SAP Help Portal:

- Use the message type SERDAT to prevent errors during inbound processing such as posting MATQM before MATMAS.
- With serialized message distribution, IDocs are created, sent, and posted in a specific order.
- Set up sending and receiving systems using transaction SALE in sender and target systems and choose Modeling and Implementing Business Processes > Master Data Distribution > Serialization for Sending and Receiving Data. See the Customizing documentation for the setup process.

For more information, see SAP Note 752194.

Report RBDMANT2 is scheduled to reprocess IDocs with errors in the Inbound processing.
6  Setup of Data Replication Framework (DRF)

6.1 Set up Point-to-Point Communication for Web Services

You set up the point-to-point communication between your ERP system and DSC system using the SAP standard technology data replication framework (DRF) with web services.

**Note**

There are two options to establish a connection between two systems to communicate with each other via web services. The communication messages can be sent and received through an intermediate XI server or by a direct point-to-point communication between the systems. Here we describe the usage of a point-to-point communication.

For the configuration guide, see [Configuring the SOA Manager for MDG (NW 7.40 or higher)](#).

6.2 Define Technical Settings for Data Replication (ERP System to DSC System)

You configure the technical business system settings for DRF transfer.

**Context**

You can specify whether the system is to replicate a business object change immediately or create a change pointer when a business object is changed. In the latter case, you need to replicate the business object manually using transaction DRFOUT.

**Procedure**

Carry out the following steps in the SAP ERP system:

1. Define a business system in Customizing for Data Replication (Transaction DRFIMG) under Data Replication > Define Custom Settings for Data Replication > Define Technical Settings > Define Technical Settings for Business Systems > Define Business Systems.

2. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business System</td>
<td>Enter the name of your DSC business system, for example DSC_001</td>
</tr>
<tr>
<td>Logical System</td>
<td>Enter the name of the logical system of your DSC business system, for example DSCCLNT001</td>
</tr>
<tr>
<td>RFC Destination</td>
<td>Enter the name of the RFC Destination of your DSC business system, for example DSCCLNT001</td>
</tr>
<tr>
<td>Disabled for Replication</td>
<td>Inactive</td>
</tr>
</tbody>
</table>

3. Save your entries.
4. Select your defined business system and navigate to Define Bus. Systems, BOs to define the assigned business objects.
5. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Business Object Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>986</td>
<td>Business partner including relationships</td>
</tr>
<tr>
<td>97</td>
<td>Production order</td>
</tr>
<tr>
<td>145</td>
<td>Batch</td>
</tr>
<tr>
<td>194</td>
<td>Material</td>
</tr>
<tr>
<td>493</td>
<td>Work center (if you do not transfer all work centers via CIF)</td>
</tr>
<tr>
<td>DRF_0045</td>
<td>Shipping Point/receiving Point (see TM Integration Guide for DSC Edition)</td>
</tr>
<tr>
<td>464</td>
<td>Plant (see TM Integration Guide for DSC Edition)</td>
</tr>
</tbody>
</table>

Output mode (Only required if your ERP system is an SAP S/4HANA system or minimum ECC ERP EhP8), select:
- To send the message (IDoc) immediately, select direct output.
- To create messages collectively later by running transaction BD21 or report RBDMIDOC, select pooled output.
- To use the default setting, which is direct output for all business objects except materials and pooled output for materials, select the object-dependent default.

6. Select your defined business object type system and choose Define Bus. Systems, BOs, > Communication Channel to define the communication channel.

7. For key harmonization select Not Defined.

8. Save your entries.

Note

The output mode configuration is available only from SAP ERP 6.0 with enhancement package 8 and only if the business function DRF_FOUNDATION has been activated. If this business function has not been activated or is not available, or if the output mode is set to Pooled Output, the system writes a change pointer only when a material or work center is saved. You can use transaction BD21 or report RBDMIDOC to create IDocs for all change pointers (see 8.6 Execute the Delta Transfer of Master Data).

We recommend that you schedule the following reports periodically:
- Report RBDMIDOC with message type MATMAS to create IDocs for all material changes since the previous IDoc generation, or report RDRF_MESSAGE_OUT to replicate all material changes since the previous replication.
- Report RBDMIDOC with message type BATMAS to create IDocs for all batch changes since the previous IDoc generation. Direct Output is not yet supported for batches.
6.3 Define Replication Models

You configure the replication model for data transfer. The replication model defines what is transferred, how it is transferred and the receiver system of the data transfer.

**Procedure**

Carry out the following steps in the SAP ERP system:

1. Define a replication model in Customizing for Data Replication (transaction DRFIMG) under Data Replication > Define Custom Settings for Data Replication > Define Replication Models.
2. Choose New Entries.
3. Create a replication model for every business object you want to replicate.
   
   Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Business Object of Replication Model</th>
<th>Outbound Implementation</th>
<th>Communication Channel</th>
<th>Outbound Parameter and Value</th>
<th>Outbound Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business partner</td>
<td>986_3</td>
<td>1 Replication via Services</td>
<td>PACK_SIZE_BULK</td>
<td>1</td>
</tr>
<tr>
<td>Material</td>
<td>194_2</td>
<td>Replication via IDoc</td>
<td>PACK_SIZE_BULK</td>
<td>1000</td>
</tr>
<tr>
<td>Work centers</td>
<td>493_1</td>
<td>Replication via IDoc</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Production orders</td>
<td>97_1</td>
<td>Replication via IDoc</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Equipment</td>
<td>183_1</td>
<td>Replication via IDoc</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Plant</td>
<td>464_L</td>
<td>1 Replication via Services</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Shipping point/receiving point</td>
<td>DRF_0045_L</td>
<td>1 Replication via Services</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

4. For the filter time, select Filter After Change Analysis.
5. Select your defined outbound implementation and navigate to Assign Target System for Repl-Model/Outb. Impl.. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Business System</td>
<td>Enter the business system that you created for your DSC system</td>
<td></td>
</tr>
</tbody>
</table>

6. Save your entries.
7. Navigate back to Define Replication Models to activate the replication model.
8. Select and activate your defined replication model.
6.4 Define DRF Filter Criteria

You define filter criteria for a DRF replication model to define which business object instances want to replicate to your DSC system.

**Context**

Although you can filter by IDs of individual materials, serial numbers, and production orders, this would require you to continuously update the filter criteria, for example, every time you create a material or release a production order. This could lead to data inconsistencies due to missing objects. A logical approach is to filter by common attributes that every business object instance must have in your DSC system. For example, if you filter by plant, you replicate all production orders manufactured in this plant or all materials with attributes specific to this plant. If you’re using the DSC edition only for final assembly and you manufacture components in the same plant, you may need to use additional filter criteria such a material type or MRP controller. We recommend that you use the Data Replication Framework (transaction DRFF) to define filter criteria because it’s flexible. An alternative way to define filter criteria is in the business configuration in Customizing.

**Procedure**

1. Launch Define Filter Criteria (transaction DRFF).
2. Select a DRF replication model and choose Create.
3. Specify the filter criteria and then choose Save.

### 6.4.1 Define Filter Criteria for the Selection of Business Partners

**Procedure**

Carry out the following steps in the SAP ERP system:

2. Select your replication model (for example Business Partner Transfer to DSC001) and choose Change.
3. Enter Filter Criteria to Include Business Objects, for example for the account group:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Customer or vendor account group</td>
</tr>
<tr>
<td>Relation</td>
<td>For example, is</td>
</tr>
<tr>
<td>Filter Value</td>
<td>Customer or vendor account group, for example, DEBI</td>
</tr>
</tbody>
</table>

4. Save your entries.
5. Select Show Segment Filters.
6. Select Company Code Seg. replicated – 98602 from the list of segment filters (select the name to navigate)
7. Select Edit in the new window.
8. Enter the following data in Filter Criteria to Exclude Business Objects:
Field | Value
--- | ---
Filter Criterion | Company code
Relation | Contains
Filter Value | *

9. Save your entries.
10. Navigate back to the filter criteria and choose **Show Segment Filters**.
11. Select **Purchasing Org Seg. replicated – 98603** from the list of segment filters (select the name to navigate).
12. Choose **Edit** in the new window.
13. Enter the following data in **Filter Criteria to Exclude Business Objects**:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Purch. organization</td>
</tr>
<tr>
<td>Relation</td>
<td>Contains</td>
</tr>
<tr>
<td>Filter Value</td>
<td>*</td>
</tr>
</tbody>
</table>

14. Save your entries.
15. Navigate back to the filter criteria and choose **Show Segment Filters**.
16. Select **Cust Company Code Seg. replicated – 98604** from the list of segment filters (select the name to navigate).
17. Choose **Edit** in the new window.
18. Enter the following data in **Filter Criteria to Exclude Business Objects**:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Company code</td>
</tr>
<tr>
<td>Relation</td>
<td>Contains</td>
</tr>
<tr>
<td>Filter Value</td>
<td>*</td>
</tr>
</tbody>
</table>

19. Save your entries.
20. Navigate back to the filter criteria and choose **Show Segment Filters**.
21. Select **Cust Sales Area Seg. replicated – 98605** from the list of segment filters (select the name to navigate).
22. Choose **Edit** in the new window.
23. Enter the following data in **Filter Criteria to Exclude Business Objects**:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Distribution channel</td>
</tr>
<tr>
<td>Relation</td>
<td>Contains</td>
</tr>
<tr>
<td>Filter Value</td>
<td>*</td>
</tr>
</tbody>
</table>

Field | Value
--- | ---
Filter Criterion | Division
Relation | Contains
Filter Value | *
### 6.5 Configure Inbound Processing of Equipment

Make the necessary settings to configure inbound processing of equipment replicated to your DSC system from your ERP system.

**Context**

The distribution model in your ERP system replicates equipment to DSC through IDoc EQUIPMENT_CREATE, which is triggered based on a business transaction event (BTE). For inbound processing in your DSC system, you want the inbound parameter for this IDoc to be processed by a program that is scheduled to run in the background.

**Procedure**

Carry out the following steps in the DSC system:

1. Launch Partner Profiles (transaction WE20).
2. Select the partner system (logical system) of your ERP system under Partner Type LS.
3. In the Inbound table, select the row containing the message type EQUIPMENT_CREATE and choose the Inbound parameter details icon below the table.
4. Under Processing by Function Module, select Trigger by background program.
5. Save your changes.
6. Go back to the SAP Easy Access screen.
7. Execute report RBDAPP01 from the ABAP Editor (transaction SE38).

---

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Sales organization</td>
</tr>
<tr>
<td>Relation</td>
<td>Contains</td>
</tr>
<tr>
<td>Filter Value</td>
<td>*</td>
</tr>
</tbody>
</table>

24. Save your entries.

25. Navigate back to the filter criteria and choose Show Segment Filters.

26. Select BP Seg. Filter for TaxCategory – 98700 from the list of segment filters (select the name to navigate).

27. Choose Edit in the new window.

28. Enter the following data in Filter Criteria to Exclude Business Objects.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Criterion</td>
<td>Tax number category</td>
</tr>
<tr>
<td>Relation</td>
<td>Contains</td>
</tr>
<tr>
<td>Filter Value</td>
<td>*</td>
</tr>
</tbody>
</table>

29. Save your entries.

---

Note

You can maintain manual filter criteria for the execution of the business partner data transfer. To do so choose Execute Data Replication (transaction DRFOUT) (SAP Easy Access Menu for Data Cross Application Components > Processes and Tools for Enterprise Applications > Master Data Governance > Data Replication > Execute Data Replication) This does not affect the filters defined for the data replication model in this section. The same logic can be used for defining filters for execution.
8. Create a variant (for example, EQUI) for message type EQUIPMENT_CREATE and IDoc status 64.

9. Launch Define Background Job (transaction SM36) and create a new background job (for example, EQUIPMENT_CREATE) as follows:
   a. Specify the ABAP program name RBDAPP01 and the variant that you created in the previous step (in this example, EQUI).
   b. Choose Date/Time as the start condition and select the Periodic job checkbox.
   c. Enter the start date and time.
   d. Choose Period Values, then Other Period, and enter the number of minutes (for example, 5).

10. Save your background job.

6.6 Define Technical Settings for Data Replication (DSC System to ERP System)

For some processes, data integration from the DSC system to the ERP system through DRF is required. For the respective settings, see the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on SAP Help Portal (for example, PEO Implementation Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA).

6.7 Create a BAdI Implementation to Clear Data When Replicating Materials (ERP System)

Create a Business Add-In (BAdI) implementation to delete sales and accounting data from materials that you replicate from your ERP system to your DSC system.

Context

The material master data in your ERP system normally contains accounting, purchasing, and sales data, which is not relevant or needed by your DSC system. If you replicate this data, your receiving DSC system requires sales organizations, valuation classes, and information about goods receipts of purchased materials or goods issues to customers. To prevent referential integrity issues, you create a BAdI implementation in your ERP system to clear this data before the material is replicated to the target system.

Procedure

1. Log on to your ERP system.
2. Create an implementation of the BAdI definition BADI_MATMAS_ALE_CR (Change Data in MATMAS IDoc When Generating an IDoc) in the customer namespace.
3. Adjust the BAdI implementation to your individual needs.
4. Save and activate your implementation.

Example

The following BAdI implementation example is based on material master data replication from an ERP system to a DSC system. It implements enhancement spot BADI_MATMAS_ALE_CR.
Sample Code:

```java
method if_ex_badi_matmas_ale_cr-change_matmas.
*
* Purpose
* =========
* The material master has many attributes controlling business processes in different applications like sales, purchasing, production, accounting, and inventory management.
* Every application needs only a subset of the material's attributes. The MATMAS idoc replicates all attributes maintained in the source system, if they are not deleted in this BADI. Unnecessary attributes can reference other business objects or customizing entities. If the unnecessary attribute is populated the referenced object must exist, even if it is not necessary for the business process running in the client, or else you run into a referential integrity issue.
* Accounting and costing data is for example not necessary in PEO. If the material's accounting and costing data is replicated into the PEO client, then you must still create profit centers and valuation classes in the PEO system. To avoid the need to create such referenced but unnecessary business objects in PEO, the unnecessary attributes should be deleted during transfer. This is what the BADI implementation below is doing for PEO.
* The MATMAS idoc must populate all mandatory fields. Additional mandatory fields can be defined in the material master configuration (transaction OMS9). Make sure all mandatory fields are populated by the idoc. Make also sure only the attributes required for PEO are mandatory in the PEO client.
*
* When to run this BADI implementation
* -----------------------------------------------
* Several DSC edition modules could run in the same S/4HANA system in different clients. In this example S/4HANA for Manufacturing for Production Engineering and Operations PEO is running in client 914. Other modules like PPDS or EWM could run in different clients.
* Every module needs different material master attributes, while other attributes are unnecessary. Therefore, the BADI implementation for PEO may only run in the client, in which will be sent to the PEO system. If PEO is running in a different client in your system landscape, then this code section must be adjusted.
```

```java
if f_idoc_header-rcvprn <> 'QDRCLNT914'.
  exit.
endif.
```

* Delete unnecessary material master views
* Setup of Data Replication Framework (DRF)

* Integration of SAP ERP or SAP S/4HANA with SAP Digital Supply Chain Management, Edition for SAP S/4HANA in a Single Client

* If you do not delete the sales org specific views here, then you must maintain the
* sales organizations in the destination/PEO system. If you do not delete the warehouse specific views here, then you must maintain the warehouse numbers in the destination/PEO system. If in the destination system you only want to manage a subset of the warehouses, then you should delete here all warehouse views, which
* are not managed by the destination system.
* Note that storage types and warehouse numbers may only be deleted if EWM is not running in the same client (which could make sense to manage the floor stock)

* needed for production).

    delete t_idoc_data where segnam = 'E1MBEWM'.  "Delete accounting views (B)
    delete t_idoc_data where segnam = 'E1MLGTM'.  "Delete storage type specific data (L)
    delete t_idoc_data where segnam = 'E1MLGNM'.  "Delete warehouse number specific data (S)
    delete t_idoc_data where segnam = 'E1MVKEM'.  "Delete sales org specific data (V)
    delete t_idoc_data where segnam = 'E1MLANM'.  "Delete country specific tax data
    delete t_idoc_data where segnam = 'E1MPGDM'.  "Delete material master product group
    delete t_idoc_data where segnam = 'E1MPOPM'.  "Delete forecast parameter for consumption
    delete t_idoc_data where segnam = 'E1MPRWM'.  "Delete forecast values
    delete t_idoc_data where segnam = 'E1MVEGM'.  "Delete material total consumption
    delete t_idoc_data where segnam = 'E1MVEUM'.  "Delete material unplanned consumption

* Set plant-specific material attributes for DSC side-by-side processing

* DSC side-by-side does not do proper inventory management. It only manages goods receipts and goods issues related to production orders. For component materials the PEO system will only record goods issues, but not goods receipts.
* Goods receipts for raw materials relate to purchase orders and purchase orders are not managed in the PEO system. Therefore, component inventory in the PEO system will become more and more negative. We must allow negative inventory in the DSC system. Proper inventory management with all goods issues and goods receipts will be done in the ERP system, to which the DSC side-by-side system is connected.
* MRP is performed in the ERP system, not the PEO system. To avoid the need to maintain MRP customizing like MRP types, lotsizing procedure, etc. the BADI implementation deletes such references below.
* In this section you could also delete the special procurement key SOBSL. In that case you need not maintain special procurement keys in table T460A. PEO execution does not support phantom assemblies anyways. Phantom assemblies...
* could however be used in product engineering. A phantom e-BOM must then be
* flattened in e-BOM to m-
BOM handover. To allow this process special procurement
* key are not blanked out in the code below.

data: ls_elmarcm type elmarcm,
lss_elmaram type elmaram.

loop at t_idoc_data assigning <idoc> where segnam = 'E1MARCM'.
ls_elmarcm = <idoc>-sdata.
mtpos_mara = space. "No default sales order item type. We don't do sales in P
PEO system
replace all occurrences of 'B' in ls_elmaram-vpsta with ' '. "Accounting
"replace all occurrences of 'L' in ls_elmaram-vpsta with ' '. "Storage
replace all occurrences of 'S' in ls_elmaram-vpsta with ' '. "Warehouse management
replace all occurrences of 'V' in ls_elmaram-vpsta with ' '. "Sales
replace all occurrences of 'P' in ls_elmaram-vpsta with ' '. "Forecasting
replace all occurrences of 'G' in ls_elmaram-vpsta with ' '. "Costing
replace all occurrences of 'B' in ls_elmaram-pstat with ' '.
"replace all occurrences of 'L' in ls_elmaram-pstat with ' '.
replace all occurrences of 'S' in ls_elmaram-pstat with ' '.
replace all occurrences of 'V' in ls_elmaram-pstat with ' '.
replace all occurrences of 'P' in ls_elmaram-pstat with ' '.
replace all occurrences of 'G' in ls_elmaram-pstat with ' '.
</idoc>-sdata = ls_elmaram.
endloop.

loop at t_idoc_data assigning <idoc> where segnam = 'E1MARAM'.
ls_elmarcm = <idoc>-sdata.
replace all occurrences of 'B' in ls_elmarcm-pstat with ' '.
"replace all occurrences of 'L' in ls_elmarcm-pstat with ' '.
replace all occurrences of 'S' in ls_elmarcm-pstat with ' '.
replace all occurrences of 'V' in ls_elmarcm-pstat with ' '.
replace all occurrences of 'P' in ls_elmarcm-pstat with ' '.
replace all occurrences of 'G' in ls_elmarcm-pstat with ' '.
* ls_elmarcm-xmcng = 'X'. "Always allow negative inventory
* ls_elmarcm-ekgrp = space. "Purchasing group not required in PEO side-
-by-side
* ls_elmarcm-dispr = space. "MRP profile not required in PEO side-by-
side
  if ls_elmarcm-dismm <> 'X0'.
    ls_elmarcm-dismm = 'ND'. "No MRP performed in PEO side-by-
side, but field is mandatory
  endif.
* ls_elmarcm-
disls = space. "Lotsizing procedure not required in PEO side-by-side
** ls_elmarcm-
sobsl = space. "Still replicate special procurement key to allow phantom e-
BOMs in PEO
* ls_elmarcm-lagpr = space. "Storage cost code
* ls_elmarcm-losfx = space. "Setup costs
* ls_elmarcm-fhorl = space. "Scheduling margin key
* ls_elmarcm-mrppp = space. "MRP planning calendar
Note

<table>
<thead>
<tr>
<th>User department</th>
<th>Maintenance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work scheduling</td>
<td>A</td>
</tr>
<tr>
<td>Accounting</td>
<td>B</td>
</tr>
<tr>
<td>Classification</td>
<td>C</td>
</tr>
<tr>
<td>MRP</td>
<td>D</td>
</tr>
<tr>
<td>Purchasing</td>
<td>E</td>
</tr>
<tr>
<td>Production resources/tools</td>
<td>F</td>
</tr>
<tr>
<td>Costing</td>
<td>G</td>
</tr>
<tr>
<td>Basic data</td>
<td>K</td>
</tr>
<tr>
<td>Storage</td>
<td>L</td>
</tr>
<tr>
<td>Forecasting</td>
<td>P</td>
</tr>
<tr>
<td>Quality management</td>
<td>Q</td>
</tr>
<tr>
<td>Warehouse management</td>
<td>S</td>
</tr>
<tr>
<td>Sales</td>
<td>V</td>
</tr>
<tr>
<td>Plant stocks</td>
<td>X</td>
</tr>
<tr>
<td>Storage location stocks</td>
<td>Z</td>
</tr>
</tbody>
</table>

6.8 Create a BAdI Implementation to Differentiate Materials Relevant for SAP Advanced Planning and Optimization and Extended Service Parts Planning (eSPP)

SAP Advanced Planning and Optimization and eSPP cannot be active for the same location product. If both solutions are relevant in your DSC edition, implement BAdI CIF_S4_BADI_PRODUCT_OUTBOUND (enhancement spot CIF_S4_PRODUCT_EHSP) with your logic on ERP releases (for example, set $PSKZ or ESPFPLG by plant).
Note
When integrating from SAP S/4HANA systems, you set this flag in the integration model and the implementation is not needed to distinguish eSPP and Advanced Planning relevancy.

6.9 Create a BAdI Implementation to Update Planning Flags
When Replicating Materials (DSC System)

In the current release, we have IDoc and CIF updates on material masters. IDocs sent from the ERP system do not contain the Advanced Planning flag. Therefore, we need to ensure that the flag is not reset unintentionally.

Implement BAdi BADI_MATMAS_ALE_IN in your DSC system to re-read PPSKZ from table MARC and update inbound values accordingly.

```
METHOD if_ex_badi_matmas_ale_in_change_verb_tab

* PPSKZ is set by CIF integration and we mustn't change it via IDOC.
* Material xx in plant xx: Indicator for 'Advanced Planning' cannot be reset using BAPIs
* Message no. /SAPAPO/MAPI5

* We might have to read all PROD values to avoid an overwriting by IDOC

FIELD-SYMBOLS: <ls_marc> TYPE marc_verb.

LOOP AT marc_verb ASSIGNING <ls_marc>.

SELECT SINGLE ppskz FROM marc
  INTO <ls_marc>-ppskz
  WHERE work = <ls_marc>-works
        AND mater = <ls_marc>-mater.
ENDLOOP.
```

Note
The above coding serves as an example. Depending on your scenario the coding needs to be adjusted (for example, by considering deletion flags, and so on).
7 Configure Solution-Specific Settings

Complete all required settings from the solution-specific guides on the SAP Digital Supply Chain Management, edition for SAP S/4HANA product page on SAP Help Portal in your implementation scope before transferring data.

⚠️ Important

In order to avoid data inconsistencies, additional BAdI implementations and other prerequisites defined within the specific guides have to be in place before transferring data.
8 Data Transfer

8.1 Transfer of Business Partners Using Data Replication Framework (DRF)

You set up the distribution of the following master data from the ERP system to the DSC system using SAP standard technology DRF with web services:
- Customers
- Vendors and Carriers
- Addresses

The master data distribution for those objects is always from the ERP to the DSC system. In the DRF communication settings, the sender system is always the ERP system and the receiver system is always the DSC system.

8.1.1 Activate the Function Module for Master Data Governance Change Handling

You activate function module MDG_BS_BP_OUTBOUND_DRF in the sender system only to transfer business partner changes. For further details, see SAP Note 2211045.

Procedure

Carry out the following steps in the ERP system:
1. Activate the function module in Customizing under Cross-Application Components > SAP Business Partner > Data Distribution > Activate Function Modules.
2. Search for the following entries:
   1. Event: BPOUT
   2. Object: BUPX
   3. Item: 50000001
   4. Function Module: MDG_BS_BP_OUTBOUND_DRF
3. Set the checkbox Call to active for this entry.
4. Save your changes.

8.1.2 Execute the Initial Business Partner Data Transfer with DRF

You execute the initial transfer of business partners to the DSC system.

Procedure

Carry out the following steps in the ERP system:
1. Execute the initial data transfer of business partners in the SAP Easy Access Menu for Data Cross Application Components > Processes and Tools for Enterprise Applications > Master Data Governance > Data Replication > Execute Data Replication (transaction DRFOUT).
2. Enter the following selection data:
8.1.3 **Execute the Delta Business Partner Data Transfer with DRF**

You execute the delta transfer of changed business partners to the DSC system.

**Procedure**

Carry out the following steps in the ERP system:

1. Execute the delta data transfer of business partners in the SAP Easy Access Menu for Data Cross Application Components > Processes and Tools for Enterprise Applications > Master Data Governance > Data Replication > Execute Data Replication (transaction DRFOUT).

2. Enter the following selection data:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replication Model</td>
<td>The name of your replication model, for example, BP_DSC001</td>
</tr>
<tr>
<td>Outbound Implementation</td>
<td>986_3 (Outbound Impl. for BP/REL via Services)</td>
</tr>
<tr>
<td>Replication Mode &gt; Initialization</td>
<td>Inactive</td>
</tr>
<tr>
<td>Replication Mode &gt; Changes</td>
<td>Active</td>
</tr>
<tr>
<td>Options for Report Control &gt; Test Run Only</td>
<td>Inactive</td>
</tr>
</tbody>
</table>

3. Choose *Execute* (F8).

**Note**

You can schedule the corresponding report RDRF_MESSAGE_OUT as a background job to transfer the changes of business partner data regularly.

8.1.4 **Monitor Business Partner Transfer with DRF**

If you use point-to-point direct communication for the DRF data transfer, you use Web Services Message Monitor (transaction SRT_MONI) to monitor the data exchange between the systems. If you use an XI server for the communication, you use XI Message Monitoring (transaction SXI_MONITOR) to monitor the data exchange between the systems.

8.1.5 **Transfer Shipping Points**

For more information about transferring shipping points, see [TM Integration Guide for DSC Edition](#).
8.1.6 Transfer Locations

For more information about transferring locations, see TM Integration Guide for DSC Edition.

8.2 Execute the Initial Transfer of Characteristics Through ALE and IDoc

You transfer characteristics for classification of batches.

Procedure

Carry out the following steps in the ERP system:
1. Launch Distribute All Characteristics Using ALE (transaction BD91).
2. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td>Leave empty or enter an interval</td>
</tr>
<tr>
<td>Logical system</td>
<td>&lt;DSC logical system&gt;, for example, DSCCLNT001</td>
</tr>
</tbody>
</table>
3. Choose Execute.

8.3 Execute the Initial Transfer of Classes

You transfer classes for classification of batches.

Procedure

Carry out the following steps in the ERP system:
1. Launch Distribute Classes Using ALE: Send Direct (transaction BD92).
2. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Type</td>
<td>023 for batch classes</td>
</tr>
<tr>
<td>Class</td>
<td>Enter the classes you use for batch classification</td>
</tr>
<tr>
<td>Logical system</td>
<td>&lt;DSC logical system&gt;, for example, DSCCLNT001</td>
</tr>
</tbody>
</table>
3. Choose Execute.

8.4 Execute the Initial Transfer of Material Masters

Prerequisites

You’ve completed the following steps:
- Configuration of data replication
- Configuration of cross-system production process (see PEO Implementation Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA)
- Configuration to avoid accounting in your DSC system

Procedure

Carry out the following steps in the ERP system:
1. Launch Execute Data Replication (transaction DRFOUT).
2. Specify the replication models defined for materials, work centers, and equipment/serial numbers.
3. Select Initialization under Replication Mode.
4. Execute the report.
8.5 Execute the Initial Transfer of Batches

You transfer batch master data.

Prerequisites

SAP Note 2745236 is implemented in your ERP system.

Procedure

Carry out the following steps in the ERP system:

1. Launch Batch Master Record Initial Transfer (transaction BD90).
2. Enter the data as shown in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Leave empty</td>
</tr>
<tr>
<td>Batch</td>
<td>Leave empty</td>
</tr>
<tr>
<td>Logical system</td>
<td>&lt;DSC logical system&gt;, for example, DSCCLNT001</td>
</tr>
</tbody>
</table>

3. Choose Execute or, if you expect a big amount of data to be transferred, choose Program > Execute in Background.

Note

Since the batch master records are dependent on the material master data, you want to transfer only those master records whose material master data has already been transferred. To achieve this, you must set a dependent filter in the batch distribution model that is not delivered in the standard configuration, see SAP Note 2793298.

8.6 Execute the Delta Transfer of Master Data

You create IDocs based on change logging of master data.

Context

After activating change pointers for the message types, IDocs are created for the corresponding master data based on logging of master data changes. In a productive environment, you create IDocs to transfer changed master data automatically, but in the implementation phase you can also create these IDocs manually.

Note

If you use the DRF framework for the distribution of customers and vendors, you must skip this step. Instead, you use transaction DRFOUT, see section 8.1.3 Execute Delta Business Partner Data Transfer with Data Replication Framework (DRF).

Procedure

Carry out the following steps in the ERP system:

1. Launch ABAP Program Execution (transaction SA38).
2. Enter program RBDMIDOC.
3. Create a variant for each of the following message types:
   - CHRMAS: Class system: Characteristics master
   - CLSMAS: Class system: Classes master
   - CLFMAS: Class system: Classification master
   - BATMAS: Batch
4. Choose Background to define a job to execute all variants of program RBDMIDOC in the background.
5. Schedule the job to run periodically. With each job run, the system will create IDocs for changed master data automatically.