



Integration_Guide | PUBLIC

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TM Integration Guide for DSC Edition

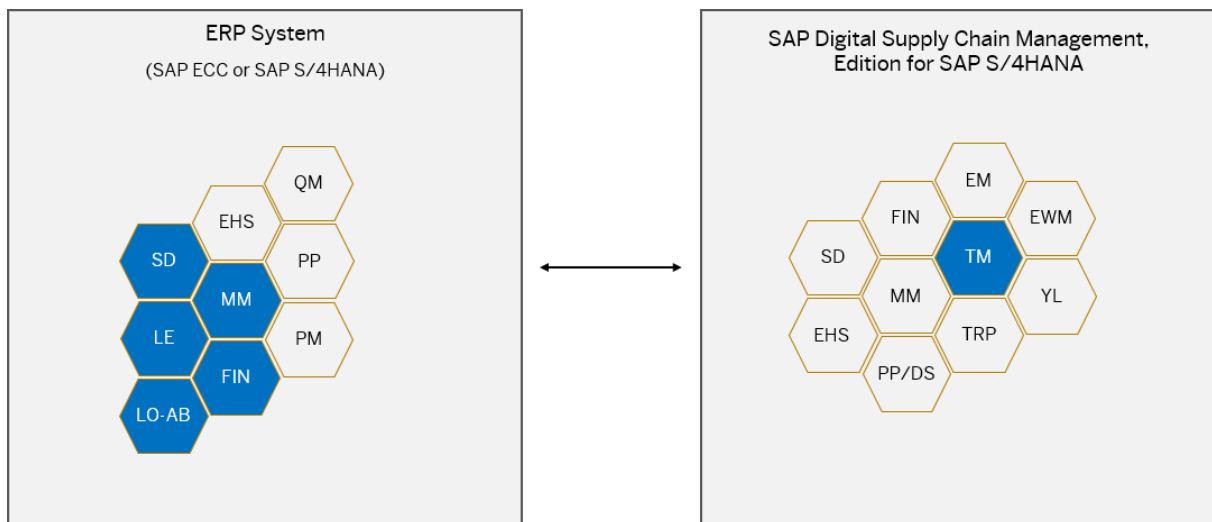
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1 TM Integration Guide for SAP Digital Supply Chain Management, Edition for SAP S/4HANA

The SAP Digital Supply Chain Management, edition for SAP S/4HANA allows you to use the SAP S/4HANA Supply Chain for transportation management (TM) capability side by side with your ERP system.

In this integration scenario, you use SAP Digital Supply Chain Management, edition for SAP S/4HANA to perform transportation management, while performing all other processes in a separate system (SAP ECC or a second SAP S/4HANA system), as shown by the following graphic:



This guide describes the required steps to run TM side by side with your existing ERP system.

System Requirements

System	Release
TM	SAP Digital Supply Chain Management, edition for SAP S/4HANA 2021
ERP	SAP ERP 6.0 with enhancement package 5 or higher
	SAP S/4HANA 2021

i Note

This guide describes the required settings to integrate the TM capability of the edition of SAP Digital Supply Chain Management for SAP S/4HANA with your ERP system. Depending on your business processes, additional configuration settings and master data may be required.

i Note

This guide provides links and navigation paths to the most up-to-date version of the documentation on the SAP Help Portal. Therefore, whenever you access information using these links, you should choose your specific release from the drop-down menu there.

Similarly, if you are running an SAP ERP system and a link to further information leads you to the Product Assistance for SAP S/4HANA, you should substitute that with the SAP Library for SAP ERP. Apart from the product names, the navigation paths are the same.

Naming Conventions

This implementation guide uses the following naming conventions:

- The term **ERP system** refers to your SAP ERP (SAP ECC) system or a separate SAP S/4HANA system in which you're running ERP.
- The term **TM system** refers to the edition of SAP Digital Supply Chain Management for SAP S/4HANA in which you're running TM.

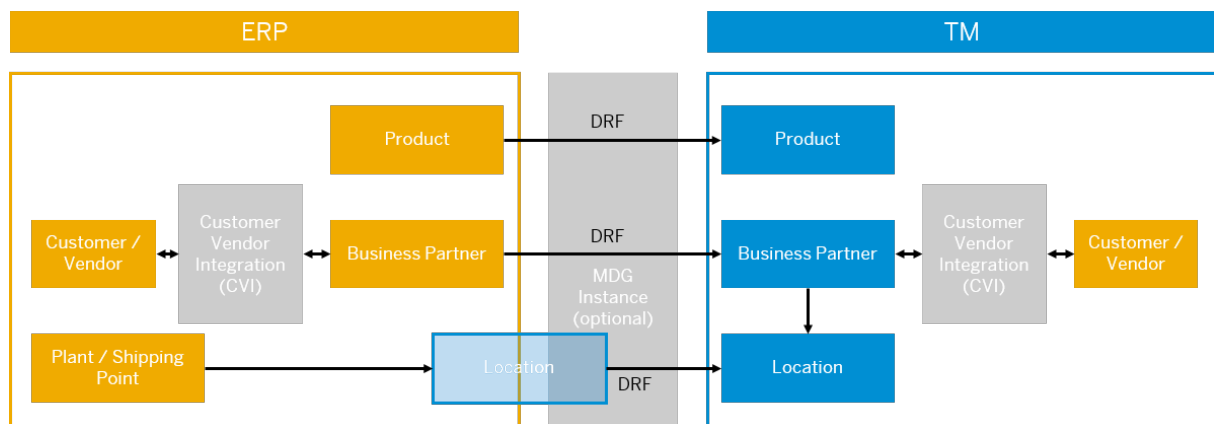
1.1 Implementation Overview

Running TM side by side an ERP system requires an implementation project involving IT experts as well as the affected business process owners and other relevant stakeholders.

The steps involved in such an implementation project include:

- Configuring master data and settings
- Monitoring distributed data
- Handling errors

The following figure provides an overview of the master data distribution options and methods:

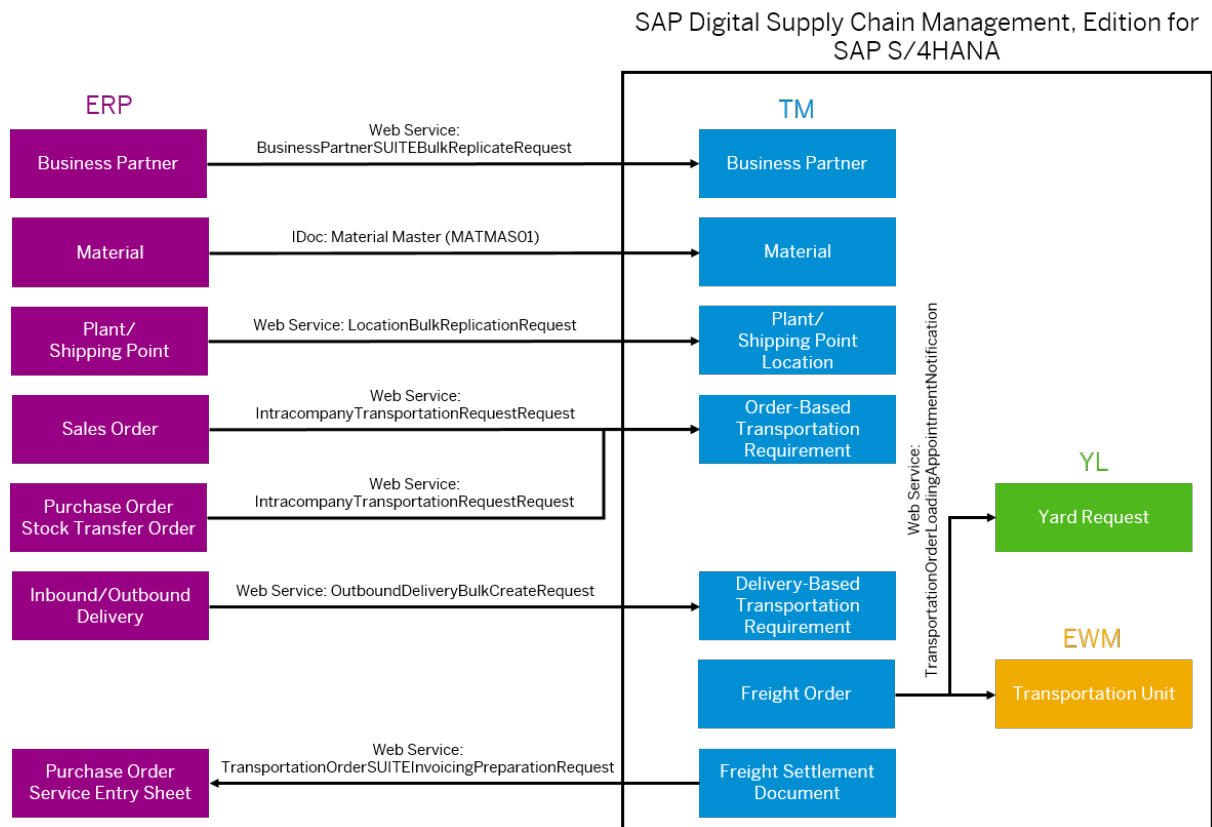


- Customer/vendor integration (CVI) is used in ERP to replicate customer and vendor master data to business partners, and business partner data to customers and vendors.

- The business partner is the leading entity in TM.
- Business partner addresses can be used to create locations in your TM system.
- Web services are used to transfer plants and shipping points as location objects to your TM system.
- Web services are used for replicating business partners and locations to your TM system.
- IDoc is used for replicating materials to your TM system.

1.2 Interfaces for TM Integration

The following graphic shows the interfaces through which data is transferred between your TM system and your ERP system.



1.3 Configuration of Master Data Replication

Configure the required settings to integrate and replicate business objects between your ERP and TM systems.

The steps in this section explain how to perform the following activities:

- Activate business functions to enable point-to-point communication and master data replication
- Define logical systems and create Remote Function Call (RFC) connections to replicate business objects between SAP systems through Application Link Enabling (ALE)

- Create distribution models and partner profiles to replicate data between ERP and TM
- Configure the data replication framework (DRF) to define which business objects you want to replicate and which filter criteria you want to use

i Note

You can replicate a business object only if all references by the business object also exist in the destination system (for example, materials could reference sales data). When configuring your system, ensure that every plant, storage location, and other relevant object that is referenced by a business object in the source system also exists in the destination system. Alternatively, you can delete the reference before transferring the data.

1.3.1 Basic Settings for System Landscape

1.3.1.1 Activate Business Functions in ERP

To enable your ERP system to communicate with your TM system, you must activate business functions. These are individual standard applications and industry solutions in your ABAP-based SAP system. With the business functions, SAP provides new features and enhancements in self-contained units for your existing SAP installations.

Context

Perform this step only if you're running SAP ERP 6.0 with enhancement package 5 or higher. The business functions named here are already activated in SAP S/4HANA systems.

Procedure

1. In your ERP system, open transaction `SEW5`.
2. Activate the following business functions:

Business Function	Description	Details
DRF_FOUNDATION	<i>Data Replication</i>	
FND_SOA_REUSE_1	<i>Improvements for SOA Reuse Functions</i>	Enables you to use Web Services Reliable Messaging (WSRM).

i Note

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 material master changes 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*). We recommend scheduling a job to run the report RDRF_MESSAGE_OUT periodically to replicate all material changes since the previous replication.

i Note

For more information on activating business functions for DRF in SAP ERP, see chapter 20a of SAP Note [2769186](#).

1.3.1.2 Activate Business Functions in TM

To enable your ERP system to communicate with your TM system, you need to activate business functions. These are individual standard applications and industry solutions in your ABAP-based SAP system. With the business functions, SAP provides new features and enhancements in self-contained units for your existing SAP installations.

Procedure

1. In your TM system, launch transaction SFW5.
2. Ensure the following business functions are activated:

Business Function	Description	Details
DRF_FOUNDATION	<i>Data Replication</i>	
FND_SOA_REUSE_1	<i>Improvements for SOA Reuse Functions</i>	Enables you to use Web Services Reliable Messaging (WSRM).

i Note

For more information on activating business functions for DRF in TM, see chapter 20 of SAP Note [2769186](#).

1.3.1.3 Configure Logical Systems in ERP

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

Context

In your ERP system, you need to:

- Define a logical system for your ERP system and assign it to a client.
- Define a logical system for your TM system and client.

i Note

A logical system must adhere to the naming convention <SSS>CLINT<CCC>, where SSS is the 3-character system ID and CCC is the client.

Procedure

1. Log on to your ERP system.
2. Run transaction `SALE` (*Display ALE Customizing*).
3. Define a logical system for your ERP system and client by choosing **Basic Settings > Logical Systems > Define Logical System**.
4. Save your entries and exit the activity.
5. Assign the ERP logical system to a client by choosing **Basic Settings > Logical Systems > Assign Logical System to Client**.
6. Select the client in which you're running ERP and assign the logical system that identifies the ERP system and client.
7. Save your settings and exit the activity.
8. Define a logical system for your TM system and client by choosing **Basic Settings > Logical Systems > Define Logical System**.
9. Save your entries and exit the activity.

1.3.1.4 Configure Logical Systems in TM

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

Context

In your TM system, you need to:

- Define a logical system for your TM system and assign it to a client.
- Define a logical system for your ERP system and client.

i Note

A logical system must adhere to the naming convention <SSS>CLINT<CCC>, where SSS is the 3-character system ID and CCC is the client.

Procedure

1. Log on to your TM system.
2. Run transaction `SALE` (*Display ALE Customizing*).
3. Define a logical system for your TM system and client by choosing **Basic Settings** > **Logical Systems** > **Define Logical System**.
4. Save your entries and exit the activity.
5. Assign the TM logical system to a client by choosing **Basic Settings** > **Logical Systems** > **Assign Logical System to Client**.
6. Select the client in which you're running TM and assign the logical system that identifies the TM system and client.
7. Save your settings and exit the activity.
8. Define a logical system for your ERP system and client by choosing **Basic Settings** > **Logical Systems** > **Define Logical System**.
9. Save your entries and exit the activity.

1.3.1.5 Create RFC Users in ERP and TM

Create an RFC user with the required authorizations in your TM and ERP systems to enable successful communication between the systems.

Procedure

1. Launch transaction `SU01` in your ERP system and identify the user.

i Note

We recommend that you name the RFC user `ALEREMOTE`.

2. On the *Logon Data* tab, select user type *Service* and specify a password.
3. Use transaction `PFCG` to create a role with the necessary authorizations for this user.

i Note

In the ERP system, you must specify the following authorization objects for the RFC user:

- `S_RFC`
- `B_ALE_MODL`
- `C_PDC`
- `M_MSEG_BWA`
- `M_MSEG_WWA`
- `C_AFRU_AWK`
- `SAP_BC_WEBSERVICE_ADMIN`

4. Launch transaction `SU01` in your TM system and identify the user.

i Note

We recommend that you name the RFC user `ALEREMOTE`.

5. On the *Logon Data* tab, select user type *Service* and specify a password.
6. In transaction `PFCG`, specify the following authorization objects for the RFC user:
 - `S_RFC`
 - `B_ALE_MODL`
 - `SAP_BC_WEBSERVICE_ADMIN`


1.3.1.6 Create RFC Connection from ERP to TM

Create an RFC connection from your ERP to your TM system to enable RFC communication between the two systems.

Context

The RFC infrastructure is used both for synchronous remote function calls and for asynchronous IDoc messages.

For details on how to configure RFC connections securely, see:

- The *RFC Communication Between SAP Systems* section of the *RFC/ICF Security Guide* for SAP NetWeaver on the SAP Help Portal. Go to <http://help.sap.com/netweaver> and use the *Guide Finder for SAP NetWeaver and ABAP Platform*.
- [Securing Remote Function Calls \(RFC\)](#) 

Procedure

1. Log on to your ERP system.
2. Run transaction `SM59` and create the RFC connection to the TM 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 press :

Field	Value
Destination	Specify the logical system of the TM system as the destination.
Connection Type	3

5. On the *Technical Settings* tab, make the following settings:
 - a. For load balancing, select *Yes*.
 - b. Enter the target system, message server, and group.

Note

If necessary, copy this information from the system entry properties in SAP Logon.

6. On the *Log On & Security* tab, define the following settings:
 - a. The language and client of the target system.
 - b. The logon data for the RFC user that you created in [Create RFC Users in ERP and TM \[page 10\]](#).
 - c. Set *Trust Relationship* to *Yes*.
7. On the *Unicode* tab, make sure the connection type is *Unicode*.
8. Save your RFC connection.

- Verify your settings by choosing *Remote Logon* and *Connection Test*.

1.3.1.7 Create RFC Connection from TM to ERP

Create an RFC connection from your TM to your ERP system to enable RFC communication between the two systems.

Context

The RFC infrastructure is used both for synchronous remote function calls and for asynchronous IDoc messages.

For details on how to configure RFC connections securely, see:

- The *RFC Communication Between SAP Systems* section of the *RFC/ICF Security Guide* for SAP NetWeaver on the SAP Help Portal. Go to <http://help.sap.com/netweaver> and use the *Guide Finder for SAP NetWeaver and ABAP Platform*.
- [Securing Remote Function Calls \(RFC\)](#)

Procedure

- Log on to your TM system.
- Run transaction `SM59` and create the RFC connection to the ERP system if it doesn't exist yet.
- To create the RFC connection, select *ABAP Connection* and choose (*Create*).
- Enter the following data and then press :

Field	Value
Destination	Specify the logical system of your ERP system as the destination.
Connection Type	3

- On the *Technical Settings* tab, make the following settings:
 - For load balancing, select *Yes*.
 - Enter the target system, message server, and group.

i Note

If necessary, copy this information from the system entry properties in SAP Logon.

- On the *Log On & Security* tab, define the following settings:
 - The language and client of the target system.

- b. The logon data for the RFC user that you created in [Create RFC Users in ERP and TM \[page 10\]](#).
 - c. Set *Trust Relationship* to *Yes*.
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*.

1.3.1.8 System Landscape Directory

A system landscape consists of a number of hardware and software components that depend on each other for installation, software updates, upgrades, and demands on interfaces.

The System Landscape Directory of SAP NetWeaver (SLD) serves as a central information repository for your system landscape. Therefore, when performing a new ERP-TM integration, the SLD is a key actor in the inter-system communication.

You can find more information at the following links:

- [System Landscape Directory - Basics, Scenarios & Best Practices](#) on the SAP Support Portal.
- SAP Note [1978857](#).

1.3.1.8.1 Maintain SLD Access Data in ERP

Business systems require a connection to the SLD server to obtain their name from the SLD. The business system name is an identifier that the system uses in the header of the message sent to the receiving system.

Context

The connection to the SLD is established by creating an RFC destination and calling a registered server program (which is defined on the AS Java RFC engine of the SLD server). The server program is called with the HTTP address as a parameter that is maintained with transaction `SLDAPICUST`.

→ Recommendation

For security reasons, you can also secure your SLD connection with HTTPS.

Procedure

1. Log on to your ERP system.
2. Run transaction `SLDAPICUST` (*Display SLD Access Data*).
3. To create a new entry, select *Access to SLD Server Using HTTP* and choose *Connection Parameter Entered Here*.

4. Specify the following data and then press :

Field	Value
Alias Name	[SLD Server Host Alias Name]
Primary	x (checked)
Host Name	[Host name of your SLD server]
Port No.	[HTTPS port number of the SLD server]
User	[SLD access user]
Password	[SLD access user password]

5. Save your entries.

1.3.1.8.2 Maintain SLD Access Data in TM

Business systems require a connection to the SLD server to obtain their name from the SLD. The business system name is an identifier that the system uses in the header of the message sent to the receiving system.

Context

The connection to the SLD is established by creating an RFC destination and calling a registered server program (which is defined on the AS Java RFC engine of the SLD server). The server program is called with the HTTP address as a parameter that is maintained with transaction `SLDAPICUST`.

→ Recommendation

For security reasons, you can also secure your SLD connection with HTTPS.

Procedure

1. Log on to your TM system.
2. Run transaction `SLDAPICUST` (*Display SLD Access Data*).
3. To create a new entry, select *Access to SLD Server Using HTTP* and choose *Connection Parameter Entered Here*.
4. Specify the following data and then press :

Field	Value
Alias Name	[SLD Server Host Alias Name]
Primary	x (checked)

Field	Value
Host Name	[Host name of your SLD server]
Port No.	[HTTPS port number of the SLD server]
User	[SLD access user]
Password	[SLD access user password]

5. Save your entries.

1.3.1.8.3 Define SLD Data of Business Systems

You use this procedure to name the business system and all systems that are part of the system landscape.

Procedure

1. Log on to your TM system.
2. In Customizing for *Transportation Management*, choose **Integration** > *Define SLD Data of Business Systems*.
3. In the *Buffer for SLD Data of Business Systems* screen, create a new entry for each system that is part of your system landscape. For example, create new entries with the following values for your TM system and your ERP system:

Business System	Logical System	Manual Maint.
<System Identifier>_<Client Number>, for example, TM1_001	<TM Logical System>, for example, TM1CLNT001	Flag is not set
<System Identifier>_<Client Number>, for example, ERP_001	<ERP Logical System>, for example, ERPCLNT001	Flag set (event raised)

i Note

In the activity [Configure Your Central System \[page 18\]](#), you may want to use the same value for *Business System* and *Business System ID*. The maximum number of characters allowed for the *Business System ID* is 8. Therefore, we recommend you choose a *Business System* of 8 characters or less here.

i Note

A logical system must adhere to the naming convention <SSS>CLNT<CCC>, where SSS is the 3-character system ID and CCC is the client.

4. Save your entries.

1.3.1.8.4 Configuring, Working with, and Administering the SLD

You must register your business systems in the SLD.

Prerequisites

You have performed the activities described in [Connecting Systems to the SLD](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under ► [Application Help](#) ► [SAP NetWeaver Library: Function-Oriented View](#) ► [Solution Life Cycle Management](#) ► [Configuring, Working with and Administering System Landscape Directory](#) ► [Connecting Systems to the SLD](#) ►:

- [Connecting AS ABAP Systems to the SLD](#)
- ► [Connecting AS ABAP Systems to the SLD](#) ► [Setting Up the SLD Data Supplier for AS ABAP-Based Systems](#) ►
- ► [Connecting AS ABAP Systems to the SLD](#) ► [Using SLD API for AS ABAP-Based Systems](#) ►


Procedure

1. You must configure systems that are installed in your system landscape to periodically send data to the SLD. For more information, see [Connecting Systems to the SLD](#).
2. With the SLD you can view and manage technical systems, landscapes, business systems, products, and software components. You can find more information about this under [Working with SLD](#).

1.3.1.9 Technical Configuration for SOA Manager

SOA Manager is a collection of tools for maintaining ABAP Web service-relevant entities. The following pages describe how you should configure it.

Prerequisites

- For a TM, ERP, and - if applicable - EWM system, you have activated the business function `FND_SOA_REUSE_1`. This enables Web Services Reliable Messaging (WSRM) usage in these systems. For more information, see [Activate Business Functions in ERP \[page 6\]](#) and [Activate Business Functions in TM \[page 7\]](#).
- You have set up the technical configuration of the Web service runtime environment in all relevant systems (TM, ERP, EWM). For more information on configuration of Web service runtime, see SAP Note [1043195](#) .

- You have configured the SLD to begin configuring WSRM.

Further Information about SOA Manager

You can find detailed information on SOA Manager, including a [Glossary of Terms for SOA Manager](#), in the SAP Library for SAP NetWeaver on the SAP Help Portal under [▶ Application Help ▶ SAP NetWeaver Library: Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Workbench - Classic ▶ ABAP Workbench Tools ▶ ABAP Web Services ▶ Configuring Web Services in SOA Manager ▶](#).

1.3.1.9.1 Activate Point-to-Point Communication in ERP

Master data objects and transactional documents need to be transferred using Web services. You need to enable this transfer in Customizing.

Procedure

1. Log on to your ERP system.
2. In Customizing for *Cross-Application Components*, choose [▶ Processes and Tools for Enterprise Applications ▶ Enterprise Services ▶ Point-to-Point Enablement for Asynchronous Enterprise Services ▶ Activate Support for Point2Point Communication ▶](#).
3. Select *Active* and save your entry.

1.3.1.9.2 Activate Point-to-Point Communication in TM

Master data objects and transactional documents need to be transferred using Web services. You need to enable this transfer in Customizing.

Procedure

1. Log on to your TM system.
2. In Customizing for *Cross-Application Components*, choose [▶ Processes and Tools for Enterprise Applications ▶ Enterprise Services ▶ Point-to-Point Enablement for Asynchronous Enterprise Services ▶ Activate Support for Point2Point Communication ▶](#).

3. Select *Active* and save your entry.

1.3.1.9.3 Configure Your Central System

The central system is used to execute tasks on other systems within an ABAP landscape. As soon as a client of an ABAP system is defined as a central system, other systems can pass control to the central system so that different configuration tasks can be carried out in these managed systems from the central system. We recommend that you use the system with the highest NetWeaver release as your central system.

Prerequisites

Ensure that the settings described in [Defining Systems as Central Systems](#) have been maintained. For additional information, see the SAP Library for SAP NetWeaver on the SAP Help Portal under [▶ Application Help ▶ SAP NetWeaver Library: Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Workbench - Classic ▶ ABAP Workbench Tools ▶ ABAP Web Services ▶ Configuring Web Services in SOA Manager ▶ Configuring Service Providers and Consumers ▶ Configuring Integration Scenarios ▶ Defining Systems as Central Systems ▶](#).

Procedure

1. Log on to the system you want to use as your central system.
2. Run transaction `SOAMANAGER` (*SOA Manager*).
3. Navigate to the *Technical Administration* tab and select *SAP Client Settings*.
4. Expand the *Service Identifier* section, select *Edit* and enter the following data:

Field	Value
Organization Name	[System description]
Business System	Select <i>Get from SLD</i> to retrieve this information.
Business System ID	Must match the system entry specified in table <code>/SCMB/TBUSSYS</code> .

i Note

The maximum number of characters allowed for the *Business System ID* field is 8. For more information, see [Define SLD Data of Business Systems \[page 15\]](#).

5. Expand the *Central Configuration* section and choose *Edit*.
6. Check *Central System*.

7. Save your settings, and refresh your web browser.

The title *Central SOA Management* now indicates that your system is a central system. Within the central system, the systems it manages are represented as domain systems.

1.3.1.9.4 Configure a Management Connection to the Central System

In each system that you want to be configured by a central system, you need to create a management connection to the central system. The management connection is established from the system you want to manage, but the process builds a bi-directional connection.

Procedure

For detailed information and instructions on how to configure a management connection to the central system, please see [Creating a Management Connection to the Central System](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [▶ Application Help ▶ SAP NetWeaver Library: Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Workbench - Classic ▶ ABAP Workbench Tools ▶ ABAP Web Services ▶ Configuring Web Services in SOA Manager ▶ Configuring Service Providers and Consumers ▶ Configuring Integration Scenarios ▶ Creating a Management Connection to the Central System ▶](#).

1.3.1.9.5 Configure a Domain in the Central System

In the central system, domains are used to group systems that are managed by the central system. All domain systems that you add to a domain have to share the same security and proxy settings for Web service configuration. In the domain, you define the security and proxy settings for all connections within the domain.

Context

For detailed information and instructions on how to configure a domain in the central system, please see [Creating a Domain in a Central System](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [▶ Application Help ▶ SAP NetWeaver Library: Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Workbench - Classic ▶ ABAP Workbench Tools ▶ ABAP Web Services ▶ Configuring Web Services in SOA Manager ▶ Configuring Service Providers and Consumers ▶ Configuring Integration Scenarios ▶ Creating a Domain in a Central System ▶](#).

Procedure

1. Log on to the system you want to use as your central system.
2. Run transaction SOAMANAGER (*SOA Manager*).
3. Navigate to the *Technical Administration* tab and select *Domains*.
4. On the *Domains* screen, select *Create*, enter the relevant data, and select *Create* again.
5. In the *Domain Systems* section, add the relevant system entries.
6. In the *Profile* section, under the *Security Settings* tab, see the *Authentication Method* section. Under *Transport Chanel Authentication*, select the checkbox for *User ID/Password*.
7. In the *General* section, change the *State* to *Active*, and select *Save*.

1.3.1.9.6 Check Assignment of Systems to Domains

You need to ensure that the logical systems are assigned to the domain you created.

Procedure

1. Log on to your central system.
2. Run transaction SOAMANAGER (*SOA Manager*).
3. Navigate to the *Technical Administration* tab and select *Domain Systems*.
4. Review each relevant *Domain System ID* by selecting the *Display Domain System* icon.
5. In the *Provider System* section, under the *WSDL Access* tab, see the section *Logical System*. You must ensure that the appropriate logical system is specified in the corresponding field for each of the relevant systems assigned to the domain that you created. For more information, see [Configure Logical Systems in ERP \[page 8\]](#), [Configure Logical Systems in TM \[page 9\]](#), and [Configure a Domain in the Central System \[page 19\]](#).

1.3.1.9.7 Create and Assign Logon Data in Your Central System

Context

You can either use this procedure below or create logon data directly within an integration scenario. For more information, see [Creating Connections for Integration Scenarios](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [Application Help > SAP NetWeaver Library: Function-Oriented View > Application](#)

[Server](#) > [Application Server ABAP](#) > [Application Development on AS ABAP](#) > [ABAP Workbench - Classic](#) > [ABAP Workbench Tools](#) > [ABAP Web Services](#) > [Configuring Web Services in SOA Manager](#) > [Configuring Service Providers and Consumers](#) > [Configuring Integration Scenarios](#) > [Creating Connections for Integration Scenarios](#) >

Procedure

1. Run transaction SOAMANAGER (*SOA Manager*) in your central system.
2. On the *Service Administration* tab, choose *Logon Data Management*.

On the *Maintenance* tab, the system displays all logon data in a list.

3. Choose *Create* and specify a name, a description, and an authentication method.
If you choose *User/Password or X.509* as the authentication method, you have to enter credentials.

The *Type* of the logon data is *Central*.

4. On the *Assignments* tab, assign the logon data to the provider system for which the logon data is valid.
5. To distribute the domain settings to your domain systems, start the change processor.

When the logon data is transported to a managed system, the logon data type is *Central* to mark that it has been created in the central system. *Central* logon data can be used for central business scenario configuration.

For more information, see [Distributing Changes from the Central System to Domain Systems](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [Application Help](#) > [SAP NetWeaver Library: Function-Oriented View](#) > [Application Server](#) > [Application Server ABAP](#) > [Application Development on AS ABAP](#) > [ABAP Workbench - Classic](#) > [ABAP Workbench Tools](#) > [ABAP Web Services](#) > [Configuring Web Services in SOA Manager](#) > [Configuring Service Providers and Consumers](#) > [Configuring Integration Scenarios](#) > [Distributing Changes from the Central System to Domain Systems](#) >

1.3.1.10 Application Configuration for SOA Manager

1. Create one integration scenario configuration for each integration scenario. For more information, see [Integration Scenario Configuration \[page 53\]](#).
2. Create and assign logon data. You only need to do this once for each managed system. For more information, see [Create and Assign Logon Data in Your Central System \[page 20\]](#).
3. Start the change processor. For more information, see [Start the Change Processor \[page 24\]](#).
4. Create logical receiver determinations in SOA Manager (optional).

1.3.1.10.1 Integration Scenario Configuration

In a system landscape, one ABAP system can be defined as the central system. From this central system, entire integration scenarios can be configured and the configurations can be distributed to all affected systems that take part in the central configuration.

For more information on configuring integration scenarios, see [Configuring Integration Scenarios](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under ► [Application Help](#) ► [SAP NetWeaver Library: Function-Oriented View](#) ► [Application Server](#) ► [Application Server ABAP](#) ► [Application Development on AS ABAP](#) ► [ABAP Workbench - Classic](#) ► [ABAP Workbench Tools](#) ► [ABAP Web Services](#) ► [Configuring Web Services in SOA Manager](#) ► [Configuring Service Providers and Consumers](#) ► [Configuring Integration Scenarios](#) ►.

i Note

As of NetWeaver 7.40 basis, SOA Manager terminology has been partially changed:

- The term "integration scenario configuration" replaces "central business scenario configuration".
- The term "Identifiable Business Context (IBC) reference" replaces "actors" (consumer system or provider system).

In addition, you can use the new connection type "Service Group Based, Request Response" to directly maintain a two-way connection: for both IBC references (actors) you can specify a service group to define both communication directions in one step.

1.3.1.10.1.1 Transfer Your Business Partners

Procedure

1. Log on to your central system.
2. Run transaction SOAMANAGER (*SOA Manager*) and choose ► [Service Administration](#) ► [Integration Scenario Configuration](#) ►.
3. Choose *Create*.
4. In the pop-up window, enter a name and a description (for example, <01_ERP_TM_BP_TRANSFER>), and select *Create*.
5. In the [Service Group Connections](#) section, choose *Create*.
6. In the [Assign IBC References](#) screen, drag and drop from the *Client* list the ERP system reference as *Actor 1*. Alternatively, use the input help to retrieve this entry.
7. In the [Assign IBC References](#) screen, drag and drop from the *Client* list the TM system reference as *Actor 2*. Alternatively, use the input help to retrieve this entry.
8. Choose *Next*.

9. In the *Connection Type* field, choose *Service Group Based, Request Response*.
10. In the *Assign Service Groups* section, choose service group MDG_BS_SUPPLIERREPLICATEREQ for *Actor 1* and MDG_BS_SUPPLIERREPLICATECONF for *Actor 2*.
11. Choose *Next*.
12. Choose *Finish*.
13. Optionally, you can choose the *Check* and *Ping* pushbuttons in the *Service Group Connections* section to ensure the configuration has been correctly performed.
14. Choose *Logon Data Assignments* in the *Service Group Connections* section and for each interface listed, enter under *Logon Data Name* the user you created in the step [Create RFC Users in ERP and TM \[page 10\]](#).
15. In the scenario configuration header, choose *Check*.
16. In the the scenario configuration header, choose *Ping*.
17. In the scenario configuration header, choose *Activate*.
18. In the scenario configuration header, choose *Release*.

1.3.1.10.1.2 Transfer Your Locations

Procedure

1. Log on to your central system.
2. Run transaction SOAMANAGER (*SOA Manager*) and choose ► *Service Administration* ► *Integration Scenario Configuration* ▾.
3. Choose *Create*.
4. In the pop-up window, assign a name and a description (for example, <02_ERP_TM_LOCATION_TRANSFER>), and choose *Create*.
5. In the *Service Group Connections* section, choose *Create*.
6. In the *Assign IBC References* screen, drag and drop from the *Client* list the ERP system reference as *Actor 1*. Alternatively, use the input help to retrieve this entry.
7. In the *Assign IBC References* screen, drag and drop from the *Client* list the TM system reference as *Actor 2*. Alternatively, use the input help to retrieve this entry.
8. Choose *Next*.
9. In the *Connection Type* field, choose *Service Group Based, Request Response*.
10. In the *Assign Service Groups* section, choose service group LOCATION_REPLICATE_REQ for *Actor 1* and / SCMB/LOC_REPLICATE_CNF for *Actor 2*.
11. Choose *Next*.
12. Choose *Finish*.
13. Optionally, you can choose the *Check* and *Ping* pushbuttons in the *Service Group Connections* section to ensure the configuration has been correctly performed.
14. Choose *Logon Data Assignments* in the *Service Group Connections* section and for each interface listed, enter under *Logon Data Name* the user you created in the step [Create RFC Users in ERP and TM \[page 10\]](#).

15. In the scenario configuration header, choose *Check*.
16. In the the scenario configuration header, choose *Ping*.
17. In the scenario configuration header, choose *Activate*.
18. In the scenario configuration header, choose *Release*.

1.3.1.10.2 Start the Change Processor

The change processor is used in the central system to control the central configuration process. Once the required information is maintained by the technical and business administrator in the central system, an administrator can start the change processor.

Procedure

1. Log on to your central system.
2. Run transaction `SOAMANAGER` (*SOA Manager*) and choose ► *Service Administration* ► *Change Processor* ▾.
3. Select *Release* and *All*.

1.3.1.11 Technical Configuration for ALE/IDoc

You use this process to set up the distribution of material master data from your ERP system to your TM system using Application Link Enabling (ALE)/IDoc or the Data Replication Framework (DRF).

Master data distribution is always from the ERP system to the TM system. In the IDoc settings, the sender system is always ERP and the receiver system is always TM.

As a prerequisite, you have configured the system connection and global settings as described in the previous chapters. RFC destinations and logical systems exist both in TM and in ERP.

i Note

Some settings described in this chapter, such as the creation of reduced message types with transaction `BD53` or report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE`, require a workbench request. You must therefore clarify with your system administrator which ERP system and client is appropriate to carry out these steps.

i Note

The process explained in the sections below in regards to material master data transfer settings contains only an example for the ALE/IDoc setup. ALE offers many more settings and possibilities. To familiarize yourself with ALE in general, you can refer to the IDoc Interface/ALE pages on the SAP Help Portal.

1.3.1.11.1 Set Up Configuration of IDoc Communication with Setup Reports

The following reports are available to support the configuration of Customizing for ALE:

Report	Usage
/SPE/R_DEC_EWM_REDUCE_MESSTYPE	This report is used to create the reduced message types in the sender and receiver system (ERP or TM).
/SPE/R_DEC_EWM_ALE_CUST	This report is used to maintain ALE Customizing in the sender system (ERP or TM).
/SCWM/R_DEC_EWM_ALE_SETUP	This report is used to maintain ALE Customizing in the receiver system (TM).

i Note

The ALE Customizing which is performed by these reports can also be done manually. For additional information about the manual steps for ALE Customizing, see [Create Port for IDoc Processing in Sender System \[page 28\]](#).

1.3.1.11.1.1 Create Reduced Message Types in ERP System

You use the report /SPE/R_DEC_EWM_REDUCE_MESSTYPE to create reduced message types for materials the ERP system.

Procedure

1. In the ERP client (sender system), call transaction SE38 (*ABAP Editor*).
2. Enter Program /SPE/R_DEC_EWM_REDUCE_MESSTYPE.
3. Select *Execute* (F8).
4. On the next screen, use the default values or choose your own values:
 - a. Select *Reduce Material Message Type*.
 - b. Enter *Reduced Type for MATMAS*, for example **ZEWMMATMAS**.
 - c. Enter *Short Text*, for example **Reduced MATMAS for TM**.
5. Select *Check and Perform Customizing*.
6. Select *Execute* (F8).

i Note

If you use DRF for the distribution of customers, vendors and carriers, you do not need to create the reduced message types for CREMAS and DEBMAS.

1.3.1.11.1.2 Create Reduced Message Types in TM System

You use the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE` to create reduced message types for materials in the TM system.

Context

i Note

Instead of creating the reduced message types in the receiving TM system with the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE`, you can also ask your system administrator to transport the reduced message types to the TM system by means of a transport request (see [Transport Reduced Message Types to TM \[page 34\]](#)).

Procedure

1. In your TM system, call transaction `SE38` (*ABAP Editor*).
2. Enter Program `/SPE/R_DEC_EWM_REDUCE_MESSTYPE`.
3. Select *Execute* (`F8`).
4. On the next screen, use the default values or choose your own values:
 - a. Select *Reduce Material Message Type*.
 - b. Enter *Reduced Type for MATMAS*, for example `ZEWMMATMAS`.
 - c. Enter *Short Text*, for example `Reduced MATMAS for TM`.
5. Select *Check and Perform Customizing*.
6. Select *Execute* (`F8`).

1.3.1.11.1.3 Create ALE Configuration in ERP System

You use the report `/SPE/R_DEC_EWM_ALE_CUST` to create ALE configuration in your ERP system.

Procedure

1. In your ERP system, call transaction `SE38` (*ABAP Editor*).
2. Enter Program `/SPE/R_DEC_EWM_ALE_CUST`.
3. Select *Execute* (`F8`).
4. On the next screen, use the default values or choose your own values:

- a. Enter the name of your TM system, for example **TM1CLNT001**.
 - b. Enter the name of your *Reduced Type for MATMAS*, for example **ZEWMATMAS**.
 - c. Select a *Change Pointer Settings* option, for example *Activate Change Pointers*.
 - d. Select *Maintain Distribution Model*.
 - e. Enter a *Distribution Model Name*, for example **TM1CLNT001**.
5. Select appropriate filters for the materials, vendors and customers you want to distribute to the TM system.
 6. In the area *Further Process Steps*:
 - a. Select *Create Port for IDocs*.
 - b. Select *Maintain Partner Profiles and Outbound Parameters*.
 - c. Select *Immediate IDoc Mode* or *Collective IDoc Mode*.
 - d. Select *Create Conversion Rules for Material Maintenance Status*.
 - e. *Enter a Conversion Rule Name Prefix*, for example **ZEWM_PSTAT**.
 - f. Select *Activate Enhanced Filtering and Transfer Options*.
 7. Select *Check and Perform Customizing*.
 8. Select *Execute* (**F8**).

1.3.1.11.1.4 Create ALE Configuration in TM System

You use the report /SCWM/R_DEC_EWM_ALE_SETUP to create ALE configuration in the TM system.

Procedure

1. In your TM system, call transaction SE38 (*ABAP Editor*).
2. Enter Program /SCWM/R_DEC_EWM_ALE_SETUP.
3. Select *Execute* (**F8**).
4. On the next screen, use the default values or choose your own values:
 - a. Enter the name of your ERP system, for example **ERPCLNT001**.
 - b. Enter the name of your *Reduced Type for MATMAS*, for example **ZEWMATMAS**.
5. In the area *Further Process Steps*:
 - a. Select *Maintain Partner Profiles and Outbound Parameters*.
 - b. Select *Immediate IDoc Mode* or *Collective IDoc Mode*.
6. Select *Check and Perform Customizing*.
7. Select *Execute* (**F8**).

1.3.1.11.2 Create Port for IDoc Processing in Sender System

You use this procedure to create a port for the receiver system in the sender system.

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report `/SPE/R_DEC_EWM_ALE_CUST`.

Procedure

1. In your ERP system, call transaction `WE21` (*Ports in IDoc Processing*).
2. Select the port type *Transactional RFC* and select *Create*.
3. Choose *Own Port Name* and enter a port name for the TM client, for example `TM1CLNT001`.
4. On the next screen, enter the *RFC Destination*, for example `TM1CLNT001` and select the processing option *Use SAP Release of Receiving System in Control Record*.
5. Save the entry. You will be prompted to enter a transport request for the new message type.

1.3.1.11.3 Creating Reduced Message Types

You use this procedure to select segments and fields of the basic types for master data that you want to distribute. By reducing the number of segments and fields, you also reduce the number of Customizing tables (containing allowed field values for master data) that need to be synchronized between both systems.

Basic types for master data are supplied in the standard SAP system. If you want to reduce the basic types, you use transaction `BD53` to select the segments and fields that you want to distribute. To do this you activate the segments and fields that you require and generate a new message type. Mandatory segments and mandatory fields cannot be deactivated.

i Note

If you change a reduced message type after you have set up filters, some entries may be reset. In this case, you will receive a warning in transaction `BD53`. You should then test the transfer again. For example, you must check new entries in transaction `BD59` as they may be removed in case of changes of an existing reduced message type.

1.3.1.11.3.1 Create a Reduced Message Type for MATMAS

You use this procedure to create a reduced message type based on the basis message type MATMAS for the distribution of material master data to the TM system.

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE` and does not have to be executed manually if you use the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE`.

i Note

The list of segments and fields mentioned below is just a proposal. The list of segments and fields may differ regarding for which release you want to create the reduced message type. It shows a set of fields TM requires for its main processes. Depending on your requirements you may add/remove segments or fields. If you add a new field, check whether allowed values for this field are defined in a Customizing table. If this is indeed the case, entries for the table are also needed in your TM system.

Procedure

1. In your ERP system, call transaction `BD53` (*IDoc Reduction Maintenance*).
2. Enter a name for the reduced message type, for example `ZEWMMATMAS` and select *Create*.
3. Enter `MATMAS` as message type reference and select *Continue*.
4. Enter a description for the reduced message type, for example `Reduced MATMAS (Material) for TM` and select *Continue*.
5. On the next screen, select the following segments:
 - a. `E1MARAM` (already selected as it is mandatory)
 - b. `E1MARA1`
 - c. `E1MAKTM` (already selected as it is mandatory)
 - d. `E1MARMM` with sub-segment `E1MEANM`
6. Select the fields for each segment as proposed in the tables below. Mandatory fields are already selected.
7. Save your entries. You will be prompted to enter a transport request for the new message type.

The following tables contain a proposal for segments and fields to be distributed to your TM system:

Fields from Segment E1MARAM	Description
MSGFN (mandatory)	Function
MATNR (mandatory)	Material Number

Fields from Segment E1MARAM	Description
ERSDA	Created On
LAEDA	Date of Last Change
PSTAT (mandatory)	Maintenance status
LVORM (mandatory)	Flag Material for Deletion at Client Level
MTART (mandatory)	Material Type
MBRSH (mandatory)	Industry Sector
MATKL (mandatory)	Material Group
MEINS (mandatory)	Base Unit of Measure
BSTME	Purchase Order Unit of Measure
GROES (mandatory)	Size/dimensions
WRKST (mandatory)	Basic material (basic constituent of a material) - obsolete
BRGEW	Gross Weight
NTGEW	Net Weight
GEWEI	Weight Unit
VOLUM	Volume
VOLEH	Volume Unit
BEHVO	Container requirements
RAUBE	Storage conditions
TEMPB	Temperature conditions indicator
TRAGR	Transportation Group
STOFF	Hazardous material number
SPART (mandatory)	Division
ETIAR	Label type
ETIFO	Label form
EAN11	International Article Number (EAN/UPC)
NUMTP	Category of International Article Number (EAN)
LAENG	Length
BREIT	Width
HOEHE	Height
MEABM	Unit of Dimension for Length/Width/Height
PRDHA	Product Hierarchy
ERGEW	Allowed packaging weight
ERGEI	Weight Unit
ERVOL	Allowed packaging volume
ERVOE	Volume Unit

Fields from Segment E1MARAM	Description
GEWTO	Excess Weight Tolerance for Handling unit
VOLTO	Excess Volume Tolerance of the Handling Unit
KZKFG	Configurable Material
XCHPF	Batch management requirement indicator
VHART	Packaging Material Type
FUELG	Maximum level (by volume)
STFAK	Stacking factor
MAGRV	Material Group: Packaging Materials
BEGRU	Authorization Group
QMPUR	QM in Procurement is Active
MHDRZ	Minimum Remaining Shelf Life
MHDHB	Total shelf life
MHDLP	Storage percentage
VPSTA (mandatory)	Maintenance status of complete material
KZUMW	Environmentally Relevant
KOSCH	Product allocation determination procedure
PROFL	Dangerous Goods Indicator Profile
KZGVH	Packaging Material is Closed Packaging
COMPL	Material completion level
RDMHD	Rounding rule for calculation of SLED
IPRKZ	Period Indicator for Shelf Life Expiration Date
MTPOS_MARA	General item category group
MATFI	Material Is Locked
SATNR	Cross-Plant Configurable Material
SLED_BBD	Expiration Date
MATNR_LONG	Material Number (40 Characters, needed f. technical reasons)

Fields from Segment E1MARA1	Description
HUTYP_DFLT	Standard HU Type
PILFERABLE	Pilferable
WHSTC	Warehouse Storage Condition
WHMATGR	Warehouse Material Group
HNDLCODE	Handling Indicator
HAZMAT	Relevant for Hazardous Substances
HUTYP	Handling Unit Type

Fields from Segment E1MARA1	Description
TARE_VAR	Variable Tare Weight
MAXC	Maximum Allowed Capacity of Packaging Material
MAXC_TOL	Overcapacity Tolerance of the Handling Unit
MAXL	Maximum Packing Length of Packaging Material
MAXB	Maximum Packing Width of Packaging Material
MAXH	Maximum Packing Height of Packaging Material
MAXDIM_UOM	Unit of Measure for Maximum Packing Length/Width/Height
HERKL	Country/Region of Origin of Material (Non-Preferential Origin)
MFRGR	Material freight group
QQTIME	Quarantine Period
QQTIMEUOM	Time Unit for Quarantine Period
QGRP	Quality Inspection Group
SERIAL	Serial Number Profile
PS_SMARTFORM	Form Name
CWQPROC	EWM CW: Catch Weight Profile for Entering CW Quantity
CWQTOLGR	EWM-CW: Catch Weight Tolerance Group for EWM
ADPROF	Adjustment Profile
SCM_MATURITY_DUR	Maturation Time
SCM_SHLF_LFE_REQ_MAX	Required Maximum Shelf Life
SCM_PUOM	Preferred Alternative UoM for Warehouse Operations
SCM_KITCOMP	Product for Kit-to-Order
Fields from Segment E1MAKTM	Description
MSGFN (mandatory)	Function
SPRAS (mandatory)	Language Key
MAKTX (mandatory)	Material Description
Fields from Segment E1MARCM	Description
MSGFN (mandatory)	Function
WERKS (mandatory)	Plant
PSTAT (mandatory)	Maintenance status
LVORM	Deletion Indicator
SSQSS	QA Control Key
XCHPF	Batch management requirement indicator
SERNP	Serial Number Profile

Fields from Segment E1MARCM	Description
PRFRQ	Interval Until Next Recurring Inspection
<hr/>	
Fields from Segment E1MARAMM	Description
MSGFN (mandatory)	Function
MEINH (mandatory)	Alternative Unit of Measure for Stockkeeping Unit
UMREZ	Numerator for Conversion to Base Units of Measure
UMREN	Denominator for conversion to base units of measure
EAN11	International Article Number (EAN/UPC)
NUMTP	Category of International Article Number (EAN)
LAENG	Length
BREIT	Width
HOEHE	Height
MEABM	Unit of Dimension for Length/Width/Height
VOLUM	Volume
VOLEH	Volume Unit
BRGEW	Gross Weight
GEWEI	Weight Unit
GTIN_VARIANT	Global Trade Item Number Variant
/CWM/TY2TQ	Type of Parallel Unit of Measure
NEST_FTR	Remaining Volume after Nesting (in Percentage)
MAX_STACK	Maximum Stacking Factor
CAPAUSE	Capacity Usage
<hr/>	
Fields from Segment E1MEANM	Description
MSGFN (mandatory)	Function
MEINH (mandatory)	Unit of Measure for Display
LFNUM (mandatory)	Consecutive Number
EAN11	International Article Number (EAN/UPC)
EANTP	Category of International Article Number (EAN)
HPEAN	Indicator: Main EAN

1.3.1.11.3.2 Transport Reduced Message Types to TM

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE` and does not have to be executed if you use the report `/SPE/R_DEC_EWM_REDUCE_MESSTYPE` in the TM system.

Procedure

After activation, ask your system administrator to transport the reduced message types to the TM system by means of a transport request.

1.3.1.11.4 Defining Data Distribution Model and Distributing Views

You use this procedure to define the messages in the distribution model in the sender system.

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report `/SPE/R_DEC_EWM_ALE_CUST`.

1.3.1.11.4.1 Create New Filter Object Types

You use this procedure to define new filter object types for the reduced message types. This is only necessary if you want to make usage of the enhanced filter for storage location for material message type `ZEWMMATMAS`.

Context

→ Recommendation

Skip this chapter if you do not need additional filters for the reduced message types.

i Note

Since the field for storage location for material message type ZEWMMATMAS is not part of the reduced message types, the standard ALE mechanism does not take it into consideration. In order to achieve that the filtering of object types is supported for this specific field, it has to be activated separately. See [Activate Enhanced Settings for Data Transfer \[page 42\]](#).

The following steps explain how the filter can be added.

Carry out the following steps in an ERP client that allows cross-client Customizing changes.

Procedure

1. To create a new filter object type for material distribution, call transaction BD59 (*Assignment of Object Type to Message*) in your ERP system.
2. Enter the reduced message type for material distribution, for example ZEWMMATMAS, and select *Continue*.
3. Create a new entry with the data as shown in the following table:

ALE Object Type	Type	No.	Field
LGORT (storage location)	E1MARDM	1	LGORT (storage location)

4. Save your entries.

1.3.1.11.4.2 Create Data Distribution Model

You use this procedure to create a data distribution model.

Procedure

1. In your ERP system, call transaction BD64 (*Maintenance of Distribution Model*).
2. Choose **► Distribution Model ► Switch Processing Mode ►**.
3. To create a new model view, press *Create Model View*. Enter the data as shown in the following table:

Field	Value
Short Text	For example, TM1CLNT001: TM (Replace TM1CLNT001 with the logical system name for TM).
Technical Name	For example, TM1CLNT001

Field	Value
	(Replace TM1CLNT001 with the logical system name for TM)

- Select *Continue*.
- To add message types to the model, select the new model on the list and press *Add Message Type*. For each message type, enter the data as shown in the following table:

Field	Value
Sender	<ERP logical system>, for example, ERPCLNT001
Receiver	<TM logical system>, for example, TM1CLNT001
Message Type	Reduced message type for materials, for example ZEWMMATMAS

- To create a filter group for the reduced message type for materials, for example **ZEWMMATMAS**, go to the tree and double-click *No filter set* or *Data Filter Active* under the message type **ZEWMMATMAS**, then select *Create Filter Group* in the dialog box.

You can, for example, filter the materials to be distributed to TM by plant. For this purpose, double-click filter object type *Plant* and enter the plants that will be linked to a TM system.

You can also filter the materials by material type or material group.

i Note

Filters defined for child segments (for example the plant filter in this step) will only prevent the distribution of the child segment (**E1MARCM** in case of plant filter) but not of the header segment (**E1MARAM**). If you want to filter the distribution of the complete material master by plant (or by storage location), you must activate the enhanced settings as described in [Activate Enhanced Settings for Data Transfer \[page 42\]](#).

- Select *Continue*.
- Save the distribution model.
- Choose **► Edit ► Model View ► Distribute ►** to transport the distribution model to other systems.

1.3.1.11.5 Defining Partner Profiles

1.3.1.11.5.1 Create a Partner Profile in the Sender System Manually

You use this procedure to create a partner profile in the sender system (ERP).

Context

You can generate the partner profile within transaction `BD64` automatically or create it using transaction `WE20` manually. You use this procedure to create the partner profile manually.

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report.

Procedure

1. In your ERP system, call transaction `WE20` (*Partner Profiles*).
2. Select *Create*.

Enter the data as shown in the following table:

Field	Value
Partner No.	<TM logical system>, for example, TM1CLNT001
Partner Type	LS
Ty. (Post processing)	US (User)
Agent	RFC User
Language	EN

3. Save the profile.
4. Add a new line to create outbound parameters for message type `MATMAS`.

i Note

The following values are examples. In terms of performance and productive reasons you may use different values. For more information see the IDoc documentation about performance.

Enter the data as shown in the following table:

Field	Value
Message Type	MATMAS
Receiver Port	<TM port>, for example, TM1CLNT001
Output Mode	Pass IDoc Immediately
Basic Type	Use value help and select the last entry from the list, for example MATMAS05
Package Size	100
Cancel Processing After Syntax Error	X

5. Save your data.
6. Repeat steps 4 and 5 for the reduced message type for materials, for example ZEWMMATMAS.

1.3.1.11.5.2 Create a Partner Profile in the Receiver System Manually

You use this procedure to create a partner profile in the receiver system (TM).

Context

i Note

This procedure is supported by the report /SCWM/R_DEC_EWM_ALE_SETUP and does not have to be executed manually if you use the report /SCWM/R_DEC_EWM_ALE_SETUP.

Procedure

1. In your TM system, call transaction WE20 (*Partner Profiles*).
2. Select **Create**.

Enter the data as shown in the following table:

Field	Value
Partner No.	<ERP logical system>, for example, ERPCLNT001
Partner Type	LS
Ty. (Post processing)	US (User)

Field	Value
Agent	RFC User
Language	EN

3. Save the profile.
4. Add a new line to create inbound parameters for message type MATMAS.

Enter the data as shown in the following table:

Field	Value
Message Type	MATMAS
Process Code	MATM
Cancel Processing After Syntax Error	X
Trigger Immediately	X

5. Save your data.

1.3.1.11.6 Activating Change Pointers in Sender System

Change pointers are used for logging changes of master data. Change pointers must be activated in the system to be used. The loggings can be used to create IDoc for a delta transfer.

1.3.1.11.6.1 Activate Change Pointers at Client Level

You use this procedure to activate change pointers at client level.

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report.

Procedure

1. In your ERP system, go to Customizing for *SAP NetWeaver* and choose ► *Application Server* ► *IDoc Interface / Application Link Enabling (ALE)* ► *Modelling and Implementing Business Processes* ► *Master Data Distribution* ► *Replication of Modified Data* ► *Activate Change Pointers - Generally* ▾.

i Note

If your SAP system is an SAP S/4HANA system, the Customizing path is Customizing for *ABAP Platform*, then choose ► *Application Server* ► *IDoc Interface / Application Link Enabling (ALE)* ► *Modelling and Implementing Business Processes* ► *Master Data Distribution* ► *Replication of Modified Data* ► *Activate Change Pointer (General)* ▾.

2. Select the checkbox to activate change pointers at client level.

1.3.1.11.6.2 Activate Change Pointers per Message Type

You use this procedure to activate change pointers for all message types assigned to your distribution model. The change pointers are needed to log changes to the master data and distribute them to the receiver system.

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report.

Procedure

1. In your ERP system, call transaction `BD53` (*IDoc Reduction Maintenance*).
2. Enter the reduced message type for materials, for example `ZEWMMATMAS`.
3. Select *Activate Change Pointers*.

1.3.1.11.6.2.1 Extend the Change Pointers of Message Types

You use this procedure to extend the change pointers for the reduced message types. This is only necessary if you want to make usage of the enhanced filter for storage location for material message type ZEWMMATMAS.

Context

i Note

Skip this chapter if you do not need additional filters for the reduced message types.

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report.

Procedure

1. In your ERP system, call transaction `SM30` and enter the view `V_TBD62`.
2. Choose *Maintain*.
3. Enter the reduced message type for materials, for example `ZEWMMATMAS`.
4. Add the following entries:

Object	Table Name	Field Name
MATERIAL	MARD	KEY

5. Save your entries.

1.3.1.11.7 Additional Settings for Data Transfer

1.3.1.11.7.1 Activate Enhanced Settings for Data Transfer

You use this procedure to activate enhanced features for data transfer. For example, filtering by plant/storage location (for material related IDocs) or other organizational units like purchase organization or company code (for customer/supplier). It also enables important features for transfer of batches.

Context

i Note

This procedure is supported by the report `/SPE/R_DEC_EWM_ALE_CUST` and does not have to be executed manually if you use the report.

Procedure

1. In your ERP system, under Customizing for *Integration with Other SAP Components*, choose **Extended Warehouse Management** > *Basic Settings for EWM Linkage* > *Settings for Decentralized EWM* > *Define Enhanced Settings for Transfer to Decentralized EWM*.

If the Customizing path does not exist in the sending ERP system, you have the following option:

- a. Enter transaction code `SM30`.
- b. Enter in the field *Table/View* the value `/SPE/V_EWM_DEST`.
- c. Select *Maintain*.

For details see SAP Note [2881061](#).

2. Create a new entry and enter the data as shown in the following table:

Field	Value
<i>Receiver</i>	Enter receiver logical system (TM), for example TM1CLNT001
<i>Decentral</i>	X
<i>Material Filter</i>	X
<i>Characteristics Filter</i>	X

3. Save your entry.

i Note

If you activate *Material Filter*, then for material filters only one filter group can be used if you want to filter by plant or storage location. Multiple filter groups for material are not supported.

1.3.1.11.7.2 Additional Settings if Master Data Governance (MDG) is active

The usage of master data governance (MDG) is not required for TM. However, if you have activated MDG, additional settings may be required.

For information on additional settings for if MDG is active, please refer to chapter 6.8.2 of the guide *Integration of SAP ERP or SAP S/4HANA with Decentralized EWM based on SAP S/4HANA*.

1.3.2 Data Replication from ERP to TM

Prior to replicating master data from ERP to TM, it is a mandatory prerequisite that customer/vendor integration (CVI) has been performed in the ERP system and that business partners are available for transfer.

For additional information, see SAP Note [2713963](#).

Further information about master data replication is available at [Master Data Replication](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [Enterprise Business Applications](#) [Supply Chain](#) [Delivery and Transportation](#) [Transportation Management \(TM\)](#) [Integration](#) [Master Data Replication](#):

- [Data Replication Framework](#)
- [Data Replication Framework](#) [Business Partner](#)
- [Data Replication Framework](#) [Product](#)
- [Data Replication Framework](#) [Location](#)

Further information about DRF is available at [Data Replication Framework](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [Cross Components](#).

If you are using Master Data Governance (MDG), you can find further information about configuring data replication at [Data Replication](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [Cross Components](#) [Master Data Governance](#) [How to Get Master Data Governance Running](#) [Configuration of MDG, Central Governance](#) [Configuring Master Data Governance for Custom Objects](#) [Data Replication](#):

1.3.2.1 Define Technical Settings for Data Replication in ERP

Define the technical settings for data replication to configure pooled or direct replication of the business objects that you want to replicate to your TM system.

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.

i Note

For more information on transferring plants or shipping points from your ERP system, please see SAP Note [2638834](#), Location Replication Out of ERP.

Procedure

1. Log on to your ERP system.
2. Run transaction DRFIMG and choose ► *Data Replication* ► *Define Custom Settings for Data Replication* ► *Define Technical Settings* ► *Define Technical Settings for Business Systems* ⌵.
3. Choose *New Entries* and perform the following steps:
 - a. Enter a name for the business system that is to represent your TM system (for example, **<TM SYSTEM ID>_<CLIENT>**).
 - b. Select the logical system of your TM system.
 - c. Select the RFC destination of your TM system.
 - d. Save your entries.
4. Select the row containing your business system and choose *Define Bus. Systems, BOs* in the dialog structure.
5. Create new entries for the following business object types:

Business Object Type	Description
194	Material
986	Business Partner including Relationships
DRF_0045	Shipping Point/Receiving Point

6. (Only required if your ERP system is an SAP S/4HANA system)

As output mode, select:

- *Direct Output* if you want the message (IDoc) to be sent immediately.

- *Pooled Output* if you want to collect the messages and trigger the replication later manually.
 - *Object-Dependent Default* if you want to use the default setting, which is direct output for all business objects except materials and pooled output for materials.
7. Select the row containing business object 194 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
 8. Create new entries for the following channels:

Channel	Key Harm.
2 Replication via IDoc	Not Defined

9. Select the row containing business object 986 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
10. Create new entries for the following channels:

Channel	Key Harm.
1 Replication via Services	Not Defined

11. Select the row containing business object DRF_0045 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
12. Create new entries for the following channels:

Channel	Key Harm.
1 Replication via Services	Not Defined

13. Save your entries.

1.3.2.2 Define Technical Settings for Data Replication in TM

Define the technical settings for data replication to configure pooled or direct replication of the business objects that you want to replicate to your TM system.

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

1. Log on to your TM system.
2. Run transaction DRFIMG and choose ► *Data Replication* ► *Define Custom Settings for Data Replication* ► *Define Technical Settings* ► *Define Technical Settings for Business Systems* ►.
3. Choose *New Entries* and perform the following steps:
 - a. Enter a name for the business system that is to represent your ERP system (for example, <ERP SYSTEM ID> <CLIENT>).
 - b. Select the logical system of your ERP system.
 - c. Select the RFC destination of your ERP system.
 - d. Save your entries.
4. Select the row containing your business system and choose *Define Bus. Systems, BOs* in the dialog structure.
5. Create new entries for the following business object types:

Business Object Type	Description
189	Location
194	Product
986	Business Partner including Relationships

6. As output mode, select:
 - *Direct Output* if you want the message (IDoc) to be sent immediately.
 - *Pooled Output* if you want to collect the messages and trigger the replication later manually.
 - *Object-Dependent Default* if you want to use the default setting, which is direct output for all business objects except materials and pooled output for materials and pooled output for materials (recommended).
7. Select the row containing business object 194 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
8. Create new entries for the following channels:

Channel	Key Harm.
2 Replication via IDoc	1 Harmonized IDs (no Key Mapping)

9. Select the row containing business object 986 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
10. Create new entries for the following channels:

Channel	Key Harm.
1 Replication via Services	2 Key Mapping

11. Select the row containing business object 189 and choose *Define Bus. Systems, BOs, Communication Channel* in the dialog structure.
12. Create new entries for the following channels:

Channel	Key Harm.
1 Replication via Services	2 Key Mapping

13. Save your entries.

1.3.2.3 Create and Activate Replication Models (ERP to TM)

Create and activate a replication model for every business object that you want to replicate from your ERP system to your TM system.

Context

It's good practice to create a separate replication model for every business object. From ERP to TM, you may want to replicate materials, business partners, and locations. Alternatively, you can create one replication model containing all the relevant business objects.

Procedure

1. Log on to your ERP system.
2. Run transaction DRFIMG and choose ► [Data Replication](#) ► [Define Custom Settings for Data Replication](#) ► [Define Replication Models](#) ►.
3. Choose [New Entries](#).
4. Create a replication model for every business object you want to replicate.

Make the following settings for your replication models:

Business Object of Replication Model	Outbound Implementation	Communication Channel	Filter Time	Target System for Outbound Implementation	Outbound Parameter and Value	Outbound Parameter Value
Materials	194_1	2 Replication via IDoc	2 Filter After Change Analysis	Enter the business system that you created for your TM system (see Define Technical Settings for Data)	PACK_SIZE_B ULK	1000
Plant Location	464_L	1 Replication via Services	2 Filter After Change Analysis		PACK_SIZE_B ULK	10

Business Object of Replication Model	Outbound Implementation	Communication Channel	Filter Time	Target System for Outbound Implementation	Outbound Parameter and Value	Outbound Parameter Value
Business Partner	986_3	1 Replication via Services	2 Filter After Change Analysis	Replication in ERP [page 44]	PACK_SIZE_B ULK	10
Shipping Point Location	DRF_0045_L	1 Replication via Services	2 Filter After Change Analysis		PACK_SIZE_B ULK	10

i Note

Enter the data by navigating to the relevant folder in the dialog structure on the left-hand side of the screen.

5. Save your entries.
6. Return to the *Define Replication Model* folder in the dialog structure.
7. Select and activate your replication models.

1.3.2.4 Define DRF Filter Criteria

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

Context

i Note

For more information, see [Define Filter Criteria](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under ► [Cross Components](#) ► [Data Replication Framework](#) ► [Define Filter Criteria](#) ►.

Although you can filter by IDs of individual materials, it would require you to continuously update the filter criteria, for example, every time you create a material. 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 TM system. For example, if you filter by plant, you can replicate all materials with attributes specific to this plant.

Procedure

1. Log on to your ERP system.

2. Launch transaction `DRFF` (*Define Filter Criteria*).
3. Select a DRF replication model and choose *Create*.

i Note

The *Create* button refers to filters, not replication models. If the initial screen of transaction `DRFF` is empty, you haven't created a proper replication model yet. In such a case, check the steps described in [Create and Activate Replication Models \(ERP to TM\) \[page 47\]](#).

4. Specify the filter criteria and then choose *Save*.

1.4 Configuration of Cross-System Processes

Configure the required settings to facilitate cross-system transactional data to be exchanged when running TM side by side your ERP system.

The ERP and TM systems exchange information concerning logistics and finances, which is often represented by type codes, control keys, item types, organizational units, and other business configuration entities. You need to ensure that each system is configured to support the cross-system exchange of the necessary information.

1.4.1 Basic Settings for System Landscape

1.4.1.1 Activate Business Functions in ERP

To enable your ERP system to communicate with your TM system, you need to activate business functions. These are individual standard applications and industry solutions in your ABAP-based SAP system. SAP provides new features and enhancements in self-contained units via these business functions for your existing SAP installations.

Procedure

1. In your ERP system, launch transaction `SFW5`.
2. Activate the following business functions:

Business Function	Description	Details
SD_01 or ESOA_OPS01	<i>Logistics: S&D Simplification or Operations, Enterprise Services</i>	Activate if you want to send sales orders to TM. For more information, see SAP Note 1530240 .

Business Function	Description	Details
LOG_ESOA_OPS_2	<i>Operations, Enterprise Services 2</i>	Activate if you want to send purchase orders and stock transport orders to TM.
OPS_ADVRETURNS_1	<i>Advanced Returns Management</i>	Activate if you want to send returns to TM.
LOG_TM_ORD_INT_TRQ	<i>ERP-TMS: Basic Order Integration</i>	You can also use this business function to integrate order and delivery processing in ERP with transportation planning in TM. It provides the same functions as the <i>ERP-TMS: Order Integration</i> (LOG_TM_ORD_INT) business function, but without sales order scheduling.
LOG_TM_ORD_INT	<i>ERP-TMS: Order Integration</i>	You can use this business function to integrate order processing in ERP with transportation planning in TM. It enables you to optimize order processing and transportation planning by exchanging information about orders and deliveries between ERP and TM.
LOG_TM_ORD_INT_I	<i>ERP-TMS: Order and Invoice Integration 1</i>	Activate if you to display in ERP the TM document status and document flow for a specific ERP purchase order, stock transport order, sales order, outbound delivery, or inbound delivery for return orders and purchase orders.
LOG_TM_ORD_INT_II	<i>ERP-TMS: Order Integration 2</i>	Activate if you want to use delivery splits or update functions, or if you want to view the TM business document flow and TM status information in ERP documents.
LOG_TM_ORD_INT_III	<i>ERP-TMS: Order Integration 3</i>	Activate if you want to use confirmed quantities, shipping types or a handover location for an external purchase order in TM or if you want to transfer shipment blocking reasons to TM in order to control the blocking of DTRs.
LOG_TM_ORD_INT_IV	<i>ERP-TMS: Order Integration 4</i>	Activate if you want to maintain shipment condition for PO and interface this to TM and/or want to use handover date for PO confirmations and want to use this in TM.
LOG_TM_IV_INT	<i>TMS-ERP: Invoice Integration</i>	You use this business function to create, enter, process, or display

Business Function	Description	Details
		invoices that refer to documents in TM. This allows you to carry out invoice processing for the connected TM system in ERP and use the main ERP invoice processing functions in MM and SD.
LOG_TM_SAG_INT_I	<i>Scheduling Agreement Integration with SAP TM</i>	Activate if you want to integrate SD scheduling agreements and / or MM scheduling agreements into TM and create transportation requirements for these.

If you want to use cost distribution, you also have to activate the following business functions (besides LOG_TM_ORD_INT_II):

Business Function	Description	Details
ISR_RET_AGENCY	<i>Trade, Agency Business</i>	Activate if you want to use additional features of Agency Business (such as Credit Management or Configuration and Collection Invoices) to implement your business processes more flexibly.
ISR_RET_AGENCY2	<i>Trade, Agency Business 2</i>	Activate if you want to use additional functions in the Agency Business area. You can create extended remuneration lists from FI documents, differing partner roles, payment documents without business partners in agency documents, and agency documents without tax codes. New reports are also available for mass processing.
ISR_RET_AGENCY3	<i>Trade, Agency Business 3</i>	Activate if you want to implement the following new or extended business processes: <ul style="list-style-type: none"> ○ Extended Complaints Processing ○ Clearing Processing

For more information about business functions, please see [Prerequisites: Invoice Processing \(MM-IV/SD-BIL\) - SAP TM](#) and [Prerequisites for Order and Delivery Integration](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [Product Assistance](#) > [Enterprise Business Applications](#) > [Supply Chain](#) > [Logistics Cross Topics](#) > [Logistics - General \(LO\)](#) > [Integration with SAP Transportation Management](#).

1.4.1.2 Configure qRFC Communication

You use this process to configure the queued remote function call (qRFC) communication between TM and ERP.

Prerequisites

You have configured the system connection and global settings as described in the previous chapter. RFC destinations and logical systems exist both in TM and ERP. Business systems exist in TM.

Context

TM communicates transactional data (for example, inbound and outbound deliveries) with ERP via queued remote function call (qRFC). Since the communication is bi-directional, you not only configure the sending of data to both systems but also the reception of data from both systems.

Procedure

1. In your ERP and your TM system, launch transaction `SMQR` (*qRFC Monitor (QIN Scheduler)*).
2. Choose *Registration*.
3. Enter the data as shown in the following table:

Field	Value
Queue Name	XBT*, XBQ*
Mode	D
Max. Runtime	60
Destination	Leave this field empty
Attempts	30
Pause	300

4. Choose *Continue*.

1.4.1.3 Application Configuration for SOA Manager

1. Create one integration scenario configuration for each integration scenario. For more information, see [Integration Scenario Configuration \[page 53\]](#).

2. Create and assign logon data. You only need to do this once for each managed system. For more information, see [Create and Assign Logon Data in Your Central System \[page 20\]](#).
3. Start the change processor. For more information, see [Start the Change Processor \[page 24\]](#).
4. Create logical receiver determinations in SOA Manager (optional).

1.4.1.3.1 Integration Scenario Configuration

In a system landscape, one ABAP system can be defined as the central system. From this central system, entire integration scenarios can be configured and the configurations can be distributed to all affected systems that take part in the central configuration.

For more information on configuring integration scenarios, see [Configuring Integration Scenarios](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under ► [Application Help](#) ► [SAP NetWeaver Library: Function-Oriented View](#) ► [Application Server](#) ► [Application Server ABAP](#) ► [Application Development on AS ABAP](#) ► [ABAP Workbench - Classic](#) ► [ABAP Workbench Tools](#) ► [ABAP Web Services](#) ► [Configuring Web Services in SOA Manager](#) ► [Configuring Service Providers and Consumers](#) ► [Configuring Integration Scenarios](#) ►.

i Note

As of NetWeaver 7.40 basis, SOA Manager terminology has been partially changed:

- The term "integration scenario configuration" replaces "central business scenario configuration".
- The term "Identifiable Business Context (IBC) reference" replaces "actors" (consumer system or provider system).

In addition, you can use the new connection type "Service Group Based, Request Response" to directly maintain a two-way connection: for both IBC references (actors) you can specify a service group to define both communication directions in one step.

1.4.1.3.1.1 Perform Order and Delivery Integration

Procedure

1. Log on to your central system.
2. Run transaction SOAMANAGER and choose ► [Service Administration](#) ► [Integration Scenario Configuration](#) ►.
3. Choose [Create](#).
4. In the pop-up window, assign a name and a description (for example, <03_ERP_TM_LOGISTICS_INTEGRATION>), and choose [Create](#).
5. In the [Service Group Connections](#) section, choose [Create](#).

6. In the *Assign IBC References* screen, drag and drop from the *Client* list the ERP system reference as *Actor 1*. Alternatively, use the input help to retrieve this entry.
7. In the *Assign IBC References* screen, drag and drop from the *Client* list the TM system reference as *Actor 2*. Alternatively, use the input help to retrieve this entry.
8. Choose *Next*.
9. In the *Assign Service Groups* screen, in the *Connection Type* field, select *Service Group Based, Request Response*.
10. Select service group TM_ERP_ORDINT for *Actor 1* and /SCMTMS/TM_ERP_ORDINT for *Actor 2*.
11. Choose *Next*.
12. Choose *Finish*.
13. Repeat steps 5 to 13, using service group TM_ERP_INVINT for *Actor 1* and /SCMTMS/TM_ERP_INVINT for *Actor 2*.
14. Repeat steps 5 to 13, using service group TM_ERP_ORDINT_ENH for *Actor 1* and /SCMTMS/TM_ERP_DELIVERY_SPLIT for *Actor 2*.
15. Repeat steps 5 to 13, using connection type *Service Group Based, One Way* and service group TM_ERP_ORDINT_BDFLW for *Actor 1*.
16. Repeat steps 5 to 13, using connection type *Service Group Based, One Way* and service group TM_ERP_ORDINT_SE for *Actor 1*.
17. Optionally, you can choose the *Check* and *Ping* pushbuttons in the *Service Group Connections* section to ensure the configuration has been correctly performed.
18. Choose *Logon Data Assignments* and for each interface listed, maintain under *Logon Data Name* the user created in [Create RFC Users in ERP and TM \[page 10\]](#).
19. Choose *Check* on the scenario configuration header.
20. Choose *Ping* on the scenario configuration header.
21. Choose *Activate* on the scenario configuration header.
22. Choose *Release* on the scenario configuration header.

1.4.1.3.1.2 Perform Invoice Integration

Procedure

1. Log on to your central system.
2. Run transaction SOAMANAGER and choose ► *Service Administration* ► *Integration Scenario Configuration* ►
3. Choose *Create*.
4. In the pop-up window, assign a name and a description (for example, <04_ERP_TM_INVOICE_INTEGRATION>), and choose *Create*.
5. In the *Service Group Connections* section, choose *Create*.
6. In the *Assign IBC References* screen, drag and drop from the *Client* list the ERP system reference as *Actor 1*. Alternatively, use the input help to retrieve this entry.

7. In the *Assign IBC References* screen, drag and drop from the *Client* list the TM system reference as *Actor 2*. Alternatively, use the input help to retrieve this entry.
8. Choose *Next*.
9. In the *Assign Service Groups* screen, in the *Connection Type* field, select *Service Group Based, Request Response*.
10. Select service group `TM_ERP_INVINT` for *Actor 1* and `/SCMTMS/TM_ERP_INVINT` for *Actor 2*.
11. Choose *Next*.
12. Choose *Finish*.
13. Optionally, you can choose the *Check* and *Ping* pushbuttons in the *Service Group Connections* section to ensure the configuration has been correctly performed.
14. Choose *Logon Data Assignments* and for each interface listed, maintain under *Logon Data Name* the user created in *Create RFC Users in ERP and TM* [page 10].
15. Choose *Check* on the scenario configuration header.
16. Choose *Ping* on the scenario configuration header.
17. Choose *Activate* on the scenario configuration header.
18. Choose *Release* on the scenario configuration header.






1.4.2 Customizing Settings for your ERP and TM Systems

Prerequisites

You have set up the system landscape. This includes the following steps:

- You have set up the connection to the System Landscape Directory (SLD) for all systems.
- You have configured the settings that are required to connect a business system to SOA Manager.
- You have configured the settings that are required to use the Data Replication Framework (DRF) for master data transfer.
- You have set up a trusted connection between the ERP and TM systems.
- You have defined all required RFC users, RFC connections, logical system names, technical system names, and business system names.
- You have set up the required workflows.

Depending on your ERP system, you may need to implement the following SAP Notes:

- SAP Note [1629726](#)  Mismatch in Settlement amount between TM and ERP
- SAP Note [1602687](#)  Cleanup of ERS err msgs, Sold to, Bill to/from party mapping
- SAP Note [1636327](#)  Amount conversion problem in service entry sheet
- SAP Note [1758480](#)  TM Integration: EOIO queues missing for ODP/IDP
- SAP Note [1760192](#)  No EOIO for Order services in ERP

More Information

For more information, including information on configuring integration of orders and deliveries, and on the integration of ERP orders and deliveries in transportation planning, see [External TM System Integration](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [Enterprise Business Applications](#) > [Supply Chain](#) > [Delivery and Transportation](#) > [Transportation Management \(TM\)](#) > [Logistics Integration](#) > [External TM System Integration](#).

1.4.2.1 Create a TM Release

Procedure

1. In your ERP system, in Customizing for *Integration with Other SAP Components*, choose [Advanced Planning and Optimization](#) > [Basic Settings for Setting Up the System Landscape](#) > [Specify SAP APO Release \(transaction NDV2\)](#).
2. Enter the data as shown in the table below.

Field	Sample Entry
<i>Logical System</i>	<SSS>CLNT<CCC> <div data-bbox="826 1279 1398 1464"><p>i Note</p><p>A logical system must adhere to the naming convention <SSS>CLNT<CCC>, where SSS is the 3-character system ID and CCC is the client.</p></div>
<i>System Type</i>	SAP_S4HANA
<i>Release</i>	105 for example

3. Save your entries.

1.4.2.2 Create ISO Units in ERP

Procedure

1. In your ERP system, in Customizing for *SAP NetWeaver*, choose ► *General Settings* ► *Check Units of Measurement* ▾.

i Note

If your ERP system is an SAP S/4HANA system, the Customizing path is Customizing for ► *ABAP Platform* ► *General Settings* ► *Check Units of Measurement* ▾.

2. Choose *ISO codes* and then *New Entries*.
3. Create a new ISO code with the following data:

Field	Value
<i>ISO code</i>	TEU
<i>ISO code text</i>	20-Foot Container

i Note

You must create ISO units in the same way in both ERP and TM. Otherwise, problems will arise when messages are exchanged between these systems.

1.4.2.3 Create ISO Units in TM

Procedure

1. In your TM system, in Customizing for *ABAP Platform*, choose ► *General Settings* ► *Check Units of Measurement* ▾.
2. Choose *ISO codes* and then *New Entries*.
3. Create a new ISO code with the following data:

Field	Value
<i>ISO code</i>	TEU

Field	Value
<i>ISO code text</i>	20-Foot Container

i Note


You must create ISO units in the same way in both ERP and TM. Otherwise, problems will arise when messages are exchanged between these systems.

1.4.2.4 Create Units of Measurement in ERP

Procedure

1. In your ERP system, in Customizing for *SAP NetWeaver*, choose [General Settings](#) > [Check Units of Measurement](#) .

i Note

If your ERP system is an SAP S/4HANA system, the Customizing path is Customizing for [ABAP Platform](#) > [General Settings](#) > [Check Units of Measurement](#) .

2. Select **(no dimensions)** and then *Units of Measurement*.
3. Create a new unit of measurement as follows:

Field	Value
<i>Int. meas. unit</i>	TEU
<i>Display screen area and Unit of Measurement Text screen area</i>	
<i>Commercial</i>	TEU 20-Foot Container
<i>Technical</i>	TEU 20-Ft Cont
<i>Decimal places</i>	Leave this field empty
<i>Exp. 10 Floating Pt</i>	Leave this field empty
<i>ALE/EDI screen area</i>	
<i>ISO code</i>	TEU
<i>Primary code</i>	Select this checkbox

Field	Value
<i>Conversion</i> screen area	
<i>Decimal pl. rounding</i>	Leave this field empty
<i>Unit of meas. family</i>	Leave this field empty
<i>Application Parameters</i> screen area	
<i>Commercial meas. unit</i>	Select this checkbox
<i>Value-based commt</i>	Do not select this checkbox

i Note

You must create ISO units in the same way in both ERP and TM. Otherwise, problems will arise when messages are exchanged between these systems.

1.4.2.5 Change Units of Measurement in ERP

Procedure

1. In your ERP system, in Customizing for *SAP NetWeaver*, choose **► General Settings ► Check Units of Measurement**.

i Note

If your ERP system is an SAP S/4HANA system, the Customizing path is Customizing for **► ABAP Platform ► General Settings ► Check Units of Measurement**.

2. In the dropdown box, select *Mass* and choose *Units of measurement*.
3. Select the **LB** unit and assign the ISO code **LBR**.
4. Select the **KG** unit and assign the ISO code **KGM**.
5. Return to the initial screen.
6. In the dropdown box, select *Volume* and choose *Units of measurement*.
7. Select the **FT3** unit and assign the ISO code **FTQ**.
8. Select the **M3** unit and assign the ISO code **MTQ**.

i Note

You must create ISO units in the same way in both ERP and TM. Otherwise, problems will arise when messages are exchanged between these systems.

1.4.2.6 Change Units of Measurement in TM

Procedure

1. In your TM system, in Customizing for *ABAP Platform*, choose ► *General Settings* ► *Check Units of Measurement* ►.
2. In the dropdown box, select *Mass* and choose *Units of measurement*.
3. Select the **LB** unit and assign the ISO code **LBR**.
4. Select the **KG** unit and assign the ISO code **KGM**.
5. Return to the initial screen.
6. In the dropdown box, select *Volume* and choose *Units of measurement*.
7. Select the **FT3** unit and assign the ISO code **FTQ**.
8. Select the **M3** unit and assign the ISO code **MTQ**.

i Note

You must create ISO units in the same way in both ERP and TM. Otherwise, problems will arise when messages are exchanged between these systems.

1.4.2.7 Configuration Settings for Invoice Integration

You use this process to configure the settings in your ERP system that enable you to integrate invoice processing in ERP with TM.

1.4.2.7.1 User Settings for Invoice Verification Based on TM

Context

To enable a user to perform invoice verification in your ERP system, you have to assign profile parameter `TM_INVOICE_CLERK` to the user's profile in the ERP system.

Procedure

1. In the ERP system, call transaction **SU01**.
2. Enter the user and choose *Change*.
3. Choose the *Parameters* tab.
4. In the *Parameter ID* column, enter `TM_INVOICE_CLERK`.
5. Save your entries.

1.4.2.7.2 Define Default Account Assignment of Cost Element

Procedure

1. In your ERP system, in Customizing for *Controlling*, choose **► Cost Center Accounting ► Actual Postings ► Manual Actual Postings ► Edit Automatic Account Assignment**.
2. Maintain one or more relevant entries for the combination of company code and account you plan to use as part of your processes.

1.4.2.7.3 Define Service Master for Invoice Integration

Procedure

1. In your ERP system, on the *SAP Easy Access* screen, choose **► Logistics ► Materials Management ► Service Master ► Service ► Service Master**.
2. Choose *Create New Service* and maintain one or more relevant entries that you plan to use as part of your processes.

1.4.2.7.4 Create Event Type Linkages

Context

In this step, you activate workflow `WS53800006` for incoming invoices and activate event linkage for the events POSTED and CANCELLED. The workflow triggers the `InvoiceNotification_Out` message when an incoming invoice is posted or canceled. The message informs TM about the posted or canceled invoice.

i Note

For information about setting up workflows, see [Automatic Workflow Customizing](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [SAP NetWeaver Library: Function-Oriented View](#) [Application Server](#) [Application Server ABAP](#) [Other Services](#) [Services for Application Developers](#) [SAP Business Workflow](#) [Role Documentation](#) [Roles in Workflow](#) [System Administrator](#) [Business Workflow Administration](#) [Workflow System Administration](#) [Automatic Workflow Customizing](#).

Procedure

1. In your ERP system, on the *SAP Easy Access* screen, choose [Tools](#) [ABAP Workbench](#) [Development](#) [SAP Business Workflow](#) [Definition Tools](#) [Events](#) [Event Linkages](#) [Type Linkages](#).
2. Make the following entries and select the *Type linkage active* checkbox:

Object Category	Object Type	Event	Receiver Type	Linkage Activated	Receiver Function Module
BOR Object	BUS2081	CANCELLED	WS53800006	Select this checkbox	SWW_WI_CREATE_VIA_EVENT_IBF
BOR Object	BUS2081	POSTED	WS53800006	Select this checkbox	SWW_WI_CREATE_VIA_EVENT_IBF

3. Save your entries.
4. In your ERP system, on the *SAP Easy Access* screen, choose [Tools](#) [ABAP Workbench](#) [Development](#) [SAP Business Workflow](#) [Utilities](#) [Automatic Workflow Customizing](#).
5. Choose *Perform Automatic Workflow Customizing* ().

1.4.2.7.5 Invoice Integration

You can transfer a freight settlement document (FSD) and a forwarding settlement document (FWS) to your ERP system.

1.4.2.7.5.1 Message Flow for Invoice Integration

The following table describes the message flow for forwarding settlement requests and customer invoices in invoice integration:

Message	Description
CustomerFreightInvoiceRequestSUITERequest_Out_V1	Send create or change requests for forwarding settlements from TM
CustomerFreightInvoiceRequestSUITERequest_In_V1	Receive create or change requests for customer invoices in ERP
CustomerFreightInvoiceRequestSUITEConfirmation_Out_V1	Send confirmations for customer invoices from ERP
CustomerFreightInvoiceRequestSUITEConfirmation_In_V1	Receive confirmations for forwarding settlements in TM
CustomerFreightInvoiceRequestSUITECancellationRequest_Out_V1	Send cancel requests for forwarding settlements from TM
CustomerFreightInvoiceRequestSUITECancellationRequest_In_V1	Receive cancel requests for customer invoices in ERP
CustomerFreightInvoiceRequestSUITESimulate_Out	Send forwarding settlements from TM for invoice preview and receive PDF of ERP billing
CustomerFreightInvoiceRequestSUITESimulate_In	Receive forwarding settlements from TM for invoice preview and send PDF of ERP billing

The following table describes the message flow for freight settlement requests and supplier invoices in invoice integration:

Message	Description
TransportationOrderSUITEInvoicingPreparationRequest_Out	Send create or change requests for freight settlements from TM
TransportationOrderSUITEInvoicingPreparationRequest_In	Receive create or change requests for supplier invoices in ERP

Message	Description
TransportationOrderSUITEInvoicingPreparationConfirmation_Out	Send confirmations for supplier invoices from ERP
TransportationOrderSUITEInvoicingPreparationConfirmation_In	Receive confirmations for freight settlements in TM
TransportationOrderSUITEInvoicingPreparationCancellationRequest_Out	Send cancel requests for freight settlements from TM
TransportationOrderSUITEInvoicingPreparationCancellationRequest_In	Receive cancel requests for supplier invoices in ERP

The following table describes the invoice notification messages in invoice integration:

Message	Description
InvoiceNotification_Out	Send invoice notification from ERP
InvoiceNotification_In	Receive invoice notifications in TM

1.4.2.7.5.2 Invoicing

You can specify the relevant Customizing settings in your ERP system under [Integration with Other SAP Components](#) > [Transportation Management](#) > [Invoice Integration](#) > [Invoicing](#).

To integrate freight settlement documents with service purchase order and service entry sheet documents, you must specify the following settings:

- Category codes, subcategory codes, and charge types in ERP for the charge types from TM. You can specify the settings in the following Customizing activities under [Definition of Transportation Charge Elements](#):
 - [Define Category Codes](#)
 - [Define Subcategory Codes](#)
 - [Define Charge Types](#)
- Role codes in ERP for the TM currency and amount. You can specify the settings in the following activities under [Definition of Transportation Management Role Codes](#):
 - [Define Role Codes \(Currency\)](#)
 - [Define Role Codes \(Amount\)](#)

You must assign the following attributes:

- Transportation charge item categories, item subcategories, and items in TM to service master data records and account assignment categories in ERP. You can specify the settings under [Assignment of Transportation Charge Elements](#) > [Assign Service Master Record and Account Assignment Category](#).

- Under ► [Mapping of Organizational Units](#) ▾, you must assign the following attributes:
 - Purchasing business areas from TM to the organizational units in purchasing in ERP in the [Assign Organizational Units for Purchasing](#) activity
 - Purchasing organization unit in TM to an internal order and cost center account in ERP in the [Assign TM Purchase Org. Unit to Internal Order/Cost Center](#) activity

1.4.2.75.2.1 Define Category Codes for Invoice Integration

Procedure

1. In your ERP system, in Customizing for [Integration with Other SAP Components](#), choose ► [Transportation Management](#) > [Invoice Integration](#) > [Invoicing](#) > [Definition for Transportation Charge Elements](#) > [Define Category Codes](#). ▾
2. Maintain one or more relevant entries that you plan to use as part of your processes.

1.4.2.75.2.2 Define Subcategory Codes for Invoice Integration

Procedure

1. In your ERP system, in Customizing for [Integration with Other SAP Components](#), choose ► [Transportation Management](#) > [Invoice Integration](#) > [Invoicing](#) > [Definition for Transportation Charge Elements](#) > [Define Subcategory Codes](#). ▾
2. Maintain one or more relevant entries that you plan to use as part of your processes.

1.4.2.75.2.3 Define Charge Types for Invoice Integration

Procedure

1. In your ERP system, in Customizing for *Integration with Other SAP Components*, choose ► [Transportation Management](#) ► [Invoice Integration](#) ► [Invoicing](#) ► [Definition for Transportation Charge Elements](#) ► [Define Charge Types](#) ⌵.
2. Maintain one or more relevant entries that you plan to use as part of your processes.

1.4.2.75.2.4 Assign Service Master to Transportation Charge Elements

Procedure

1. In your ERP system, in Customizing for *Integration with Other SAP Components*, choose ► [Transportation Management](#) ► [Invoice Integration](#) ► [Invoicing](#) ► [Assignment of Transportation Charge Elements](#) ► [Assign Service Master Record and Account Assignment Category](#) ⌵.
2. Ensure that the entries created as part of [Define Charge Types for Invoice Integration \[page 66\]](#) and [Define Service Master for Invoice Integration \[page 61\]](#) are mapped accordingly in this activity.

1.4.2.75.3 Cost Distribution

Cost Distribution for Shippers

You create a freight settlement document to transfer the transportation costs from TM to your ERP system for verification. You must perform cost distribution at the level of ERP item in the freight settlement document. You use service entry sheets and agency business documents to post the distributed costs in ERP.

To integrate cost distribution in freight orders and freight settlement documents with your ERP system, you must assign the transportation charge type in TM to a condition type in ERP for cost distribution. You can do this in Customizing for *Integration with Other SAP Components* under ► [Transportation Management](#) ► [Invoice Integration](#) ► [Mapping for Cost Distribution](#) ► [Assign Transportation Charge Elements to Condition Types](#) ⌵.

To use agency business documents to post distributed costs in your ERP system, you must specify the following settings in the following Customizing activities, which you can find under ► [Integration with Other SAP Components](#) ► [Transportation Management](#) ► [Invoice Integration](#) ► [Mapping for Cost Distribution](#) ► [Mapping for Cost Distribution](#) ► [Posting via Agency Business](#) ⌵:

- Application type and posting types in [Define Application and Posting Type](#).
- Data used in agency business document creation in [Basic Settings for Creation of Agency Documents](#).

1.4.2.7.5.4 Integration Business Add-Ins

You can access the following Business Add-Ins (BAdIs) on the [SAP Easy Access](#) screen under ► [Tools](#) ► [ABAP Workbench](#) ► [Utilities](#) ► [Business Add-Ins](#) ► [Definition](#) ⌵:

- [BAdI: FSD Invoicing Preparation: Data Modify](#) (TCM_SE_TORINVPREPREQ_PROC)
- [BAdI: Inbound/Outbound Processing for FSD Invoicing Preparation](#) (TCM_SE_TORINVPREPREQ_ASYN)
- [BAdI: Inbound/Outbound Processing for FSD Invoicing Cancellation CNC](#) (TCM_SE_TORINVPREPCNCLN_ASYN)
- [BAdI: Creation of SD Billing Document](#) (TCM_SE_CFIRSUITE_RQ)
- [BAdI: Cancellation of SD Billing Document](#) (TCM_SE_CFIRSUITE_CNCLNRQ)

You can access the BAdI implementation [Activate BAdI Implementation for Invoice Verification Correction Postings](#) (WZRE_TMS_IV) in Customizing for [Integration with Other SAP Components](#) under ► [Transportation Management](#) ► [Invoice Integration](#) ► [Mapping for Cost Distribution](#) ► [Activate BAdI Implementation for Invoice Verification Correction Postings](#) ⌵. If you have a charge correction, the ERP system updates the agency business document during invoice verification. If you want to use this feature in your ERP system, you must activate this BAdI.

1.4.2.8 Configuration Settings for Order and Delivery Integration

You use this process to configure the settings in your ERP system that enable you to integrate order and delivery processing in ERP with TM.

1.4.2.8.1 Define Control Keys for Document Transfer

In this procedure, you define the control keys that determine which documents or document chains are to be transferred to TM. You can define as many control keys as required with different combinations of documents. For sales orders, you can also specify whether sales order scheduling is to take place in TM.

Procedure

1. In your ERP system, in Customizing for *Integration with Other SAP Components*, choose ► *Transportation Management* ► *Order Integration* ► *Define Control Keys for Document Transfer* ▾.
2. Make sure that one or more control keys are maintained that cover one or more combinations of documents to be transferred to TM. You use the control keys in the configuration steps to activate document transfer to TM.

If you require additional control keys, you can create them in this Customizing activity.

1.4.2.8.2 Maintain Output Determination for Sales Documents

The following settings must be configured to send sales documents from ERP to TM. Output determination is used to create XML messages, which are then sent to TM.

1.4.2.8.2.1 Maintain Condition Tables (SD)

In this step, you define the combination of fields for which you want to create output condition records in a condition table. This enables you to control output determination depending on your specific field combination. Alternatively, you can check whether the data you need is already available.

Context

You need to check whether the required fields are assigned to the condition table.

Procedure

1. In your ERP system, in Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Condition Tables* ►.
2. Choose *Maintain Output Condition Table for Sales Documents*.
3. Ensure that the *Sales Document Type* field is assigned to condition table *007 Order Type*.

If this is not the case, create a new condition table for output control, as follows:

- a. In Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Condition Tables* ►.
- b. Choose *Maintain Output Condition Table for Sales Documents*.
- c. Choose ► *Condition* ► *Create* ►.
- d. In the *Table* field, enter a name (3-digit number) for the new condition table that is to be created. Note that you can only choose names between 900 and 999.
- e. Choose *Enter*.
- f. Enter a description for the new condition table, for example, **Order Type**.
- g. Select the required fields for the condition table from the list of allowed fields, for example, *Sales Document Type*.
- h. Generate the new condition table.

You have defined a new condition table for which you can maintain condition records.

1.4.2.8.2.2 Maintain Output Types (SD)

Procedure

1. In your ERP system, in Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Output Types* ►.
2. Make sure that output types **TRS0** (order to external TMS) and **TRRO** (returns to external TMS) have been entered.
3. Select output type **TRRO** and choose *Details*.
4. Enter the following data on the *General data* tab:

Field	Value
<i>Access Sequence</i>	0002
<i>Access to Conditions</i>	Select this checkbox
<i>Multiple Issuing</i>	Select this checkbox
<i>Partner-Indep. Output</i>	Select this checkbox
<i>Program</i>	OPS_SE_SOC_SEND_MESSAGE
<i>FORM Routine</i>	CHECK_REPEAT

5. Enter the following data on the *Default values* tab page:

Field	Value
<i>Dispatch Time</i>	Send Immediately (when saving the application)
<i>Transmission Medium</i>	8 Special function

6. Repeat steps 3 to 6 for output type **TRRO**.

1.4.2.8.2.3 Maintain Access Sequences (SD)

Prerequisites

You have already defined the necessary condition tables.

Context

In this step, you can check whether the required access sequences are available, or you can create access sequences that you can use to determine the following:

- Which condition tables are used to access condition records
- The sequence of these condition tables
- With which field contents they are read

Procedure

1. In your ERP system, in Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Access Sequences* ⌵.
2. In the overview area, select access sequence *0002 Order Type*.
3. Choose *Accesses*.

Condition table 7 is displayed in the *Overview Accesses* table.

If the right access sequence is not available, create it as follows:

- a. In your ERP system, in Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Access Sequences* ⌵.
- b. In change mode, choose *New Entries*.
- c. In *Access Sequences*, create an access sequence by defining an alphanumeric key (with a maximum of four characters) and enter a description.
- d. In *Source*, select one of the following sources: *Other system* (for example, ERP) or *Local*.
- e. Select a row in the *Access Sequences* table, and in the left frame, choose *Fields*.

You can define the accesses by defining the sequence of accesses in the access sequence and choosing the corresponding condition tables.

- f. Choose *Save*.

1.4.2.8.2.4 Maintain Output Determination Procedure (SD)

Context

Procedure

1. In your ERP system, in Customizing for *Sales and Distribution*, choose ► *Basic Functions* ► *Output Control* ► *Output Determination* ► *Output Determination Using the Condition Technique* ► *Maintain Output Determination for Sales Documents* ► *Maintain Output Determination Procedure* ⌵.
2. Make sure that procedure **v10000** has been entered.
3. In the dialog structure, select *Control Data*.
4. Make sure that the following entries have been made for procedure **v10000**:

Reference Step Overview

Step	Condition Counter	Condition Type	Requirement
<Any available step 1 number>		TRS0	27
<Any available step 1 number>		TRR0	28

1.4.2.8.2.5 Assign Output Determination Procedures (SD)

Prerequisites

You have defined the following:

- Output determination procedures
- Output types

Context

In this step, you assign output determination procedures to document types. You can also specify an output type that is to be displayed when the relevant document is displayed or changed.

Procedure

1. In your ERP system, in Customizing for *Sales and Distribution*, choose [Basic Functions](#) > [Output Control](#) > [Output Determination](#) > [Output Determination Using the Condition Technique](#) > [Maintain Output Determination for Sales Documents](#) > [Assign Output Determination Procedure](#).
2. Choose *Allocate Sales Document Header*.
3. In the overview, assign the output determination procedures as follows:

Assignments

Sales Document Type	Output Determination Procedure	Output Type
OR Standard Order	V10000	TRS0

i Note

It is sufficient to assign an output determination procedure (such as `V10000`) to a sales order type (such as `OR`) in this Customizing activity. The output type may differ from that specified here, but must be defined for the corresponding output determination procedure. As long as the relevant output type (`TRSO` or `TRRO`) is maintained for the output determination procedure, it will be taken into account by the system at processing time.

`OR` and `RE` are standard order types that are delivered as part of standard ERP Customizing.

1.4.2.8.2.6 Create Output Condition Records (SD)

Context

In this step, you link the order type of your sales document with an output type that is configured for the data transfer to TM. You define the message attributes, for example, the processing time or the language. From a technical point of view, you create condition records.

Procedure

1. For the output type `TRSO`, perform the following steps:
 - a. On the [SAP Easy Access](#) screen for your ERP system, choose [Logistics](#) [Sales and Distribution](#) [Master Data](#) [Output](#) [Sales Document](#) [Create](#) or call transaction `VV11`.
 - b. Choose [Output Type](#) `TRSO`.
 - c. Choose .
 - d. On the following screen, enter the data as shown in the following table:

SD Type	Name	Medium	Date/Time	Language
OR	Standard Order	8 Special Function	4 Send immediately (when saving the application)	EN

- e. Note the following:

Leave the [Funct.](#) and [Partner](#) fields blank.

`OR` is a standard order type that is delivered as part of standard ERP Customizing.
 - f. Save your entry.
2. For the output type `TRRO`, perform the following steps:

- On the *SAP Easy Access* screen for your ERP system, choose [Logistics](#) [Sales and Distribution](#) [Master Data](#) [Output](#) [Sales Document](#) [Create](#) or call transaction `vv11`.
- Choose *Output Type* **TRRO**.
- Choose .
- On the following screen, enter the data as shown in the following table:

SD Type	Name	Medium	Date/Time	Language
RE	RE Returns	8 Special Function	4 Send immediately (when saving the application)	EN

- Note the following:
Leave the *Funct.* and *Partner* fields blank.
`RE` is a standard order type that is delivered as part of standard ERP Customizing.
- Save your entry.

1.4.2.8.3 Maintain Workflow Event Type Linkages for Purchase Orders

In this step, you maintain purchase orders and stock transport orders. In contrast to sales documents and deliveries, which are processed using output control, purchase orders and stock transport orders are processed using workflow technology.

Context

Note

For information about setting up workflows, see [Automatic Workflow Customizing](#) in the SAP Library for SAP NetWeaver on the SAP Help Portal under [SAP NetWeaver Library: Function-Oriented View](#) [Application Server](#) [Application Server ABAP](#) [Other Services](#) [Services for Application Developers](#) [SAP Business Workflow](#) [Role Documentation](#) [Roles in Workflow](#) [System Administrator](#) [Business Workflow Administration](#) [Workflow System Administration](#) [Automatic Workflow Customizing](#).

Procedure

- On the *SAP Easy Access* screen of your ERP system, choose [Tools](#) [ABAP Workbench](#) [Development](#) [SAP Business Workflow](#) [Definition Tools](#) [Events](#) [Event Linkages](#) [Type Linkages](#).

2. Create the following entries:

Field	Value
Object Category	ABAP Class
Object Type	CL_SE_PUR_PO_WF_OUT
Event	CHANGED
Receiver Type	WS53800008
Receiver Call	Function Module
Receiver Function Module	SWW_WI_CREATE_VIA_EVENT_IBF
Linkage Activated	Selected

Field	Value
Object Category	ABAP Class
Object Type	CL_SE_PUR_PO_WF_OUT
Event	Created
Receiver Type	WS53800008
Receiver Call	Function Module
Receiver Function Module	SWW_WI_CREATE_VIA_EVENT_IBF
Linkage Activated	Selected

3. Save your entries.
4. On the *SAP Easy Access* screen of your ERP system, choose ► *Tools* ► *ABAP Workbench* ► *Development* ► *SAP Business Workflow* ► *Utilities* ► *Automatic Workflow Customizing* ⌵.
5. Choose *Perform Automatic Workflow Customizing* (F9).

1.4.2.8.4 Maintain Output Determination for Outbound Deliveries

You must configure the following settings to send outbound deliveries from ERP to TM. Output determination is used to create XML messages, which are sent to TM.

1.4.2.8.4.1 Maintain Condition Tables (Outbound Delivery)

In this step, you define the combination of fields for which you want to create output condition records in a condition table. This enables you to control output determination depending on your specific field combination. Alternatively, you can check whether the data that you need is already available.

Procedure

1. In your ERP system, in Customizing for *Logistics Execution*, choose ► *Shipping* ► *Basic Shipping Functions* ► *Output Control* ► *Output Determination* ► *Maintain Output Determination for Outbound Deliveries* ► *Maintain Condition Tables* ►.
2. Choose *Maintain Output Condition Table for Deliveries*.
3. Make sure that the field *Delivery Type* is assigned to condition table *009*.

If that is not the case, create a new condition table for output control (shipments) as follows:

- a. In your system, in Customizing for *Logistics Execution*, choose ► *Shipping* ► *Basic Shipping Functions* ► *Output Control* ► *Output Determination* ► *Maintain Output Determination for Outbound Deliveries* ► *Maintain Condition Tables* ►.
- b. Choose *Maintain Output Condition Table for Deliveries*.
- c. Choose ► *Condition* ► *Create* ►.
- d. In the *Table* field, enter a name (3-digit number) for the new condition table that is to be created. Note that you can only choose names between 900 and 999.
- e. Choose .
- f. Enter a description for the new condition table, for example, **Delivery Type**.
- g. Select the required fields for the condition table from the list of allowed fields, for example, *Delivery Type*.
- h. Generate the new condition table.

1.4.2.8.4.2 Maintain Access Sequences (Outbound Delivery)

Prerequisites

You have defined the necessary condition tables.

Context

In this procedure, you check whether the required access sequences are available or you create access sequences that you can use to determine the following:

- The condition tables that are used to access condition records
- The sequence of these condition tables
- The field contents with which they are read

Procedure

1. In your ERP system, navigate to Customizing for *Logistics Execution* and choose ► *Shipping* ► *Basic Shipping Functions* ► *Output Control* ► *Output Determination* ► *Maintain Output Determination for Outbound Deliveries* ► *Maintain Access Sequences* ►.
2. In the overview, choose access sequence *0001 Delivery Type*.
3. Choose *Accesses*.
4. The *Accesses Overview* area contains condition table *9*.

If the correct access sequence is not available, create it as follows:

- a. In your ERP system, navigate to Customizing for *Logistics Execution* and choose ► *Shipping* ► *Basic Shipping Functions* ► *Output Control* ► *Output Determination* ► *Maintain Output Determination for Outbound Deliveries* ► *Maintain Access Sequences* ►.
- b. Switch to change mode.
- c. Choose *New Entries*.
- d. In *Access Seq*, create an access sequence by defining an alphanumeric key (with a maximum of four characters) and enter a description.
- e. In *Description*, enter a description.
- f. In *Source*, select one of the following sources: *Other system* (for example, ERP) or *Local*.
- g. Select a row in the *Access Sequences* table, and in the left frame, choose *Fields*.

You can define the accesses by defining the sequence of accesses in the access sequence and choosing the corresponding condition tables.

- h. Choose *Save*.

In the *Determine Work Area: Entry* dialog box, you can enter a value directly so that the system overwrites the value transferred from the calling application. You can also set an initial indicator.

1.4.2.8.4.3 Maintain Output Types (Outbound Delivery)

Procedure

1. In your ERP system, in Customizing for *Logistics Execution*, choose ► *Shipping* ► *Basic Shipping Functions* ► *Output Control* ► *Output Determination* ► *Maintain Output Determination for Outbound Deliveries* ► *Maintain Output Types*. ►

2. Make sure that output type **TRD0** (delivery to external TMS) has been entered.

If not, enter **TRD0** with the following data:

Output Types

<i>Output Type</i>	TRD0
<i>Description</i>	Cr./Chg TM Int. ODLV
<i>General Data</i> tab	
<i>Access sequence</i>	0001
<i>Access to conditions</i>	Select this checkbox
<i>CannotBeChanged</i>	Do not select this checkbox
<i>Multiple issuing</i>	Select this checkbox
<i>Partner-indep.output</i>	Select this checkbox
<i>do not write processing log</i>	Do not select this checkbox
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>FORM routine</i>	CHECK_REPEAT
<i>Default values</i> tab	
<i>Dispatch Time</i>	4 Send immediately (when saving the application)
<i>Transmission Medium</i>	8 Special function
<i>Partner Function</i>	Leave this empty
<i>Communication Strategy</i>	Leave this empty

3. In the dialogue structure, select *Processing Routines*.

4. Make sure that the following entries have been made for the output types:

Processing Routines

Field	Entry
<i>Transmission Medium</i>	8
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>Form Routine</i>	PROCESS

1.4.2.8.4.4 Maintain Output Determination Procedure (Outbound Delivery)

Procedure

1. In your ERP system in Customizing for *Logistics Execution*, choose **Shipping** **Basic Shipping Functions** **Output Control** **Output Determination** **Maintain Output Determination for Outbound Deliveries** **Maintain Output Determination Procedure**.
2. Make sure that procedure **v10000** has been entered.
3. In the dialog structure, select *Control Data*.
4. Make sure that the following entries have been made for procedure **v10000**:

Reference Step Overview

Step	Condition Counter	Condition Type	Requirement
<Any available step 4 number>		TRD0	440

1.4.2.8.4.5 Assign Output Determination Procedures (Outbound Delivery)

In this step, you assign output determination procedures to document types. You can also specify an output type that is to be displayed when the relevant document is displayed or changed.

Prerequisites

You have defined the following:

- Output determination procedures
- Output types

Procedure

1. In your ERP system in Customizing for *Logistics Execution*, choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Output Determination* > *Maintain Output Determination for Outbound Deliveries* > *Assign Output Determination Procedures*.
2. Choose *Assign deliveries (header)*.
3. In the overview, assign the output determination procedure as follows:

Assignments

Delivery Type	Output Determination Procedure	Output Type
LF Outbound Delivery	V10000	TRD0

1.4.2.8.4.6 Create Output Condition Records (Outbound Delivery)

In this step, you link the relevant delivery type with an output type that is configured for the data transfer to TM. You define the message attributes, for example, processing time or language. From a technical point of view, you create condition records.

Procedure

1. In your ERP system on the *SAP Easy Access* screen, choose **Logistics** > *Logistics Execution* > *Master Data* > *Output* > *Shipping* > *Outbound Deliveries* > *Create* or call transaction `VV21`.

2. Choose *Output Type* **TRD0**.
3. Choose *Enter*.
4. On the following screen, enter the data as shown in the table below.

Delivery Type	Name	Medium	Date/Time	Language
LF	Outbound Delivery	8 Special Function	4 Send immediately (when saving the application)	EN

5. Note the following:
 - Leave the *Funct.* and *Partner* fields blank.
 - LF is a standard delivery type that is delivered as part of ERP Customizing.
6. Save your entries.

1.4.2.8.4.7 Assign Processing Class

In this step you assign the output type to a processing class. This enables the system to send a message as a repeat message when you delete a delivery.

Prerequisites

You have defined output types.

Procedure

1. In your ERP system in Customizing for *Logistics Execution*, choose **Shipping** **Basic Shipping Functions** **Output Control** **Assign Processing Class**.
2. Check that the following entry exists, or create it, if necessary:

Field	Value
<i>Application</i>	V2
<i>Output Type</i>	TRD0
<i>Class</i>	CL_SHP_XI_MESSAGE_TRD0

1.4.2.8.5 Maintain Output Determination for Inbound Deliveries

You must configure the following settings to send inbound deliveries from ERP to TM. Output determination is used to create XML messages, which are sent to TM.

1.4.2.8.5.1 Maintain Condition Tables (Inbound Delivery)

In this procedure, you define the combination of fields for which you want to create output condition records in a condition table. This enables you to control output determination depending on your specific field combination.

Procedure

1. In Customizing for *Logistics Execution*, choose [Shipping](#) > [Basic Shipping Functions](#) > [Output Control](#) > [Output Determination](#) > [Maintain Output Determination for Inbound Deliveries](#) > [Define Condition Table for Inbound Delivery](#) > [Create Condition Table for Inbound Delivery](#).
2. Choose [Condition](#) > [Display](#).
3. In the *Table* field, enter condition table **009**.
4. Make sure that the condition table *009 Delivery Type* exists.
5. Make sure that the field *Delivery Type* is assigned to condition table *009*.

If that is not the case, create a new condition table for output control as follows:

- a. In Customizing for *Logistics Execution*, choose [Shipping](#) > [Basic Shipping Functions](#) > [Output Control](#) > [Output Determination](#) > [Maintain Output Determination for Inbound Deliveries](#) > [Define Condition Table for Inbound Delivery](#) > [Create Condition Table for Inbound Delivery](#).
- b. Choose [Condition](#) > [Create](#).
- c. In the *Table* field, enter a name (3-digit number) for your new condition table.

Note that you can only choose names between 900 and 999.
- d. Choose .
- e. Enter a description for the new condition table, for example, *Delivery Type*.
- f. Select the required fields for the condition table from the list of allowed fields, for example, *Delivery Type*.
- g. Generate the new condition table.

1.4.2.8.5.2 Maintain Output Types (Inbound Delivery)

Procedure

1. In Customizing for *Logistics Execution*, choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Output Determination* > *Maintain Output Determination for Inbound Deliveries* > *Define Output Types for Inbound Delivery*.
2. Make sure that output type TRD0 (Delivery to external TMS) has been created. Otherwise, proceed with the remainder of this procedure.
3. Enter TRD0 with the following data:

Header Area	
<i>Output Type</i>	TRD0
<i>Description</i>	Cr./Chg TM Int. IDLV
General Data tab page	
<i>Access sequence</i>	0001
<i>Access to conditions</i>	Selected
<i>CannotBeChanged</i>	Not selected
<i>Multiple issuing</i>	Selected
<i>Partner-indep.output</i>	Selected
<i>do not write processing log</i>	Not selected
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>FORM routine</i>	CHECK_REPEAT
Default values tab page	
<i>Dispatch Time</i>	4 Send immediately (when saving the application)
<i>Transmission Medium</i>	8 Special function
<i>Partner Function</i>	Blank
<i>Communication Strategy</i>	Blank

4. In the dialogue structure, select *Processing Routines*.

5. Make sure that the following entries have been made for the output types:

Processing Routines	
Field	Entry
<i>Transmission Medium</i>	8
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>Form Routine</i>	PROCESS

1.4.2.8.5.3 Maintain Access Sequences (Inbound Delivery)

Prerequisites

You have defined the necessary condition tables.

Context

In this procedure, you check whether the required access sequences are available, or you create access sequences that you can use to determine the following:

- Which condition tables are used to access condition records
- The sequence of these condition tables
- With which field contents they are read

Procedure

1. In Customizing for *Logistics Execution*, choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Output Determination* > *Maintain Output Determination for Inbound Deliveries* > *Define Access Sequence for Inbound Delivery*.
2. In the overview, select access sequence *0001 Delivery Type*.
3. Select *Accesses*.
4. Condition table *9* is displayed in the *Overview Accesses* table and requirement *432* is assigned in the *Requirement* column.

If the correct access sequence is not available, create it as follows:

- a. In Customizing for *Logistics Execution*, choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Output Determination* > *Maintain Output Determination for Inbound Deliveries* > *Define Access Sequence for Inbound Delivery*.
- b. Switch to edit mode and choose *New Entries*.
- c. In the *Access Sequences* area, create an access sequence by specifying an alphanumeric key (with a maximum of four characters) and a description.
- d. In *Description*, enter a description.
- e. In *Source*, select one of the following sources: *Other system* (for example, ERP) or *Local*.
- f. Select the row in the *Access Sequences* table and choose *Fields* from the dialog structure.

You can define accesses by specifying the access sequence and choosing the corresponding condition tables.

- g. Save your entries.

1.4.2.8.5.4 Maintain Output Determination Procedure (Inbound Delivery)

Procedure

1. In your ERP system, navigate to Customizing for *Logistics Execution* and choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Output Determination* > *Maintain Output Determination for Inbound Deliveries* > *Maintain Output Determination Procedure*.
2. Check that procedure E10001 - Inbound Delivery exists and select it. If the procedure does not exist, create it.
3. In the dialog structure, select *Control Data*.
4. Check that the following entries have been made for procedure E10001:

Step	Condition Counter	Condition Type	Requirement
<Any available step number>	<Any available condition counter>	TRD0	441

1.4.2.8.5.5 Assign Output Determination Procedures (Inbound Delivery)

In this procedure, you assign output determination procedures to document types. You can also specify an output type that is to be displayed when the relevant document is displayed or changed.

Prerequisites

You have defined the following:

- Output determination procedures
- Output types

Procedure

1. In your ERP system, navigate to Customizing for *Logistics Execution* and choose **► Shipping ► Basic Shipping Functions ► Output Control ► Output Determination ► Maintain Output Determination for Outbound Deliveries ► Assign Output Determination Procedures ►**.
2. In the overview, assign the output determination procedure as follows:

Delivery Type	Output Determination Procedure	Output Type
EL Inbound Delivery	E10001	TRD0

i Note

Note that **EL** is a standard delivery type that is delivered as part of ERP Customizing.

1.4.2.8.5.6 Create Output Condition Records (Inbound Delivery)

In this procedure, you link the relevant delivery type with an output type that is configured for the data transfer to TM. You define the message attributes, for example, the processing time or language. From a technical point of view, you create condition records.

Procedure

1. On the *SAP Easy Access* screen of your ERP system, choose ► *Logistics* ► *Logistics Execution* ► *Master Data* ► *Output* ► *Shipping* ► *Inbound Deliveries* ► *Create* ► or call transaction MN24.
2. Enter output type **TRD0** and press .
3. On the following screen, enter the data as shown in the table below.

Delivery Type	Name	Medium	Date/Time	Language
EL	Inbound Delivery	8 Special Function	4 Send immediately (when saving the application)	EN

4. Note the following:
 - Leave the *Funct.* and *Partner* fields blank.
 - **EL** is a standard delivery type that is delivered as part of ERP Customizing.
5. Save your entries.

1.4.2.8.5.7 Assign Processing Class

In this step you assign the output type to a processing class. This enables the system to send a message as a repeat message when you delete a delivery.

Prerequisites

You have defined output types.

Procedure

1. In your ERP system, in Customizing for *Logistics Execution*, choose **Shipping** > *Basic Shipping Functions* > *Output Control* > *Assign Processing Class*.
2. Check that the following entry exists, or create it, if necessary:

Field	Value
<i>Application</i>	E1
<i>Output Type</i>	TRD0
<i>Class</i>	CL_SHP_XI_MESSAGE_TRD0

1.4.2.8.6 Order and Delivery Integration

Use

The following documents can be transferred to TM: sales orders, purchase orders, stock transport orders, returns orders (such as sales returns, vendor returns, and store returns), outbound deliveries, and inbound deliveries.

Before you can transfer the documents, you have to define the control keys in the respective Customizing activity and activate the transfer of documents to TM. The settings that you have to configure depend on the scenario that you want to set up. You also have to configure output determination for the documents.

Integration of Sales Orders, Customer Returns and Corresponding Deliveries

To configure this integration scenario in your ERP system, you configure the settings for sales documents such that corresponding deliveries are also sent to TM. You configure the settings as follows:

- *Defining Control Keys for Document Transfer*
You must select the *SO to TMS* checkbox and the *Outbd Del.* checkbox for the control key. If you want to schedule sales orders in TM synchronously, select the *SO Sched* checkbox.
- *Activating Transfer of Sales Documents*
You assign the control key to your sales document types.

Integration of Purchase Orders, Stock Transport Orders, Return Purchase Orders, Return Stock Transport Orders, and Corresponding Deliveries

To configure this integration scenario in your ERP system, you configure the settings for purchase documents such that corresponding deliveries are also sent to TM. You configure the settings as follows:

- *Defining Control Keys for Document Transfer*
You must select the *PO to TMS* checkbox and the *Inbd Del.* checkbox for the control key.

If you want to transfer confirmation data of external purchase orders to TM as confirmed quantities you must select the *PO Conf.* checkbox as well.

- [Activating Transfer of Purchase Orders](#)
You assign the control key to your purchase document types.

Integration of ERP Orders Without Sending Deliveries to TM

To configure this integration scenario in your ERP system, you configure the settings for orders such that the corresponding deliveries are not sent to TM. You configure the settings as follows:

- [Defining Control Keys for Document Transfer](#)
You must select the *SO to TMS* checkbox for the control key, but you do **not** select the *Outbd Del.* checkbox. In the same way, you select the *PO to TMS* checkbox for the control key for purchase documents, but you do **not** select the *Inbd Del.* checkbox.
- [Activating Transfer of Sales Documents](#)
You assign the control key for sales documents to your sales document types.
- [Activating Transfer of Purchase Orders](#)
You assign the control key for purchase documents to your purchase document types.

Integration of ERP Deliveries Without Sending Orders to TM

To configure this integration scenario in your ERP system, you configure settings for deliveries such that the preceding order documents are not sent to TM. You configure the settings as follows:

- [Defining Control Keys for Document Transfer](#)
You must select the *Outbd Del.* checkbox for the control key for outbound deliveries and the *Inbd Del.* checkbox for the control key for inbound deliveries. The control keys must **not** have the *SO to TM* checkbox or the *PO to TM* checkbox selected.
- [Activating Transfer of Delivery Documents](#)
You assign the control key to your delivery document types.

For information about the necessary message control settings in ERP, see [Prerequisites for Order and Delivery Integration](#) in the Product Assistance for SAP S/4HANA on SAP Help Portal under ► [Enterprise Business Applications](#) ► [Supply Chain](#) ► [Logistics Cross Topics](#) ► [Logistics – General \(LO\)](#) ► [Integration of SAP ERP with SAP Transportation Management](#) ► [Integration: Order and Delivery Processing – SAP TM](#) ► [Prerequisites for Order and Delivery Integration](#) ►.

Integration Business Add-Ins (BAdIs)

The following BAdIs are available in Customizing for [Integration with Other SAP Components](#) under ► [Transportation Management](#) ► [Order Integration](#) ► [Business Add-Ins \(BAdIs\)](#) ►:

- [BAdI: Sales Document Integration with TM](#)
- [BAdI: Purchase Order Integration with TM](#)
- [BAdI: Delivery Integration with TM](#)

You can use these BAdIs to define the control key and the technical settings for transportation management according to your own logic, overriding the Customizing settings. The BAdIs are called when a document is saved for the first time.

More Information

To improve understanding and provide a better overview, the following tables show the different messages that are used to transfer order-related and delivery-related data between ERP and TM.

Message Flow Order Integration

ERP Orders and Order-Based Transportation Requirements

Message	Description
SLO_TransportationRequestSuiteRequest_Out	Send created or changed sales orders from ERP to TM
POP_TransportationRequestSuiteRequest_Out	Send created or changed purchase and stock transport orders and their returns from ERP to TM
CRP_TransportationRequestSuiteRequest_Out	Send created or changed customer returns from ERP to TM
IntracompanyTransportationRequestRequest_In	Receive creation or change requests for order-based transportation requirements in TM
SLO_TransportationRequestSuiteCancellationRequest_Out	Send cancellation requests for sales orders from ERP to TM
POP_TransportationRequestSuiteCancellationRequest_Out	Send cancellation requests for purchase and stock transport orders and their returns from ERP to TM
CRP_TransportationRequestSuiteCancellationRequest_Out	Send cancellation requests for customer returns from ERP to TM
IntracompanyTransportationRequestCancellationRequest_in	Cancel requests for order-based transportation requirements in TM

Simulation of Sales Orders

Message	Description
TransportationRequestSuiteSimulateRequestConfirmation_Out	Send simulation requests for created or changed sales orders from ERP to TM
IntracompanyTransportationRequestSimulateRequestConfirmation_In	Receive creation or change requests for simulation-based order-based transportation requirements in TM

ERP Deliveries and Delivery-Based Transportation Requirements

Message	Description
OutboundDeliveryBulkCreateRequest_Out	Send creation requests for outbound deliveries from TM to ERP

ERP Deliveries and Delivery-Based Transportation Requirements

Message	Description
OutboundDeliveryBulkCreateRequest_In	Receive creation requests for outbound deliveries in ERP
OutboundDeliveryBulkConfirmation_Out	Send confirmations of requests for outbound deliveries from ERP to TM
OutboundDeliveryBulkConfirmation_In	Receive confirmations of requests for outbound deliveries in TM
ODP_TransportationRequestSuiteRequest_Out	Send created or changed outbound deliveries from ERP to TM
ODP_TransportationRequestSuiteCancellationRequest_Out	Send cancellation requests for outbound deliveries from ERP to TM
InboundDeliveryCreateRequest_Out	Send creation requests for inbound deliveries from TM to ERP
InboundDeliveryCreateRequest_In	Receive creation requests for inbound deliveries in ERP
InboundDeliveryConfirmation_Out_V1	Send confirmations of requests for inbound deliveries from ERP to TM
InboundDeliveryConfirmation_In_V1	Receive confirmations of requests for inbound deliveries in TM
IDP_TransportationRequestSuiteRequest_Out	Send created or changed inbound deliveries from ERP to TM
IDP_TransportationRequestSuiteCancellationRequest_Out	Send cancellation requests for inbound deliveries from ERP to TM
IntracompanyTransportationRequestRequest_In	Receive creation or change requests for delivery-based transportation requirements in TM
IntracompanyTransportationRequestCancellationRequest_in	Receive cancellation requests for delivery-based transportation requirements in TM
OutboundDeliveryERPSplitRequest_Out_V1	Send split requests for outbound deliveries from TM to ERP
OutboundDeliveryERPSplitRequest_In_V1	Receive split requests for outbound deliveries in ERP
OutboundDeliveryERPSplitConfirmation_Out_V1	Send confirmations of split requests for outbound deliveries from ERP to TM
OutboundDeliveryERPSplitConfirmation_In_V1	Receive confirmations of split requests for outbound deliveries in TM
OutboundDeliveryUpdateRequest_Out	Send update requests for outbound deliveries from TM to ERP

ERP Deliveries and Delivery-Based Transportation Requirements

Message	Description
OutboundDeliveryUpdateRequest_In	Receive update requests for outbound deliveries in ERP
OutboundDeliveryConfirmation_Out_V1	Send confirmations of update requests for outbound deliveries from ERP to TM
OutboundDeliveryConfirmation_In_V1	Receive confirmations of update requests for outbound deliveries in TM

SAP TM Document Flow in SAP ERP

Message	Description
BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_Out	Send request for TM business document flow from ERP to TM
BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_In	Receive requests for TM business document flow in TM

1.4.2.8.6.1 Activate Transfer of Sales Documents

In this procedure, you define the sales documents that you want to transfer from ERP to TM. You define the control key that is to be used and the number of the TM system to which you want to transfer the sales documents. This information is dependent on the sales area, sales document type, and shipping condition. You can also specify a technical transportation management number that distinguishes the receiving TM system.

Prerequisites

You have defined the necessary control keys.

Context

The control key determines which documents in the document chain are to be transferred to TM.

Procedure

1. In Customizing for *Integration with Other SAP Components*, choose ► [Transportation Management](#) ► [Order Integration](#) ► [Activate Transfer of Sales Documents](#) ▾.
2. Make sure that an entry exists for the sales organization, distribution channel, division, sales document type, and shipping condition you need, and that the control key matches. If necessary, specify the technical number of the TM system as well.

1.4.2.8.6.2 Activate Transfer of Purchase Orders

In this procedure, you define the purchase orders that you want to transfer from ERP to TM. You define the control key that is to be used and the number of the TM system to which you want to transfer the purchase orders. This information is dependent on the purchasing organization, purchasing group, and purchasing order type. You can also specify a technical transportation management number that distinguishes the receiving TM system.

Prerequisites

You have defined the necessary control keys.

Context

The control key determines which documents in the document chain are to be transferred to TM.

Procedure

1. In Customizing for *Integration with Other SAP Components*, choose ► [Transportation Management](#) ► [Order Integration](#) ► [Activate Transfer of Purchase Orders](#) ▾.
2. Make sure that an entry exists for the purchasing organization, purchasing group, and purchase order type you need, and that the control key matches. If necessary, specify the technical number of the TM system as well.

1.4.2.8.6.3 Activate Transfer of Delivery Documents

In this procedure, you define the delivery documents that you want to transfer from ERP to TM. You define the control key that is to be used and the number of the TM system to which you want to transfer the delivery

documents. This information is dependent on the shipping point, the delivery type, and the shipping condition. You can also specify a technical transportation management number that distinguishes the receiving TM system.

Prerequisites

You have defined the necessary control keys.

Context

The control key determines which documents in the document chain are to be transferred to TM.

i Note

You can also activate the transfer of delivery documents using the control key that is assigned to the preceding document in the document chain (for example, a sales order or a purchase order). In this case, the delivery inherits the control key from the preceding document and the system ignores any settings that you configure in this procedure.

Procedure

1. In Customizing for *Integration with Other SAP Components*, choose ► *Transportation Management* ► *Order Integration* ► *Activate Transfer of Delivery Documents*. ►
2. Make sure that an entry exists for the shipping point, delivery type, and shipping condition you need, and that the control key matches. If necessary, specify the technical number of the TM system as well.

1.4.2.9 Define Organizational Structure

Context

In TM, you use this process to create organizational models for the organizations that take part in transportation processes. You can create the organizational models according to a predefined hierarchical structure. You can assign employees who take part in workflow processes to the organizational units.

i Note

For more information, see [Organizational Management](#) and [Creation of Organizational Models](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under ► [Enterprise Business Applications](#) ►

Procedure

1. In your TM system, start transaction PPOCE (*Create Organization and Staffing*) and create the required organizational structure.
2. Alternatively, in Customizing for *Transportation Management*, go to **Master Data > Organizational Management > Organizational Model > Create and Merge Organizational Hierarchy** or use report / SCMTMS/TRANS_ORG_MODEL to copy the relevant entries from the ERP organizational structure.

i Note

Regardless of the chosen approach in regard to the organizational structure creation, you must ensure that the organizational units relevant for transportation charge management have assigned a BSG Org. Unit that will enable the relevant interfaces to identify the correct ERP organizational unit.

i Note

For further information, see SAP Note [2550444](#).

1.4.2.10 Define Order-Based Transportation Requirement Types

Context

An order-based transportation requirement (OTR) is a technical prerequisite in ERP order integration that captures the most important and relevant data contained in the ERP order and is further used in TM to build the freight units based on the information available in this technical container.

For more information, see [Order-Based Transportation Requirement](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under **Enterprise Business Applications > Supply Chain > Delivery and Transportation > Transportation Management (TM) > Logistics Integration > External TM System Integration > Integration of ERP Orders and Deliveries in Transp. Planning > Integration of ERP Orders > Order-Based Transportation Requirement**.

Procedure

1. In your TM system, in Customizing for *Transportation Management*, choose ► *Integration* ► *Logistics Integration* ► *External TM System Integration* ► *Order-Based Transportation Requirement* ► *Define Order-Based Transportation Requirement Types* ⌵.
2. Choose *New Entries* and create a new document type, according to your requirements.

i Note

Ensure that the most critical settings for the integration are maintained:

- *Default Type* (one default OTR type must exist)
- *Automatic Freight Unit Building*
- *Propagate Changes*
- *Default Units of Measure*
- *Plan on Req/Cnf. Qty*
- *Freight Unit Building Rule* or *FU Building Rule Condition*.

For enforcing business rules or scenario-based splitting of the OTR determination, you can define a condition of type `/SCMTMS/OTR_TYPE` where you may maintain various criteria for determining the relevant OTR type.

1.4.2.11 Define Delivery-Based Transportation Requirement Types

Context

A delivery-based transportation requirement (DTR) is a technical prerequisite in ERP order integration that captures the most important and relevant data contained in the ERP delivery and is further used in TM to build the freight units based on the information available in this technical container.

For more information, see [Delivery-Based Transportation Requirement](#).

Procedure

1. In your TM system, in Customizing for *Transportation Management*, choose ► *Integration* ► *Logistics Integration* ► *External TM System Integration* ► *Delivery-Based Transportation Requirement* ► *Define Delivery-Based Transportation Requirement Types* ⌵.
2. Choose *New Entries* and create a new document type, according to your requirements.

i Note

Ensure that the most critical settings for the integration are maintained:

- *Default Type* (one default DTR type must exist)
- *Automatic Freight Unit Building*
- *Propagate Changes*
- *Default Units of Measure*
- *Plan on Req/Cnf. Qty*
- *Freight Unit Building Rule* or *FU Building Rule Condition*.

For enforcing business rules or scenario-based splitting of the DTR determination, you can define a condition of type `/SCMTMS/DTR_TYPE` where you may maintain various criteria for determining the relevant DTR type.

1.5 Perform Initial Load of Master Data from ERP to TM System

1.5.1 Execute Initial Transfer of Business Partners

You use this process to execute the transfer of business partners from your ERP to your TM system. You can choose to transfer the entire set of business partner data; however, only the minimum information required to be transferred to TM is described here.

Context

i Note

For more information, see [Execution of Data Replication](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under ► [Cross Components](#) ► [Data Replication Framework](#) ► [Execution of Data Replication](#) ►.

Procedure

1. Log on to your ERP system.
2. Launch transaction `DRFOUT` (*Define Filter Criteria*).
3. Select a DRF replication model and enter the following data:

Field	Value
<i>Replication Model</i>	The name of your replication model
<i>Outbound Implementation</i>	986_3 (Outbound Impl. for BP/REL via Services)
▶ <i>Replication Mode</i> ▶ <i>Manual</i> ▶	Select this radio button
▶ <i>Options for Report Control</i> ▶ <i>Test Run Only</i> ▶	Deselect this checkbox

4. Choose *Manual Active Filter Criteria* and enter the following selection criteria:

Field	Operator	Value
Business Partner	(Include): = (Single Value)	The IDs of the business partners to be transferred
BPSelectionMode	(Include): = (Single Value)	1 Business Partners only
BP Role	(Include): = (Single Value)	FLCU00 FLCU01 FLVN00 FLVN01FLVN00 FLVN01
Company Code (Vendor Company Code Data for DRF Node Filter)	(Exclude): [*] (Pattern)	*
Purchasing Organization	(Exclude): [*] (Pattern)	*
Company Code (Customer Company Code Data for DRF Node Filter)	(Exclude): [*] (Pattern)	*
Sales Organization	(Exclude): [*] (Pattern)	*
Distribution Channel	(Exclude): [*] (Pattern)	*
Division	(Exclude): [*] (Pattern)	*

5. Choose *Execute*.

1.5.2 Execute Initial Transfer of Shipping Points and Plants

You use this process to execute the transfer of shipping points and plants from your ERP to your TM system.

Context

i Note

For more information, see [Execution of Data Replication](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [▶ Cross Components ▶ Data Replication Framework ▶ Execution of Data Replication ▶](#).

Procedure

1. Log on to your ERP system.
2. Launch transaction DRFOUT (*Define Filter Criteria*).
3. Select a DRF replication model and enter the following data:

Field	Value
<i>Replication Model</i>	The name of your replication model
<i>Outbound Implementation</i>	DRF_0045_L (Shipping Point/Receiving Point)
▶ Replication Mode ▶ Initialization ▶	Select this radio button
▶ Options for Report Control ▶ Test Run Only ▶	Deselect this checkbox

4. Choose *Execute*.
5. Select a DRF replication model and enter the following data:

Field	Value
<i>Replication Model</i>	The name of your replication model
<i>Outbound Implementation</i>	464_L (Plant to Location Replication from ECC to S/4 TM)
▶ Replication Mode ▶ Initialization ▶	Select this radio button
▶ Options for Report Control ▶ Test Run Only ▶	Deselect this checkbox

6. Choose *Execute*.

1.5.3 Execute Initial Transfer of Materials

You use this process to execute the transfer of materials from your ERP to your TM system.

Context

i Note

For more information, see [Execution of Data Replication](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [▶ Cross Components ▶ Data Replication Framework ▶ Execution of Data Replication ▶](#).

Procedure

1. Log on to your ERP system.
2. Launch transaction DRFOUT (*Define Filter Criteria*).
3. Select a DRF replication model and enter the following data:

Field	Value
Replication Model	The name of your replication model
Outbound Implementation	194_1 (Material via IDoc (ME - enhanced Filter Object))
▶ Replication Mode ▶ Initialization ▶	Select this radio button
▶ Options for Report Control ▶ Test Run Only ▶	Deselect this checkbox

4. Choose *Execute*.

1.6 Monitoring and Error Handling in ERP-TM Integration

Monitor the data that is replicated through the Data Replication Framework (DRF) to check whether your ERP-TM integration scenario is configured correctly. Additionally, you can monitor the transactional data transfer between ERP and TM systems.

1.6.1 Monitor XML Messages

Monitor inbound and outbound XML message transfer between ERP and TM.

Context

You use Web services to transfer master data from ERP to TM or transactional data between ERP and TM and vice versa.

Procedure

1. Call transaction `SRT_MONI` (*Web Service Utilities: Message Monitor*).
2. Enter your selection criteria.
3. Execute the report.

Display the status monitor for XML-based communication records and allows you to display and trace messages. You also have the option to process messages with errors in the external application (for example, in TM).

i Note

Processing errors of selected messages may not always be visible in the monitor's status or processing status fields. Due to design, errors in various services are included in their respective confirmation message. Please make sure that the confirmation messages have been configured in your system and evaluate fault messages contained in them.

1.6.2 Monitor IDocs

Monitor inbound IDocs to check whether data has been replicated successfully.

Context

You use IDocs to replicate materials.

Procedure

1. Call transaction `WE02` (*IDoc List*) or transaction `BD87` (*Select IDocs*).
2. Enter your selection criteria.
3. Execute the report.

Transaction `WE02` displays a list of IDocs and allows you to drill down into data records and status records, for example.

Transaction `BD87` displays the status monitor for ALE records and allows you to display and trace IDocs. You also have the option to process selected IDocs again after resolving an error indicated by the IDoc status records.

1.6.3 Activate Forward Error Handling and Error and Conflict Handler

Forward Error Handling (FEH) is a concept that enables errors detected during the execution of asynchronous services to be processed on the provider side. This concept is implemented using the Error and Conflict Handler (ECH).

Context

You use the ECH to control the system response in case of errors and conflicts in service operations. You can define whether service operations are executed again or terminated after errors and conflicts. This is especially helpful, for example, for detecting errors during message exchange between your ERP and TM systems.

i Note

For more information, see the following pages:

- [Forward Error Handling](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [▶ Enterprise Technology ▶ Enterprise Services ▶ Technical Concepts ▶ Forward Error Handling ▶](#).
- [Error and Conflict Handler \(CA-FS-ECH\)](#) in the SAP Library for SAP Netweaver on the SAP Help Portal under [▶ SAP NetWeaver Library: Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Other Services ▶ Services for Business Users ▶ Error and Conflict Handler \(CA-FS-ECH\) ▶](#).

Procedure

1. In your ERP system, go to Customizing for *Cross-Application Components*. Choose [▶▶ Processes and Tools for Enterprise Applications ▶ Enterprise Services ▶ Error and Conflict Handler ▶ Activate Error and Conflict Handler ▶](#).

2. Select the *Activated* checkbox and save.

1.6.4 Troubleshooting SOA Manager and WSRM Communication

Context

i Note

For more information and troubleshooting SOA Manager and WSRM communication, see SAP Note [1817447](#), ESI - Error: GET_BUSINESS_SYSTEM_ERROR for Consumer Proxy calls.

i Note

Additionally, evaluate the requirements of implementing the business add-in *BAdI: Determination of Local System Name* (MDG_IDM_GET_LCL_SYSTEM) and refer to the Customizing documentation.

In the case of WSRM communication where one or more messages cannot be found in the SRT_MONI, but instead they are found in the SXI_MONITOR, check the Web service configuration for the specific consumer proxy.

Perform the following steps in your ERP or TM system, depending on the case.

Procedure

1. Call transaction SOAMANAGER and select *Web Service Configuration*.
2. Open the *Configuration Search* tab page and search for the appropriate consumer proxy.
3. Once you have identified it, choose the *Interface* hyperlink in the *Internal Name* column for the consumer proxy.
4. Switch to the *Configurations* tab page. Verify that *Logical Port is Default* is marked as *true*.
5. If the above is not the case, select the line with the logical port and choose *Set Log. Port Default*.

1.7 Further Information

Information on ERP

- For information on SAP ERP, including the SAP Library and guides, see the SAP Help Portal at <http://help.sap.com/erp>.
- For information on SAP S/4HANA, including Product Assistance and guides, see the SAP Help Portal at http://help.sap.com/s4hana_op.

You can select your release from the the drop-down menu there.

i Note

This guide provides links and navigation paths to the most up-to-date version of the documentation on the SAP Help Portal. Therefore, whenever you access information using these links, you should choose your specific release from the drop-down menu there.

Similarly, if you are running an SAP ERP system and a link to further information leads you to the Product Assistance for SAP S/4HANA, you should substitute that with the SAP Library for SAP ERP. Apart from the product names, the navigation paths are the same.


Information on TM

For information about TM, see [Transportation Management \(TM\)](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under ► [Enterprise Business Applications](#) ► [Supply Chain](#) ► [Delivery and Transportation](#) ► [Transportation Management \(TM\)](#) ►.

For information about setting up TM, see the information for SAP S/4HANA on the SAP Help Portal at http://help.sap.com/s4hana_op, where there is also TM-specific information in the *Installation Guide* there.

For information about setting up Web Services Reliable Messaging (WSRM) see the *WS/RM Integration Guide for SAP Transportation Management* on the SAP Help Portal at <http://help.sap.com/tm> under *Configuration*.

In SAP Note [2714892](#) , you can find information about the deployment options for TM.

In SAP Note [2769186](#) , you can find information on moving from SAP Transportation Management (SAP TM) to Transportation Management in SAP S/4HANA (TM in SAP S/4HANA). Chapter 22 focuses on master data distribution from SAP ERP to SAP S/4HANA with DRF.

Information about the enterprise services and additional Enterprise Services Repository (ES Repository) content for TM is available at [Enterprise Services and ESR Content](#).

ERP-TM Integration

For information on integrating orders and deliveries from external source systems such as SAP ERP or an external SAP S/4HANA system, see [External TM System Integration](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [▶ Enterprise Business Applications ▶ Supply Chain ▶ Delivery and Transportation ▶ Transportation Management \(TM\) ▶ Logistics Integration ▶ External TM System Integration ▶](#).

For release information on TM, including information about how TM integrates into the embedded applications in SAP S/4HANA and also supports side-by-side scenarios, please refer to chapter 1 of SAP Note [3083725](#).

For information about the posting of freight settlement documents in side-by-side scenarios with SAP S/4HANA 1709 FPS02, please see SAP Note [2640069](#).

For more information about system integration, see the following SAP Notes:

- SAP Note [1552355](#) ERP Integration: System Connection between ERP and TM
- SAP Note [1530240](#) FAQ for ERP-TM Integration
- SAP Note [1588450](#) FAQ for ERP-TM Logistics Integration

Integration with Warehousing and Other Capabilities

Refer to the guide *Integration of SAP ERP or SAP S/4HANA with Decentralized EWM based on SAP S/4HANA* for information on integrating the extended warehouse management capability with the transportation management capability as part of SAP Digital Supply Chain Management, edition for SAP S/4HANA.

See also SAP Note [2812981](#) for more information about using TM and decentralized EWM in the same SAP S/4HANA system and client.



For information on integrating TM with EWM, SAP Event Management, and SAP Global Trade Services, see [Integration](#) in the Product Assistance for SAP S/4HANA on the SAP Help Portal under [▶ Enterprise Business Applications ▶ Supply Chain ▶ Delivery and Transportation ▶ Transportation Management \(TM\) ▶ Integration ▶](#).

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