



Integration of Outbound Warehousing and Transportation

PUBLIC

Document Version: 1.0 – September 2012

Copyright

© Copyright 2012 SAP AG. All rights reserved.

SAP Library document classification: PUBLIC

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Excel, Outlook, PowerPoint, Silverlight, and Visual Studio are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, System i, System i5, System p, System p5, System x, System z, System z10, z10, z/VM, z/OS, OS/390, zEnterprise, PowerVM, Power Architecture, Power Systems, POWER7, POWER6+, POWER6, POWER, PowerHA, pureScale, PowerPC, BladeCenter, System Storage, Storwize, XIV, GPFS, HACMP, RETAIN, DB2 Connect, RACF, Redbooks, OS/2, AIX, Intelligent Miner, WebSphere, Tivoli, Informix, and Smarter Planet are trademarks or registered trademarks of IBM Corporation.

Linux is the registered trademark of Linus Torvalds in the United States and other countries.

Adobe, the Adobe logo, Acrobat, PostScript, and Reader are trademarks or registered trademarks of Adobe Systems Incorporated in the United States and other countries.

Oracle and Java are registered trademarks of Oracle and its affiliates.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems Inc.

HTML, XML, XHTML, and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Apple, App Store, iBooks, iPad, iPhone, iPhoto, iPod, iTunes, Multi-Touch, Objective-C, Retina, Safari, Siri, and Xcode are trademarks or registered trademarks of Apple Inc.

IOS is a registered trademark of Cisco Systems Inc.

RIM, BlackBerry, BBM, BlackBerry Curve, BlackBerry Bold, BlackBerry Pearl, BlackBerry Torch, BlackBerry Storm, BlackBerry Storm2, BlackBerry PlayBook, and BlackBerry App World are trademarks or registered trademarks of Research in Motion Limited.

Google App Engine, Google Apps, Google Checkout, Google Data API, Google Maps, Google Mobile Ads, Google Mobile Updater, Google Mobile, Google Store, Google Sync, Google Updater, Google Voice, Google Mail, Gmail, YouTube, Dalvik and Android are trademarks or registered trademarks of Google Inc.

INTERMEC is a registered trademark of Intermec Technologies Corporation.

Wi-Fi is a registered trademark of Wi-Fi Alliance.

Bluetooth is a registered trademark of Bluetooth SIG Inc.

Motorola is a registered trademark of Motorola Trademark Holdings LLC.

Computop is a registered trademark of Computop Wirtschaftsinformatik GmbH.

SAP, R/3, SAP NetWeaver, Duet, PartnerEdge, ByDesign, SAP BusinessObjects Explorer, StreamWork, SAP HANA, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and other countries.

Business Objects and the Business Objects logo, BusinessObjects, Crystal Reports, Crystal Decisions, Web Intelligence, Xcelsius, and other Business Objects products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of Business Objects Software Ltd. Business Objects is an SAP company.

Sybase and Adaptive Server, iAnywhere, Sybase 365, SQL Anywhere, and other Sybase products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of Sybase Inc. Sybase is an SAP company.

Crossgate, m@gic EDDY, B2B 360°, and B2B 360° Services are registered trademarks of Crossgate AG in Germany and other countries. Crossgate is an SAP company.

All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

Icons in Body Text

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help → General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*.

Typographic Conventions

Type Style	Description
<i>Example text</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation.
Example text	Emphasized words or phrases in body text, graphic titles, and table titles.
EXAMPLE TEXT	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example text	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

Table of Contents

Integration of Outbound Warehousing and Transportation	9
The Scenario.....	11
Configuration Settings in SAP ERP	13
Master Data Setup in SAP ERP	14
Transferring Organizational and Master Data from SAP ERP to SAP TM	16
Order Management	19
Activating Transfer of Sales Documents	20
Activating Transfer of Outbound Deliveries	22
Configuration of Output Determination for Sales Documents	23
Defining Condition Tables (SD)	24
Defining Access Sequences (SD)	25
Defining Output Types (SD)	27
Defining Output Determination Procedure (SD).....	28
Assigning Output Determination Procedures to Document Types (SD)	29
Creating Output Condition Records (SD).....	30
Configuration of Output Determination for Outbound Deliveries	31
Defining Condition Tables (Outbound Delivery).....	32
Defining Access Sequences (Outbound Delivery)	33
Defining Output Types (Outbound Delivery)	35
Defining Output Determination Procedure (Outbound Delivery).....	37
Assigning Output Determination Procedures to Document Types (Outbound Delivery)	38
Creating Output Condition Records (Outbound Delivery).....	39
Assigning Processing Class (Outbound Delivery)	40
Outbound Integration of SAP ERP Shipments	41
Defining External Number Ranges	42
Defining Transportation Planning Points.....	43
Output Control Settings.....	44
Creating Condition Tables.....	45
Creating Access Sequences	46
Creating Output Types for Shipments	47
Defining Output Determination Procedures for Shipments	49
Assigning Output Determination Procedures to Shipment Types	50
Creating Condition Records for Shipments	51
Assigning Output Types to Partner Functions.....	52
Configuring Inbound and Outbound Processing	53

Defining Process Codes for Inbound IDocs	54
Defining Partner Profiles for Inbound IDocs	55
Defining Process Codes for Outbound IDocs.....	57
Defining Partner Profiles for Outbound IDocs	58
Inbound Integration of SAP ERP Shipments	62
Defining External Number Ranges	63
Output Control Settings.....	64
Creating Output Types for Shipments.....	65
Defining Output Determination Procedures for Shipments	67
Assigning Output Determination Procedures to Shipment Types	68
Assigning Output Types to Partner Functions.....	69
Creating Condition Records for Shipments	70
Creating Output Types for Outbound Deliveries	71
Defining Output Determination Procedure for Outbound Deliveries	73
Creating Condition Records for Outbound Deliveries	74
Configuring Inbound and Outbound Processing	75
Defining Process Codes for Inbound IDocs	76
Defining Partner Profiles for Inbound IDocs	77
Defining Process Codes for Outbound IDocs.....	79
Defining Partner Profiles for Outbound IDocs	80
Configuration Settings in SAP TM	85
Master Data Setup in SAP TM	86
Defining Means of Transport	87
Defining Packaging Material Types	88
Defining Package Type Codes	89
Defining Vehicle Resources.....	90
Defining Equipment Groups and Equipment Types	91
Defining Transportation Service Level Codes	92
Defining Incoterms.....	93
Order Management	94
Defining Order-Based Transportation Requirement Types	95
Defining Delivery-Based Transportation Requirement Types	97
Defining Conditions for OTR Type Determination	99
Defining Conditions for DTR Type Determination	101
Planning.....	103
Defining Freight Unit Types	104
Defining Freight Unit Building Rules	107

Creating Delivery Profiles	109
Creating Selection Profiles	110
Defining Capacity Settings.....	111
Creating Planning Profiles	112
Freight Order Management.....	114
Defining Number Ranges	115
Defining Freight Order Types	116
Assigning Freight Order Types to SAP ERP Shipment Types	121
Configuration Settings for SAP NetWeaver Process Integration	122
Configuring SAP NetWeaver PI for Order Integration.....	123
Configuring SAP NetWeaver PI for Shipment Integration (Outbound)	128
Defining Value Mappings for Shipment Integration (Outbound).....	134
Configuring SAP NetWeaver PI for Shipment Integration (Inbound)	136
Checking Settings for Acknowledgment of IDocs	141
Registering Message Queues in SAP TM or SAP ERP	142



Integration of Outbound Warehousing and Transportation

About This Document

This configuration guide describes a scenario for integrating SAP Transportation Management (SAP TM) with SAP Extended Warehouse Management (SAP EWM) via SAP ERP. Integration SAP TM and SAP EWM enables you to configure the following business processes/scenarios:

- Handling cancellation in order-based outbound processes

You use this business process to cancel shipment of assigned outbound delivery orders to transportation units.
- Managing delivery-based outbound processes

You use this business process to ship ordered goods from the warehouse to the external customer using an external carrier. In this process the inventory planning has priority over the transportation planning: you plan the transportation in SAP Transportation Management (TM) on the basis of outbound deliveries created and scheduled in SAP ERP.
- Managing order-based outbound processes

You use this business process to ship ordered goods from the warehouse to the external customer using an external carrier. In this process you plan the transportation in SAP Transportation Management (TM) on the basis of sales orders created in SAP ERP.
- Planning transportation and billing in outbound processes

You use this business process to ship ordered goods from the warehouse to the external customer using an external carrier. In this process you execute the outbound deliveries created in SAP ERP as soon as possible in the warehouse and plan the transportation in SAP EWM accordingly.
- Planning freight and selecting carriers

You use this business process to create a transportation plan, which specifies how transportation demands are to be met by your transportation capacities and carriers. By considering appropriate constraints and objectives, planning helps you to align transportation execution with your business objectives, such as reducing costs, improving service levels, and maximizing resource utilization.
- Tendering freight

You use this business process to send freight requests for quotation (freight RFQs) to carriers. Carriers can accept or decline these freight RFQs and change data such as the price when they return the freight quotations. You can then automatically accept the tendering and send the freight order back to the awarded carrier. A tendering process starts if you or the system determines more than one possible carrier.
- Executing and monitoring freight

This process covers the actual execution of the transportation process. The transportation planner or dispatcher checks if freight orders are ready for execution, the customs declaration is done, and the relevant documents are printed. If a customs

process is involved, freight orders are blocked. When the customs management system returns a positive result, the actual execution can start. At the end of the process, the transportation planner or dispatcher receives the appropriate execution information.

Implement the scenario as described in this document and once you have verified the functions, you can modify the data to suit your own environment and operating conditions.

Change History

Version	Date	Description
1.0	September 2012	Initial version



The Scenario

This document describes the configuration settings for the *Integration of Outbound Warehousing and Transportation* scenario. The scenario involves the following business processes:

- Handling cancellation in order-based outbound processes
- Managing delivery-based outbound processes
- Managing order-based outbound processes
- Planning transportation and billing in outbound processes
- Planning freight and selecting carriers
- Tendering freight
- Executing and monitoring freight

Prerequisites

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

- You have completed the technical installation of SAP TM, SAP Integration Engine, and SAP ERP enhancement package 6.
- You have established 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 an integration engine.
- You have configured the settings that are required to use the Core Interface (CIF) for transferring master data.
- You have set up a trusted connection between the SAP ERP and SAP TM systems.
- You have defined all required RFC (remote function call) users, RFC connections, logical system names, technical system names, and business system names.
- You have set up the required workflows.

Before you start to configure the business processes of the *Integration of Outbound Warehousing and Transportation* scenario, see the following guides in SAP Solution Manager at:

- ► *SAP EWM → Scenarios → Integration of Outbound Warehousing and Transportation* ◀
- ► *SAP Transportation Management → Configuration Structures → Basic Settings for SAP TM <Release> → Basic Settings and Integration for SAP ERP* ◀.
- ► *SAP Transportation Management → Configuration Structures → Basic Settings for SAP TM <Release> → Basic Settings for SAP TM* ◀.

To set up this integration scenario, complete the following guides in the order specified while taking into account the information provided in this section:

1. *Configuring Integration of Outbound Warehousing and Transportation Processes*
2. *Basic Settings and Integration for SAP ERP*

You must only complete the steps that are described in the section *Basic Settings in SAP ERP*. The steps *Creating an Integration Model* and *Activating an Integration Model* are not relevant since they are included in this guide in the section [Transferring Organizational and Master Data from SAP ERP to SAP TM](#) [Page 16].

3. *Basic Settings for SAP TM*

You must only complete the steps that are described in the sections *Technical Settings* and *General Customizing Settings*.



This guide describes the configuration steps that are necessary to enable the *Integration of Outbound Warehousing and Transportation* scenario from an SAP TM perspective. This guide does not provide information about how to configure additional functions in SAP TM such as tendering, charge calculation, or integration with SAP Event Management (SAP EM).

Process

1. Configure SAP ERP to set up one or more of the business processes for the *Integration of Outbound Warehousing and Transportation* scenario.
2. Configure SAP EWM to set up one or more of the business processes for the *Integration of Outbound Warehousing and Transportation* scenario.



Configuration Settings in SAP ERP

Activities

- [Master Data Setup in SAP ERP](#) [Page 14]
- [Transferring Organizational and Master Data from SAP ERP to SAP](#) [Page 16]
- [Order Management](#) [Page 94]
- [Outbound Integration of SAP ERP Shipments](#) [Page 41]
- [Inbound Integration of SAP ERP Shipments](#) [Page 62]



Master Data Setup in SAP ERP

The *Configuring Integration of Outbound Warehousing and Transportation Processes* document describes the settings that you must configure in SAP ERP and SAP EWM to enable the *Integration of Outbound Warehousing and Transportation* scenario. It also includes details about settings up master data in SAP ERP. This guide does not, therefore, include any additional setup information.

Activities

Ensure that you have set up all of the master data. You configure the business processes using the following organizational units, master data, and process data from an SAP TM perspective (note that this table is only an overview):

Master Data	ID	Description
Plant-Related Organizational Units		
Plant (ERP)	PL01	Plant 0001
Vendor for plant (ERP)	BPPL01V	Vendor for plant 0001
Customer for plant (ERP)	BPPL01C	Customer for plant 0001
Sales-Related and Distribution-Related Organizational Units		
Sales organization (ERP)	0001	Sales organization 0001
Distribution channel (ERP)	02	Distribution channel 02
Division	01	Division 01
Shipping-Related and Transportation-Related Organizational Units		
Shipping point (ERP)	0001	Shipping point 0001
Transportation planning point (ERP)	0001	0001 for shipment creation
Shipping conditions	T1	Order-based transportation planning
	T2	Delivery-based transportation planning
	W1	SAP EWM-based transportation planning
	W2	No transportation planning
Business Partners and Products		
Customer (ERP)	CUST001	Customer CUST001
	CUST002	Customer CUST002
	CUST003	Customer CUST003
	CUST004	Customer CUST004

Master Data	ID	Description
Carrier (ERP)	CARR001	Carrier CARR001
Products (ERP)	PROD-S01	Small part, fast-moving 01
	PROD-S02	Small part, fast-moving 02
	PROD-S03	Small part, fast-moving 03
	PROD-S04	Small part, fast-moving 04
	PROD-S05	Small part, slow-moving 05
	PROD-S06	Small part, slow-moving 06
	PROD-M01	Medium part 01
	PROD-M02	Medium part 02
	PROD-M03	Medium part 03
	PROD-L01	Large part 01
	PROD-L02	Large part 02
Packaging Material	MTR	Packing material MTR
Document Types		
Sales order type (ERP)	ZOR	Standard sales order
Delivery type (ERP)	ZLF	Standard delivery
Shipment type (ERP)	ZTMS	Shipment based on TM FO
	ZWM1	Shipment based on EWM TU



Transferring Organizational and Master Data from SAP ERP to SAP TM

In this procedure, you create and activate an integration model, which selects the plant and receiving point data and transfers them from SAP ERP to SAP TM, thereby creating or updating locations and business partners.

In SAP TM, locations of location type 0001 (plant) are created for the plants. Business partners with role BBP000 (vendor) are created automatically for plants and shipping points. The business partner is assigned to the location.



This guide assumes the use of Business Add-Ins (BADIs) in SAP TM that add a prefix or suffix to master data objects transferred from SAP ERP (see SAP Note [458914](#)). To ensure that business partners are created when shipping points are transferred via CIF, you must activate another BADI (see SAP Note [1410353](#)). We **strongly** recommend that you use the BADIs mentioned here.

An overview of the prefixes and suffixes used throughout this guide is provided in the following table:

Business Object	Prefix	Suffix
Carrier	CA–	None
Customer	CU–	None
Plant	PL–	None
Shipping Point	SP–	None
Supplier	SU–	None
System	None	–@ERP500

For example, if the name of the shipping point in SAP ERP is 0001, the name of the same shipping point in SAP TM is SP0001@ERP500.

Procedure

1. On the *SAP Easy Access* screen for SAP ERP, choose ► *Logistics* → *Central Functions* → *Supply Chain Planning Interface* → *Core Interface Advanced Planner and Optimizer* → *Integration Model* → *Create* ◀.
2. Enter the following data:

Field	Value
<i>Model Name</i>	TM-IM-001
<i>Logical System</i>	<Logical system ID of SAP TM target system>

Field	Value
	For example, TM1CLNT750
<i>APO Application</i>	<Any evaluation criterion> For example, SAP TM

3. In the *Material Dependent Objects* screen area, select the *Plants* and *Materials* checkboxes.
4. In the *Material Independent Objects* screen area, select the *Shipping Points*, *Customers*, and *Vendors* checkboxes.
5. When you transfer vendors to SAP TM, ensure that the *Create Loc./BP* function ("create business partners for the location in SAP TM") is set to 2 on the *Vendors* and the *Customers* tab pages so that business partners and locations are generated for vendors.
6. On the relevant selection screens, enter the following data:

Field	Value
<i>Plant</i>	PL01
<i>Material</i>	○ PROD-S01 to PROD-S06 ○ PROD-M01 to PROD-M03 ○ PROD-L01 to PROD-L02 ○ MTR
<i>Carrier (Vendor)</i>	CARR001
<i>Customer</i>	CUST001 to CUST004
<i>Shipping Point</i>	0001

7. Choose *Execute* to continue. The selected filter objects (plants, materials, and shipping points) are displayed on the results screen with the number of filtered objects.
8. Choose *Generate IM* to create the integration model.
9. Leave the transaction.
10. On the *SAP Easy Access* screen for SAP ERP, choose ► *Logistics* → *Central Functions* → *Supply Chain Planning Interface* → *Core Interface Advanced Planner and Optimizer* → *Integration Model* → *Activate* ⏪.

11. Enter the following data:

Field	Value
<i>Model Name</i>	TM-IM-001
<i>Logical System</i>	<Logical system ID of SAP TM target system>

Field	Value
	For example, TM1CLNT750
<i>APO Application</i>	SAP TM

12. Choose *Execute* to continue. The created version of the selected integration model is listed.
13. Click the red cross in the table (indicating that the integration model version is inactive) in the first row and column *New Status*. The icon changes to a green checkmark (indicating that the integration model is active).
14. Choose *Start* from the tool bar to start the activation and save.
15. If necessary, confirm all dialog boxes to transfer the data.



Order Management

You configure the settings for order integration in SAP ERP if you intend to set up the business processes for order-based or delivery-based planning. The settings are not required for the SAP EWM-based planning business process.

Activities

- [Activating Transfer of Sales Documents](#) [Page 20]
- [Activating Transfer of Outbound Deliveries](#) [Page 22]
- [Configuration of Output Determination for Sales Documents](#) [Page 23]
- [Configuration of Output Determination for Outbound Deliveries](#) [Page 31]



Activating Transfer of Sales Documents

In this procedure, you activate the transfer of sales documents to SAP TM by assigning a control key to the required sales document types. The control key determines whether a sales document and the corresponding outbound delivery are transferred to SAP TM, and also whether sales order scheduling is to be carried out in SAP ERP or in SAP TM.

When you create a sales document for which the transfer has been activated, the system assigns the control key to the sales document (parameter `TM_CONTROL_KEY`) and to all relevant documents in the document chain (for example, the outbound delivery). This is a fixed parameter that cannot be changed in the sales document.

Prerequisites

You have defined the necessary control keys in Customizing under **Integration with Other SAP Components** → **Transportation Management** → **Order Integration** → **Define Control Keys for Document Transfer**.

Procedure

1. In Customizing for SAP ERP, choose **Integration with Other SAP Components** → **Transportation Management** → **Order Integration** → **Activate Transfer of Sales Documents**.
2. On the **Sales Document Transfer** screen, add the following data:

Field	Description	User Action and Values
<i>Sales Organization</i>	Applicable sales organization	0001
<i>Distribution Channel</i>	Applicable distribution channel	02
<i>Division</i>	Applicable division	01
<i>Sales Document Type</i>	Sales order type to be integrated into SAP TM	ZOR
<i>Control Key</i>	Control key combination as defined above	0001
<i>Shipping Condition</i>	Shipping condition	T1 - Order-Based Transportation Planning
<i>TM Number</i>	Client number of the target SAP TM system. Your SAP Basis expert can provide further information.	<SAP TM System> This number is relevant only if you connect more than one SAP ERP system to your SAP TM system.

3. Save your entries.

Result

The order type is active and can be integrated with SAP TM.



Activating Transfer of Outbound Deliveries

In this procedure, you activate the transfer of outbound deliveries to SAP TM by assigning a control key to the required document types.

Prerequisites

You have defined the necessary control keys in Customizing under ► *Integration with Other SAP Components* → *Transportation Management* → *Order Integration* → *Define Control Keys for Document Transfer* ◀.

Procedure

1. In Customizing for SAP ERP, choose ► *Integration with Other SAP Components* → *Transportation Management* → *Order Integration* → *Activate Transfer of Delivery Documents* ◀.
2. On the *Delivery Document Transfer* screen, add the following data:

Field	Description	User Action and Values
<i>Shipping Point</i>	Applicable shipping point	0001
<i>Delivery Type</i>	Delivery type assigned to your order type	ZLF
<i>Shipping Condition</i>	Shipping condition	T2 - Delivery-Based Transportation Planning
<i>Control Key</i>	Control key for document transfer	0005
<i>TM Number</i>	Client number of the target SAP TM system. Your SAP Basis expert can provide further information.	<SAP TM System> This number is relevant only if you connect more than one SAP ERP system to your SAP TM system.

3. Save your entries.

Result

The delivery type is active and can be integrated with SAP TM.



Configuration of Output Determination for Sales Documents

You must configure the following settings to send sales documents from SAP ERP to SAP TM. Output determination is used to create XML messages, which are then sent to SAP TM.

Activities

- [Defining Condition Tables \(SD\)](#) [Page 24]
- [Defining Access Sequences \(SD\)](#) [Page 25]
- [Defining Output Types \(SD\)](#) [Page 27]
- [Defining Output Determination Procedure \(SD\)](#) [Page 28]
- [Assigning Output Determination Procedures to Document Types \(SD\)](#) [Page 29]
- [Creating Output Condition Records](#) [Page 30]



Defining 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.



This is a cross-client activity.

Procedure

Check whether the required fields are assigned to the condition table as follows:

1. In Customizing for SAP ERP, choose ► *Sales and Distribution* → *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:

1. In Customizing for SAP ERP, choose ► *Sales and Distribution* → *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. Choose ► *Condition* → *Create*. ⏪.
4. 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.

5. Choose *Enter*.
6. Enter a description for the new condition table, for example, *Order Type*.
7. Select the required fields for the condition table from the list of allowed fields, for example, *Sales Document Type*.
8. Generate the new condition table.

Result

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



Defining Access Sequences (SD)

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:

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



This is a cross-client activity.

Prerequisites

You have defined the necessary condition tables.

Procedure

Check the available access sequences as follows:

1. In Customizing for SAP ERP, choose **► Sales and Distribution → 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 correct access sequence is not available, create it as follows:

1. In Customizing for SAP ERP, choose **► Sales and Distribution → Basic Functions → Output Control → Output Determination → Output Determination Using the Condition Technique → Maintain Output Determination for Sales Documents → Maintain Access Sequences** .
2. In change mode, choose *New Entries*.
3. In *Access Sequences*, create an access sequence by defining an alphanumeric key (with a maximum of four characters) and enter a description.
4. In *Source*, select one of the following sources: *Other system* (for example, SAP ERP) or *Local*.
5. 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.
6. Choose *Save*.



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



Defining Output Types (SD)

Procedure

1. In Customizing for SAP ERP, choose **Sales and Distribution** → **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 **TRR0** (returns to external TMS) have been entered.
3. Select output type **TRS0** and choose **Details**.
4. On the **General data** tab page, enter the following data:

Field	Value
Access Sequence	0002
Access to Conditions	Select
Multiple Issuing	Select
Partner-Indep. Output	Select
Program	OPS_SE_SOC_SEND_MESSAGE
FORM Routine	CHECK_REPEAT

5. On the **Default Values** tab page, enter the following data:

Field	Value
Dispatch Time	Send Immediately (When Saving the Application)
Transmission Medium	8 Special Function

6. Repeat the steps for output type **TRR0**.



Defining Output Determination Procedure (SD)

Procedure

1. In Customizing for SAP ERP, choose ► *Sales and Distribution* → *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 data has been entered for procedure V10000:

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



Assigning Output Determination Procedures to Document Types (SD)

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 a condition table.
- You have defined output type `TRS0`.
- You have defined an access sequence.
- You have defined output determination procedure `V10000` and assigned output type `TRS0`.

For more information, see the *Maintain Output Determination for Sales Documents* section of the *Basic Settings and Integration for SAP ERP* guide.

Procedure

1. In Customizing for SAP ERP, choose **Sales and Distribution** → **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
ZOR Standard Order	V10000	TRS0



It is sufficient to assign an output determination procedure (such as `V10000`) to a sales order type (such as `ZOR`) 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 (such as `TRS0`) is defined for the output determination procedure, it will be taken into account by the system at processing time.



Creating Output Condition Records (SD)

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

Prerequisites

- You have defined a condition table.
- You have defined output type TRS0.

For more information, see the *Maintain Output Determination for Sales Documents* section of the *Basic Settings and Integration for SAP ERP* guide.

Procedure

1. On the *SAP Easy Access* screen for SAP ERP, choose **Logistics** → *Sales and Distribution* → *Master Data* → *Output* → *Sales Document* → *Create* or call transaction VV11.
2. Choose *Output Type* TRS0.
3. Choose *Enter*.
4. On the following screen, enter the data as shown in the following table:

SD Type	Name	Medium	Date/Time	Language
ZOR	Standard Order	8 Special Function	4 Send Immediately (When Saving the Application)	EN

5. Leave the *Funct.* and *Partner* fields blank.
6. Save your entries.



Configuration of Output Determination for Outbound Deliveries

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

Activities

- [Defining Condition Tables \(Outbound Delivery\)](#) [Page 32]
- [Defining Access Sequences \(Outbound Delivery\)](#) [Page 33]
- [Defining Output Types \(Outbound Delivery\)](#) [Page 35]
- [Defining Output Determination Procedure \(Outbound Delivery\)](#) [Page 37]
- [Assigning Output Determination Procedures \(Outbound Delivery\)](#) [External]
- [Creating Output Condition Records \(Outbound Delivery\)](#) [Page 39]
- [Assigning Processing Class \(Outbound Delivery\)](#) [Page 40]



Defining 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.



This is a cross-client activity.

Procedure

1. In Customizing for SAP ERP, choose **► Logistics Execution → 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 this is not the case, create a new condition table for output control (shipments):

1. In Customizing for SAP ERP, choose **► Logistics Execution → 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. Choose **► Condition → Create ◀**.
4. 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.

5. Choose *Enter*.
6. Enter a description for the new condition table, for example, *Delivery Type*.
7. Select the required fields for the condition table from the list of allowed fields, for example, *Delivery Type*.
8. Generate the new condition table.



Defining Access Sequences (Outbound Delivery)

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



This is a cross-client activity.

Prerequisites

You have defined the necessary condition tables.

Procedure

Check the available access sequences as follows:

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *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. Check that the *Accesses Overview* area contains condition table 9.

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

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Shipping* → *Basic Shipping Functions* → *Output Control* → *Output Determination* → *Maintain Output Determination for Outbound Deliveries* → *Maintain Access Sequences* ⏮.
2. Switch to change mode.
3. Choose *New Entries*.
4. In *Access Seq*, create an access sequence by defining an alphanumeric key (with a maximum of four characters) and enter a description.
5. In *Description*, enter a description.
6. In *Source*, select one of the following sources: *Other system* (for example, SAP ERP) or *Local*.
7. 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.

8. 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.



Defining Output Types (Outbound Delivery)

Procedure

1. In Customizing for SAP ERP, choose **Logistics Execution** → **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, create output type **TRD0** using the following data:

1. In the header area, enter output type **TRD0** and the description **Cr./Chg TM Int. ODLV.**
2. On the *General Data* tab page, enter the following data:

Field	Value
<i>Access sequence</i>	0001
<i>Access to conditions</i>	Select
<i>CannotBeChanged</i>	Deselect
<i>Multiple issuing</i>	Select
<i>Partner-indep.output</i>	Select
<i>do not write processing log</i>	Deselect
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>FORM routine</i>	CHECK_REPEAT

3. On the *Default values* tab page, enter the following data:

Field	Value
<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

3. In the dialog structure, select *Processing Routines*.
4. Make sure that the following entries have been created for the output types:

Field	Entry
<i>Transmission Medium</i>	8

Field	Entry
<i>Program</i>	OPS_SE_SHP_SEND_MESSAGE
<i>Form Routine</i>	PROCESS



Defining Output Determination Procedure (Outbound Delivery)

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *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 data has been entered for procedure `V10000`:

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



Assigning Output Determination Procedures to Document Types (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 a condition table.
- You have defined output type `TRD0`.
- You have defined an access sequence.
- You have defined output determination procedure `V10000` and assigned output type `TRD0`.

For more information, see the *Maintain Output Determination for Outbound Deliveries* section of the *Basic Settings and Integration for SAP ERP* guide.

Procedure

1. In Customizing for SAP ERP, choose **► Logistics Execution → Shipping → Basic Shipping Functions → Output Control → Output Determination → Maintain Output Determination for Outbound Deliveries → Assign Output Determination Procedures ◀**.
2. Choose *Allocate deliveries (header)*.
3. In the overview, assign the output determination procedures as follows:

Assignments		
Delivery Type	Output Determination Procedure	Output Type
ZLF Outbound Delivery	V10000	TRD0



It is sufficient to assign an output determination procedure (such as `V10000`) to a delivery type (such as `ZLF`) 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 (such as `TRD0`) is defined for the output determination procedure, it will be taken into account by the system at processing time.



Creating Output Condition Records (Outbound Delivery)

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

Prerequisites

- You have defined a condition table.
- You have defined output type `TRD0`.

For more information, see the *Maintain Output Determination for Outbound Deliveries* section of the *Basic Settings and Integration for SAP ERP* guide.

Procedure

1. On the *SAP Easy Access* screen for SAP ERP, 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 following table:

Delivery Type	Name	Medium	Date/Time	Language
ZLF	Outbound Delivery	8 Special Function	4 Send Immediately (When Saving the Application)	EN

5. Leave the *Funct.* and *Partner* fields blank.
6. Save your entries.



Assigning Processing Class (Outbound Delivery)

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 Customizing for SAP ERP, choose ► *Logistics Execution* → *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



Outbound Integration of SAP ERP Shipments

If you want to set up the business processes for order-based or delivery-based planning, you must configure the settings in SAP ERP that define how outbound integration of SAP ERP shipments with SAP TM is to be handled. If you want to set up the business process for SAP EWM-based planning, you do not require these settings.



In this guide, the term “outbound” in the context of *outbound integration of SAP ERP shipments* is to be understood from the perspective of SAP TM.

Activities

- [Defining External Number Ranges](#) [Page 42]
- [Defining Transportation Planning Points](#) [Page 43]
- [Output Control Settings](#) [Page 44]
- [Configuring Inbound and Outbound Processing](#) [Page 53]



Defining External Number Ranges

For the outbound integration of shipments in SAP TM, you have to use an external number range for the SAP ERP shipment and align the number range with that of the freight order in SAP TM.

Procedure

1. In Customizing for SAP ERP, choose **Logistics Execution** → **Transportation** → **Shipments** → **Define Number Ranges for Shipments**.
2. Define a new number range or ensure that the required number range exists.

The number range must be external and it must have the same interval as the corresponding number range in SAP TM and SAP EWM (for transportation units and vehicles).

Example: External Number Range for Shipments			
No.	From number	To number	External
N3	6100000000	6199999999	Select



- Choose any available number to define the external number range.
- You use this number range for shipment type **ZTMS**, which is used for SAP ERP shipments created based on the freight order in SAP TM.
- You can choose any available number range for outbound integration of the shipment. However, you must ensure that the number range for the freight order in SAP TM, the corresponding shipment in SAP ERP, and the corresponding transportation unit in SAP EWM is the same in all three systems in the context of outbound shipment integration.



Defining Transportation Planning Points

Procedure

1. In Customizing for SAP ERP, choose **Enterprise Structure** → **Definition** → **Logistics Execution** → **Maintain Transportation Planning Point**.
2. Create transportation planning point 1000 by copying existing transportation planning point 0001. Enter the following data:

TPPt	Description	CoCd
1000	TM 9.0 Integration	0001

3. In Customizing for SAP ERP, choose **Logistics Execution** → **Transportation** → **Interfaces** → **External Transportation Planning Systems** → **Maintain Transportation Planning Point for External Systems**.

An entry for the transportation planning point defined above should exist.

4. Edit the entry for the transportation planning point. Enter the following data:

Field	Value
TPPt	1000
Description	TM 9.0 Integration
TPS Part No.	<Logical system name of SAP PI system> For example, PI1CLNT001.
Item type	LS
Output	Blank
Ext. no. rge	<External number range used in the shipment type> For example, 02
Chnge Shp	00



SAP TM does not use transportation planning points. Transportation planning point 1000 is, therefore, transferred by default to SAP ERP. If you require other transportation planning points that are stored with the SAP ERP shipment, implement BAdI `BADI_LE_SHIPMENT` to determine and save the correct transportation planning point for the shipment.



Output Control Settings

You must configure the following settings to send a shipment (in the context of SAP TM Outbound Shipment Integration) from SAP ERP to SAP TM. Output determination is used to control how shipment IDocs are created and sent to SAP TM.

You must, therefore, complete the necessary Customizing activities for defining field catalogs, condition tables, access sequences, condition types, and schemas. In each of these Customizing activities, the usage is B and the application is V7.

Activities

- [Creating Condition Tables](#) [Page 45]
- [Creating Access Sequences](#) [Page 46]
- [Creating Output Types for Shipments](#) [Page 47]
- [Defining Output Determination Procedures for Shipments](#) [Page 49]
- [Assigning Output Determination Procedures to Shipment Types](#) [Page 50]
- [Creating Condition Records for Shipments](#) [Page 51]
- [Assigning Output Types to Partner Functions](#) [Page 52]



Creating Condition Tables

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 require is already available.

Prerequisites

You have imported the `STTRG` field into the transport-specific field catalog. Since this field is not directly contained in the `KOMB` structure, you have to insert it indirectly using the `KOMBZ` structure, which is designed to store this type of custom entry. Note that this is a DDIC activity and not a Customizing activity.

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Maintain Condition Tables* ◀.
2. Choose *Maintain Output Condition Table for Shipments*.
3. Create table between 900 and 999 and enter fields `SHTYP` and `STTRG` in the *Selected fields* screen area under *Technical and Medium*.
4. Choose ► *Condition* → *Create* ◀.
5. In the *Table* field, enter a name (3-digit number) for the new condition table.
Note that you can only choose names between 900 and 999.
6. Choose *Enter*.
7. Enter a description for the new condition table, for example, `ShipmntTyp/OverallSta - TM Shipment Integration`.
8. Select the required fields for the condition table from the list of allowed fields, for example, *Shipment Type* and *Ov.transport status*.
9. Generate the new condition table.

Result

You have created a condition table for which you can define condition records.



Creating Access Sequences

You have to perform this step in a Customizing client that has authorization for cross-client table maintenance.

Procedure

1. In Customizing for SAP ERP, choose **Logistics Execution** → **Transportation** → **Basic Transportation Functions** → **Output Control** → **Maintain Output Determination for Shipments** → **Maintain Access Sequence**.
2. Create an access sequence, for example, Z001.
3. Select **Accesses** in the dialog structure and enter the following data:

No.	Table	Description	Requirement	Exclusive
<Next available number>	Table you created in Creating Condition Tables [Page 45]	ShpmntTyp/Ov erallSta (The description is completed automatically.)	0	Deselect

4. Select the new entry and choose **Fields** in the dialog structure.
5. In the **Field Overview** table, enter 0 in the **Spec. Val. Source** field for the entry with condition **STTRG** (*Ov.transport status*).



Creating Output Types for Shipments

In the Customizing activity *Maintain Output Types*, you can define different condition types for the different situations in which SHPMNT IDocs are to be sent.

- Output type **ZTM1** generates an IDoc that sends a status notification to SAP TM.
- Output type **ZTM2** generates an IDoc that sends a confirmation to SAP TM.
- Output type **ZTMA** generates an IDoc that updates a freight order in SAP TM based on changed delivery assignments to an SAP ERP shipment.
- Output type **ZTMP** generates an IDoc that updates a freight order in SAP TM based on changed item or handling unit assignments to a container handling unit of an SAP ERP shipment.

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Maintain Output Types* ◀.
2. Create output type **ZTM1** for shipments with the description **TM Outp Stat Notify**. Enter the following data:

Output Types	
Field	Value
“General Data” tab page	
<i>Access sequence</i>	Z001
<i>Access to conditions</i>	Select
<i>CannotBeChanged</i>	Deselect
<i>Multiple issuing</i>	Select
<i>Partner-indep.output</i>	Deselect
<i>do not write processing log</i>	Deselect
“Default values” tab page	
<i>Dispatch Time</i>	4 Send Immediately (When Saving the Application)
<i>Transmission Medium</i>	6 EDI
<i>Partner Function</i>	LS
<i>Communication Strategy</i>	Blank
“Time” tab page	

Output Types	
Field	Value
<i>Timing 2 (job and time entry not allowed)</i>	Select (Do not select any of the other checkboxes.)

3. In the dialog structure, select *Processing Routines* and enter the following data:

Processing Routines	
Field	Value
<i>Transmission Medium</i>	EDI
<i>Program</i>	RSNASTED
<i>Form Routine</i>	EDI_PROCESSING

4. In the dialog structure, select *Partner functions* and enter the following data:

Partner Functions	
Field	Value
<i>Medium</i>	EDI
<i>Function</i>	LS
<i>Name</i>	Logical System

5. Repeat the above steps to create output types ZTM2, ZTMA, and ZTMP. Use the values for ZTM1 unless otherwise stated below.

Output Type	Description
ZTM2	TM Outp Confirmation
ZTMA	Assign/Unassign Del.
ZTMP	Package Assignment



Defining Output Determination Procedures for Shipments

Procedure

1. In Customizing for SAP ERP, choose *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Maintain Output Determination Procedure* .
2. Create an output determination procedure such as ZSHIPO with the name *Transport Output Ship. Outb.*
3. Select output determination procedure ZSHIPO and choose *Control Data* in the dialog structure.
4. Assign output types to output determination procedure ZSHIPO by creating the following entries:

Reference Step Overview			
Step	Condition Counter	Condition Type	Requirement
10	1	ZTM1	xx
20	1	ZTM2	xx
30	1	ZTMA	58
40	1	ZTMP	xx



Choose any available step number and condition counter.



Assigning Output Determination Procedures to Shipment Types

In this step, you assign an output determination procedure and an output type to the relevant shipment types.

Prerequisites

- You have defined a condition table.
- You have defined output types ZTM1, ZTM2, ZTMA, and ZTMP.
- You have defined an access sequence.
- You have defined output determination procedure ZSHIPO and assigned output types ZTM1, ZTM2, ZTMA, and ZTMP.
- You have assigned output types ZTM1, ZTM2, ZTMA, and ZTMP to partner functions.

These steps are described in the *Output Control Settings* section of chapter *Outbound Integration of ERP Shipments* in the *Basic Settings and Integration for SAP ERP* guide.

- You have defined shipment type ZTMS.

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Assign Output Determination Procedures* ◀.
2. Create an entry for each relevant shipment type in the integration scenario and assign the output determination procedure to the shipment type:

Shipment Type	Description	Output Determination Procedure	Description	Output Type	Name
ZTMS	TM Integration Outb.	ZSHIPO	Transport Output Ship. Outb.	Blank	Blank



Creating Condition Records for Shipments

Prerequisites

- You have defined a condition table.
- You have defined output types ZTM1, ZTM2, ZTMA, and ZTMP.
- You have defined an access sequence.
- You have defined output determination procedure ZSHIPO and assigned output types ZTM1, ZTM2, ZTMA, and ZTMP.
- You have assigned output types ZTM1, ZTM2, ZTMA, and ZTMP to partner functions.

These steps are described in the *Output Control Settings* section of chapter *Outbound Integration of ERP Shipments* in the *Basic Settings and Integration for SAP ERP* guide.

- You have defined shipment type ZTMS.

Procedure

1. On the SAP Easy Access screen of your SAP ERP system, choose  *Logistics* → *Logistics Execution* → *Master Data* → *Output* → *Shipment* → *Create*  or call transaction VV71.
2. Enter output type ZTM1 (TM Outp Stat Notify) as the context for the condition record.
3. Create condition records for the condition table you created in [Creating Condition Tables](#) [Page 45] with the key field pair SHTYP (Shipment Type) and STTRG (Ov.transport status).
4. Create an entry for shipment type ZTMS and add value 0 for the overall transport status (STTRG). Enter the required data for the condition record as follows:

Funct	Partner	Medium	Date	Language
LS	PI1CLNT001	6 EDI	4	EN



The *Partner* column contains the name of the SAP Netweaver PI system in the format <PI SID>CLNT<PI CLNT> (in the example, PI1CLNT001).

5. Repeat the above steps for the following output types:
 - ZTM2 (TM Outp Confirmation)
 - ZTMA (Assign/Unassign Del)
 - ZTMP (Package Assignment)



Assigning Output Types to Partner Functions

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Assign Output Types to Partner Functions* ◀.
2. Assign medium 6 (EDI) and partner function LS (logical system) to each of the following output types:

Output Type	Name
ZTM1	TM Outp Stat Notify
ZTM2	TM Outp Confirmation
ZTMA	Assign/Unassign Del
ZTMP	Package Assignment



Configuring Inbound and Outbound Processing

This section describes the settings that you must configure for inbound communication with SAP ERP (inbound IDocs) and outbound communication from SAP ERP (outbound IDocs).

Activities

- [Defining Process Codes for Inbound IDocs](#) [Page 54]
- [Defining Partner Profiles for Inbound IDocs](#) [Page 55]
- [Defining Process Codes for Outbound IDocs](#) [Page 57]
- [Defining Partner Profiles for Outbound IDocs](#) [Page 58]



Defining Process Codes for Inbound IDocs

Using transaction `WE64`, you define which function modules are used to process IDocs. When you do this, you map message types to process codes, each of which can be represented by a function module. In this step, you configure the settings for message types `SHPMNT` (for creating or changing shipments) and `SHIPPL` (for deleting shipments).

Procedure

1. In your SAP ERP system, call transaction `WE64`.
2. Under the *Inbound Messages* node, select the relevant message type and check that the following entries have been made:

Message Type	Process Code	Process ID	Type of Process ID
SHPMNT	SHPM	IDOC_INPUT_SHPMNT	Processing by Function Mode
SHIPPL	SHIP	IDOC_INPUT_SHIPPL	Processing by Function Mode



Defining Partner Profiles for Inbound IDocs

In this procedure, you define a partner profile for your SAP ERP system.

Procedure

1. On the *SAP Easy Access* screen of your SAP ERP system, choose **Tools** → *ALE* → *ALE Administration* → *Runtime Settings* → *Partner Profiles* or call transaction **WE20**.
2. In the navigation tree under *Partner Profiles*, choose partner type **LS** and check that a partner profile exists for the SAP TM system (for example, partner number **TM1CLNT750**). If the partner profile does not yet exist, create and save it using the following data:

Field	Value
<i>Partner No.</i>	<TM_SID>CLNT<TM_CLNT> For example, TM1CLNT750
<i>Partn. Type</i>	LS
<i>Type</i>	US (User)
<i>Agent</i>	Enter a user name
<i>Lang.</i>	EN

3. The *Inbound parmts* screen area shows the message types that can be received with this partner profile. The message control settings determine when a message type is actually received. These settings are described in the following step.
4. On the *Post processing: permitted agent* tab page, choose the *Create inbound parameter* pushbutton and enter inbound parameters with the data shown in the following tables.
 - SHPMNT

This inbound parameter is used by the IDoc that updates the shipment with tendering information received from SAP TM.

SHPMNT	
Field	Value
<i>Partner No.</i>	<TM_SID>CLNT<TM_CLNT> (for example, TM1CLNT750)
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	Blank
<i>Message Type</i>	SHPMNT
<i>Message Code</i>	Blank

SHPMNT	
Field	Value
<i>Message Function</i>	Blank
<i>Test</i>	Deselect
“Inbound Options” tab page	
<i>Process Code</i>	SHPM
<i>Cancel Processing After Syntax Error</i>	Select
“Processing by Function Module” screen area	
<i>Trigger Immediately</i>	Select

○ SHIPPL

This inbound parameter is used by the IDoc that was triggered by SAP TM to delete a shipment based on a freight order.

SHIPPL	
Field	Value
<i>Partner No.</i>	<TM_SID>CLNT<TM_CLNT> (for example, TM1CLNT750)
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	Blank
<i>Message Type</i>	SHIPPL
<i>Message Code</i>	Blank
<i>Message Function</i>	Blank
<i>Test</i>	Deselect
“Inbound Options” tab page	
<i>Process Code</i>	SHIP
<i>Cancel Processing After Syntax Error</i>	Select
“Processing by Function Module” screen area	
<i>Trigger Immediately</i>	Select



Defining Process Codes for Outbound IDocs

Procedure

1. In your SAP ERP system, call transaction WE64.
2. Under the *Outbound Messages* node, check that a SHPMNT entry exists with the following data:

Message Type	Process Code	Process ID	Type of Process ID
SHPMNT	SD11	IDOC_OUTPUT_SHPMNT	Processing by Function Module



Defining Partner Profiles for Outbound IDocs

In this step, you define a partner profile for your target system. In most cases, this is the SAP NetWeaver Process Integration (PI) system.

Prerequisites

When you define the outbound parameters for the partner profile, you have to specify a receiver port for the SAP NetWeaver PI system. If a receiver port has not been defined in the SAP ERP system, create it using transaction `WE21`. In particular, you define a port to specify the system to which outbound IDocs are to be sent. The port must be of type *Transactional RFC*. The following is an example of the settings for a receiver port:

Field	Value
Port	Z_PI1_PORT
Description	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001
IDoc rec types SAP Release 3.0/3.1	Deselect
IDoc record types SAP Release 4.x	Select
RFC Destination	<PI1CLNT001> (RFC destination name to your PI system)
Processing Options screen area	No checkboxes selected

Procedure

1. On the SAP Easy Access screen of your SAP ERP system, choose **Tools** → **ALE** → **ALE Administration** → **Runtime Settings** → **Partner Profiles** or call transaction `WE20`.
2. In the navigation tree under *Partner Profiles*, choose *Partner Type LS* and check that a partner profile exists for the SAP NetWeaver Process Integration (PI) system (for example, partner number `PI1CLNT001`). If the partner profile does not yet exist, create it with the following data:

Field	Value
Partner No.	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001
Partn. Type	LS
Type	US (User)
Agent	<Enter a user name>
Lang.	EN

3. The *Outbound parmtrs* screen area shows the message types and message variants that can be sent with this partner profile. The message control settings of each entry determine when a message type is actually sent.
4. The messages and message variants that are to be configured are described in the following steps. Note that several message variants for the message type SHPMNT and their uses are described.
5. Configure outbound parameter SHPMNT (STA) listed below by marking the partner profile for the SAP NetWeaver Process Integration (PI) system and choosing the *Create outbound parameter* pushbutton. Enter the data shown in the following table.

This outbound parameter is used for the IDoc that sends a status notification to SAP TM after the shipment status has been changed.

SHPMNT (STA)	
Field	Value
<i>Partner No.</i>	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001.
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	LS Logical System
<i>Message Type</i>	SHPMNT
<i>Message code</i>	STA
<i>Message function</i>	Blank
“Outbound Options” tab page	
<i>Receiver Port</i>	Enter the relevant receiver port, for example, Z_PI1_PORT
<i>Pack Size</i>	1
“Output Mode” screen area	
<i>Transfer IDoc Immed.</i>	Select
<i>Collect IDocs</i>	Deselect (default)
“IDoc Type” screen area	
<i>Basic Type</i>	SHPMNT05
<i>Extension</i>	Blank
<i>View</i>	Blank
<i>Cancel Processing After Syntax Error</i>	Select
<i>Seg. release in IDoc type</i>	Deselect

SHPMNT (STA)			
Field		Value	
Segment Appl. Rel.		Deselect	
“Message Control” tab page			
The data on this tab page defines the context in which the IDoc is sent. The details depend on the outbound parameter variant and are described later in this section.			
Application	Message Type	Process Code	Change Message
V7	ZTM1	SD11	Deselect
V7	ZTM1	SD11	Select

6. Repeat the above step for the outbound parameters listed below. Any values that are not explicitly given are the same as those for outbound parameter `SHPMNT (STA)`.
7. Once you have created all of the outbound parameters, distribute the partner profiles to the target system (in this case, the SAP NetWeaver PI system) as follows:
 1. Call transaction `BD64` (Maintain Distribution Model).
 2. Create a new model view *Shipment Integration* if it does not already exist.
 3. Enter the name *Shipment Integration* (technical name `ERPTM`) and save.
 4. Select the created model and choose *Add Message Type*.
 5. Enter SAP ERP as the source system, SAP NetWeaver PI as the target system, and message type `SHPMNT`.
 6. Save your entries.

Outbound Parameter Variants

- `SHPMNT (CNF)`

This outbound parameter is used for the IDoc that sends a confirmation message back to SAP TM after the shipment has been created based on the freight order.

Field		Value	
Message code		CNF	
“Message Control” tab page The data on this tab page defines the context in which the IDoc is sent. Create the following entries:			
Application	Message Type	Process Code	Change Message
V7	ZTM2	SD11	Deselect
V7	ZTM2	SD11	Select

- SHPMNT (ASG)

This outbound parameter is used for the IDoc that sends shipment data to SAP TM after deliveries have been assigned to the SAP ERP shipment or unassigned from the SAP ERP shipment.

Field		Value	
Message code		ASG	
“Message Control” tab page The data on this tab page defines the context in which the IDoc is sent. Create the following entries:			
Application	Message Type	Process Code	Change Message
V7	ZTMA	SD11	Deselect
V7	ZTMA	SD11	Select

- SHPMNT (PKG)

This outbound parameter is used for the IDoc that sends shipment data to SAP TM after items or handling units have been assigned to or unassigned from handling units (containers).

Field		Value	
Message code		PKG	
“Message Control” tab page The data on this tab page defines the context in which the IDoc is sent. Create the following entries:			
Application	Message Type	Process Code	Change Message
V7	ZTMP	SD11	Deselect
V7	ZTMP	SD11	Select



Inbound Integration of SAP ERP Shipments

If you want to set up the business process for SAP EWM-based planning, you must configure the settings in SAP ERP that define how inbound integration of SAP ERP shipments with SAP TM is to be handled. If you want to set up the business processes for order-based or delivery-based planning, you do not require these settings.



In this guide, the term “inbound” in the context of *inbound integration of SAP ERP shipments* is to be understood from the perspective of SAP TM.

Activities

- [Defining External Number Ranges](#) [Page 63]
- [Output Control Settings](#) [Page 64]
- [Configuring Inbound and Outbound Processing](#) [Page 75]



Defining External Number Ranges

For the inbound integration of shipments in SAP TM, you have to use an external number range for the SAP ERP shipment since the shipment is created on the basis of a transportation unit or vehicle. You must also align the number range with that of the freight order type in SAP TM.

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Shipments* → *Define Number Ranges for Shipments* ◀.
2. Define a new number range or ensure that the required number range exists.

The number range must be external and it must have the same interval as the corresponding external number range in SAP TM and the internal number range in SAP EWM (for transportation units and vehicles).

Example: External Number Range for Shipments			
No.	From number	To number	External
N4	6500000000	6699999999	Select



- Choose any available number to define the external number range.
- You use this number range for shipment type `ZWM1`, which is used for SAP ERP shipments created based on the transportation units or vehicles in SAP EWM.
- You can choose any available number range for inbound integration of the shipment. However, you must ensure that the number range for the freight order in SAP TM, the corresponding shipment in SAP ERP, and the corresponding transportation unit in SAP EWM is the same in all three systems.



Output Control Settings

Activities

- [Creating Output Types for Shipments](#) [Page 65]
- [Defining Output Determination Procedures for Shipments](#) [Page 67]
- [Assigning Output Determination Procedures to Shipment Types](#) [Page 68]
- [Assigning Output Types to Partner Functions](#) [Page 69]
- [Creating Condition Records for Shipments](#) [Page 70]
- [Creating Output Types for Outbound Deliveries](#) [Page 71]
- [Defining Output Determination Procedure for Outbound Deliveries](#) [Page 73]
- [Creating Condition Records for Outbound Deliveries](#) [Page 74]



Creating Output Types for Shipments

In the Customizing activity *Maintain Output Types*, you can define different condition types for the different situations in which SHPMNT IDocs are to be sent.

Output type `ZSCR` generates an IDoc that creates or updates a freight order in SAP TM.

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Maintain Output Types* ⏮.
2. Create output type `ZSCR` for shipments with the description `EWM Int. Cr./Upd. FO.`. Enter the following data:

Output Types	
Field	Value
“General Data” tab page	
<i>Access sequence</i>	0001
<i>Access to conditions</i>	Select
<i>CannotBeChanged</i>	Deselect
<i>Multiple issuing</i>	Select
<i>Partner-indep.output</i>	Deselect
<i>do not write processing log</i>	Deselect
“Default values” tab page	
<i>Dispatch Time</i>	4 Send Immediately (When Saving the Application)
<i>Transmission Medium</i>	6 EDI
<i>Partner Function</i>	LS – Logical System
<i>Communication Strategy</i>	Blank

3. In the dialog structure, select *Processing Routines* and enter the following data:

Processing Routines	
Field	Value
<i>Transmission Medium</i>	EDI
<i>Program</i>	RSNASTED
<i>Form Routine</i>	EDI_PROCESSING

4. In the dialog structure, select *Partner functions* and enter the following data:

Partner Functions	
Field	Value
<i>Medium</i>	EDI
<i>Function</i>	LS
<i>Name</i>	Logical System



Defining Output Determination Procedures for Shipments

Procedure

1. In Customizing for SAP ERP, choose  *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Maintain Output Determination Procedure* .
2. Create an output determination procedure such as `ZSHIPI` with the name *Transport Output Ship. Inb.*
3. Select output determination procedure `ZSHIPI` and choose *Control Data* in the dialog structure.
4. Assign output types to output determination procedure `ZSHIPI` by creating the following entry:

Reference Step Overview			
Step	Condition Counter	Condition Type	Requirement
10	1	ZSCR	Blank



Choose any available step number and condition counter.



Assigning Output Determination Procedures to Shipment Types

Prerequisites

- You have defined a condition table.
- You have defined output type ZSCR.
- You have defined an access sequence.
- You have defined output determination procedure ZSHIPI and assigned output type ZSCR.
- You have defined shipment type ZWM1.

Procedure

1. In Customizing for SAP ERP, choose **Logistics Execution** → **Transportation** → **Basic Transportation Functions** → **Output Control** → **Maintain Output Determination for Shipments** → **Assign Output Determination Procedures**.
2. Create an entry for each relevant shipment type in the integration scenario and assign the output determination procedure to the shipment type:

Shipment Type	Description	Output Determination Procedure	Description	Output Type	Name
ZWM1	TM Integration Inb.	ZSHIPI	Transport Output Ship. Inb.	Blank	Blank



Assigning Output Types to Partner Functions

Procedure

1. In Customizing for SAP ERP, choose ► *Logistics Execution* → *Transportation* → *Basic Transportation Functions* → *Output Control* → *Maintain Output Determination for Shipments* → *Assign Output Types to Partner Functions* ◀.
2. Assign medium 6 (EDI) and partner function LS (logical system) to output type ZSCR (*EWM Int. Cr./Upd. FO*).



Creating Condition Records for Shipments

Procedure

1. On the *SAP Easy Access* screen of your SAP ERP system, choose *Logistics* → *Logistics Execution* → *Master Data* → *Output* → *Shipment* → *Create* or call transaction VV71.
2. Enter output type ZSCR (EWM Int. Cr./Upd. FO) as the context for the condition record.
3. Create condition records with the key field SHTYP (*Shipment Type*).
4. Create an entry for shipment type ZWM1 and enter the required data for the condition record as follows:

Funct	Partner	Medium	Date	Language
LS	PI1CLNT001	6 EDI	4	EN



The *Partner* column contains the name of the SAP Netweaver PI system in the format <PI SID>CLNT<PI CLNT> (in the example, PI1CLNT001).



Creating Output Types for Outbound Deliveries

Procedure

1. In Customizing for SAP ERP, choose **Logistics Execution** → **Shipping** → **Basic Shipping Functions** → **Output Control** → **Output Determination** → **Maintain Output Determination for Outbound Deliveries** → **Maintain Output Types**.
2. Create an output type for outbound deliveries (for example, ZDLV) as follows:

Field	Value
Output Type	ZDLV
Description	Shipment Update from Delv.
“General Data” tab page	
Access sequence	0001
Access to conditions	Select
CannotBeChanged	Deselect
Multiple issuing	Select
Partner-indep.output	Select
do not write processing log	Deselect
“Change output” screen area	
Leave these fields empty	
“Replacement of text symbols” screen area	
Leave these fields empty	
“Default values” tab page	
Dispatch Time	4 Send Immediately (When Saving the Application)
Transmission Medium	6 EDI
Partner Function	LS Logical System
Communication Strategy	Blank

3. In the dialog structure under *Processing Routines*, enter the following data:

Field	Value
Program	Z_SEND_SHIPMT05 Note that this program is derived from

Field	Value
	correction instruction 936549.
<i>Form Routine</i>	EDI_PROCESSING

4. Note that you leave the other fields empty, or the system fills them automatically.
5. In the dialog structure under *Partner functions*, enter the following data for the output type:

Field	Value
<i>Medium</i>	6 EDI
<i>Funct</i>	LS
<i>Name</i>	Logical system



Defining Output Determination Procedure for Outbound Deliveries

Procedure

1. In Customizing for SAP ERP, choose  *Logistics Execution* → *Shipping* → *Basic Shipping Functions* → *Output Control* → *Maintain Output Determination for Outbound Deliveries* → *Maintain Output Determination Procedure* .
2. Make sure that procedure `V10000` has been created.
3. In the dialog structure, choose *Control Data*.
4. Assign the output type for outbound deliveries (for example, `ZDLV`) to the output determination procedure for outbound deliveries `V10000` by creating the following entry:

Reference Step Overview			
Step	Condition Counter	Condition Type	Requirement
xx	4	ZDLV	Blank



Choose any available step number and condition counter.



Creating Condition Records for Outbound Deliveries

Procedure

1. On the SAP Easy Access screen for SAP ERP, choose **Logistics** → **Logistics Execution** → **Master Data** → **Output** → **Shipping** → **Outbound Deliveries** → **Create** or call transaction VV21.
2. Choose the relevant output type for outbound deliveries, for example, ZDLV.
3. Choose *Enter*.
4. On the following screen, enter the data shown in the table below (for example, delivery type LF):

Delivery Type	Name	Function	Partner	Medium	Date/Time	Language
LF (This is a standard delivery type that is included in SAP ERP Customizing).	Outbound Delivery	Blank	Blank	8 Special Function	4 Send Immediately (When Saving the Application)	EN

5. Leave the *Function* and *Partner* columns blank.
6. Save your entries.



Configuring Inbound and Outbound Processing

This section describes the settings that you must configure for inbound communication with SAP ERP (inbound IDocs) and outbound communication from SAP ERP (outbound IDocs).

Activities

- [Defining Process Codes for Inbound IDocs](#) [Page 76]
- [Defining Partner Profiles for Inbound IDocs](#) [Page 77]
- [Defining Process Codes for Outbound IDocs](#) [Page 79]
- [Defining Partner Profiles for Outbound IDocs](#) [Page 80]



Defining Process Codes for Inbound IDocs

Using transaction `WE64`, you define which function modules are used to process IDocs. When you do this, you map message types to process codes, each of which can be represented by a function module. In this step, you configure the settings for message types `SHPMNT` (for creating or changing shipments) and `SHIPPL` (for deleting shipments).

Procedure

1. In your SAP ERP system, call transaction `WE64`.
2. Under the *Inbound Messages* node, select the relevant message type and check that the following entry has been made:

Message Type	Process Code	Process ID	Type of Process ID
SHPMNT	SHPM	IDOC_INPUT_SHPMNT	Processing by Function Mode



Defining Partner Profiles for Inbound IDocs

In this procedure, you define a partner profile for your SAP ERP system.

Procedure

1. On the *SAP Easy Access* screen of your SAP ERP system, choose **Tools** → *ALE* → *ALE Administration* → *Runtime Settings* → *Partner Profiles* or call transaction **WE20**.
2. In the navigation tree under *Partner Profiles*, choose partner type **LS** and check that a partner profile exists for the SAP TM system (for example, partner number **TM1CLNT750**). If the partner profile does not yet exist, create and save it using the following data:

Field	Value
<i>Partner No.</i>	<TM_SID>CLNT<TM_CLNT> For example, TM1CLNT750
<i>Partn. Type</i>	LS
<i>Type</i>	US (User)
<i>Agent</i>	Enter a user name
<i>Lang.</i>	EN

3. The *Inbound parmtrs* screen area shows the message types that can be received with this partner profile. The message control settings determine when a message type is actually received. These settings are described in the following step.
4. On the *Post processing: permitted agent* tab page, choose the *Create inbound parameter* pushbutton and enter inbound parameters with the data shown in the following table.

SHPMNT	
Field	Value
<i>Partner No.</i>	<TM_SID>CLNT<TM_CLNT> (for example, TM1CLNT750)
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	Blank
<i>Message Type</i>	SHPMNT
<i>Message Code</i>	Blank
<i>Message Function</i>	Blank
<i>Test</i>	Deselect
"Inbound Options" tab page	

SHPMNT	
Field	Value
<i>Process Code</i>	SHPM
<i>Cancel Processing After Syntax Error</i>	Select
“Processing by Function Module” screen area	
<i>Trigger by background program</i>	Deselect
<i>Trigger Immediately</i>	Select



Defining Process Codes for Outbound IDocs

Procedure

1. In your SAP ERP system, call transaction `WE64`.
2. Under the *Outbound Messages* node, check that a `SHPMNT` entry exists with the following data:

Message Type	Process Code	Process ID	Type of Process ID
SHPMNT	SD11	IDOC_OUTPUT_SHPMNT	Processing by Function Module
DESADV	DELV	IDOC_OUTPUT_DELVRY	Processing by Function Module



You do not have to set up a process code for message type `SHIPPL` in this scenario. The corresponding IDoc is used but it is created automatically.



Defining Partner Profiles for Outbound IDocs

In this step, you define a partner profile for your target system. In most cases, this is the SAP NetWeaver Process Integration (PI) system.

Prerequisites

When you define the outbound parameters for the partner profile, you have to specify a receiver port for the SAP NetWeaver PI system. If a receiver port has not been defined in the SAP ERP system, create it using transaction `WE21`. In particular, you define a port to specify the system to which outbound IDocs are to be sent. The port must be of type *Transactional RFC*. The following is an example of the settings for a receiver port:

Field	Value
Port	Z_PI1_PORT
Description	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001
IDoc rec types SAP Release 3.0/3.1	Deselect
IDoc record types SAP Release 4.x	Select
RFC Destination	<PI1CLNT001> (RFC destination name to your PI system)
Processing Options screen area	No checkboxes selected

Procedure

1. On the SAP Easy Access screen of your SAP ERP system, choose **Tools** → **ALE** → **ALE Administration** → **Runtime Settings** → **Partner Profiles** or call transaction `WE20`.
2. In the navigation tree under *Partner Profiles*, choose *Partner Type LS* and check that a partner profile exists for the SAP NetWeaver Process Integration (PI) system (for example, partner number `PI1CLNT001`). If the partner profile does not yet exist, create it with the following data:

Field	Value
Partner No.	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001
Partn. Type	LS
Type	US (User)
Agent	<Enter a user name>
Lang.	EN

3. On the *Post processing: permitted agent* tab page, enter the details of the agent that is to be notified if processing errors occur.
4. The *Outbound parmtrs* screen area shows the message types and message variants that can be sent with this partner profile. The message control settings of each entry determine when a message type is actually sent.

The messages and message variants that are to be configured are described in the following steps. Note that several message variants for the message type *SHPMNT* and their uses are described.

5. Configure the outbound parameters listed below by marking the partner profile for the SAP NetWeaver Process Integration (PI) system and choosing the *Create outbound parameter* pushbutton. Enter the data shown in the tables.

This outbound parameter is used for the IDoc that sends shipment data to SAP TM to create a freight order after a new shipment has been created in SAP ERP.

SHPMNT (CRE)	
Field	Value
<i>Partner No.</i>	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001.
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	LS Logical System
<i>Message Type</i>	SHPMNT
<i>Message code</i>	CRE
<i>Message function</i>	Blank
“Outbound Options” tab page	
<i>Receiver Port</i>	Enter the relevant receiver port, for example, Z_PI1_PORT
<i>Pack Size</i>	1
“Output Mode” screen area	
<i>Transfer IDoc Immed.</i>	Select
<i>Collect IDocs</i>	Deselect (default)
“IDoc Type” screen area	
<i>Basic Type</i>	SHPMNT05
<i>Extension</i>	Blank
<i>View</i>	Blank

SHPMNT (CRE)			
Field		Value	
Cancel Processing After Syntax Error		Select	
Seg. release in IDoc type		Deselect	
Segment Appl. Rel.		Deselect	
“Message Control” tab page			
The data on this tab page defines the context in which the IDoc is sent. Create the following entries			
Application	Message Type	Process Code	Change Message
V7	ZSCR	SD11	Deselect
V7	ZSCR	SD11	Select

6. Repeat the above step for the outbound parameters listed below.
7. Once you have created all of the outbound parameters, distribute the partner profiles to the target system (in this case, the SAP NetWeaver PI system) as follows:
 1. Call transaction BD64 (Maintain Distribution Model).
 2. Create a new model view *Shipment Integration* if it does not already exist.
 3. Enter SAP ERP as the source system, SAP NetWeaver PI as the target system, and message type SHPMNT.
 4. Save your entries.

Outbound Parameter Variants

- SHIPPL

This outbound parameter is used for the IDoc that cancels a freight order in SAP TM based on a deleted SAP ERP shipment.

SHIPPL	
Field	Value
<i>Partner No.</i>	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001.
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	LS Logical System
<i>Message Type</i>	SHIPPL
<i>Message code</i>	Blank

SHIPPL	
Field	Value
<i>Message function</i>	Blank
“Outbound Options” tab page	
<i>Receiver Port</i>	Enter the relevant receiver port, for example, Z_PI1_PORT
<i>Pack Size</i>	1
“Output Mode” screen area	
<i>Transfer IDoc Immed.</i>	Select
<i>Collect IDocs</i>	Deselect (default)
“IDoc Type” screen area	
<i>Basic Type</i>	TPSSHT01
<i>Extension</i>	Blank
<i>View</i>	Blank
<i>Cancel Processing After Syntax Error</i>	Select
<i>Seg. release in IDoc type</i>	Deselect
<i>Segment Appl. Rel.</i>	Deselect
“Message Control” tab page	
No entry required.	

- DESADV

This outbound parameter is used for the IDoc that cancels a freight order in SAP TM based on a deleted SAP ERP shipment.

SHIPPL	
Field	Value
<i>Partner No.</i>	<PI SID>CLNT<PI CLNT> For example, PI1CLNT001.
<i>Partn. Type</i>	LS Logical System
<i>Partner Role</i>	LS Logical System
<i>Message Type</i>	DESADV
<i>Message code</i>	Blank

SHIPPL			
Field		Value	
Message function		Blank	
“Outbound Options” tab page			
Receiver Port		Enter the relevant receiver port, for example, Z_PI1_PORT	
Pack Size		1	
“Output Mode” screen area			
Transfer IDoc Immed.		Select	
Collect IDocs		Deselect (default)	
“IDoc Type” screen area			
Basic Type		DELVR05	
Extension		Blank	
View		Blank	
Cancel Processing After Syntax Error		Select	
Seg. release in IDoc type		Deselect	
Segment Appl. Rel.		Deselect	
“Message Control” tab page			
The data on this tab defines the context in which the IDoc is sent. Create the following entry:			
Application	Message Type	Process Code	Change Message
V2	ZDLV	DELV	Deselect



Configuration Settings in SAP TM

Activities

- [Master Data Setup in SAP TM](#) [Page 86]
- [Order Management](#) [Page 94]
- [Planning](#) [Page 103]
- [Freight Order Management](#) [Page 114]



Master Data Setup in SAP TM

Activities

- [Defining Means of Transport](#) [Page 87]
- [Defining Packaging Material Types](#) [Page 88]
- [Defining Vehicle Resources](#) [Page 90]
- [Defining Equipment Groups and Equipment Types](#) [Page 91]
- [Defining Transportation Service Level Codes](#) [Page 92]

Defining Means of Transport

Procedure

1. In Customizing for *Transportation Management*, choose  *Master Data* → *Resources* → *Define Means of Transport* .
2. Enter the following data:

Field	Value
<i>Means of Transport</i>	EWM_FTL
<i>MTr Description</i>	Full Truckload
<i>Transportation Mode</i>	01 – Road
<i>Multiresource</i>	Select
<i>Number of Individual Resources</i>	999
<i>Average Speed</i>	80000
<i>Distance Factor</i>	1000

3. Save your entries.



Since this scenario does not currently use a geographical information system (GIS), you must enter an average speed and a distance factor. If you have a connection to a GIS provider, you can select the checkbox for GIS quality and enter the three different average speeds instead.

When you save, the system may display a message stating that the IGS or GIS tool is unavailable. You can ignore this message.



Defining Packaging Material Types

This scenario uses packaging materials, which are assigned to vehicle resources and equipment types in SAP TM. The system checks the type of a packaging material and so you must, therefore, define packaging material types in SAP TM.

Procedure

1. In Customizing for *SCM Basis*, choose ► *Pack* → *Handling Units* → *Define Packaging Material Types* ◀.
2. On the *Change View Packaging Material Types: Overview* screen, check whether packaging material type **MTR2** already exists. If not, create it using the following data:

Field	Value
<i>Packaging Material Type</i>	MTR2
<i>Description</i>	Means of Transport 2
<i>PM Category</i>	A - Means of Transport, Transport Element, Transport Unit.
<i>TW Variable</i>	Deselect
<i>Closed</i>	Deselect
<i>Status Profile</i>	Blank
<i>Delete</i>	Deselect

3. Save your entries.



Defining Package Type Codes

In this scenario, you must define the package type codes that are transferred from SAP ERP to SAP TM. When a package type code is received, SAP TM checks whether it is available.

Procedure

1. In Customizing for *Transportation Management*, choose **► Forwarding Order Management** → **Define Package Type Codes** **◄**.
2. On the *Change View Define Package Type Codes: Overview* screen, check whether package type code `PT01` already exists.
3. If package type code `PT01` does not exist, create it using the following data:

Field	Value
<i>Package Type Code</i>	PT01
<i>Description</i>	Package Type PT01

4. Save your entries.



Defining Vehicle Resources

Vehicle resources model the trucks that transport goods from the shipper to the consignee. The trucks are part of the carrier's fleet. You define this in the means of transport to which you assign the vehicle resource. In this scenario, we assume that the shipper does not have its own fleet.

Procedure

1. On the *SAP Easy Access* screen, call transaction **NWBC** to open SAP NetWeaver Business Client.
2. Choose **► Master Data → Resources → Define Resource ◀**.
3. Choose *Create Resources*.
4. On the *General Data* tab page, enter the following data:

Field	Value
<i>Resource</i>	EWM_TRUCK_FTL
<i>Resource Class</i>	Truck
<i>Means of Transport</i>	EWM_FTL
<i>Time Zone</i>	CET
<i>Factory Calendar</i>	01

5. On the *Time-Cont. Capacity* tab page, enter the following data:

Dimension	Capacity	Unit	Remark
Mass	20000	KG	Maximum weight of the truck

6. On the *Transportation* tab page, enter the following data:

Dimension	Value	Remark
Pack. Material	MTR@ERP500	Packaging material required for SAP EWM



Packaging material **MTR** must be available in the SAP ERP system *ERP client 001* and transferred to SAP TM.

7. Save your entries.



Defining Equipment Groups and Equipment Types

In this Customizing activity, you define equipment groups and equipment types. Equipment groups and types are used to specify the container type of a resource. In general, all types should be included in standard SAP customizing. Check that the following entries exist and create any that are missing.

In this scenario, you must assign a packaging material to transfer handling units from SAP TM to SAP ERP and on to SAP EWM.

Procedure

1. In Customizing for *Transportation Management*, choose **► Master Data → Resources → Define Equipment Groups and Equipment Types ◀**.
2. Select *Transportation Unit Groups*.
3. Create equipment group **CN** with the description **Container** and the resource class **Container**.
4. Select equipment group **CN** and choose *Mode of Transport Assignment*.
5. Add transportation mode category **1 Road**.
6. Choose *Equipment Types* and add the following data:

Field	Value
<i>Equipment Type</i>	20B0
<i>Description</i>	20 ft Bulk Cont, 20x8
<i>TEU Capacity</i>	1
<i>Payload Weight</i>	29930
<i>UOM</i>	KG
<i>Cubic Capacity</i>	32
<i>UOM</i>	M3
<i>Packaging Material</i>	MTR@ERP500

7. Save your entries.



Defining Transportation Service Level Codes

In this Customizing activity, you define transportation service level codes in SAP TM, which correspond to shipping conditions in SAP ERP.

Procedure

1. In Customizing for *Transportation Management*, choose **► Forwarding Order Management → Define Transportation Service Level Codes ◀**.
2. Choose *Define TrM-Independent Service Level Codes*.
3. Choose *New Entries*.
4. Create the following service level codes:

Service Level Code	Description	Delivery in Days
T1	Service Level T1	Blank
T2	Service Level T2	Blank
W1	Service Level W1	Blank
W2	Service Level W2	Blank

5. Save your entries.



Defining Incoterms

In this procedure, you check or define the Incoterms in SAP TM that correspond to the Incoterms you defined in SAP ERP.

Procedure

1. In Customizing for *SCM Basis*, choose ► *Master Data* → *Define Incoterms* ◀.
2. Check whether the Incoterms that you want to transfer from SAP ERP to SAP TM have been defined (for example, *CFR Costs and Freight*).
3. If you do not want to transfer the Incoterm location from SAP ERP to SAP TM, deselect the *Loc* checkbox.
4. Save your entries.



Order Management

You configure the settings for order management in SAP TM if you intend to set up the business processes for order-based or delivery-based planning. The settings are not required for the SAP EWM-based planning business process.

Activities

- [Defining Order-Based Transportation Requirement Types](#) [Page 95]
- [Defining Delivery-Based Transportation Requirement Types](#) [Page 97]
- [Defining Conditions for OTR Type Determination](#) [Page 99]
- [Defining Conditions for DTR Type Determination](#) [Page 101]



Defining Order-Based Transportation Requirement Types

You use this document type to model the order-based transportation requirement (OTR) that is received from SAP ERP.

Prerequisites

You have defined a freight unit building rule (you can also define a freight unit building rule at a later point and then enter it here).

Procedure

1. In Customizing for *Transportation Management*, choose **Integration** → *ERP Logistics Integration* → *Order-Based Transportation Requirement* → *Define Order-Based Transportation Requirement Types*.
2. On the *Create View Order-Based Transportation Requirement Types: Details of Selected Set* screen, enter the following values:

Field	Description	Value
<i>OTR Type</i>	ID for OTR document type	ZOTE
<i>Description</i>	Description of the OTR type	OTR - EWM Integration
<i>Default Type</i>	Only one OTR type can be defined as the default OTR type. Select this value only if there is only one OTR type defined in the system.	Blank
<i>Number Range Interval</i>	Number range that is used to assign numbers to the OTR types.	01
"Process Control/Business Object Mode" screen area		
<i>BW Relevance</i>	Indicates whether the document type is relevant for BW	Select
<i>Automatic FU Building</i>	Indicates whether freight units are to be built automatically. If this is selected, an FU building rule must be defined.	Select
<i>Output Profile</i>	Print profile for document type	Blank
<i>Propagate Changes</i>	Indicates how changes to information in a document (such as quantities) are transferred.	Synchronous Propagation of Changes, Fallback to Asynchronous

Field	Description	Value
"Default Values" screen area		
<i>Default Weight UoM</i>	Default unit of measure for the weight used in this document type	KG
<i>Default Gross Volume UoM</i>	Default unit of measure for the gross volume used in this document type	M3
<i>Plan on Requested/Confirmed Quantity</i>	Planning Indicator that indicates which quantities (planned or confirmed) are to be considered during planning	01 - Plan on Requested Quantities
<i>Planning Profile</i>	Profile for planning the freight unit	EWM-PLAN-PROF-01 This is created later. Leave blank and update after creating the profile.
<i>Freight Unit Building Rule</i>	Rule that is used when building freight units (when the <i>Automatic FU Building</i> checkbox is selected)	EWM-FUBR-STANDARD This is created later. Leave blank and update after creating the rule.



Defining Delivery-Based Transportation Requirement Types

You use this document type to model the delivery-based transportation requirement (DTR) that is received from SAP ERP.

Prerequisites

You have defined a freight unit building rule (you can also define a freight unit building rule at a later point and then enter it here).

Procedure

1. In Customizing for *Transportation Management*, choose **Integration** → *ERP Logistics Integration* → *Delivery-Based Transportation Requirement* → *Define Delivery-Based Transportation Requirement Types*.
2. On the *Create View Delivery-Based Transportation Requirement Types: Details of Selected Set* screen, enter the following values:

Field	Description	Value
<i>DTR Type</i>	ID for DTR document type	ZDTE
<i>Description</i>	Description of the DTR type	DTR - EWM Integration
<i>Default Type</i>	Only one DTR type can be defined as the default DTR type. Select this value only if there is only one DTR type defined in the system.	Blank
<i>Number Range Interval</i>	Number range that is used to assign numbers to the DTR types.	02
"Process Control/Business Object Mode" screen area		
<i>BW Relevance</i>	Indicates whether the document type is relevant for BW	Select
<i>Automatic FU Building</i>	Indicates whether freight units are to be built automatically. If this is selected, an FU building rule must be defined.	Select
<i>Output Profile</i>	Print profile for document type	Blank
<i>Propagate Changes</i>	Indicates how changes to information in a document (such as quantities) are transferred.	Synchronous Propagation of Changes, Fallback to Asynchronous

Field	Description	Value
“Default Values” screen area		
<i>Default Weight UoM</i>	Default unit of measure for the weight used in this document type	KG
<i>Default Volume UoM</i>	Default unit of measure for the gross volume used in this document type	M3
<i>Freight Unit Building Rule</i>	Rule that is used when building freight units (when the <i>Automatic FU Building</i> checkbox is selected)	EWM-FUBR-STANDARD This is created later. Leave blank and update after creating the rule.



Defining Conditions for OTR Type Determination

When SAP TM receives a sales order, it creates an order-based transportation requirement (OTR). This requirement must be mapped to a document in the SAP TM system, which then determines the subsequent workflow process.

In this configuration step, the OTR type is determined when an order is transferred from SAP ERP to SAP TM.

Prerequisites

You have defined OTR document type `ZOTE`.

Procedure

1. On the *SAP Easy Access* screen, call transaction `NWBC` to open SAP NetWeaver Business Client.
2. Choose *Application Administration* → *General Settings* → *Conditions* → *Create Condition* .
3. Choose *Continue*.



If the system issues a message stating that the condition already exists, continue this process using the edit condition entry from the point at which you maintain values on the *Decision Table* tab page.

4. On the *New Condition Definition* screen, enter the relevant data based on the tables below:

- In the *General Data* screen area:

Field	Description	Value
<i>Condition</i>	Condition type supplied by the system	<code>ZOTR_TYPE</code>
<i>Description</i>	Description of the condition type	OTR Type Determination Condition

- In the *Condition Definition* screen area:

Field	Description	Value
<i>Condition Type</i>	Condition type supplied by the system	<code>/SCMTMS/OTR_TYPE</code>
<i>Origin of Condition</i>	Source of the condition information	Condition Based on BRFplus Decision Table

5. Choose the *Data Access Definition* tab page and enter the following data:

Field	Description	Value
-------	-------------	-------

Field	Description	Value
Line 10	Select this row for further maintenance	Data Access Definition: /SCMTMS/TRQ_ORD_CAT
Line 20	Select this row for further maintenance	Data Access Definition: /SCMTMS/TRQ_ORD_TYPE

6. Choose the *Decision Table* tab page and enter the following data:

Field	Description	Value
<i>BseDoc. Ty.</i>	Incoming base document type	Parameter: Is Equal To Value: 114 - Sales Order
<i>Proc Type</i>	Procedure type (incoming parameter)	Parameter: Is Equal To Value: ZOR
<i>OTR Type</i>	Specify the data for integration here – the document type that is identified and used in SAP TM for OTR.	ZOTE (defined in a previous step)



To enter values on the *Decision Table* tab page, you may have to switch to edit mode and choose *Insert New Row*.

7. Save your entries.

Result

You have configured the integration settings between the incoming sales document and the OTR document type.



Defining Conditions for DTR Type Determination

When SAP TM receives a delivery, it creates a delivery-based transportation requirement (DTR). This requirement must be mapped to a document in the SAP TM system, which then determines the subsequent workflow process.

In this configuration step, the DTR type is determined when a delivery is transferred from SAP ERP to SAP TM.

Prerequisites

You have defined DTR document type `ZDTE`.

Procedure

1. On the *SAP Easy Access* screen, call transaction `NWBC` to open SAP NetWeaver Business Client.
2. Choose ► *Application Administration* → *General Settings* → *Conditions* → *Create Condition* ◀.
3. Choose *Continue*.



If the system issues a message stating that the condition already exists, continue this process using the edit condition entry from the point at which you maintain values on the *Decision Table* tab page.

4. On the *New Condition Definition* screen, enter the relevant data based on the tables below:

- In the *General Data* screen area:

Field	Description	Value
<i>Condition</i>	Condition type supplied by the system	<code>ZDTR_TYPE</code>
<i>Description</i>	Description of the condition type	DTR Type Determination Condition

- In the *Condition Definition* screen area:

Field	Description	Value
<i>Condition Type</i>	Condition type supplied by the system	<code>/SCMTMS/DTR_TYPE</code>
<i>Origin of Condition</i>	Source of the condition information	Condition Based on BRFplus Decision Table

5. Choose the *Data Access Definition* tab page and enter the following data:

Field	Description	Value
-------	-------------	-------

Field	Description	Value
Line 10	Select this row for further maintenance	Data Access Definition: /SCMTMS/TRQ_DLV_CAT
Line 20	Select this row for further maintenance	Data Access Definition: /SCMTMS/TRQ_DLV_TYPE

6. Choose the *Decision Table* tab page and enter the following data:

Field	Description	Value
<i>TR: ERP Delivery Type</i>	Incoming base document type	Parameter: Is Equal To Value: ZLF
<i>DTR Type</i>	Specify the data for integration here – the document type that is identified and used in SAP TM for DTR.	ZDTE (defined in a previous step)



To enter values on the *Decision Table* tab page, you may have to switch to edit mode and choose *Insert New Row*.

7. Save your entries.

Result

You have configured the integration settings between the incoming delivery document and the DTR document type.



Planning

You configure the settings for planning in SAP TM if you intend to set up the business processes for order-based or delivery-based planning. The settings are not required for the SAP EWM-based planning business process.

Activities

- [Defining Freight Unit Types](#) [Page 104]
- [Defining Freight Unit Building Rules](#) [Page 107]
- [Creating Delivery Profiles](#) [Page 109]
- [Creating Selection Profiles](#) [Page 110]
- [Defining Capacity Settings](#) [Page 111]
- [Creating Planning Profiles](#) [Page 112]



Defining Freight Unit Types

Procedure

1. In Customizing for *Transportation Management*, choose **► Planning → Freight Unit → Define Freight Unit Types ◀**.
2. Create the following entry:

Field	Value
<i>Freight Unit Type</i>	ZFUE
<i>Description</i>	EWM Int: Freight Unit Type
Basic Settings	
<i>Freight Unit Can Be Deleted</i>	Select
Number Range Settings	
<i>Time for Drawing</i>	Draw Numbers When Saving Document
Number Range Interval	<Number range interval defined earlier> For example, FU.
Change Controller Settings	
<i>Default Change Strategy</i>	DEF_CHACO
<i>Change Strategy Determination Condition</i>	Blank
<i>Quantity Tolerance Condition</i>	Blank
<i>Date Tolerance Condition</i>	Blank
Additional Strategies	
<i>Creation Strategy</i>	Blank
<i>Save Strategy</i>	Blank
<i>Deletion Strategy</i>	Blank
Execution Settings	
<i>Execution Track. Relevance</i>	2 - Execution Tracking
<i>Immediate Processing</i>	Deselect
Event Management Settings	
<i>Application Object Type</i>	Blank

Field	Value
<i>Last Exp. Event</i>	Blank
Direct Shipment Options	
<i>Direct Shipment Option Type</i>	No Determination of Direct Shipment Options
<i>Carrier Selection Settings</i>	Blank
<i>Carrier Selection Condition</i>	Blank
<i>Direct Shipment Strategy</i>	Blank
Freight Order Determination	
<i>Freight Order Type</i>	ZSHO This entry will be created later. Leave it blank and complete this field once the freight order type has been created.
<i>Freight Order Type Condition</i>	Blank
Default MTr Definition	
<i>Default MTr for Type</i>	Blank
<i>Condition for Default MTr</i>	Blank
Default Units of Measure	
<i>Weight</i>	Kilogram
<i>Volume</i>	Cubic Meter
Additional Settings	
<i>Dangerous Goods Profile</i>	Blank
<i>Rule for PU / DLV Window</i>	Pick-up and Delivery as Defined in the Forwarding Order, Forwarding Quotation, Order-Based, or Delivery-Based Transportation Request
<i>Condition for PU/DLV Window Determ.</i>	Blank
<i>BW Relevance</i>	Deselect
<i>Track Changes</i>	Deselect
<i>Archiving Retention Period in Days</i>	Blank
<i>Web Dynpro Application Conf.</i>	Blank

Field	Value
Organizational Unit Determination	
<i>Purchasing Organization</i>	Blank
<i>Purchasing Group</i>	Blank
Determination Rules	
<i>Consider Organization of User</i>	Deselect
<i>Condition</i>	Blank

3. Press **ENTER**.
4. Save your entries.



Defining Freight Unit Building Rules

Freight unit building rules (FUBRs) are assigned to the OTR or DTR type. The rules specify how the freight units are to be built when an OTR or DTR is created.

Procedure

1. In SAP NetWeaver Business Client, choose **Application Administration** → **Planning** → **General Settings** → **Freight Unit Building Rule** → **Create Freight Unit Building Rule**.
2. On the *New Freight Unit Building Rule* screen, enter the following values on the *General Data* tab page:

Field	Description	Value
<i>Freight Unit Building Rule</i>	Identification of the FUBR	EWM-FUBR-Standard
<i>Description</i>	Description of this FUBR	EWM FUB - Standard
<i>Document Type</i>	Freight unit type to be used for the freight unit	ZFUE
<i>Incompatibility Setting</i>	Not used	Blank
<i>Freight Unit Building Strategy</i>	This strategy defines how to consolidate	Consolidate per Request (Compatible parts)
<i>Critical Quantity</i>	Defines the weight/volume limits for the freight unit	Gross Weight
<i>Item Split Allowed</i>	Indicator to define if the item quantities could be split across different freight units	Select

3. On the *Advanced Settings* tab page, enter the following data:

Field	Description	Value
<i>Process Controller Strategy</i>	Strategy that defines how to build FUs	FUB_AUTO

4. In the *Planning Quantities* table, enter the following data:

Field	Description	Value
<i>Planning Quantity for Freight Unit Building</i>	Defines the parameter for the planning quantity	Gross Weight
<i>Unit of Measure of Split Quantity</i>	Unit of measure	KG
<i>Split Quantity</i>	Quantity limit for the item based on which freight units are built	100,00

Field	Description	Value
<i>Rounding Quantity</i>	Any rounding quantity applied	1

5. Save your entries.



Creating Delivery Profiles

You can use a delivery profile to control how delivery proposals are created in SAP TM. If you do not use a delivery profile, the system creates delivery proposals for each order-based transportation requirement.

Procedure

1. In SAP NetWeaver Business Client, choose ► *Application Administration* → *Planning* → *General Settings* → *Delivery Profile* → *Create Delivery Profile* ◀.
2. On the *New Delivery Profile* screen, enter the following values:

Field	User Action and Values
<i>Delivery Profile</i>	EWM-DEL-PRFL-STANDARD
<i>Description</i>	EWM: Std. Delivery Profile
<i>Fix Planning Results</i>	Deselect
<i>Delivery Creation</i>	Per OTR
<i>Incompatibility Settings</i>	Blank

3. Save your entries.

Creating Selection Profiles

Procedure

1. In SAP NetWeaver Business Client, choose  *Application Administration* → *Planning* → *Selection Profiles* → *Create Selection Profile* .
2. On the *New Selection Profile* screen, enter the following values on the *Selection Profile* tab page:

Field	Value
<i>Selection Profile</i>	EWM-GEN-SEL-01
<i>Description</i>	EWM: Selection Profile
<i>Maximum Number of Selected Objects</i>	100
<i>Time-Related Sel. Attributes</i>	Blank
<i>Geographical Sel. Attributes</i>	Blank
<i>Additional Sel. Attributes</i>	Blank

3. Save your entries.
4. Choose the *Selection Profile* tab page.
5. Choose *Edit*.
6. Choose *New* beside the *Geographical Sel. Attributes* field.
7. Enter the following information in the dialog box:
 - *Profile Name*: DOT-GEO-SEL-01
 - *Description*: DOT: Geographical Sel. Attr.
8. Choose the *Geographical Selection Attributes* tab page and select the *Both Locations* checkbox.
9. Enter the following data:

Tab Page	Sign	Option	Lower Value	Upper Values
Source Locations	Inclusive	Pattern	*0001*	Blank
Destination Locations	Inclusive	Pattern	*CUST0*	Blank

10. Save your entries.



The *Additional Selection Attributes* tab page is not used in this scenario.

Defining Capacity Settings

You use this procedure to define the resource capacity used during optimization.

Procedure

1. In SAP NetWeaver Business Client, choose  *Application Administration* → *Planning* → *Planning Profile Settings* → *Capacity Selection Settings* → *Create Capacity Selection Settings* .
2. On the *Change or Create Condition* screen, enter the following values:

Field	Value
<i>Capacity Selection Settings</i>	EWM-CAP-SEL-01
<i>Description</i>	EWM: Capacity Selection Settings
<i>Attributes for Vehicle Resource Selection.</i>	VEHICLERES_ID
<i>Sign</i>	Inclusive
<i>Option</i>	Pattern
<i>Lower Limit</i>	EWM*
<i>Upper Limit</i>	Blank

3. Save your entries.

Creating Planning Profiles

In this procedure, you create a planning profile to define settings for the planning process.

Procedure

1. In SAP NetWeaver Business Client, choose  *Application Administration* → *Planning* → *Planning Profiles Settings* → *Create Planning Profile* .
2. On the *Planning Profile* tab page, enter the following data in the *General Data* screen area:

Field	Value
<i>Planning Profile</i>	EWM-PLAN-PROF-01
<i>Description</i>	EWM: Planning Profile

3. In the *Business Document Type* screen area, enter the following data:

Field	Value
<i>Type Determination Rule</i>	Defined per Category in Planning Profile
<i>Default Type for Vehicle Resources</i>	ZSHO Use the input help (F4) to complete this field. If this default type is not available, choose any type and replace the entry once ZSHO has been created.

4. In the *Planning Horizon* screen area, enter the following data:

Field	Value
<i>Duration in Days</i>	180
<i>Additional Duration (hh:mm)</i>	Blank
<i>Offset in Days</i>	Blank
<i>Additional Offset (hh:mm)</i>	Blank
<i>Factory Cal. for Offs./Dur. Calc.</i>	Blank
<i>Round Horizon to Full Days</i>	Select
<i>Time Zone for Rounding the Horizon</i>	CET

5. In the *Profile Assignments* screen area, enter the following data:

Field	Value
<i>Freight Order Selection Profile</i>	Blank

Field	Value
<i>Capacity Selection Settings</i>	EWM-CAP-SEL-01
<i>Optimizer Settings</i>	Blank
<i>Planning Costs Settings</i>	Blank
<i>Incompatibility Settings</i>	Blank
<i>Carrier Selection Settings</i>	Blank

6. In the *Manual Planning* screen area, enter the following data:

Field	Value
<i>Manual Planning Strategy</i>	VSRI_DEF
<i>Consider Fixing Status</i>	Warning When Changing Fixed Documents

7. In the *Scheduling* screen area, enter the following data:

Field	Value
<i>Scheduling Strategy</i>	VSS_DEF
<i>Consider Freight Unit Dates</i>	Consider Freight Unit Dates
<i>Scheduling Direction</i>	Blank

8. In the *Check* screen area, enter the following data:

Field	Value
<i>Check Strategy</i>	VSR_CHECK
<i>Take Capacities into Account</i>	Warning

9. In the *Loading and Unloading Durations* screen area, enter the following data:

Field	Value
<i>Service Time Definition</i>	Freight Unit and MTr Independent
<i>Loading/Unloading Duration</i>	00:30:00

10. Save your entries.



Freight Order Management

Activities

- [Defining Number Ranges](#) [Page 115]
- [Defining Freight Order Types](#) [Page 116]
- [Assigning Freight Order Types to SAP ERP Shipment Types](#) [Page 121]



Defining Number Ranges

For the outbound integration of SAP ERP shipments into SAP TM, you must use an internal number range for the SAP TM freight orders and align this number range with the external number range of the corresponding shipments in SAP ERP.

For the inbound integration of SAP ERP shipments into SAP TM, you must use an external number range for the SAP TM freight orders and align this number range with the internal number range of the corresponding shipments in SAP ERP.

Procedure

1. In Customizing for *Transportation Management*, choose *Freight Order Management* → *Define Number Range Intervals for Freight Order Management* .
2. Choose *Change Intervals*.
3. Define the following new number ranges for freight orders:

Internal Number Range for Freight Orders: Outbound Integration of Shipments			
No.	From No.	To No.	External
N1	6100000000	6199999999	Deselect
External Number Range for Freight Orders: Inbound Integration of Shipments			
No.	From No.	To No.	External
N2	6500000000	6699999999	Select



- Choose any available number to define the number ranges.
- You use internal number range N1 for outbound shipment integration in SAP TM. You use external number range N2 for inbound shipment integration in SAP TM.
- You can choose any available number range for outbound shipment integration. However, you must ensure that the number range for the freight order in SAP TM, the corresponding shipment in SAP ERP, and the corresponding transportation unit in SAP EWM is the same in all three systems.

Defining Freight Order Types

Procedure

1. In Customizing for *Transportation Management*, choose  *Freight Order Management* → *Freight Order* → *Define Freight Order Types* .
2. Create the following freight order types depending on whether you want to use inbound or outbound shipment integration with SAP TM:

1. In the header area, enter the following data:

Field	Description	Outbound Shipment Integration	Inbound Shipment Integration
<i>Freight Order Type</i>	Unique 4-character identification of the freight order	ZSHO	ZSHI
<i>Description</i>	Free-text description of the freight order	EWM: Freight Order Outbound Shipment Int	EWM: Freight Order Inbound Shipment Int

2. In the *Basic Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Freight Order Can Be Subcontracted</i>	Indicator that controls whether the FOR type can use subcontracting processes	01 Relevant for Subcontracting	01 Relevant for Subcontracting
<i>Shipper/Consignee Determination</i>	Defines how the shipper and consignee partners are determined for the freight order	P Determination Based on Predecessor Documents	P Determination Based on Predecessor Documents
<i>Fix Document When Saving</i>	None	Deselect	Deselect
<i>Freight Order Can Be Deleted</i>	Indicates whether the freight order can be deleted	Select	Select

3. In the *Number Range Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Time for Drawing</i>	Determines the time at which a number is assigned to the freight order	Draw Number When Saving Document	Draw Number When Saving Document

Field	Description	ZSHO	ZSHI
<i>Number Range Interval</i>	Specifies the number range that is to be used for this document type.	N1 (Use the internal number range you created previously)	04 (Use the external number range you created previously)

4. In the *Change Controller Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Default Change Strategy</i>	Default strategy used for tendering behavior when any changes are made to the freight order key fields, such as partners and quantities.	DEF_CHACO	DEF_CHACO
<i>Change Strategy Determination Cond.</i>	Specifies the condition that the system uses to determine a change controller strategy at runtime. If you have defined several change controller strategies, you can use a condition for determining the appropriate change controller strategy. The condition type of this condition is /SCMTMS/CC_TOR_S TRAT.	Blank	Blank
<i>Quantity Tolerance Condition</i>	Condition that determines the tolerances for a quantity change in a business document	Blank	Blank
<i>Date Tolerance Condition</i>	Condition that determines the tolerances for a date change in a business document	Blank	Blank

5. In the *Additional Strategies* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Creation Strategy</i>	Creation strategy	Blank	Blank

6. In the *Default Units of Measure* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Weight</i>	Weight	Kilogram	Kilogram
<i>Volume</i>	Volume	Cubic Meter	Cubic Meter

7. In the *Execution Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Execution Tracking Relevance</i>	None	02 Execution Tracking	02 Execution Tracking
<i>Check Condition "Ready for Execution"</i>	Not used	Blank	Blank
<i>Immediate Processing</i>	Set the status <i>In Process</i> as soon as the document is created and saved	Select	Select
<i>Propagate Execution Info</i>	None	Blank	Blank

8. In the *Event Management* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Application Object Type</i>	Application object type	Blank	Blank
<i>Last Exp. Event</i>	Last expected event	ARRIV_DEST	ARRIV_DEST

9. In the *Organizational Unit Determination* screen area, enter the following settings:

Field	Description	ZSHO	ZSHI
<i>Execution Organization</i>	Execution organization	Blank	Blank
<i>Purchasing Organization</i>	Purchasing organization	Blank	Blank
<i>Execution Group</i>	Execution group	Blank	Blank
<i>Purchasing Group</i>	Purchasing group	Blank	Blank
<i>Consider Organization Unit of</i>	Considers organizational unit of	Deselect	Deselect

Field	Description	ZSHO	ZSHI
User	group		
Condition	Condition	Blank	Blank

10. In the *Tendering Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
Use Default Settings	Use default settings	Deselect	Deselect
Use Condition for Sett. Determ.	Use condition for settlement determination	Deselect	Deselect
Use Type-Specific Settings	Allows further definition of the freight order type-specific processes for process settings and communication settings.	Select	Select
Process Setting	Controls the tendering process settings	Blank	Blank
Communication Settings	Communication setting	Blank	Blank

11. In the *Default MTr Determination* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
Default MTr for Type	Specifies the default means of transport for the freight order type	Blank	Blank
Condition for Def MTr	Condition for default means of transport	Blank	Blank

12. In the *Additional Settings* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
DG Profile	Dangerous goods profile	Blank	Blank
Customs Profile	Customs profile	Blank	Blank
Default FSD Type	Default freight settlement document type	Blank	Blank
HBL Number Range	Number range for house bill of lading	Blank	Blank

Field	Description	ZSHO	ZSHI
<i>Deflt Carrier Selection Settings</i>	Default carrier selection settings	Blank	Blank
<i>Shipment Creation Relevance</i>	Shipment creation relevance	C – Shipment Creation with HUs for Container Only	N – No Shipment Creation in SAP ERP



Alternatively, you can set the *Shipment Creation Relevance* field to one of the following values:

V – Shipment Creation with HUs for Vehicles Only if you want to transfer a vehicle handling unit to SAP ERP and SAP EWM.

H – Shipment Creation with HUs for Vehicles and Containers if you want to transfer a container handling unit and a vehicle handling unit to SAP ERP and SAP EWM.

13. In the *Output Options* screen area, enter the following data:

Field	Description	ZSHO	ZSHI
<i>Output Profile</i>	Output profile	/SCMTMS/TOR	/SCMTMS/TOR
<i>Add. Output Profile</i>	Additional output profile	Blank	Blank
<i>Text Profile</i>	Text profile	Blank	Blank
<i>Dynamic Determination of Output</i>	Dynamic determination of output	Deselect	Deselect

14. Save your entries.



Assigning Freight Order Types to SAP ERP Shipment Types

Once you have configured inbound shipment integration in your SAP ERP system, you have to carry out the following steps in SAP TM to determine an SAP TM freight order type for an SAP ERP shipment type and process the shipment inbound from SAP ERP. You process this configuration step if you want to set up the business process for SAP EWM-based planning.

Procedure

1. In Customizing for *Transportation Management*, choose *Integration* → *ERP Logistics Integration* → *Shipment Integration* → *Assign Freight Order Types to ERP Shipment Types* .

2. Choose *New Entries*.

3. Specify the freight order type that SAP TM uses to create freight orders based on shipments received from SAP ERP. Add an entry for the following combinations:

ERP Shipment Type	Freight Order Type
ZWM1	ZSHI

4. Save your entries.



You can also specify a default freight order type that the system is to use if it cannot determine an entry for an SAP ERP shipment type in the Customizing activity *Assign Freight Order Types to ERP Shipment Types*. To specify the default freight order type, select the *Default Type for ERP Shipment Integration* checkbox in the relevant freight order type in Customizing for *Transportation Management* under *Freight Order Management* → *Freight Order* → *Define Freight Order Types* .



Configuration Settings for SAP NetWeaver Process Integration

Activities

- [Configuring SAP NetWeaver PI for Order Integration](#) [Page 123]
- [Configuring SAP NetWeaver PI for Shipment Integration \(Outbound\)](#) [Page 128]
- [Configuring SAP NetWeaver PI for Shipment Integration \(Inbound\)](#) [Page 136]
- [Checking Settings for Acknowledgment of IDocs](#) [Page 141]



Configuring SAP NetWeaver PI for Order Integration

In the SAP NetWeaver Process Integration (SAP NetWeaver PI) system, you have to set up a business system, a communication channel, and a configuration scenario for the required integration scenarios. You can create configuration scenarios for the following integration scenarios:

- Order integration: `TM_ERPOrderIntegration`
- Sales order scheduling: `TM_ERPSalesOrderScheduling`



The following steps for configuring scenarios are described for SAP NetWeaver PI Releases 7.0, 7.10, and 7.11.

Procedure

Procedure for Release 7.0

1. Start the *Integration Directory* in the SAP NetWeaver PI system by choosing *Start Integration Builder: Integration Builder Configuration* → *Integration Directory* or calling transaction `SXMB_IFR`.

Note that the Integration Builder opens in a separate Web Dynpro session.

2. Create a new integration scenario as follows:
 1. Choose the *Scenarios* tab page and then choose *Create Object*.
 2. In the *Configuration Objects* section, choose *Configuration Scenario*.
 3. Choose an integration scenario from the integration repository (for example, `TM_ERPOrderIntegration`) by using the input help (F4). If more than one option is available for the same scenario, select the scenario with the latest software version.
 4. Enter a name for the configuration scenario in the format `TM_ERPOrderIntegration_<ERP SID>_<ERP Client>_<TM SID>_<TM Client>` (for example, `TM_ERPOrderIntegration_ERP_500_TM1_750`).
 5. Choose *Create*.
3. Define configuration scenario objects as follows:
 1. In edit mode, choose *Integration Scenario Configurator* to start the configurator.
 2. Choose *Select Component View*.
 3. Select the component view with the correct release level or enhancement package level of your SAP ERP system, together with the correct release level or enhancement package level of the SAP TM system you plan to integrate.
 4. Choose *Apply* to save your selection.
 5. Choose *Assign Services*.

6. Choose *Insert Line* and select your SAP ERP system (for example, ERP_500).
 7. Choose the right arrow in the top-right of the screen to navigate to the next role. The system changes the role from SAP ERP to SAP TM.
 8. Choose *Insert Line* and select your SAP TM system (for example, TM1_750).
 9. Choose *Assign* to save your selection
 10. Choose *Configure Connections*.
 11. In the *Communication Channel* field, select channel *GeneratedReceiverChannel_XI* and choose *OK*.
 12. Choose the right arrow in the top-right of screen to navigate to the next connection. The “From Action – To Action” combination changes. Choose *Insert Line* and select the communication channel. Repeat this step for all “From Action – To Action” combinations (until the communication channel is specified for each service assignment).
 13. Choose *Apply* to save your settings.
 14. Choose *Generate*.
 15. In the *General* section, select *Generation*.
 16. In the *Scope of Generation* section, activate each *Received Determination*, *Interface Determination*, and *Sender/Receiver Agreement*.
 17. Choose *Start* to trigger the generation process.
 18. Check that the line *Error when creating or changing configuration objects* in the log does not contain any entries.
 19. Close the log screen without saving.
 20. In the *Integration Scenario Configurator* menu, choose ► *Settings* → *Apply Changes and Save Configuration Settings* ◀.
 21. Close the Scenario Configurator by choosing ► *Settings* → *Close* ◀.
 22. *Apply* changes to save.
4. Activate your integration scenario as follows:
 1. Choose the *Scenarios* tab page.
 2. Right-click the integration scenario your created above (for example, TM_ERPOrderIntegration_ERP_500_TM1_750).
 3. Choose *Activate* from the menu.
 4. Close the window.

If you want to use sales order scheduling, create an integration scenario for TM_ERPSalesOrderScheduling.

Procedure for Release 7.10

1. Start the *Integration Directory* in the SAP NetWeaver PI system by choosing ► *Start Integration Builder: Configuration* → *Integration Directory* ⚡ or calling transaction `SXMB_IFR`.
2. Assign business systems as follows:
 1. In the object list, choose ► *Service Without Party* → *Business System* ⚡.
 2. In the context menu for *Assign Business System*, choose the relevant systems for your system landscape.

You can create the communication channels automatically while assigning a business system. For the scenarios described in this section, you have to create the channel for the **XI adapter**.

3. Create a configuration scenario by transferring an integration scenario from the *Integration Repository*.

Proceed as follows:

1. In the *Integration Builder: Configuration*, choose ► *Tools* → *Transfer Integration Scenario from the Integration Repository* ⚡.
2. Select one of the configuration scenarios delivered by SAP from the list (`TM_ERPOrderIntegration` or `TM_ERPSalesOrderScheduling`) and follow the steps in the application.
3. Assign the service (business system) to all application components.
4. Carry out the *Configure Connections* step.

Assign the generated communication channel for the XI adapter for each step.

5. Carry out the *Generate* step by choosing the *START* pushbutton.

In this step, you create all configuration objects that you require for your integration scenario. You can also perform a simulation for testing purposes. When you choose the *START* pushbutton, the system creates all required configuration objects.

The system displays the result of the generation process in a log. You do not have to save the log.

Assign all objects to your created configuration scenario.

6. Activate all changes.

For example, in the context menu for the integration scenario, choose *Activate*. The system displays a screen on which you can select and activate all changes.

Procedure for Release 7.11

1. Start the *Integration Directory* in the SAP NetWeaver PI system by choosing ► *Start Integration Builder: Configuration* → *Integration Directory* ⚡ (transaction `SXMB_IFR`).
2. Assign business systems as follows:

1. In the object list, choose ► *Communication Component Without Party* → *Business System* ◀.
2. In the context menu for *Assign Business System*, choose the relevant systems for your system landscape.
3. Create a configuration scenario by transferring an integration scenario from the *Integration Repository*.

Proceed as follows:

1. In the *Integration Builder: Configuration*, choose ► *Tools* → *Apply Model from ES Repository* ◀.
2. Choose the *Process Integration Scenario* pushbutton.
3. Select one of the configuration scenarios delivered by SAP from the list (TM_ERPOrderIntegration or TM_ERPSalesOrderScheduling) and follow the steps in the application.
4. Assign the communication component for each system from the list by clicking the left pushbutton above the swimlane.

In the *Communication Component* selection, choose *All Business System Components*.

5. Choose the *Configure Connection* pushbutton.
6. Assign the communication channel for the receiver system for each step on the *Connections from Component Assignment* page tab and then save your entries.
7. Repeat step 6 on the *Configuration Scenario Object* tab.
8. Create configuration objects by choosing the *START* pushbutton.

In this step, you create all configuration objects that you require for your integration scenario. You can also perform a simulation for testing purposes. When you choose the *START* pushbutton, the system creates all required configuration objects.

The system displays the result of the generation process in a log. You do not have to save the log.

Assign all objects to your created configuration scenario.

9. Activate all changes.

For example, in the context menu for the integration scenario, choose *Activate*. The system displays a screen on which you can select and activate all changes.



Clear your cache. Since all configuration data is stored in the main memory, you have to delete the main memory cache, otherwise SAP NetWeaver PI will not use the settings.



If you use multiple SAP TM systems together with one SAP ERP system, you can evaluate the SAP TM destination in the SAP PI system by using the technical transportation management number as a condition.

More Information

- For more information about communication channels, see SAP Library for SAP NetWeaver 7.0 Including Enhancement Package 2 at <http://help.sap.com/netweaver>. In SAP Library, choose ► *SAP NetWeaver* → *SAP NetWeaver by Key Capability* → *Process Integration by Key Capability* → *SAP NetWeaver Exchange Infrastructure* → *Design and Configuration Time* → *Configuration* → *Configuring Integration Scenarios* → *Configuring Connections* → *Assigning Communication Channels* ◀.
- For more information about configuring integration scenarios, see SAP Library for SAP NetWeaver 7.0 Including Enhancement Package 2 at <http://help.sap.com/netweaver>. In SAP Library, choose ► *SAP NetWeaver* → *SAP NetWeaver by Key Capability* → *Process Integration by Key Capability* → *SAP NetWeaver Exchange Infrastructure* → *Design and Configuration Time* → *Configuration* → *Configuring Integration Scenarios* ◀.



Configuring SAP NetWeaver PI for Shipment Integration (Outbound)

You can use a process integration scenario from the integration repository (*Integration Builder: Design (Integration Repository)*) as a configuration template in the integration directory (*Integration Builder: Configuration (Integration Directory)*). The system uses the information saved in the process integration scenario, together with additional assignments, to calculate the relevant configuration objects.

To configure the connection, you have access to predefined content for integration scenario `TM_ERPShipmentIntegration_Out` under `http://sap.com/xi/TMS/Global/IC`. Communication between SAP Transportation Management (software component SAPTM) and SAP enhancement package 5 for SAP ERP 6.0 or higher (software component SAP APPL) has to be set up for the following service/message interfaces:

From Sender Service/Message Interface	To Receiver Service/Message Interface
SAP Transportation Management Name: TransportationOrderSCMRequest_Out Namespace: <code>http://sap.com/xi/TMS</code> Software Component: SAPTM	SAP enhancement package for SAP ERP 6.0 Name: <code>SHPMNT.SHPMNT05</code> Namespace: <code>urn:sap-com:document:sap:idoc:messages</code> Software Component: SAP APPL
SAP enhancement package for SAP ERP 6.0 Name: <code>SHPMNT.SHPMNT05</code> Namespace: <code>urn:sap-com:document:sap:idoc:messages</code> Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMExecutionConfirmation_In Namespace: <code>http://sap.com/xi/TMS</code> Software Component: SAPTM
SAP enhancement package for SAP ERP 6.0 Name: <code>SHPMNT.SHPMNT05</code> Namespace: <code>urn:sap-com:document:sap:idoc:messages</code> Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMExecutionStatusNotification_In Namespace: <code>http://sap.com/xi/TMS</code> Software Component: SAPTM
SAP Transportation Management Name: TransportationOrderSCMExecutionCancellationRequest_Out Namespace: <code>http://sap.com/xi/TMS</code> Software Component: SAPTM	SAP enhancement package for SAP ERP 6.0 Name: <code>SHIPPL.TPSSHT01</code> Namespace: <code>urn:sap-com:document:sap:idoc:messages</code> Software Component: SAP APPL

From Sender Service/Message Interface	To Receiver Service/Message Interface
SAP enhancement package for SAP ERP 6.0 Name: SHPMNT.SHPMNT05 Namespace: urn:sap-com:document:sap:idoc:messages Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMExecutionDeliveryAssignmentChangedNotification_In Namespace: http://sap.com/xi/TMS Software Component: SAPTM
SAP enhancement package for SAP ERP 6.0 Name: SHPMNT.SHPMNT05 Namespace: urn:sap-com:document:sap:idoc:messages Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMExecutionItmPckgAssgnmtChangedNotification_In Namespace: http://sap.com/xi/TMS Software Component: SAPTM

Prerequisites

- You have set up SAP enhancement package 5 or 6 for SAP ERP 6.0 (software component version SAP APPL 6.05/ 6.06).
- You have set up SAP Transportation Management 9.0 (software component version SAPTM 1.10).
- You have set up SAP NetWeaver Process Integration (SAP NetWeaver PI) 7.0 or higher.
- The SAP ERP system and the SAP Transportation Management system exist as business systems in SAP NetWeaver Process Integration (*Integration Directory*) with completely configured PI receiver communication channels (SAP Transportation Management system), and a completely configured IDoc receiver communication channel (SAP ERP system).

Procedure

1. In the *Integration Directory*, choose  *Tools* → *Transfer Integration Scenario from the Integration Repository* .
2. Perform the *Select Integration Scenario* step.

In the *Integration Scenario* screen area, select the following process integration scenario from the *Integration Repository* and then choose *Continue*:

Name	TM_ERPShipmentIntegration_Out
Namespace	http://sap.com/xi/TMS/Global/IC
Software Component Version	SAPTM IC (check PPMS for current version)

3. Perform the *Create Configuration Scenario* step.

In the *Create Configuration Scenario* screen area, enter a name for the configuration scenario and choose *Finish*.

4. Choose *Close*.

The system transfers the integration scenario from the *Integration Builder: Repository*. The *Integration Scenario Configuration* wizard starts.

5. Perform the following configuration steps:

1. *Select Component View*

You can configure multiple component views within the same configuration scenario. For this connection, there is only one component view defined and you therefore skip this step.

2. *Assign Services*

To map the participants in a process displayed in the model to actual senders and receivers of messages in your system landscape, assign the business systems by choosing *Assign Services*. On the *Business System Services for A2A* tab page, assign the business system of the sender and receiver system. To select the next system, use the navigation arrows to navigate.

3. *Configure Connections*

To configure the connections, choose *Configure Connections*. For each connection, select the appropriate receiver communication channel for the receiver business system (PI receiver communication channel for SAP Transportation Management system; IDoc receiver communication channel for SAP ERP system) and choose the *Apply* pushbutton. The navigation arrows enable you to navigate to the other connections in the process integration scenario.

4. *Generate*

To generate all connections, choose *Generate*. A dialog box appears in which you configure the following settings:

<i>General</i>	Generation
<i>Scope of Generation</i>	You can limit the scope of generation to particular object types. Select the checkboxes of the following object types: ▪ <i>Determination</i> <i>Receiver</i> ▪ <i>Determination</i> <i>Interface</i> ▪ <i>Agreement</i> <i>Sender/Receiver</i>
<i>Change List for Generated Objects</i>	Select the <i>Create New</i> radio button if you want to create a new change list for the generated objects. You can also use an existing change list. The process integration scenario is

General	Generation
	predefined.

5. Choose *Start*.

The system displays the generation log, which you can save.

6. Configure the interface determination for IDoc interface `SHPMNT.SHPMNT05`.

To avoid conflicts with other scenarios that also send IDoc `SHPMNT.SHPMNT05` to the SAP NetWeaver PI system, you have to set up the interface determination for IDoc interface `SHPMNT.SHPMNT05` accordingly. The system differentiates between different applications of the IDoc by using their message variants, which are communicated in field `MESCOD` of the IDoc control structure.

Make sure that the following condition and interface mapping have been entered for inbound interface

`TransportationOrderSCMExecutionConfirmation_In` under *Configured Inbound Interfaces*:

Field	Value
<i>Service</i>	SAP ERP system, for example, <code>ERP_500</code>
“Sender” screen area	
<i>Interface</i>	<code>SHPMNT.SHPMNT05</code>
<i>Namespace</i>	<code>urn:sap-com:document:sap:idoc:messages</code>
<i>Service</i>	<SAP TM system to which the target interface is to be routed> For example, <code>TM1_750</code>
“Configured Inbound Interfaces” screen area	
<i>Inbound Interface Name</i>	<code>TransportationOrderSCMExecutionConfirmation_In</code>
<i>Inbound Interface Namespace</i>	<code>http://sap.com/xi/TMS</code>
<i>Condition</i>	<code>/SHPMNT05/IDOC/EDI_DC40/MESCOD = CNF</code>
<i>Interface Mapping Name</i>	<code>SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionConfirmation</code>

6. Repeat step 6 for the following inbound interfaces:

- Make sure that the following condition and interface mapping have been entered for inbound interface `TransportationOrderSCMExecutionStatusNotification_In` under *Configured Inbound Interfaces*

Field	Value
Service	<SAP ERP system> For example, ERP_500
“Sender” screen area	
Interface	SHPMNT.SHPMNT05
Namespace	urn:sap-com:document:sap:idoc:messages
Service	<SAP TM system to which the target interface is to be routed> For example, TM1_750
“Configured Inbound Interfaces” screen area	
Inbound Interface Name	TransportationOrderSCMExecutionStatusNotification_In
Inbound Interface Namespace	http://sap.com/xi/TMS
Condition	/SHPMNT05/IDOC/EDI_DC40/MESCOD = STA
Interface Mapping Name	SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionStatusNotification

- Make sure that the following condition and interface mapping have been entered for inbound interface
TransportationOrderSCMExecutionDeliveryAssignmentChangedNotification_In under *Configured Inbound Interfaces*

Field	Value
Service	<SAP ERP system> For example, ERP_500
“Sender” screen area	
Interface	SHPMNT.SHPMNT05
Namespace	urn:sap-com:document:sap:idoc:messages
Service	<SAP TM system to which the target interface is to be routed> For example, TM1_750
“Configured Inbound Interfaces” screen area	

Field	Value
<i>Inbound Interface Name</i>	TransportationOrderSCMExecutionDeliveryAssignmentChangedNotification_In
<i>Inbound Interface Namespace</i>	http://sap.com/xi/TMS
<i>Condition</i>	/SHPMNT05/IDOC/EDI_DC40/MESCOD = ASG
<i>Interface Mapping Name</i>	SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionDeliveryAssignmentChangedNotification

- Make sure that the following condition and interface mapping have been entered for inbound interface TransportationOrderSCMExecutionItmPckgAssgnmtChangedNotification_In under *Configured Inbound Interfaces*

Field	Value
<i>Service</i>	<SAP ERP system> For example, ERP_500
“Sender” screen area	
<i>Interface</i>	SHPMNT.SHPMNT05
<i>Namespace</i>	urn:sap-com:document:sap:idoc:messages
<i>Service</i>	<SAP TM system to which the target interface is to be routed> For example, TM1_750
“Configured Inbound Interfaces” screen area	
<i>Inbound Interface Name</i>	TransportationOrderSCMExecutionItmPckgAssgnmtChangedNotification_In
<i>Inbound Interface Namespace</i>	http://sap.com/xi/TMS
<i>Condition</i>	/SHPMNT05/IDOC/EDI_DC40/MESCOD = PKG
<i>Interface Mapping Name</i>	SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionItmPckgAssgnmtChangedNotification

Result

The relevant receiver determinations, interface determinations, and collaboration agreements are generated for your integration scenario and can be made relevant for PI runtime by activating your change list.



Defining Value Mappings for Shipment Integration (Outbound)

For each interface mapping described in the previous step, there is a corresponding message mapping in which fields from the source message are mapped to fields from the target message. There are three cases in which the target field is determined dynamically at runtime using a value mapping (this occurs twice for interface mapping

`TransportationOrderSCMExecutionRequest_to_SHPMNTSHPMNT05` and once for interface mapping

`TransportationOrderSCMExecutionCancellationRequest_to_SHIPPLTPSSHT01`), as shown in the following table:

Fields Determined Using Value Mappings	
Action/Mapping	Name of Target Field
Create/Change Shipment	E1EDT20-SHTYP (header, shipment type)
	E1ADRM4[2]-E1ADRE4-EXTEND_D(address, transp. planning point)
Delete Shipment	E1TPSHH-SHPPPT(header, transp. planning point)

The use of value mappings facilitates integration into the implementation landscape, where, in particular, the names of freight order types in SAP TM and their corresponding shipment types in SAP ERP are freely definable. Technically, each of these value mappings is a mapping between two pairs <agency, scheme>.

You have to define the required value mappings in the *Integration Directory*.

Procedure

1. In the *Integration Directory*, choose ► *Tools* → *Value Mapping* ◀.

The system displays a dialog box in which you can choose the agency and scheme for the source and target field.

2. For the agency, choose the name of the relevant SAP TM system and SAP ERP system. For the scheme, the values depend on the actual message mapping (see example below).

When you have selected the agency and scheme, the system displays a table where you can enter values for each <agency, scheme> pair. Each row in a value mapping therefore consists of three elements: <agency, scheme, value>.

3. To map the source value to the target value, create an entry for each pair (that is, for the first pair: <source system, freight order type>; and for the second pair: <target system, shipment type>).

In the value mapping for SHTYP (shipment type), the freight order type in SAP TM is entered in the *Value* column in the first line, and the shipment type in ERP is entered in the *Value* column in the second line.

4. On the *Change List* tab page, select your changes and choose *Activate*.

The value mapping for SHTYP is activated.

Example

The following example shows the settings for a system landscape with SAP TM system TM1 and SAP ERP system ERP. In the example, freight order type ZSHO is mapped to shipment type ZTMS. The first row in the table may appear several times if several freight order types are mapped to the same shipment type.

Value Table for Value Mapping SHTYP		
Agency	Scheme	Value
TM1_750	ProcessingTypeCode	ZSHO
ERP_500	SHTYP	ZTMS

The value tables for the two other value mappings are defined in the same way, with the exception that the value column for the source system contains constant 1 instead of a field value, as shown in the example below. In this example, for each of the two target fields (SHPPPT and EXTEND_D), a mapping is defined to target value 1000. The corresponding (first) row contains <TM1_750,const,1> in each case and is only entered once in the value table.

Value Table for Value Mapping Transportation Planning Point		
Agency	Scheme	Value
TM1_750	Const	1
ERP_500	SHPPPT	1000
ERP_500	EXTEND_D	1000



Configuring SAP NetWeaver PI for Shipment Integration (Inbound)

You can use a process integration scenario from the integration repository (*Integration Builder: Design (Integration Repository)*) as a configuration template in the integration directory (*Integration Builder: Configuration (Integration Directory)*). The system uses the information saved in the process integration scenario, together with additional assignments, to calculate the relevant configuration objects.

To configure the connection, you have access to the predefined content for integration scenario `TM_ERPShipmentIntegration_In` (SAPTM IC 1.0) under `http://sap.com/xi/TMS/Global/IC`. Communication between SAP Transportation Management (software component SAPTM 1.0) and SAP enhancement package 5 for SAP ERP 6.0 (software component SAP APPL 6.05) has to be set up for the following service/message interfaces:

From Sender Service/Message Interface	To Receiver Service/Message Interface
SAP enhancement package for SAP ERP 6.0 Name: SHPMNT.SHPMNT05 Namespace: urn:sap-com:document:sap:idoc:messages Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMRequest_In Namespace: http://sap.com/xi/TMS Software Component: SAPTM
SAP enhancement package for SAP ERP 6.0 Name: SHIPPL.TPSSHT01 Namespace: urn:sap-com:document:sap:idoc:messages Software Component: SAP APPL	SAP Transportation Management Name: TransportationOrderSCMCancellationRequest_In Namespace: http://sap.com/xi/TMS Software Component: SAPTM
SAP Transportation Management Name: TransportationOrderSCMTenderingResultNotification_Out Namespace: http://sap.com/xi/TMS Software Component: SAPTM	SAP enhancement package for SAP ERP 6.0 Name: SHPMNT.SHPMNT05 Namespace: urn:sap-com:document:sap:idoc:messages Software Component: SAP APPL

Prerequisites

- You have set up SAP enhancement package 5 or 6 for SAP ERP 6.0 (software component version SAP APPL 6.05/ 6.06).
- You have set up SAP Transportation Management 9.0 (software component version SAPTM 1.10).

- You have set up SAP NetWeaver Process Integration (SAP NetWeaver PI) 7.0 or higher.
- The SAP ERP system and the SAP Transportation Management system exist as business systems in SAP NetWeaver Process Integration (Integration Directory) with completely configured PI receiver communication channels (SAP Transportation Management system), and a completely configured IDoc receiver communication channel (SAP ERP system).

Procedure

1. In the main menu of the *Integration Directory*, choose ► *Tools* → *Transfer Integration Scenario from the Integration Repository* ⏮.

2. Perform the *Select Integration Scenario* step.

In the *Integration Scenario* screen area, select the following process integration scenario from the *Integration Repository* and then choose *Continue*:

Name	TM_ERPShipmentIntegration_In
Namespace	http://sap.com/xi/TMS/Global/IC
Software Component Version	SAPTM IC (check PPMS for current version)

3. Perform the *Create Configuration Scenario* step.

In the *Create Configuration Scenario* screen area, enter a name for the configuration scenario and choose *Finish*.

4. Choose *Close*.

The system transfers the integration scenario from the *Integration Builder: Repository*. The *Integration Scenario Configuration* wizard starts.

5. Perform the following configuration steps:

1. *Select Component View*

You can configure multiple component views within the same configuration scenario. For this connection, there is only one component view defined and you therefore skip this step.

2. *Assign Services*

To map the participants in a process displayed in the model to actual senders and receivers of messages in your system landscape, assign the business systems by choosing *Assign Services*. On the *Business System Services for A2A* tab, assign the business system of the sender and receiver system. To select the next system, use the navigation arrows to navigate.

3. *Configuration Connections*

To configure the three connections, choose *Configure Connections*. For each connection, select the appropriate receiver communication channel for the receiver business system (PI receiver communication channel for SAP Transportation Management system; IDoc receiver communication channel for SAP ERP system) and choose the *Apply* pushbutton. The navigation arrows

enable you to navigate to the other connections in the process integration scenario.

4. *Generate*

To generate all connections, choose *Generate*. A dialog box appears in which you make the following settings:

General	Generation
<i>Scope of Generation</i>	You can limit the scope of generation to particular object types. Select the checkboxes of the following object types ▪ <i>Determination</i> <i>Receiver</i> ▪ <i>Determination</i> <i>Interface</i> ▪ <i>Agreement</i> <i>Sender/Receiver</i>
<i>Change List for Generated Objects</i>	Select the <i>Create New</i> radio button if you want to create a new change list for the generated objects. You can also use an existing change list. The process integration scenario is predefined.

6. Choose *Start*

The system displays the generation log, which you can save.

7. Configure the interface determination for IDoc interface `SHPMNT.SHPMNT05`.

To avoid conflicts with other scenarios that also send IDoc `SHPMNT.SHPMNT05` to the SAP NetWeaver PI system, you have to set up the interface determination for IDoc interface `SHPMNT.SHPMNT05` accordingly. The system differentiates between different applications of the IDoc by using their message variants, which are communicated in field `MESCOD` of the IDoc control structure.

Make sure that the following condition and interface mapping have been entered for inbound interface `TransportationOrderSCMRequest_In` under *Configured Inbound Interfaces*:

Field	Value
<i>Service</i>	<SAP ERP system> For example, ERP_500
“Sender” screen area	
<i>Interface</i>	<code>SHPMNT.SHPMNT05</code>
<i>Namespace</i>	<code>urn:sap-com:document:sap:idoc:messages</code>

Field	Value
Service	<SAP TM system to which the target interface is to be routed> For example, TM1_750
“Configured Inbound Interfaces” screen area	
Inbound Interface Name	TransportationOrderSCMRequest_In
Inbound Interface Namespace	http://sap.com/xi/TMS
Condition	/SHPMNT05/IDOC/EDI_DC40/MESCOD = CRE
Interface Mapping Name	SHPMNTSHPMNT05_to_TransportationOrderSCMRequest

8. Repeat step 6 for the following inbound interfaces:

- Make sure that the following condition and interface mapping have been entered for inbound interface `TransportationOrderSCMCancellationRequest_In` under *Configured Inbound Interfaces*

Field	Value
Service	<SAP ERP system> For example, ERP_500
“Sender” screen area	
Interface	SHPMNT.SHPMNT05
Namespace	urn:sap-com:document:sap:idoc:messages
Service	<SAP TM system to which the target interface is to be routed> For example, TM1_750
“Configured Inbound Interfaces” screen area	
Inbound Interface Name	TransportationOrderSCMCancellationRequest_In
Inbound Interface Namespace	http://sap.com/xi/TMS
Condition	/SHPMNT05/IDOC/EDI_DC40/MESCOD = CNC
Interface Mapping Name	SHPMNTSHPMNT05_to_TransportationOrderSCMCancellationRequest

Result

The relevant receiver determinations, interface determinations, and collaboration agreements are generated for your integration scenario and can be made relevant for PI runtime by activating your change list.



Checking Settings for Acknowledgment of IDocs

In this step, you can check the settings in your PI System for acknowledging IDoc messages. If you do not want the system to send acknowledgment messages (ALEAUD IDocs) to the sender, carry out the following steps.

Procedure

1. In the SAP PI system, call transaction `SE38`, enter report `IDX_NOALE` and choose *Execute*.
2. Enter the sender port and corresponding client.
3. Choose *Do Not Request Acknowledgement*.



You can request acknowledgments again by choosing *Request Acknowledgement*.



Registering Message Queues in SAP TM or SAP ERP

If you want to automatically process messages in your SAP TM or SAP ERP system as soon as they have arrived from the SAP PI system, you can register message queues.

Procedure

1. In your SAP TM or SAP ERP system, call transaction `SMQR` and choose *Registration*.
2. Enter the queue name that you want to register. Since the queue name often differs for each document that is sent, enter the first three or four letters of a queue and then an asterisk (*). For example, `XBT9*`.
3. Enter `D` as the mode.
4. Enter the maximum runtime in seconds (for example, `60`) for a queue scheduler, the number of attempts (for example, `10`), and the pause between two registration attempts (for example, `120`).
5. Press `ENTER` to register the queue.



To determine the relevant queue names, register the queues after you have received the first messages in your target system. You can check the inbound queues using transaction `SMQ2`.