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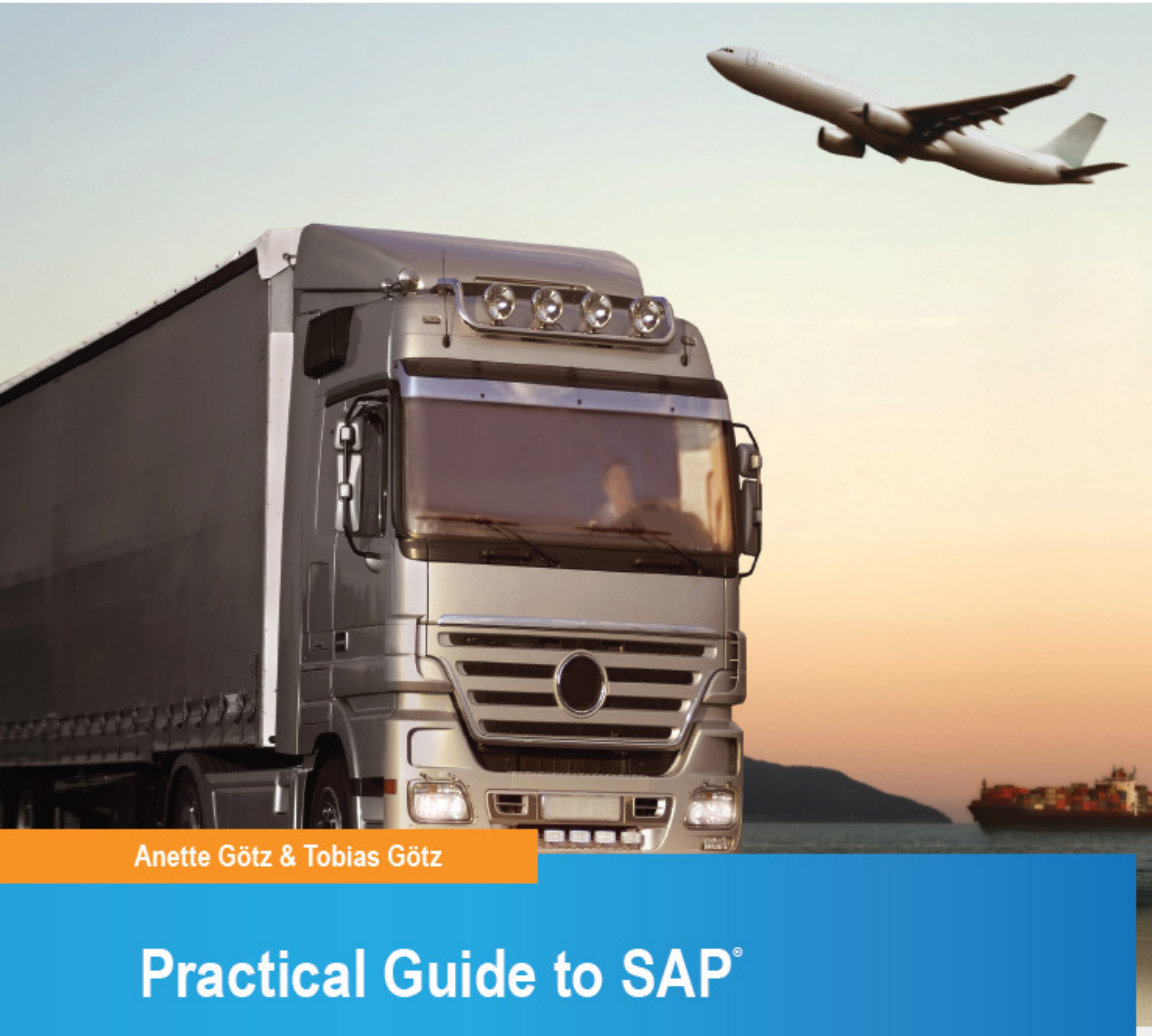

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Practical Guide to SAP® Transportation Management (TM)

Second, Extended Edition

- Comprehensive Overview of All Processes Enabled by SAP TM
- Configuration Best Practices for All Modes of Transport
- Tips on Integration with SAP ERP, EWM, GTS, EH&S, EM
- Manual, Semi-automated, and Completely Automated Planning

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2 SAP TM solution highlights and best practices

In this chapter, we cover SAP TM's key solution highlights for end-to-end transportation management. We start with transportation requirements and capacity management and then move on to planning and tendering capabilities. From there, we outline best practices for tracking and tracing, international shipping, and handling of dangerous goods. We conclude the chapter with specific information about charge calculation and settlement.

2.1 Creating and managing transportation requirements

The starting point of every transportation process is a request for transportation services. In this section, we take a look at the different options for creating transportation requirements in SAP TM.

Figure 2.1 depicts a simplified version of the general transportation planning document flow in SAP TM. Each process starts with a *transportation requirement* document which contains all relevant information on the requested transportation services, such as source and destination location, requested dates and times, business partners involved, cargo to be shipped, service level, and further terms and conditions. The transportation requirement is either created based on ERP documents (e.g., sales orders, purchase orders, or deliveries) or originates from other external sources. From the transportation requirement, one or multiple *freight units* are created that each represent a set of goods, e.g., a container or a pallet. The freight units are then planned on a *freight order* or *booking,* which is SAP TM's transportation execution document.

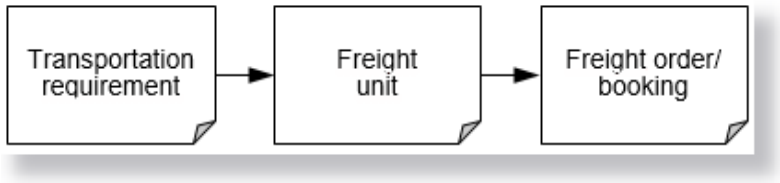

Figure 2.1: Transportation planning document flow[1]

However, depending on the business scenario, there are different options for entering transportation requirements in SAP TM. For shippers, logistics processes are usually not part of their core business and are supporting processes only. Usually at these companies there is an ERP system in place that manages their core processes and already possesses information that is relevant for the transportation process. In this scenario, ERP transmits the relevant information from an order or delivery document to SAP TM, where a corresponding *order-based transportation requirement (OTR)* or *delivery-based transportation requirement (DTR)* is created automatically. As the ERP system is the leading information system, it is not allowed to make changes to the ERP-based transportation requirements in SAP TM. Updates are executed in the ERP system and are then instantly synchronized to SAP TM.

For logistics service providers (LSPs) or carriers, transportation services are part of their core business. Extensive information on the transportation demand is required and furthermore, there is no ERP system with predecessor business documents, such as sales orders, in place. Therefore, the transportation requirement is created directly in SAP TM. This transportation requirement type is called a *forwarding order (FWO)* in SAP TM.

Figure 2.2 summarizes the different document types used in SAP TM to represent a transportation requirement.

[1] The relationship between transportation requirement, freight unit, and freight order/booking is not necessarily 1:1:1 but can take any form of x:y:z.

Transportation requirement document type	Transportation requirement originates from an ERP document	Predecessor document in ERP
Order-based transportation requirement (OTR)	Yes	Sales order, purchase order, or stock transfer order
Delivery-based transportation requirement (DTR)	Yes	Inbound delivery or outbound delivery
Forwarding order (FWO)	No	None

Figure 2.2: Transportation requirement document types

2.1.1 Integrating SAP ERP documents to create transportation requirements

Integrating SAP ERP orders

SAP TM can integrate the following SAP ERP order documents:

- Sales orders (SOs)
- Purchase orders (POs)
- Stock transfer orders (STOs)

For each order document that is transferred to SAP TM, one order-based transportation requirement (OTR) is automatically created in SAP TM. The ERP order items are listed as OTR items. As you can see in Figure 2.3, the OTR inherits all information from the ERP order that is relevant for the transportation process, e.g., source and destination location, business partners involved (such as the customer), transportation dates, and product information.

In the OTR's DOCUMENT FLOW, the ERP predecessor sales order document is displayed with a hyperlink to link it directly to the ERP system (see Figure 2.4).

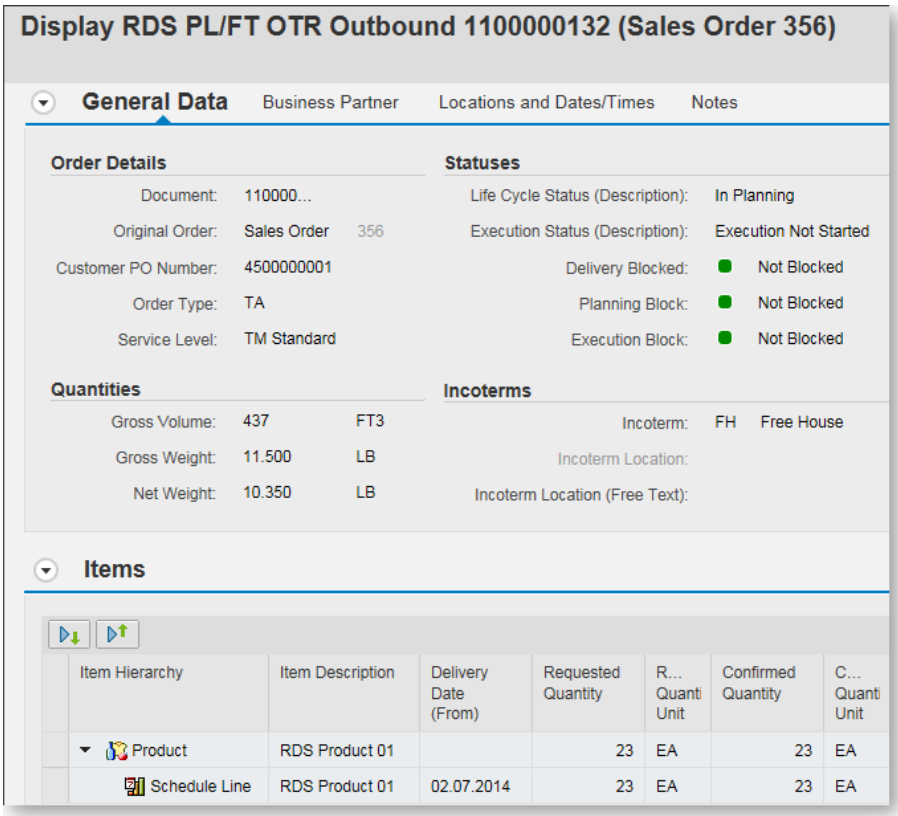

Figure 2.3: Order-based transportation requirement document

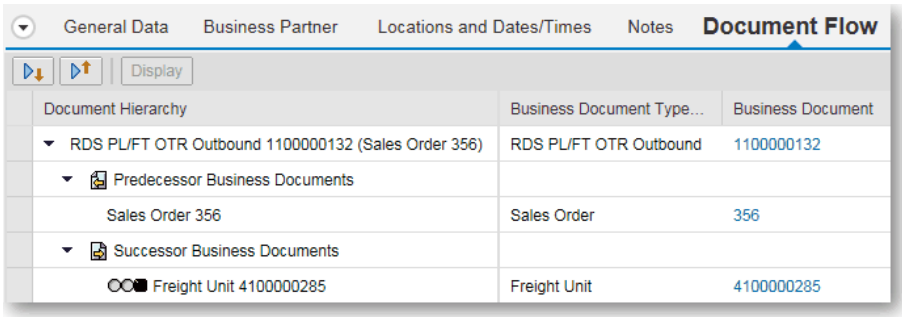

Figure 2.4: Document flow in OTR document

Technically, the communication to SAP TM is triggered via the output determination in SAP ERP. To integrate sales orders you have to create the new output type TRS0. Thereafter, you can activate the transfer of sales orders via the SAP Customizing Implementation Guide (IMG) menu path in SAP ERP: INTEGRATION WITH OTHER SAP COMPONENTS • TRANSPORTATION MANAGEMENT • ORDER INTEGRATION • ACTIVATE TRANSFER OF SALES DOCUMENTS.

Sales order integration

Using the following five attributes you can determine which sales orders should be transferred to SAP TM (see Figure 2.5):

- Sales organization
- Distribution channel
- Division
- Sales order type
- Shipping condition

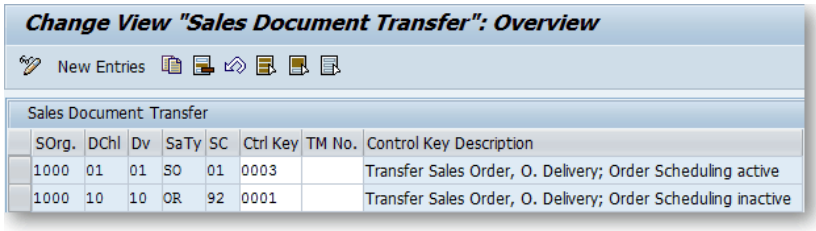

Figure 2.5: Activating the transfer of sales orders

For a combination of the above-named attributes, you have to enter a *control key* that defines which documents to transfer to SAP TM and whether the sales order scheduling functionality should be used. The standard control keys are shown in Figure 2.6.