

SAP Transportation Management 9.1, Support Package 2 Enterprise Services

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Icons in Body Text

lcon	Meaning
A	Caution
\$	Example
ī	Note
÷	Recommendation
É,	Syntax

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Type Style	Description
Example text	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=""></example>	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.

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SAP Transportation Management (SAP TM) -Enterprise Services



This section contains information about the enterprise services and additional Enterprise Services Repository (ESR) content for SAP Transportation Management (SAP TM).



This section contains information about the enterprise services for SAP Transportation Management (SAP TM).

Transportation Order Processing

Definition

The ordering of transportation services from carriers.

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	TransportationOrderProcessing

Business Context and Use

The *Transportation Order Processing* process component provides shippers, logistics service providers, and carriers with various functions for processing transportation orders. It enables them to exchange transportation-relevant data and execute the functions that are required to create, change, or cancel freight orders, freight requests for quotation, or freight bookings. In addition, it allows them to assign transportation demands to transportation capacities, and it allows shippers to create delivery proposals for further processing in the corresponding logistics execution system.

The functions provided by the *Transportation Order Processing* process component can be used in different scenarios. For example, they enable a shipper to send a transportation order to a carrier who can then subcontract the order to other carriers. During transportation planning, the shipper decides which freight units are to be transported by the shipper's own vehicle resources and which are to be subcontracted to carriers. When the shipper sends a transportation order to a carrier, the carrier receives the order in the form of a transportation request. The carrier is then expected to send a confirmation to the shipper.

Following on from this scenario, the carrier can perform refined planning based on the transportation request, and decide if the requested transportation service is to be executed by the carrier's own resources or by one or more subcontractors. If the carrier subcontracts the execution of the transportation service, the carrier sends a transportation order to the relevant subcontractors, who can also reply to the carrier by sending confirmations. Note that these activities are performed in the carrier's business system.

From a shipper's perspective, a carrier may also be a logistics service provider (LSP). The business of an LSP typically consists of consolidating transportation demands from multiple shippers into containers or full truck loads.

Notes on SAP Implementation

Master Data for B2B Communication

You have to define your carriers as business partners in the SAP Transportation Management (SAP TM) back-end system. You define business partners in SAP NetWeaver Business Client (NWBC) by choosing Aster Data General Define Business Partner.

We recommend that you assign standard IDs to each business partner and to each of the involved locations and products.

More Information

SAP Transportation Management (SAP TM)

Transportation Order

Definition

An order from an ordering party to a carrier to transport goods from one or more shippers to one or more consignees in accordance with agreed terms and conditions. The order can also include the assignment of vehicle resources and transportation stages. The order can also have the character of a freight request for quotation that is sent to a carrier.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	TransportationOrder
Object Category	Business Process Object

Business Context and Use

The *Transportation Order* business object enables the following transportation activities to be carried out by shippers and logistics service providers, and by carriers who subcontract transportation services to other carriers:

- Request a quotation by sending a freight request for quotation to a carrier
- Request the execution of a transportation service by sending a freight order to a carrier
- Book freight space by sending a freight booking to a carrier
- Send a cancellation of a freight request for quotation, freight order, or freight booking to a carrier
- Receive replies from a carrier, who can accept, modify, or decline a freight request for quotation, freight order, or freight booking
- Send a shipping instruction (also known as a waybill notification) to a carrier or to an additional communication partner, based on a freight booking that has already been confirmed
- Receive a shipping instruction based on a freight booking that has already been confirmed by a carrier. When an inbound shipping instruction is processed, this triggers the creation of a replicated freight booking document in the receiving system. This occurs typically when an import organization receives information about a freight booking that has been triggered by an export organization in a multinational company.
- Request a loading appointment by sending planning information about loading or unloading to a business partner (for example, a warehouse or container freight station). This business partner can be either an organizational unit of the logistics service provider (LSP) that sends the loading appointment, or it can be an independent service provider that is subcontracted to carry out loading or unloading operations.
- Receive notifications from a business partner about loading or unloading operations that have been executed

In addition, the *Transportation Order* business object enables a freight order or freight booking to be updated based on current order execution information (for example, customs processing information).

For more information about the business context, see the documentation of the <u>Transportation</u> <u>Order Processing</u> [Page 11] process component.

Export Declaration Requesting Out

Definition

An interface to request the creation or cancellation of business transaction documents that are prerequisites for an export declaration.

Technical Data

Entity Type	Service Interface
Technical Name [Page 296]	TransportationOrder
Category	SAP A2A
Direction	Outbound

Business Context and Use

The *Export Declaration Requesting Out* outbound service interface groups operations that send data to a customs management application in order to request the creation or cancellation of documents that are required for the transportation of customs-relevant goods.

Constraints

Note that this interface cannot currently be used to change business transaction documents that are prerequisites for an export declaration.

Notes on SAP Implementation

Integration

The operations in this interface can exchange data with the operations in the *Export Declaration Requesting In* inbound service interface in the *Customs Processing* process component. This enables you to exchange customs data between the *GTS Integration* (TM-GT-GTS) component in SAP Transportation Management (SAP TM) and the *GTS: Customs: Export Processing* (SLL-LEG-CUS-EXP) component in SAP Global Trade Services.

Configuration

To exchange data with SAP Global Trade Services, you have to connect the SAP TM system to the SAP Global Trade Services system and make the required Customizing settings in both systems. For more information, see the following:

- Integration with SAP Global Trade Services
- SAP Library for SAP Global Trade Services on SAP Help Portal at <u>http://help.sap.com/grc</u>. In SAP Library, choose Global Trade Services Customs Management Logistics Integration of Feeder System and Customs Management Logistics Integration: Freight Orders .

Request Export Declaration

Definition

To request the creation of business transaction documents that are prerequisites for an export declaration.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ExportDeclarationSUITERequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper needs an export declaration to transport customs-relevant goods. The *Request Export Declaration* outbound operation requests the creation of an export declaration for items in an order. The operation sends the request to a customs management application, which creates the export declaration and handles the customs procedure for the items.

Related Operations

- The corresponding *Maintain Export Declaration* inbound operation in the *Customs Processing* process component can create an export declaration based on a request received from the *Request Export Declaration* outbound operation.
- The <u>Change Transportation Order based on Export Declaration Confirmation [Page 21]</u> inbound operation receives a confirmation of the creation or cancellation of an export declaration.
- The <u>Request Export Declaration Cancellation [Page 18]</u> outbound operation requests the cancellation of an export declaration.

Features

The *Request Export Declaration* outbound operation sends data such as the following to the customs management application:

- Parties involved (for example, seller and consignee)
- List of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross weight, net weight, and number of pieces)

- Means of transport
- Incoterms
- IDs of related business documents, for example, sales order or outbound delivery

Message Types

• ExportDeclarationSUITERequest

Notes on SAP Implementation

Integration

The *Request Export Declaration* outbound operation is triggered in the SAP Transportation Management (SAP TM) back-end system when a customs declaration is requested for items in an order. Note that the following applies if a customs declaration is requested for items in a freight order:

- The freight order must have a specific execution status, which is defined in the customs profile. For more information, see Customizing for *Transportation Management* under
 Transportation Management Global Trade Define Customs Activities and Profiles I.
- The freight order must be based on a delivery-based transportation requirement.

Configuration

For more information, see the documentation of the <u>Export Declaration Requesting Out [Page 15]</u> outbound interface.

Enhancements

The BAdl for ExportDeclarationSUITERequest_Out (/SCMTMS/EXP_SE_EXPDE_REQ) Business Add-In (BAdl) is available for this operation.

Request Export Declaration Cancellation

Definition

To request the cancellation of business transaction documents that are prerequisites for an export declaration.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ExportDeclarationSUITECancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

The *Request Export Declaration Cancellation* outbound operation requests the cancellation of an export declaration in a customs management application.

Related Operations

- The corresponding *Cancel Export Declaration* inbound operation in the *Customs Processing* process component can receive a cancellation request from the *Request Export Declaration Cancellation* outbound operation.
- If the export declaration is canceled, the <u>Change Transportation Order Based on Export</u> <u>Declaration Confirmation [Page 21]</u> inbound operation receives a confirmation of the cancellation from the customs management application.

Features

The *Request Export Declaration Cancellation* outbound operation sends the ID of the relevant export declaration and the business transaction document reference.

Message Types

• ExportDeclarationSUITECancellationRequest

Prerequisites

The <u>Request Export Declaration [Page 16]</u> outbound operation has requested the creation of an export declaration.

Notes on SAP Implementation

Integration

This operation is triggered when a customs declaration is canceled in the SAP Transportation Management (SAP TM) back-end system.

Configuration

For more information, see the documentation of the <u>Export Declaration Requesting Out [Page 15]</u> outbound interface.

Enhancements

The BAdI for ExportDeclarationSUITECancellationRequest_Out (/SCMTMS/ECA_SE_EXPDE_CAN) Business Add-In (BAdI) is available for this operation.

Export Declaration Requesting In

Definition

An interface to receive confirmations of requests for an export declaration.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Export Declaration Requesting In* inbound service interface contains an operation that receives a confirmation of the creation or cancellation of an export declaration that is required for the transportation of customs-relevant goods.

Notes on SAP Implementation

Integration

The operation in this interface can exchange data with the corresponding operation in the *Export Declaration Requesting Out* outbound service interface in the *Customs Processing* process component. This enables you to exchange customs data between the *GTS Integration* (TM-GT-GTS) component in SAP Transportation Management (SAP TM) and the *GTS: Customs: Export Processing* (SLL-LEG-CUS-EXP) component in SAP Global Trade Services.

Configuration

For more information, see the documentation of the <u>Export Declaration Requesting Out [Page 15]</u> outbound service interface.

Change Transportation Order Based on Export Declaration Confirmation

Definition

To change a transportation order based on the confirmation of an export declaration.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ExportDeclarationSUITEConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A request for an export declaration has been sent to a customs management application. The customs management application has created an export declaration and sent it to the customs authority. If the customs authority approves the export declaration, it provides a movement reference number (MRN) for the goods. The customs management application can then send a confirmation that contains, for example, the MRN, the status of customs processing, and the export declaration ID.

The *Change Transportation Order based on Export Declaration Confirmation* inbound operation receives the confirmation and updates the relevant order. This operation can also receive a confirmation of a canceled export declaration.

Related Operations

The Change Transportation Order based on Export Declaration Confirmation inbound operation can receive a confirmation from the corresponding *Confirm Export Declaration* outbound operation in the *Customs Processing* process component.

Features

If the customs management application confirms the creation of an export declaration, the *Change Transportation Order based on Export Declaration Confirmation* inbound operation receives data that includes the following:

- Export declaration ID
- Movement reference number (MRN) issued by the customs authority

• Indicator that shows whether the export declaration has been approved

The operation adds the export declaration ID and the MRN to the relevant order and updates the customs status of the order.

If the customs management application confirms the cancellation of an export declaration, the *Change Transportation Order based on Export Declaration Confirmation* inbound operation receives a cancellation indicator that shows whether the export declaration has been canceled. The operation updates the status of the customs activity in the order. A new export declaration can then be requested at a later stage, if required.

Message Types

• ExportDeclarationSUITEConfirmation

Prerequisites

The <u>Request Export Declaration [Page 16]</u> outbound operation has requested the creation of an export declaration.

Error Handling

Forward Error Handling

The inbound operation *Change Transportation Order based on Export Declaration Confirmation* supports Forward Error Handling [Page 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Export Declaration Requesting Out [Page 15]</u> outbound interface.

Enhancements

The BAdl for ExportDeclarationSUITEConfirmation_In (/SCMTMS/EIN_SE_EXPDE_ANS) Business Add-In (BAdl) is available for this operation.

Trade Compliance Check Requesting Out

Definition

An interface to request the processing of a trade compliance check.

Technical Data

Entity Type	Service Interface
Category	A2A
Direction	Outbound

Business Context and Use

The *Trade Compliance Check Requesting Out* outbound service interface groups operations that send data to a global trade services (GTS) application to request a trade compliance check for a freight document or to request the cancellation of a trade compliance check for a freight document.

Notes on SAP Implementation

Integration

The operations in this interface and the corresponding inbound interface <u>Trade Compliance</u> <u>Check Requesting In [Page 30]</u> enable you to integrate SAP Transportation Management (SAP TM) with the SAP Global Trade Services application. Data is exchanged between the *GTS Integration* (TM-GT-GTS) component in SAP TM and the *GTS: Compliance Management* (SLL-LEG-CON) component in SAP Global Trade Services.

Note that a freight document (that is, freight order or freight booking) in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

Configuration

To exchange data with SAP Global Trade Services, you must connect the SAP TM system to the global trade services (GTS) system and make the required Customizing settings in both systems.

In the SAP TM system, you must enable the trade compliance check for the relevant freight document types in Customizing for *Transportation Management*. For more information, see <u>Trade</u> <u>Compliance Check</u>.

For information about SAP Global Trade Services, see SAP Library for SAP Global Trade Services on SAP Help Portal at http://help.sap.com/grc under SAP Global Trade Services Compliance Management.

In addition, you have made the following message control settings in SAP TM:

You have defined one or more suitable output profiles, as well as schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

- You have assigned a suitable output profile to the relevant freight order types in Customizing for Transportation Management under Freight Order Management
 Freight Order Define Freight Order Types .
- You have assigned a suitable output profile to the relevant freight booking types in Customizing for Transportation Management under Freight Order Management
 Freight Booking Define Freight Booking Types .
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type Outbound Queues to this logical system. You do this in Customizing for SCM Basis under
 Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities:
 - Name Logical Systems
 - Assign Logical Systems to a Client
 - Maintain Business System Group
 - Settings for qRFC Communication

Request Trade Compliance Check

Definition

To request a trade compliance check for a transportation order.

Technical Data

Entity Type	Service Operation
Release State	Released
Technical Name	TradeComplianceCheckSUITERequest_Out
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-GT-GTS
Category	A2A
Direction	Outbound
Mode	Asynchronous
Idempotency	Not Applicable
Change/Update Behavior	Type 1
P2P Communication Enabled	Yes

Business Context

You perform a trade compliance check for your freight documents prior to commencing the required transportation activities and also throughout the ongoing transportation process. The trade compliance check helps you to ensure that your business transactions comply with international trade regulations.

The *Request Trade Compliance Check* outbound operation requests a trade compliance check for a freight document. It sends the freight document data to a connected global trade services application.

Related Operations

- The inbound operation <u>Change Transportation Document Based on Trade Compliance</u> <u>Check Confirmation [Page 31]</u> receives the result of a trade compliance check.
- The outbound operation <u>Request Trade Compliance Check Cancellation [Page 28]</u> requests the cancellation of a trade compliance check.

Features

The *Request Trade Compliance Check* outbound operation sends the freight document data that is required to perform the trade compliance check. This comprises the following mandatory data:

• Business partner (sales organization or purchasing organization)

If a forwarding order or forwarding quotation is assigned to the freight document, the operation sends the business partner of the sales organization. Otherwise, the operation sends the business partner of the purchasing organization.

- At least one item
- At least the source location country and destination location country

The operation also sends all business partner IDs and all countries from the transportation routes, if this data is available. The countries are determined from the stages, source location, and destination location.

Notes on SAP Implementation

Integration

The *Request Trade Compliance Check* outbound operation can send freight document data to the *Maintain Trade Compliance Check* inbound service operation in the *Trade Compliance Processing* process component. This enables you to perform a trade compliance check for an SAP Transportation Management (SAP TM) freight document in the SAP Global Trade Services application.

SAP TM sends a freight document to the global trade services (GTS) system when a user creates a freight document that is relevant for the trade compliance check (that is, the compliance check has been enabled in the freight document type). If the freight document is subsequently changed, SAP TM triggers a trade compliance check only if the changed fields are relevant for the compliance check (that is, the fields described in the *Features* section above). The system blocks a freight document that is relevant for the trade compliance check until the check has been performed and the result is that the document is compliant.

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- The trade compliance check performed in SAP Global Trade Services for SAP TM consists of sanctioned party list screening and an embargo check.
- For sanctioned party list screening, SAP Global Trade Services checks address data that is derived only from business partner master data. It does not check address data derived from locations. In addition, it does not check addresses that a user enters in the *Printing Address* field on the *Business Partner* tab page in the forwarding order.
- For the embargo check, SAP Global Trade Services checks the countries in the transportation route.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 23].

Enhancements

The Business Add-In (BAdI) *BAdI for TradeComplianceCheckSUITERequest_Out* (/SCMTMS/CPC_SE_CPC_REQ) is available for this operation.

More Information

Trade Compliance Check

Request Trade Compliance Check Cancellation

Definition

To request the cancellation of a trade compliance check for a transportation order.

Technical Data

Entity Type	Service Operation
Release State	Released
Technical Name	${\tt TradeComplianceCheckSUITECancellationRequest_Out}$
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-GT-GTS
Category	A2A
Direction	Outbound
Mode	Asynchronous
Idempotency	Not Applicable
Change/Update Behavior	Not Applicable
P2P Communication Enabled	Yes

Business Context

You have sent a freight document to a connected global trade services (GTS) application to perform a trade compliance check. The GTS application continues to check the freight document until you request the cancellation of the check, for example, because the transportation activities have been completed or the freight document has been canceled.

The *Request Trade Compliance Check Cancellation* outbound operation requests the cancellation of a trade compliance check for a freight document.

Features

The *Request Trade Compliance Check Cancellation* outbound operation sends the ID of the freight document for which the trade compliance check is to be canceled.

Prerequisites

The <u>Request Trade Compliance Check [Page 25]</u> outbound operation has requested a trade compliance check for a freight document.

Notes on SAP Implementation

Integration

The Request Trade Compliance Check Cancellation outbound operation can send freight document data to the Cancel Trade Compliance Check inbound operation in the Trade Compliance Processing process component. This enables you to cancel a trade compliance check for an SAP Transportation Management (SAP TM) freight document in the SAP Global Trade Services application.

SAP TM sends a cancellation if the freight document has been canceled (life cycle status of the freight document is *Canceled*). The document that was created in SAP Global Trade Services is canceled accordingly.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 23].

Enhancements

The Business Add-In (BAdI) BAdI for TradeComplianceCheckSUITECancellationRequest_Out (/SCMTMS/CPC_SE_CPC_CANCREQ) is available for this operation.

More Information

Trade Compliance Check

Trade Compliance Check Requesting In

Definition

An interface to receive confirmations of requests for a trade compliance check.

Technical Data

Entity Type	Service Interface
Category	A2A
Direction	Inbound

Business Context and Use

The *Trade Compliance Check Requesting In* inbound service interface contains an operation that receives the result of a trade compliance check from a global trade services (GTS) application.

Notes on SAP Implementation

For more information, see Trade Compliance Check Requesting Out [Page 23].

Change Transportation Order Based on Trade Compliance Check Confirmation

Definition

To change a transportation order of the category "freight order" or "freight booking" based on the confirmation of a trade compliance check.

Technical Data

Entity Type	Service Operation
Release State	Released
Technical Name	TradeComplianceCheckSUITEConfirmation_In
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-GT-GTS
Category	A2A
Direction	Inbound
Mode	Asynchronous
Idempotency	Not Applicable
Change/Update Behavior	Not Applicable
P2P Communication Enabled	Yes

Business Context

You have sent a freight document to a connected global trade services (GTS) application to perform a trade compliance check. The GTS application checks the document and returns the result of the check, that is, whether or not the freight document complies with the relevant international trade regulations.

The inbound operation *Change Transportation Order Based on Trade Compliance Check Confirmation* receives the result of the check and updates the status of the freight document accordingly.

Features

The inbound operation *Change Transportation Order Based on Trade Compliance Check Confirmation* receives an indicator that specifies whether the freight document is compliant. It sets the status of the freight document based on this value.

Prerequisites

The <u>Request Trade Compliance Check [Page 25]</u> outbound operation has requested a trade compliance check for a freight document.

Error Handling

Forward Error Handling

The inbound operation *Change Transportation Order Based on Trade Compliance Check Confirmation* supports Forward Error Handling [Page 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Notes on SAP Implementation

Integration

The inbound operation *Change Transportation Order Based on Trade Compliance Check Confirmation* can receive the result of a trade compliance check from the *Confirm Trade Compliance Check* outbound operation in the *Trade Compliance Processing* process component. This enables you to receive the result of a trade compliance check that was performed in the SAP Global Trade Services application for an SAP Transportation Management (SAP TM) freight document.

When SAP TM receives the result of the check, it sets the compliance status of the freight document to *Compliant* or *Not Compliant*. The system blocks a freight document that is relevant for the compliance check until a trade compliance check has been performed and until the check determines that the document is compliant.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 23].

Enhancements

The Business Add-In (BAdI) BAdI for TradeComplianceCheckSUITEConfirmation_In (/SCMTMS/CPC SE CPC CNF) is available for this operation.

More Information

Trade Compliance Check

Intracompany Transportation Ordering In

Definition

An interface to create, change, or cancel in-house transportation orders.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Intracompany Transportation Ordering In* inbound service interface groups operations that create, change, or cancel freight orders based on shipment data received from a logistics execution system. The freight orders can be used for tendering or carrier selection, for example.

Notes on SAP Implementation

In the SAP TM system, you have defined which freight order types the system uses to create freight orders based on ERP shipments. You have the following options:

- You can assign freight order types to ERP shipment types in Customizing for Transportation Management under Integration ERP Logistics Integration Shipment Integration Assign Freight Order Types to ERP Shipment Types .
- You can specify a default freight order type that the system uses if it cannot find an entry for an 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 IN Freight Order Management Freight Order Define Freight Order Types I.

In the *Define Freight Order Types* Customizing activity, you have also configured the following settings for the freight order type:

- You have assigned a suitable output profile to the relevant freight order type.
- You have specified that the freight order type is relevant for subcontracting.
- If you want the freight order to have the same ID as the ERP shipment, you have assigned an external number range interval to the freight order type.

You define number range intervals in Customizing for *Transportation Management* under Freight Order Management Freight Order Define Number Range Intervals for Freight Order Management To ensure that the ERP shipment ID has not already been used in SAP TM for a different freight order, the external number range interval from SAP ERP must not fall within the internal number range interval in SAP TM.

• If you want to display texts from an ERP shipment in the corresponding freight order in SAP TM, you have to assign the relevant ERP text types to TM text types in Customizing

for Transportation Management under I Integration ≥ ERP Logistics Integration ≥ Shipment Integration ≥ Assign ERP Text Types to TM Text Types for Freight Orders ⊒.

More Information

Shipment-Based Tendering.

Maintain Transportation Order

Definition

To create or change a transportation order of the category "freight order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS
Application Component [Page 248]	TM-FRM-FRO
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses a transportation management system to perform tendering for shipments created in a logistics execution system. The *Maintain Transportation Order* inbound operation creates or changes a freight order based on shipment data received from a logistics execution system. The shipper can then perform tendering for the freight order.

Related Operations

- The <u>Notify of Transportation Order Tendering Result [Page 41]</u> outbound operation informs the logistics execution system about the result of the tendering process.
- The <u>Cancel Transportation Order [Page 37]</u> inbound operation receives a request to cancel a freight order that was created in the transportation management system based on shipment data received from the logistics execution system.

Features

The *Maintain Transportation Order* inbound operation creates or changes a freight order using data received from the sending system. This includes the following data:

- Parties involved (for example, shipper and consignee)
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Means of transport

- Goods to be delivered, including quantity, weight, and volume
- Related business documents (for example, shipment number, shipment type, delivery IDs, and delivery item IDs)
- Texts entered in the shipment (for example, shipping instructions)

Error Handling

The *Maintain Transportation Order* inbound operation supports <u>Forward Error Handling [Page</u> 268]. The following error categories are used:

- PRE.TEE.LRE: Lock Error
- DCE: Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type <u>LogItemCategoryCode [Page 272]</u>.

Message Types

• Transportation Order SCM Request

Notes on SAP Implementation

Integration

You can use this operation to create freight orders in SAP Transportation Management (SAP TM) based on shipments created in SAP ERP. When you initiate tendering for a shipment in SAP ERP, the SHPMNT05 IDoc sends the shipment data to SAP TM. This triggers the *Maintain Transportation Order* inbound operation in SAP TM.

Configuration

For more information, see the documentation of the <u>Intracompany Transportation Ordering In</u> [Page 33] In inbound service interface.

Enhancements

The BAdI for TransportationOrderSCMRequest_In (/SCMTMS/TOR_SE_TORSCM_RQ) Business Add-In (BAdI) is available for this operation.

Cancel Transportation Order

Definition

To cancel a transportation order of the category "freight order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMCancellationRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS
Application Component [Page 248]	TM-FRM-FRO
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper has sent a shipment from a logistics execution system to a transportation management system to perform tendering for the shipment. If the shipper then cancels the tendering process or deletes the shipment in the logistics execution system, the *Cancel Transportation Order* inbound operation cancels the freight order that was created for the shipment in the transportation management system.

Features

The *Cancel Transportation Order* inbound operation receives the shipment number, based on which it cancels the corresponding freight order.

Error Handling

The *Cancel Transportation Order* inbound operation supports <u>Forward Error Handling [Page 268]</u>. The following error categories are used:

- PRE.TEE.LRE: Lock Error
- DCE: Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type LogitemCategoryCode [Page 272].

Message Types

Transportation Order SCM Cancellation Request

Prerequisites

The <u>Maintain Transportation Order [Page 35]</u> inbound operation has created a freight order based on a shipment.

Notes on SAP Implementation

Integration

You can use this operation in SAP Transportation Management (SAP TM) to receive cancellation requests from SAP ERP. For more information, see <u>Shipment-Based Tendering.</u>

Configuration

For more information, see the documentation of the <u>Intracompany Transportation Ordering In</u> [Page 33] inbound service interface.

Enhancements

The BAdI for TransportationOrderSCMCancellationRequest_In (/SCMTMS/TOR_SE_TORSCM_CNC) Business Add-In (BAdI) is available for this operation.

Intracompany Transportation Ordering Out

Definition

An interface to send notifications in response to a request to create or change an in-house transportation order.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Intracompany Transportation Ordering Out* outbound service interface contains an operation that sends a notification about the result of tendering for a freight order that was created based on shipment data received from a logistics execution system.

Notes on SAP Implementation

Integration

The operations in this interface and the <u>Intracompany Transportation Ordering In [Page 33]</u> inbound interface can exchange data with IDocs in SAP ERP. This enables you to exchange data between the *Freight Order Management* (TM-FRM) component in SAP Transportation Management (SAP TM) and the *Logistics Execution – Transportation* (LE-TRA) component in SAP ERP.

Note that a freight order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

Configuration

You have made the following settings in the SAP TM system:

- You have enabled PPF output agent / SCMTMS/TOR_TENDERING, which is used to send the tendering result to SAP ERP. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain Output Management Adapter Settings . You have to enable the following entry:
 - Output Agent: / SCMTMS/TOR_TENDERING
 - Business Object: /SCMTMS/TOR
 - *Node*: TENDERING
 - Agent Class for BO Node : / SCMTMS/CL_PPF_SERV_TOR_TEND
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound*

Queues to this logical system. You do this in Customizing for *SCM Basis* under Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities:

- Name Logical Systems
- Assign Logical Systems to a Client
- Maintain Business System Group
- Settings for qRFC Communication

More Information

Shipment-Based Tendering

Notify of Transportation Order Tendering Result

Definition

To send a notification about the result of a tendering process for a transportation order of the category "freight order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMTenderingResultNotification_Out
Namespace [Page 280]	http://sap.com/xi/TMS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper has sent a shipment from a logistics execution system to a transportation management system to perform tendering for the shipment. When the tendering step has been completed in the transportation management system, the *Notify of Transportation Order Tendering Result* outbound operation sends the tendering result to the logistics execution system, which updates the shipment accordingly.

Features

If the tendering step was successful, the *Notify of Transportation Order Tendering Result* outbound operation sends the following information to the receiving system:

- Carrier
- Price
- Confirmed dates and times
- Tendering status

If the tendering step was unsuccessful, the operation sends the tendering status only.

Message Types

Transportation Order SCM Tendering Result Notification

Prerequisites

The <u>Maintain Transportation Order [Page 35]</u> inbound operation has created a freight order based on a shipment.

Notes on SAP Implementation

Integration

You can use this operation to send the tendering result for a shipment from SAP Transportation Management (SAP TM) to SAP ERP. When you award a quotation to a carrier or when you reject all quotations in the SAP TM system, the *Notify of Transportation Order Tendering Result* outbound operation in SAP TM sends the tendering result to SAP ERP. The SHPMNT05 IDoc in SAP ERP receives the tendering result and updates the shipment.

Configuration

For more information, see the documentation of the <u>Intracompany Transportation Ordering Out</u> [Page 39] outbound service interface.

Enhancements

The BAdI for TranspOrderSCMTenderingResultNotification_Out (/SCMTMS/TOR_SE_TORSCM_TRN) Business Add-In (BAdI) is available for this operation.

Transportation Generic Ordering In

Definition

An interface to create, change, or cancel transportation orders of the category "freight order", "freight booking", or "transportation unit".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Generic Ordering In* inbound service interface contains an operation that creates, changes, or cancels a freight order, a freight booking, or a transportation unit, based on freight planning data received from a business partner. The business partner could be another carrier or another organizational unit within the same company.

Notes on SAP Implementation

Integration

If a communication partner also uses SAP Transportation Management (SAP TM), the operations in this service interface exchange data with the operations in the *Transportation Ordering Out* outbound service interface in the *Transportation Order Processing* process component of the partner's system landscape. Otherwise, the operations can exchange data with an equivalent third-party application that is being used by the communication partner. Note that each of the documents that can be created by means of this service interface corresponds to an instance of the *Transportation Order* business object.

More Information

Freight Order Management

Maintain Generic Transportation Order

Definition

To create, change, or cancel a transportation order of the category "freight order", "freight booking", or "transportation unit".

Technical Data

Entity Type	Service Operation
Release State	Released with Restrictions
Technical Name	TransportationOrderGenericRequest_In
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-FRM
Category	B2B
Direction	Inbound
Mode	Asynchronous
Change/Update Behavior	Туре 1
P2P Communication Enabled	Yes

Business Context and Use

The *Maintain Generic Transportation Order* inbound operation receives a request to create, change, or cancel a transportation order. This operation can be consumed by a communication partner either in a B2B scenario or in an A2A scenario. The following highlight examples of these two scenarios:

- In a B2B scenario, the exchange of rail carrier waybills between rail carriers, or between a central coordination agency and a rail carrier
- In an A2A scenario, the process of receiving new or updated transportation orders from an external planning system in the system landscape of a carrier

Unlike most of the other inbound operations in the *Transportation Order Processing* process component, the *Maintain Generic Transportation Order* inbound operation is not restricted to operate on transportation orders of a specific category (for example, the category "freight booking"). This means that upon creation of a transportation order, the consumer can specify the category of the new transportation order, and optionally also its type. On the other hand, after successful creation of a transportation order, a subsequent inbound operation that refers to the same document and that specifies a value of 02 for the *actionCode* attribute is allowed to change any attribute of that document except for the transportation order category and the transportation order type. An attempt to change the category or the type results in a rejection of the inbound operation and an error message.

Features

The *Maintain Generic Transportation Order* inbound operation receives data such as the following from the sending system:

- The category of the transportation order that is to be created or changed
- Parties involved (for example, shipper and consignee)
- A list of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross volume, gross weight, net weight, and number of pieces)
- Means of transport and locations, for example, ship-from and ship-to location, including address information. Note that if address information is not yet known or differs from existing master data, the operation automatically creates a one-time location in the background.
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Transportation terms and delivery terms
- A reference to a predecessor document in the sending system
- IDs of other business documents related to the transportation order, for example, a sales order, a purchase order, or an outbound delivery
- IDs of resources involved in the requested transport, for example, IDs of containers or railcars
- IDs of seals that have been applied to these resources

Depending on the configuration of the receiving system, a creation of a transportation order triggered by this operation may also imply the creation of other documents in the receiving system and/or in connected systems. For example, a forwarding order may be created automatically, or the creation of an export declaration may be requested from a connected Global Trade Services (GTS) application.

Notes on SAP Implementation

Configuration

You have defined freight order types, freight booking types, and transportation unit types in Customizing. For more information, see <u>Freight Order Management.</u>

Transportation Booking Out

Definition

An interface to send or cancel transportation orders of the category "freight booking" and to send related notifications.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Booking Out* outbound service interface groups operations that send freight booking data to a carrier (for example, an ocean carrier or an airline).

Notes on SAP Implementation

Integration

A freight booking in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

Configuration

You have made the following settings in the SAP TM system:

You have defined one or more suitable output profiles, and schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

Note that output profile /SCMTMS/TOR is provided as part of the standard Customizing settings. This profile is available in the configuration of PPF application /SCMTMS/TRANSPORTATION via the subactivity *Define Action Profile and Actions*.

- You have assigned a suitable output profile to the relevant freight booking types. You define freight booking types in Customizing for *Transportation Management* under
 Transportation Management Freight Order Management Freight Booking Define Freight Booking Types .
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound Queues* to this logical system. You do this in Customizing for *Transportation Management* under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type . Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for qRFC Communication.

For more information, see SAP Note <u>1517523</u>.

More Information

Freight Booking

Request Transportation Order Booking

Definition

To request the processing of a new or updated transportation order of the category "freight booking".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderBookingRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer wants to book freight space, for example, on a specific voyage of a cargo ship run by an ocean carrier, or on a specific flight of a cargo aircraft run by an air cargo carrier. To book the freight space, the customer sends a freight booking to the carrier that specifies the goods to be transported, the capacity requirements, the locations, and the delivery dates, for example. The *Request Transportation Order Booking* outbound operation sends a freight booking to a carrier.

Related Operations

- The <u>Request Transportation Order Booking Cancellation [Page 53]</u> outbound operation informs a carrier about a canceled freight booking.
- The <u>Change Order Based on Transportation Order Booking Confirmation [Page 56]</u> inbound operation receives a confirmation from a carrier about a freight booking that was sent using the *Request Transportation Order Booking* operation.
- The <u>Notify of Transportation Order Booking Waybill [Page 50]</u> outbound operation notifies a carrier about a waybill that has been issued. The notification contains more detailed information than the initial freight booking.

Features

The *Request Transportation Order Booking* outbound operation sends data such as the following to the receiving system:

• Parties involved (for example, shipper, consignee, and carrier)

- Items that are to be transported and the transportation stages, as well as the assignment of the items to the transportation stages
- ID of the actual journey to which the freight booking relates (that is, the voyage number or the flight number)
- Capacity requirements

For more information, see the documentation of the TranspOrdBkgReqMsg message data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order Booking Request

Notes on SAP Implementation

Integration

The *Request Transportation Order Booking* outbound operation is triggered when a customer opens a freight booking in the SAP Transportation Management (SAP TM) back-end system and then sends it to the carrier.

Configuration

For more information, see the documentation of the <u>Transportation Booking Out [Page 46]</u> outbound interface.

Prerequisites

To use this operation, the following requirements must be met:

- The freight order fulfills all schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components*. For more information, see the documentation of the <u>Transportation Booking Out [Page 46]</u> outbound service interface.
- A carrier has been assigned to the freight booking.

Versioning

The *Request Transportation Order Booking* outbound operation performs a similar function to the *Request Booking* outbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdl for TransportationOrderBookingRequest_Out (/SCMTMS/TOR_SE_TORB_REQ) Business Add-In (BAdl) is available for this operation.

Notify of Transportation Order Booking Waybill

Definition

To send a notification about a waybill that is to be issued by a carrier. The information in the notification enables a carrier to issue a waybill with reference to a confirmation of a transportation order of the category "freight booking".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderBookingWaybillNotification_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page_283]	Yes

Business Context and Use

A customer has already booked freight space (for example, on a specific voyage of a cargo ship run by an ocean carrier, or on a specific flight of a cargo aircraft run by an air cargo carrier). The customer has also received a confirmation from the carrier. At a later point in time, the customer collects additional information about the goods to be transported and their packaging, such as detailed product IDs, batch numbers, container IDs, and package numbers. This information can be shared with the carrier by means of a waybill notification message (also known as a shipping instruction).

The *Notify of Transportation Order Booking Waybill* outbound operation sends a waybill notification to a carrier, based on which the carrier can then create and issue a waybill.

i.

The Notify of Transportation Order Booking Waybill outbound operation can also be used to send freight bookings to business partners (for example, from one organizational unit to another within the same company). For more information, see the documentation of the Maintain Transportation Order Based On Transportation Order Booking Waybill Notification [Page 59] inbound operation.

Related Operations

• The <u>Request Transportation Order Booking [Page 48]</u> outbound operation sends a freight booking to a carrier.

- The <u>Change Order Based on Transportation Order Booking Confirmation [Page 56]</u> inbound operation receives a confirmation that indicates whether a carrier has accepted or rejected a freight booking that was sent using the <u>Request Transportation Order</u> <u>Booking [Page 48]</u> operation.
- The <u>Request Transportation Order Booking Cancellation [Page 53]</u> outbound operation informs a carrier about a canceled freight booking.

Features

The *Notify of Transportation Order Booking Waybill* outbound operation sends data such as the following to the receiving system:

- ID of the freight booking from which the waybill notification is derived
- Booking number that has been received from the carrier as part of the freight booking confirmation
- Container IDs and package numbers
- References to export declarations
- Batch numbers or equivalent information (optional)

For more information, see the documentation of the TranspOrdBkgWbillNotifMsg message data type in SAP Note <u>1512334</u>.

Message Types

Transportation Order Booking Waybill Notification

Prerequisites

The <u>Change Order Based on Transportation Order Booking Confirmation [Page 56]</u> inbound operation has received a confirmation of a freight booking from a carrier.

Alternatively, the confirmation may have been transmitted using a different communication channel (for example, a fax transmission). In this case, the confirmation and also the booking number may have been entered manually.

Notes on SAP Implementation

Integration

The Notify of Transportation Order Booking Waybill outbound operation is triggered when a customer opens a freight booking in the SAP Transportation Management (SAP TM) back-end system and sends a shipping instruction to a carrier.

You can also use this operation for export/import processing in SAP TM. If the export organization uses SAP TM and the import organization uses an external application, the operation can be used to send freight bookings from SAP TM to the external application. For more information, see <u>Export/Import Processing: External Communication (Outbound).</u>

Configuration

For more information, see the documentation of the <u>Transportation Booking Out [Page_46]</u> outbound interface.

Versioning

The Notify of Transportation Order Booking Waybill outbound operation performs a similar function to the Notify of Waybill outbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdl for

TransportationOrderBookingWaybillNotification_Out (/SCMTMS/TOR_SE_TORBWBNT) Business Add-In (BAdI) is available for this operation.

Request Transportation Order Booking Cancellation

Definition

To request the processing of a canceled transportation order of the category "freight booking".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderBookingCancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

If a customer cancels a freight booking that has already been sent to a carrier (for example, an ocean carrier), the *Request Transportation Order Booking Cancellation* outbound operation informs the carrier about the canceled freight booking.

Features

The Request Transportation Order Booking Cancellation outbound operation sends the ID of the canceled freight booking to the receiving system. For more information, see the documentation of the TranspOrdBkgCanclnReqMsg message data type in SAP Note <u>1512334</u>.

Message Types

Transportation Order Booking Cancellation Request

Prerequisites

The <u>Request Transportation Order Booking [Page 48]</u> outbound operation has sent a freight booking to a carrier.

Notes on SAP Implementation

Integration

In the standard SAP Transportation Management (SAP TM) back-end system, the *Request Transportation Order Booking Cancellation* outbound operation is triggered when a customer

cancels a freight booking that has already been sent to a carrier. The customer can cancel a freight booking by selecting *Cancel Document* on the freight booking user interface. The operation is also triggered if the carrier assigned to the freight booking is changed or removed.

As stated above, this operation sends only the ID of the canceled freight booking to the receiving system. It does not send the full set of attributes that describe the freight booking. However, some carriers might run legacy systems that expect the full set of attributes to be transmitted, comprising the same scope of information as the <u>Request Transportation Order Booking [Page 48]</u> outbound operation. If this applies to some or all of your business partners, you can use the enhancement spot /SCMTMS/OUTB_SPOT_TOR_B2B to control in which situations the <u>Request Transportation Order Booking [Page 48]</u> outbound operation is triggered with an action code that specifies a deletion (thus sending what is referred to as a "cancellation with content") instead of the *Request Transportation Order Booking Cancellation* outbound operation ("lean cancellation") that is triggered in the standard system.

For more information, see SAP Note <u>1711010</u>.

Configuration

For more information, see the documentation of the <u>Transportation Booking Out [Page 46]</u> outbound service interface.

Versioning

The *Request Transportation Order Booking Cancellation* outbound operation performs a similar function to the *Request Booking Cancellation* operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The Business Add-In (BAdI) BAdI for TransportationOrderBookingCancellationRequest_Out (/SCMTMS/TOR_SE_TORBCNCREQ) is available for this operation.

In addition, the BAdl *BAdl:* Sending of B2B Cancellation Messages with Document Content (/SCMTMS/TOR_OUTB_SEND_CNC_W_CO) can be used to control whether the <u>Request</u> <u>Transportation Order Booking [Page 48]</u> outbound operation is to replace the *Request Transportation Order Booking Cancellation* outbound operation that is used in the standard system.

Transportation Booking In

Definition

An interface to receive confirmations in response to a request to process a new or updated transportation order of the category "freight booking".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Booking In* inbound service interface contains an operation that receives a confirmation indicating whether a carrier has accepted or rejected a freight booking.

Notes on SAP Implementation

Integration

A freight booking in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a *Transportation Order* business object.

Configuration

For more information, see the documentation of the <u>Transportation Booking Out [Page 46]</u> outbound interface.

More Information

Freight Booking

Change Order Based on Transportation Order Booking Confirmation

Definition

To change a transportation order of the category "freight booking" based on the confirmation of this transportation order. The confirmation is either a reservation of freight space in response to the initial freight booking request, or it is the rejection of a freight booking.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderBookingConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

When a customer sends a freight booking to a carrier (for example, an ocean carrier), the carrier is expected to confirm if the freight booking was successful. The *Change Order Based on Transportation Order Booking Confirmation* inbound operation receives a confirmation that indicates whether a carrier has accepted or rejected a freight booking.

Features

The *Change Order Based on Transportation Order Booking Confirmation* inbound operation receives an acceptance code that specifies whether a carrier has accepted or rejected a freight booking. The operation can receive the following data, for example:

- If a carrier rejects a freight booking, the operation receives the rejection reason (for example, insufficient capacity on the required dates). The operation updates the confirmation status of the freight booking to *Rejected*.
- If a carrier accepts a freight booking without changes, the operation updates the confirmation status of the freight booking to *Confirmed*.
- If a carrier accepts a freight booking but sends back changed data, the operation updates the confirmation status of the freight booking to *Confirmed with Changes*. In this case, the operation also receives the changed data, which it updates in the freight booking. It can receive the following data, for example:

- o Additional parties that the carrier has added to the freight booking
- Changed transportation stages (for example, intermediate transportation stages that have been added to the freight booking)
- Changed quantities and capacity requirements (for example, if the carrier can only transport a partial quantity)

For more information, see the documentation of the TranspOrdBkgConfMsg message data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order Booking Confirmation

Prerequisites

The <u>Request Transportation Order Booking [Page 48]</u> outbound operation has sent a freight booking to a carrier.

Notes on SAP Implementation

Integration

The Change Order Based on Transportation Order Booking Confirmation inbound operation is triggered when a confirmation of a freight booking is received from a carrier in the SAP Transportation Management (SAP TM) back-end system.

Note that the carrier may use a different communication channel to confirm a freight booking (for example, a fax transmission). In this case, the customer can enter the confirmation manually by choosing *Confirm* on the freight booking user interface for an ocean booking or air booking. The customer can also enter the booking number manually.

Configuration

For more information, see the documentation of the <u>Transportation Booking Out [Page 46]</u> outbound service interface.

Versioning

The Change Order Based on Transportation Order Booking Confirmation inbound operation performs a similar function to the *Maintain Booking Confirmation* inbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdI for TransportationOrderBookingConfirmation_In (/SCMTMS/TOR_SE_TORB_CONF) Business Add-In (BAdI) is available for this operation.

Transportation Booking Waybill In

Definition

An interface to create transportation orders of the category "freight booking".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Booking Waybill In* inbound service interface contains an operation that creates freight bookings based on freight booking data received from a business partner, for example, another organizational unit within the same company.

Maintain Transportation Order Based On Transportation Order Booking Waybill Notification

Definition

To create a transportation order of the category "freight booking" based on a notification about a waybill that has been issued or is to be issued.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderBookingWaybillNotification_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A logistics service provider (LSP) needs to send a freight booking to a business partner. For example, the LSP has an organizational unit (org. unit) in Europe that handles the pre-carriage and main carriage stages for a specific freight booking, and an org. unit in the United States that handles the on-carriage stage. In this case, the LSP sends the freight booking to the org. unit in the United States in order to provide the org. unit with relevant information about the transportation of the goods. The *Maintain Transportation Order Based On Transportation Order Booking Waybill Notification* inbound operation receives the freight booking data and creates a freight booking.

Related Operations

In export/import processing, this operation can receive freight booking data sent by the <u>Notify of</u> <u>Transportation Order Booking Waybill [Page 50]</u> outbound operation.

Features

The Maintain Transportation Order Based On Transportation Order Booking Waybill Notification inbound operation creates a freight booking by using data received from the sending system, such as the following:

- Freight booking ID
- Responsibility code that indicates who is responsible for the pre-carriage and on-carriage stages, and who is responsible for the main carriage stage

- Items that are to be transported
- Capacity requirements

Message Types

• Transportation Order Booking Waybill Notification

Notes on SAP Implementation

A freight booking in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

You can use this operation for export/import processing in SAP TM. If the import organization uses SAP TM and the export organization uses an external application, the operation can be used to create import freight bookings in SAP TM based on data received from the external application. For more information, see Export/Import Processing: External Communication (Inbound).

Enhancements

The BAdI for TransportationOrderBookingWaybillNotification_In (/SCMTMS/TOR_SE_TORWBNTF) Business Add-In (BAdI) is available for this operation.

Transportation Order Execution Out

Definition

An interface to request the execution of transportation orders.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Order Execution Out* outbound service interface groups operations that send <u>freight document</u> data to a logistics execution system for further processing.

Notes on SAP Implementation

Integration

The operations in this interface and the corresponding inbound service interface <u>Transportation</u> <u>Order Execution In [Page 68]</u> can exchange data with IDocs in SAP ERP. This enables you to exchange data between the *Freight Order Management* (TM-FRM) component in SAP Transportation Management (SAP TM) and the *Logistics Execution - Transportation* (LE-TRA) component in SAP ERP.

Note the following:

- A delivery-based transportation requirement in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.
- A freight document in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

Configuration

You have made the following message control settings in the SAP TM system:

- You have defined schedule conditions and one or more suitable output profiles that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings.
- You have assigned a suitable output profile to the relevant freight document types.

You define freight order types in Customizing for *Transportation Management* under *Transportation Management Freight Order Management Freight Order Define Freight Order Types*.

You define freight booking types in Customizing for *Transportation Management* under Freight Order Management Freight Booking Define Freight Booking Types . You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type Outbound Queues to this logical system. You do this in Customizing for SCM Basis under
 Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type The logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for qRFC Communication.

For more information, see SAP Note 1517523.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Request Transportation Order Execution

Definition

To request the execution of a transportation order of the category "freight order" or "freight booking".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMExecutionRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

After carrying out transportation planning for delivery-based transportation requirements (DTRs), a shipper sends the resulting <u>freight documents</u> to a logistics execution system for further processing, for example, for invoicing or output management.

The *Request Transportation Order Execution* outbound operation sends a freight document to a logistics execution system and requests the execution of the freight document. To execute the freight document, the logistics execution system can create a shipment, for example.

Related Operations

- The <u>Request Transportation Order Execution Cancellation [Page 66]</u> outbound operation informs the logistics execution system about a canceled freight document.
- The <u>Change Transportation Order based on Transportation Order Execution</u> <u>Confirmation [Page 69]</u> inbound operation receives a confirmation of the execution of a freight document.
- The <u>Change Transportation Order based on Transportation Order Execution Status</u> <u>Notification [Page 71]</u> inbound operation receives an update of the execution status of a freight document.
- The <u>Change Transportation Order Based on Transportation Order Execution Delivery</u> <u>Assignment Changed Notification [Page 73]</u> inbound operation receives information about changed delivery assignments.

 The <u>Change Transportation Order Based on Transportation Order Execution Packaging</u> <u>Assignment Changed Notification [Page 75]</u> inbound operation receives a notification about updated packaging and item assignments.

Features

The *Request Transportation Order Execution* outbound operation sends data such as the following to the receiving system:

- Parties (for example, shipper and consignee)
- Locations (for example, ship-from and ship-to location)
- Relevant dates (for example, pick-up and delivery dates)
- Means of transport
- IDs of the business documents related to the freight document, for example, the IDs of the deliveries based on which a delivery-based transportation requirement was created
- Packaging information for vehicle resources or containers at the highest level of the item hierarchy (or for both of these)

The operation sends the material ID of each relevant vehicle or container. Note that you can send information only for the top level of the item hierarchy, and you cannot send information about the assignment of the delivery items to the containers or vehicles.

Message Types

Transportation Order SCM Execution Request

Notes on SAP Implementation

Integration

You can use this operation to send freight document data from SAP Transportation Management (SAP TM) to SAP ERP. The operation is triggered when you select the action Follow Up Create/Update ERP Shipment in a freight order or freight booking. The SHPMNT05 IDoc in SAP ERP creates a shipment based on the freight document.

If the freight document data includes packaging information, SAP ERP creates handling units based on this information, using container as the packaging material. Note that you must send packaging information to SAP ERP if you want to send the shipments from SAP ERP to the SAP Extended Warehouse Management (SAP EWM) application to carry out warehouse planning and execution.

Configuration

You have defined that freight documents are to be sent to SAP ERP by setting the required value in the *Shipment Creation Relevance* field in Customizing for the freight document type. This setting also defines whether packaging information is sent to SAP ERP. For more information, see the field help for the *Shipment Creation Relevance* field.

In addition, the following requirements have been met:

• The freight document is derived from a delivery-based transportation requirement.

- The freight document is in process and does *not* have one of the following statuses:
 - Blocked for execution
 - Blocked for planning
 - Marked for deletion

For information about the required settings, see <u>Shipment Integration Based on Freight Orders</u> or <u>Shipment Integration Based on Freight Bookings</u>.

For information about the required message control settings for outbound communication, see the documentation of the <u>Transportation Order Execution Out [Page 61]</u> outbound interface.

Versioning

The *Request Transportation Order Execution* outbound operation performs a similar function to the *Request Freight Order Execution* outbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdI for TransportationOrderSCMExecutionRequest_Out (/SCMTMS/TOR_SE_SHPMNT_REQ) Business Add-In (BAdI) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Request Transportation Order Execution Cancellation

Definition

To request the cancellation of the execution of a transportation order of the category "freight order" or "freight booking".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMExecutionCancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page_283]	Yes

Business Context and Use

A shipper has carried out transportation planning for delivery-based transportation requirements (DTRs) and sent the resulting <u>freight documents</u> to a logistics execution system for further processing (for example, for invoicing or output management). If the shipper then cancels a freight document, the *Request Transportation Order Execution Cancellation* outbound operation informs the logistics execution system about the cancellation and requests the cancellation of the execution of the freight document.

The operation is also triggered if the shipper decides to send the freight document to a different logistics execution system. In this case, the *Request Transportation Order Execution Cancellation* outbound operation informs the previous logistics execution system about the cancellation.

Features

The *Request Transportation Order Execution Cancellation* outbound operation sends the ID of the canceled freight document to the logistics execution system.

Message Types

Transportation Order SCM Execution Cancellation Request

Prerequisites

The <u>Request Transportation Order Execution [Page 63]</u> outbound operation has sent a freight document to the logistics execution system.

Notes on SAP Implementation

Integration

You can use this operation to send cancellation data from SAP Transportation Management (SAP TM) to SAP ERP. The operation is triggered when you cancel a freight order or freight booking that has already been sent to SAP ERP using the <u>Request Transportation Order Execution [Page</u> 63] outbound operation. The TPSSHT01 IDoc in SAP ERP cancels the corresponding shipment based on the cancellation request.

Configuration

For information about the required message control settings for outbound communication, see the documentation of the <u>Transportation Order Execution Out [Page 61]</u> outbound service interface.

Versioning

The Request Transportation Order Execution Cancellation outbound operation performs a similar function to the Request Freight Order Execution Cancellation outbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdI for TransportationOrderSCMExecutionCancellationReq_Out (/SCMTMS/TOR_SE_SHPMNT_CNC) Business Add-In (BAdI) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Transportation Order Execution In

Definition

An interface to receive confirmations of requests to execute transportation orders.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Order Execution In* inbound service interface groups operations that receive confirmations or notifications for <u>freight documents</u> that have been sent to a logistics execution system for further processing.

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Order Execution Out [Page</u> 61] outbound interface.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Change Transportation Order Based on Transportation Order Execution Confirmation

Definition

To change a transportation order of the category "freight order" or "freight booking" based on the confirmation of a request to execute this transportation order.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMExecutionConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper has carried out transportation planning for delivery-based transportation requirements (DTRs) and sent the resulting <u>freight documents</u> to a logistics execution system for further processing. To execute a freight document, the logistics execution system has created a shipment, for example.

The Change Transportation Order Based on Transportation Order Execution Confirmation inbound operation receives a confirmation of the execution of a freight document in the logistics execution system.

Related Operations

The <u>Change Transportation Order based on Transportation Order Execution Status Notification</u> [Page 71] inbound operation receives an update of the execution status of a freight document.

Features

The Change Transportation Order Based on Transportation Order Execution Confirmation inbound operation receives the following data:

- ID of the document created in the logistics execution system (for example, shipment ID)
- Time at which the document was created

The operation assigns the document ID to the freight document.

Message Types

• Transportation Order SCM Execution Confirmation

Prerequisites

The <u>Request Transportation Order Execution [Page 63]</u> outbound operation has sent a freight document to the logistics execution system.

Notes on SAP Implementation

Integration

You can use this operation to receive a confirmation from SAP ERP. SAP ERP sends a confirmation message when the SHPMNT05 IDOC creates a shipment based on a request sent by the <u>Request Transportation Order Execution [Page 63]</u> outbound operation. Note that SAP ERP only sends a confirmation message if it has created a shipment.

Versioning

The Change Transportation Order Based on Transportation Order Execution Confirmation inbound operation performs a similar function to the Change Freight Order Execution Based on Freight Order Execution Confirmation inbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdI for TransportationOrderSCMExecutionConfirmation_In (/SCMTMS/TOR_SE_SHPMNT_CNF) Business Add-In (BAdI) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Change Transportation Order Based on Transportation Order Execution Status Notification

Definition

To change a transportation order of the category "freight order" or "freight booking" based on a notification about the status of the execution of this transportation order.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderSCMExecutionStatusNotification_In
Namespace [Page 280]	http://sap.com/xi/TMS
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper has carried out transportation planning for delivery-based transportation requirements (DTRs) and sent the resulting <u>freight documents</u> to a logistics execution system for further processing. The logistics execution system has created a shipment for the freight document, for example. Relevant changes to the execution status in the logistics execution system are received by the *Change Transportation Order Based on Transportation Order Execution Status Notification* inbound operation.

Features

The Change Transportation Order based on Transportation Order Execution Status Notification inbound operation receives data such as the following:

- ID of the document that the logistics execution system has created to execute the freight document (for example, shipment ID) and the freight document to which it relates
- Timestamp of the status change
- An indicator that shows which status has been set in SAP ERP (for example, Planned)

Message Types

Transportation Order SCM Execution Status Notification

Prerequisites

The <u>Change Transportation Order Based on Transportation Order Execution Confirmation [Page</u> 69] inbound operation has received a confirmation of the execution of the freight document in the logistics execution system.

Notes on SAP Implementation

Integration

You can use this operation to receive a status notification from SAP ERP. When the SHPMNT05 IDoc creates a shipment based on a request sent by the <u>Request Transportation Order Execution</u> [Page 63] outbound operation, the overall transportation status of the shipment is set to *Planned*. This status is based on the execution status *Not Started* in the corresponding freight document. As soon as the *Planned* status is set, SAP ERP sends a status notification to SAP TM. Based on the notification, SAP TM changes the execution status of the freight document from *Not Started* to *In Execution*. As soon as this status is set, the freight document is blocked for further processing in SAP TM.

Versioning

The Change Transportation Order based on Transportation Order Execution Status Notification inbound operation performs a similar function to the Change Execution Status Based on Freight Order Execution Status Notification inbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The Business Add-In (BAdI) BAdI for TranspOrderSCMExecutionStatusNotification_In (/SCMTMS/TOR SE TORSCM ST) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Change Transportation Order Based on Transportation Order Execution Delivery Assignment Changed Notification

Definition

To change a transportation order of the category "freight order" or "freight booking" based on a notification about changed delivery assignments.

Technical Data

Release State	Released	
Technical Name	$\tt TransportationOrderSCMExecutionDeliveryAssignmentChangedNotification_In$	
Namespace	http://sap.com/xi/TMS	
Application Component	TM-ERP-SHP	
Category	A2A	
Direction	Inbound	
Mode	Asynchronous	
Idempotency	No	
Change/Update Behavior	Туре 1	
P2P Communication Enabled	Yes	

Business Context

A shipper has carried out transportation planning for delivery-based transportation requirements (DTRs) and sent the resulting <u>freight documents</u> to a logistics execution system for further processing. The DTRs are based on deliveries that were originally received from the logistics execution system. The logistics execution system has created a shipment for each freight document. The deliveries that formed the basis of the DTRs are automatically assigned to the corresponding shipment in the logistics execution system.

If a delivery is subsequently removed from or assigned to a shipment in the logistics execution system, the corresponding freight document must be updated. The inbound operation *Change Transportation Order Based on Transportation Order Execution Delivery Assignment Changed Notification* receives information about changed delivery assignments and updates the freight document accordingly.

Related Operations

The outbound operation <u>Request Transportation Order Execution [Page 63]</u> sends a freight document to a logistics execution system.

Features

The inbound operation *Change Transportation Order Based on Transportation Order Execution Delivery Assignment Changed Notification* receives the ID of the freight document that needs to be changed (for example, the freight order ID) and the ID of the relevant delivery-based transportation requirement (DTR). It also receives the information as to whether the DTR has to be removed from or assigned to the freight document.

Prerequisites

The inbound operation *Change Transportation Order based on Transportation Order Execution Confirmation* has received a confirmation of the execution of the freight document in a logistics execution system.

Error Handling

The inbound operation *Change Transportation Order Based on Transportation Order Execution Delivery Assignment Changed Notification* supports <u>Forward Error Handling [Page 268]</u>. The following error categories are used:

- PRE.TEE.LRE: Lock Error
- DCE: Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type <u>LogItemCategoryCode [Page 272]</u>.

Notes on SAP Implementation

Integration

You can use this operation to update freight documents in SAP Transportation Management (SAP TM) based on data received from SAP ERP. SAP ERP uses IDoc SHPMNT05 to send changed delivery assignments to SAP TM.

Enhancements

The Business Add-In (BAdI) *BAdI for TranspOrderSCMExecDeliveryAssignmentChngdNotif_In* (/SCMTMS/TOR_SE_TORSCM_ASG) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Change Transportation Order Based on Transportation Order Execution Packaging Assignment Changed Notification

Definition

To change a transportation order of the category "freight booking" or "freight order" based on a notification about changed packaging and item assignments.

Technical Data

Release State	Released
Technical Name	TransportationOrderSCMExecutionItmPckgAssgnmtChangedNotification_In
Namespace	http://sap.com/xi/TMS
Application Component	TM-ERP-SHP
Category	A2A
Direction	Inbound
Mode	Asynchronous
Idempotency	No
Change/Update Behavior	Туре 1
P2P Communication Enabled	Yes

Business Context

A shipper performs transportation planning for a delivery-based transportation requirement (DTR) and sends the resulting <u>freight document</u> to a logistics execution system for further processing. The logistics execution system creates a shipment based on the freight document (see <u>Request</u> <u>Transportation Order Execution [Page 63]</u>). If the freight document contains packaging information, the logistics execution system creates handling units based on the packaging information.

When container IDs and items are assigned to the handling units, the *Change Transportation Order Based on Transportation Order Execution Packaging Assignment Changed Notification* inbound operation receives a notification about the updated packaging and item assignments from the logistics execution system.

Features

The Change Transportation Order Based on Transportation Order Execution Packaging Assignment Changed Notification inbound operation receives the IDs of the relevant containers,

items, and handling units. It also receives the material IDs that were sent to the logistics execution system by the <u>Request Transportation Order Execution [Page 63]</u> outbound operation.

Note that packaging information can be received only for the top level of the item hierarchy. For more information, see the documentation of the <u>Request Transportation Order Execution [Page 63]</u> outbound operation.

Prerequisites

The <u>Request Transportation Order Execution [Page 63]</u> outbound operation has sent a freight document with the required packaging information to the logistics execution system.

Error Handling

Forward Error Handling

The Change Transportation Order Based on Transportation Order Execution Packaging Assignment Changed Notification operation supports Forward Error Handling [Page 268]. The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Notes on SAP Implementation

Integration

You can use this operation to receive packaging and item assignment updates from SAP ERP. SAP ERP sends the updates using IDoc SHPMNT05.

For more information about sending packaging information to SAP ERP, see the documentation of the <u>Request Transportation Order Execution [Page 63]</u> outbound operation.

Enhancements

The Business Add-In (BAdI) BAdI for TranspOrderSCMExecutionItmPckgAssgnmtChngdNotif_In (/SCMTMS/TOR_SE_TOR_PKGASG) is available for this operation.

More Information

Shipment Integration Based on Freight Orders

Shipment Integration Based on Freight Bookings

Transportation Order Invoicing Preparation Out

Definition

An interface to request the creation, change, or cancellation of business transaction documents that are prerequisites for settling freight orders and forwarding orders.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Order Invoicing Preparation Out* outbound service interface groups operations that send transportation data to purchase order processing to enable invoice verification to be carried out for subcontracted transportation services. The data is used to create, change, or cancel the documents required for invoice verification.

Notes on SAP Implementation

Integration

The operations in this interface can exchange data with the operations in the *Transportation Processing In* interface in the *Purchase Order Processing* process component. This enables you to exchange data between the *Freight Settlement* (TM-FRS) component in SAP Transportation Management (SAP TM) and the *Invoice Verification* (MM-IV) component in SAP ERP.

Note the following:

- A freight settlement document in the SAP TM back-end system corresponds to an instance of a <u>Supplier Freight Invoice Request [Page 242]</u> business object.
- A freight settlement document is created based on one or more freight orders. A freight order corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.

Configuration

To carry out invoice verification in SAP ERP, you have to connect your SAP Transportation Management (SAP TM) system to an SAP ERP system and make the required Customizing settings in both systems. For more information about the Customizing settings, see Freight Settlement.

Request Transportation Order Invoicing Preparation

Definition

To request the creation or change of business transaction documents that are prerequisites for settling freight orders and forwarding orders.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderSUITEInvoicingPreparationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page_283]	Yes

Business Context and Use

A shipper subcontracts transportation services to a carrier, for example. To perform freight settlement for the subcontracted transportation services, the shipper creates a freight settlement document, which contains details of the transportation services and the calculated transportation charges. To perform invoice verification, the shipper transfers the freight settlement document to purchase order processing, which posts the accruals and creates the required documents, that is, a service purchase order and one or more service entry sheets.

The freight settlement document transfers a location identifier for the source location and destination location of each stage in the settlement, in a charge item. This enables purchase order processing to determine different tax rates for the service charges in the settlement, for different locations or countries. When the invoice arrives, an invoicing clerk can verify the invoice against the data provided in the freight settlement document.

The *Request Transportation Order Invoicing Preparation* outbound operation sends a freight settlement document to purchase order processing and requests the creation of the relevant documents.

Related Operations

- The Maintain Purchase Order based on Order Invoicing Preparation Request inbound operation in the Purchase Order Processing process component can receive a request from the Request Transportation Order Invoicing Preparation outbound operation.
- If a shipper cancels a freight settlement document, the <u>Request Transportation Order</u> <u>Invoicing Preparation Cancellation [Page 81]</u> outbound operation requests the cancellation of the invoice verification documents in purchase order processing.
- The <u>Change based on Transportation Order Invoicing Preparation Confirmation [Page</u> 84] inbound operation receives a confirmation of the creation, change, or cancellation of the invoice verification documents in purchase order processing.

Features

The *Request Transportation Order Invoicing Preparation* operation sends data such as the following to purchase order processing:

- ID of the freight settlement document for which the invoice verification documents are to be created
- Business elements that enable the creation of the invoice verification document, including the following:
 - Transportation services and the corresponding charges (TransportationCharge)
 - Relevant purchasing organization (PurchasingArea)
 - o Bill-from party (BillFromParty)
 - Payee party (PayeeParty)
- Location identifiers that can be used to determine the tax code, as follows:
 - The identifier of a location (InternalID)
 - o The address of a location (Address)
 - The loading location (ChargeRelevantLoadingLocationInternalID)
 - o **The unloading location (**ChargeRelevantUnloadingLocationInternalID)

For more information, see the documentation of the *TransportationOrderSUITEInvoicingPreparationRequestMessage* message data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order SUITE Invoicing Preparation Request

Prerequisites

The freight settlement document has the status *Ready for Accruals*.

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Transportation Order Invoicing Preparation</u> <u>Out [Page 77]</u> outbound service interface.

Versioning

The *Request Transportation Order Invoicing Preparation* outbound operation performs a similar function to the *Request Freight Order Invoicing Preparation* outbound operation in SAP Transportation Management (SAP TM 7.0).

Enhancements

The BAdI for TranspOrderSUITEInvoicingPreparationRequest_Out (/SCMTMS/SFI_SE_TORINPRCRT) Business Add-In (BAdI) is available for this operation.

Request Transportation Order Invoicing Preparation Cancellation

Definition

To request the cancellation of business transaction documents that are prerequisites for settling freight and forwarding orders.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page_296]	TransportationOrderSUITEInvoicingPreparationCancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper performs invoice verification in purchase order processing as part of the freight settlement process for transportation services subcontracted to a carrier, for example. If the shipper cancels a freight settlement document, the *Request Transportation Order Invoicing Preparation Cancellation* outbound operation requests the cancellation of the documents created in purchase order processing for the invoice verification process.

Related Operations

• The Cancel Purchase Order Based on Order Invoicing Preparation Cancellation Request inbound operation in the Purchase Order Processing process component can receive a cancellation request from the Request Transportation Order Invoicing Preparation Cancellation outbound operation.

• The <u>Change Based on Transportation Order Invoicing Preparation Confirmation [Page</u> 84] inbound operation receives a confirmation of the creation, change, or cancellation of the invoice verification documents in purchase order processing.

Features

The *Request Transportation Order Invoicing Preparation Cancellation* outbound operation sends data such as the following to purchase order processing:

- ID of the freight settlement document for which the invoice verification documents were created
- Requested cancellation date (optional)

For more information, see the documentation of the *TransportationOrderSUITEInvoicingPreparationCancellationRequestMessage* message data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order SUITE Invoicing Preparation Cancellation Request

Prerequisites

The <u>Request Transportation Order Invoicing Preparation [Page</u>78] outbound operation has requested the creation of the invoice verification documents.

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Transportation Order Invoicing Preparation</u> <u>Out [Page 77]</u> outbound service interface.

Versioning

The Request Transportation Order Invoicing Preparation Cancellation outbound operation performs a similar function to the Request Freight Order Invoicing Preparation Cancellation outbound operation in SAP Transportation Management (SAP TM 7.0).

Enhancements

The BAdI for TranspOrderSUITEInvoicingPreparationCancellatn_Out (/SCMTMS/SFI SE TORINPRCNCL) is available for this operation.

Transportation Order Invoicing Preparation In

Definition

An interface to receive confirmations of requests to prepare the settlement of freight and forwarding orders.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Order Invoicing Preparation* In inbound service interface contains an operation that receives a confirmation of the creation, change, or cancellation of documents that are required to carry out invoice verification for subcontracted transportation services.

Notes on SAP Implementation

Integration

The operations in this interface can exchange data with the operations in the *Transportation Processing Out* outbound service interface in the *Purchase Order Processing* process component. This enables you to exchange data between the *Freight Settlement* (TM-FRS) component in SAP Transportation Management (SAP TM) and the *Invoice Verification* (MM-IV) component in SAP ERP.

Configuration

For more information, see the documentation of the <u>Transportation Order Invoicing Preparation</u> <u>Out [Page 77]</u> outbound service interface.

Change Based on Transportation Order Invoicing Preparation Confirmation

Definition

To change a freight or forwarding order based on the confirmation of the preparation of a settlement for a freight or forwarding order.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationOrderSUITEInvoicingPreparationConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRS
Web Service Definition (Back End)	/SCMTMS/TOR_INVPREPCNF
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page_257]	<u>Type2 [Page 259]</u>
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper performs invoice verification in purchase order processing as part of the freight settlement process for transportation services subcontracted to a carrier, for example. The *Change Based on Transportation Order Invoicing Preparation Confirmation inbound* operation receives a confirmation of the creation, change, or cancellation of the documents required for invoice verification (that is, a service purchase order and one or more service entry sheets).

Related Operations

The Confirm Transportation Order Invoicing Preparation outbound operation in the Purchase Order Processing process component can send a confirmation of the creation, change, or cancellation of the invoice verification documents.

Features

The Change Based on Transportation Order Invoicing Preparation Confirmation inbound operation receives an acceptance code that specifies whether the documents have been created, changed, or canceled. It updates the freight settlement document as follows:

- If the documents have been created or changed, the operation receives the purchase order number and the service entry sheet numbers. It updates the document numbers in the relevant freight settlement document and changes the life cycle status of the freight settlement to *Accruals Posted*.
- If the documents have not been created or changed, the operation changes the life cycle status of the freight settlement document to *Accruals Failed*.
- If the documents have been canceled, the operation changes the life cycle status of the freight settlement document to *Canceled in ERP*. If cancellation was unsuccessful, it changes the status to *Cancellation Failed*.

For more information, see the documentation of the *TransportationOrderSUITEInvoicingPreparationConfirmationMessagemessage* data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order SUITE Invoicing Preparation Confirmation

Prerequisites

The <u>Request Transportation Order Invoicing Preparation [Page 78]</u> outbound operation has requested the creation or change of the invoice verification documents, or the <u>Request</u> <u>Transportation Order Invoicing Preparation Cancellation [Page 81]</u> outbound operation has requested the cancellation of the invoice verification documents.

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Transportation Order Invoicing Preparation</u> <u>Out [Page 77]</u> outbound service interface.

Enhancements

The BAdI for TranspOrderSUITEInvoicingPreparationConfirmation_In (/SCMTMS/SFI_SE_TORINPRCNF) Business Add-In (BAdI) is available for this operation.

Transportation Order Loading Out

Definition

An interface to request the creation, change, or cancellation of loading appointments for transportation orders of the category "freight order" or "freight booking".

Technical Data

Entity	Service Interface
Category	B2B
Direction	Outbound

Business Context and Use

The *Transportation Order Loading Out* outbound interface contains an operation that requests a loading appointment for a freight order or freight booking from a warehousing system.

Notes on SAP Implementation

Integration

- A freight order or freight booking in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A loading instruction in the SAP TM back-end system corresponds to a loading appointment in the Enterprise Services Repository and in the receiving application (for example, a warehousing application).

More Information

Sending of Loading/Unloading Instructions and Receipt of Confirmations

Request Transportation Order Loading Appointment

Definition

To request the creation or change of a loading appointment for a transportation order of the category "freight order" or "freight booking".

Technical Data

Entity Type	Service Operation	
Release State	Released with Restrictions	
Technical Name	TransportationOrderLoadingAppointmentRequest_Out	
Namespace	http://sap.com/xi/TMS/Global	
Application Component	TM-FRM	
Category	B2B	
Direction	Outbound	
Mode	Asynchronous	
P2P Communication Enabled	Yes	

Business Context and Use

A customer has planned a freight order or freight booking and wants to request a loading appointment during which goods are to be loaded onto or unloaded from a resource. To request the loading appointment, the customer sends the planning data for the freight order or freight booking to a warehousing system.

The *Request Transportation Order Loading Appointment* outbound operation sends the planning data to the warehousing system.

Related Operations

The <u>Change Transportation Order Based on Transportation Order Loading Appointment</u> <u>Notification [Page 90]</u> inbound operation receives information about the loading appointment that has been allocated by a warehousing system.

Features

The *Request Transportation Order Loading Appointment* outbound operation is triggered when a customer requests a planned time slot for loading or unloading the goods in a freight order or freight booking. The outbound operation sends loading appointment data for a freight order or freight booking to a warehousing system to create or change the loading appointment and keep track of operations when loading or unloading activities are carried out.

Notes on SAP Implementation

Integration

The *Request Transportation Order Loading Appointment* outbound operation is triggered when a user opens a freight order or freight booking in the SAP Transportation Management (SAP TM) back-end system and chooses the *Send Loading/Unloading Instruction* option.

This action can only be performed for the current stop. If the action is executed at different points in time, it triggers communication with different partners and with different content.

Prerequisites

You have created a freight order or freight booking and entered the relevant planning data (for example, the forwarding order items that are to be loaded or unloaded have been assigned to freight units).

Enhancements

The Business Add-In (BAdI) BAdI for TransportationOrderLoadingAppointmentRequest_Out (/SCMTMS/LA REQ OUTBD) is available for this operation.

Transportation Order Loading In

Definition

An interface to receive confirmations of requests to create or change loading appointments for transportation orders of the category "freight order" or "freight booking", and to receive related notifications.

Technical Data

Entity	Service Interface
Category	B2B
Direction	Inbound

Business Context and Use

The *Transportation Order Loading In* inbound interface contains an operation that receives confirmations of requests to create or change a loading appointment for a freight order or freight booking in a warehousing system.

Notes on SAP Implementation

Integration

- A freight order or freight booking in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A loading instruction in the SAP TM back-end system corresponds to a loading appointment in the Enterprise Services Repository and in the receiving application (for example, a warehousing application).

More Information

Sending of Loading/Unloading Instructions and Receipt of Confirm

Change Transportation Order Based on Transportation Order Loading Appointment Notification

Definition

To change a transportation order of the category "freight order" or "freight booking" based on a notification about a change to a loading appointment.

Technical Data

Entity Type	Service Operation
Release State	Released with Restrictions
Technical Name	TransportationOrderLoadingAppointmentNotification_In
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-FRM
Category	B2B
Direction	Inbound
Mode	Asynchronous
P2P Communication Enabled	Yes

Business Context and Use

A customer has sent planning data for a freight order or freight booking to a warehousing system to request a time slot for loading or unloading goods. Once the goods have been allocated to a resource in the warehousing system, the *Change Transportation Order Based on Transportation Order Loading Appointment Notification* inbound operation receives notification of which goods have actually been allocated to which resource.

Features

The Change Transportation Order Based on Transportation Order Loading Appointment Notification inbound operation receives a notification about loading operations from a warehousing system with reference to a *Request Transportation Order Loading Appointment* message that has been sent previously to that warehousing system.

Notes on SAP Implementation

Prerequisites

Planning data has been submitted to the warehousing system using the <u>Request Transportation</u> <u>Order Loading Appointment [Page 87]</u> outbound operation.

Enhancements

The Business Add-In (BAdI) BAdI for TransportationOrderLoadingAppointmentNotification_In (/SCMTMS/TOR_SE_TORLD) is available for this operation.

Transportation Ordering Out

Definition

An interface to send or cancel transportation orders of the category "freight order".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Ordering Out* outbound service interface groups operations that send freight order data from a customer (for example, a shipper) to a carrier, based on which the carrier can create, update, or cancel a forwarding order.

Note that the operations in this service interface can be used for direct tendering. The operations in the <u>Transportation Quotation Requesting Out [Page 102]</u> outbound service interface and the <u>Transportation Quotation Requesting In [Page 109]</u> inbound service interface are used for RFQ-based tendering.

Notes on SAP Implementation

Integration

- If a carrier also uses SAP Transportation Management (SAP TM), the operations in this interface exchange data with the operations in the <u>Transportation Requesting In [Page</u> 169] inbound service interface in the <u>Transportation Request Processing [Page</u> 128] process component. Otherwise, the operations can exchange data with an equivalent third-party application that is being used by the carrier.
- A freight order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A forwarding order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have made the following settings in the SAP TM system:

You have defined one or more suitable output profiles, and schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

Note that output profile /SCMTMS/TOR is provided as part of the standard Customizing settings. This profile is available in the configuration of PPF application /SCMTMS/TRANSPORTATION via the subactivity Define Action Profile and Actions.

- You have assigned a suitable output profile to the relevant freight order types. You define freight order types in Customizing for *Transportation Management* under *Freight Order Management Freight Order Define Freight Order Types*.
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound Queues* to this logical system. You do this in Customizing for *SAP Transportation Management* under *SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type*. Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for *qRFC Communication*.

For more information, see SAP Note 1517523.

More Information

Freight Order Management

Tendering

Request Transportation Order

Definition

To request the processing of a new or updated transportation order of the category "freight order". The carrier that receives and processes the transportation order can use the information provided to create or change a corresponding transportation request of the category "forwarding order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRO
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

When a customer subcontracts transportation services to a carrier, the customer sends a freight order to the carrier. A freight order is the result of planning and contains essential information such as the goods to be transported and the delivery dates. Based on the freight order, the carrier can then create a forwarding order, which the carrier uses to plan the execution of the transportation services. The *Request Transportation Order* outbound operation sends a new or updated freight order to a carrier, based on which the carrier's system can create or update a forwarding order.

Related Operations

- The corresponding <u>Maintain Transportation Request [Page 170]</u> inbound operation in the <u>Transportation Request Processing [Page 128]</u> process component can create a forwarding order based on a freight order sent by the *Request Transportation Order* outbound operation.
- The <u>Request Transportation Order Cancellation [Page 97]</u> outbound operation informs a carrier about a canceled freight order.
- The <u>Change Transportation Order Based on Transportation Order Confirmation [Page</u> 100] inbound operation receives a confirmation from a carrier about a freight order that was sent using the *Request Transportation Order* outbound operation.

Features

The *Request Transportation Order* outbound operation sends data such as the following to the receiving system:

- Freight order ID
- Parties involved (for example, shipper and consignee)
- List of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross volume, gross weight, net weight, and number of pieces)
- Means of transport and locations (for example, ship-from and ship-to location, including address information)
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Transportation terms and delivery terms
- IDs of the business documents related to the freight order, for example, a sales order or purchase order

For more information, see the documentation of the

TransportationDocumentRequestMessage message data type in SAP Note 1512334.

Message Types

• Transportation Order Request

Notes on SAP Implementation

Integration

The *Request Transportation Order* outbound operation is triggered when a customer (for example, a shipper or a logistics service provider) opens a freight order and then sends it to a carrier.

Note that you can use the *Request Transportation Order* outbound operation to send a freight order directly to a carrier without using any of the tendering functions in SAP TM, or you can use the operation for direct tendering. In addition, if you carry out RFQ-based tendering in SAP TM, the *Request Transportation Order* outbound operation is used to send a freight order to the successful carrier after you have collected confirmations from the carriers who took part in the tendering step. For information about the enterprise services used for RFQ-based tendering, see the documentation of the <u>Request Transportation Order Quotation Creation [Page 104]</u> outbound operation.

Configuration

For more information, see the documentation of the <u>Transportation Ordering Out [Page 92]</u> outbound service interface.

Prerequisites

To use this operation, the following requirements must be met:

- The freight order fulfills all schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components*. For more information, see the documentation of the <u>Transportation Ordering Out [Page 92]</u> outbound service interface.
- A carrier has been assigned to the freight order.

Versioning

The *Request Transportation Order* outbound operation performs a similar function to the *Request Freight Order* and *Request Shipment* outbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the *Request Transportation Order* outbound operation and the <u>Maintain</u> <u>Transportation Request [Page</u> 170] inbound operation shared a common message data type: *TransportationDocumentRequestMessage*. As of SAP TM 1.01, however, these services use different message data types that are similar in structure, but not identical. The outbound operation continues to use message data type *TransportationDocumentRequestMessage*, whereas the inbound operation now uses a separate message data type *TransportationRequestRequestMessage*. As a consequence, a mapping between these message data types is required. This mapping is usually implemented in the system landscape of the receiving party, that is, the carrier.

Enhancements

The BAdI for TransportationOrderRequest_Out (/SCMTMS/TOR_SE_TPNOR_REQ) Business Add-In (BAdI) is available for this operation.

Request Transportation Order Cancellation

Definition

To request the processing of a canceled transportation order of the category "freight order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderCancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRO
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

If a customer cancels a freight order that has already been sent to a carrier, the *Request Transportation Order Cancellation* outbound operation informs the carrier about the cancellation and requests the cancellation of the corresponding forwarding order.

Related Operations

The <u>Cancel Transportation Request [Page 173]</u> inbound operation in the <u>Transportation Request</u> <u>Processing [Page 128]</u> process component can cancel a forwarding order based on a freight order cancellation sent by the *Request Transportation Order Cancellation* outbound operation.

Features

The *Request Transportation Order Cancellation* outbound operation sends the following data to the receiving system:

- ID of the canceled freight order
- ID of the forwarding order in the receiving system that was created based on the freight order (optional)

For more information, see the documentation of the

TransportationDocumentCancellationRequestMessage message data type in SAP Note <u>1512334</u>.

Message Types

Transportation Order Cancellation Request

Prerequisites

The <u>Request Transportation Order [Page 94]</u> outbound operation has sent a freight order to a carrier.

Notes on SAP Implementation

Integration

In the standard SAP Transportation Management (SAP TM) back-end system, the *Request Transportation Order Cancellation* outbound operation is triggered when a customer cancels a freight order that has already been sent to a carrier. The customer can cancel a freight order by selecting *Cancel Document* on the freight order user interface. The operation is also triggered if the carrier assigned to the freight order is changed or removed.

As stated above, this operation sends only the ID of the canceled freight order to the receiving system. It does not send the full set of attributes that describe the freight order. However, some carriers might run legacy systems that expect the full set of attributes to be transmitted, comprising the same scope of information as the <u>Request Transportation Order [Page 94]</u> outbound operation. If this applies to some or all of your business partners, you can use the enhancement spot /SCMTMS/OUTB_SPOT_TOR_B2B to control in which situations the <u>Request Transportation Order [Page 94]</u> outbound operation is triggered with an action code that specifies a deletion (thus sending what is referred to as a "cancellation with content") instead of the *Request Transportation Order Cancellation* outbound operation ("lean cancellation") that is triggered in the standard system.

For more information, see SAP Note 1711010.

Configuration

For more information, see the documentation of the <u>Transportation Ordering Out [Page 92]</u> service interface.

Versioning

The *Request Transportation Order Cancellation* outbound operation performs a similar function to the *Request Freight Order Cancellation* and *Request Shipment Cancellation* outbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdl for TransportationOrderCancellationRequest_Out (/SCMTMS/TOR_SE_TPNOR_CNC) Business Add-In (BAdl) is available for this operation.

In addition, the BAdI *BAdI: Sending of B2B Cancellation Messages with Document Content* (/SCMTMS/TOR_OUTB_SEND_CNC_W_CO) can be used to control whether the <u>Request</u> <u>Transportation Order [Page 94]</u> outbound operation is to replace the *Request Transportation Order Cancellation* outbound operation that is used in the standard system.

Transportation Ordering In

Definition

An interface to receive confirmations in response to a request to process a new or updated transportation order of the category "freight order".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Ordering In* inbound service interface contains an operation that receives a confirmation indicating whether a carrier has accepted or rejected a freight order sent by a customer (for example, a shipper).

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation in this interface exchanges data with the operation in the <u>Transportation Requesting Out [Page 175]</u> outbound service interface in the <u>Transportation Request Processing [Page 128]</u> process component. Otherwise, the operation exchanges data with an equivalent third-party application that is being used by the carrier.

For more information about integration and configuration, see the documentation of the <u>Transportation Ordering Out [Page 92]</u> outbound interface.

More Information

Freight Order Management

Change Transportation Order Based on Transportation Order Confirmation

Definition

To change a transportation order of the category "freight order" based on the confirmation of this transportation order.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRO
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

When a customer sends a freight order to a carrier, the carrier is expected to send back a confirmation that indicates whether the freight order has been accepted or rejected. The *Change Transportation Order Based on Transportation Order Confirmation* inbound operation receives the confirmation from the carrier and updates the required data in the freight order.

Related Operations

The <u>Confirm Transportation Request [Page 177]</u> outbound operation in the <u>Transportation</u> <u>Request Processing [Page 128]</u> process component can send the confirmation that is received by the *Change Transportation Order Based on Transportation Order Confirmation* inbound operation.

Features

The Change Transportation Order Based on Transportation Order Confirmation inbound operation receives an acceptance code that specifies whether a carrier has accepted or rejected a freight order. The operation can receive the following data, for example:

• If a carrier rejects a freight order, the operation receives the rejection reason. The operation updates the confirmation status of the freight order to *Rejected*.

- If a carrier accepts a freight order without changes, the operation receives the ID of the forwarding order and the confirmed quantities and dates, for example. The operation updates the confirmation status of the freight order to *Confirmed*.
- If a carrier accepts a freight order with changes, the operation receives the ID of the forwarding order and the changed data, for example, changed quantities or dates. It updates the data in the freight order and changes the confirmation status to *Confirmed with Changes*.

For more information, see the documentation of the *TransportationDocumentConfirmationMessagemessage* data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order Confirmation

Prerequisites

The <u>Request Transportation Order [Page 94]</u> outbound operation has sent a freight order to a carrier.

Notes on SAP Implementation

Integration

The Change Transportation Order Based on Transportation Order Confirmation inbound operation is triggered when a confirmation of a freight order is received from a carrier.

Configuration

For more information, see the documentation of the <u>Transportation Ordering Out [Page 92]</u> service interface.

Versioning

The Change Transportation Order Based on Transportation Order Confirmation inbound operation performs a similar function to the *Maintain Freight Order Confirmation* and *Maintain Shipment Confirmation* inbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the <u>Confirm Transportation Request [Page 177]</u> outbound operation and the *Change Transportation Order Based on Transportation Order Confirmation* inbound operation shared a common message data type: TransportationDocumentConfirmationMessage. As of SAP TM 1.01, however, these operations use different message data types that are similar in structure, but not identical. The inbound operation continues to use message data type TransportationDocumentConfirmation now uses a separate message data type TransportationRequestConfirmationMessage. As a consequence, a mapping between these message data types is required. This mapping for a confirmation message is usually implemented in the system landscape of the sending party, that is, the carrier.

Enhancements

The BAdI for TransportationOrderConfirmation_In (/SCMTMS/TOR_SE_TPNOR_CNF) Business Add-In (BAdI) is available for this operation.

Transportation Quotation Requesting Out

Definition

An interface to send or cancel transportation orders of the category "freight request for quotation".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Quotation Requesting Out* outbound service interface groups operations that send freight request for quotation (RFQ) data to a carrier during a tendering process started by a customer (for example, a shipper).

Note that the operations in this service interface are only used for RFQ-based tendering. The operations in the <u>Transportation Ordering Out [Page 92]</u> outbound service interface and the <u>Transportation Ordering In [Page 99]</u> inbound service interface are used for direct tendering.

Notes on SAP Implementation

Integration

- If a carrier also uses SAP Transportation Management (SAP TM), the operations in this service interface exchange data with the operations in the <u>Transportation Quotation</u> <u>Requesting In [Page 159]</u> inbound service interface in the <u>Transportation Request</u> <u>Processing [Page 128]</u> process component. Otherwise, the operations can exchange data with an equivalent third-party application that is being used by the carrier.
- A freight request for quotation in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A forwarding quotation in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have made the following settings in the SAP TM system:

- You have defined schedule conditions that control whether a message is sent. You do
 this in Customizing for Cross-Application Components under Processes and Tools for
 Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF
 Adapter for Output Management Maintain PPF Settings.
- You have enabled the creation of outbound messages for tendering in Customizing for Transportation Management under Freight Order Management Tendering Define General Settings for Tendering .

- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type Outbound Queues to this logical system. You do this in Customizing for SAP Transportation Management under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for qRFC Communication.
- You have verified the configuration settings under Cross-Application Components Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain Output Management Adapter Settings.

Action profile /SCMTMS/TOR_TENDREQ is provided in the standard Customizing settings and assigned to node TENDERINGREQUEST of business object /SCMTMS/TOR. If required, you can replace this assignment by specifying another suitable action profile. Note that removing this assignment without replacing it with another one would disable outbound communication via the Transportation Quotation Requesting Out outbound service interface.

For more information, see SAP Note <u>1517523</u>.

More Information

Tendering

Request Transportation Order Quotation Creation

Definition

To request the processing of a new transportation order of the category "freight request for quotation". The carrier that receives and processes the transportation order can use the information provided to create a corresponding transportation request of the category "forwarding quotation".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderQuotationCreateRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRT
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

As a transportation planner or a dispatcher (that is, an employee of a company acting as a shipper or a logistics service provider), you use RFQ-based tendering to determine which carrier is to execute a particular freight order. You start the tendering process for a freight order by sending a freight request for quotation (RFQ) to one or more carriers. The RFQ contains relevant data from the freight order, for example, quantities and delivery dates. Based on this, the carrier can decide whether to submit a quotation or reject the RFQ. The *Request Transportation Order Quotation Creation* outbound operation sends a new freight request for quotation. The carrier, based on which the carrier's system can create a forwarding request quotation. The carrier can then review the forwarding request for quotation and either accept it (that is, submit a forwarding quotation) or reject it.

Related Operations

In the system of the requesting company (that is, shipper or logistics service provider), the following operations can also be used:

- The <u>Request Transportation Order Quotation Cancellation [Page 107]</u> outbound operation informs a carrier about a canceled freight request for quotation.
- The <u>Change Transportation Order Based on Transportation Order Quotation</u> <u>Confirmation [Page 110]</u> inbound operation receives a confirmation from a carrier about a

freight request for quotation that was sent using the *Request Transportation Order Quotation Creation* outbound operation.

In the carrier's system (if the carrier also uses SAP TM), the corresponding <u>Create Transportation</u> <u>Request Quotation [Page 160]</u> inbound operation in the <u>Transportation Request Processing</u> [Page 128] process component can create a forwarding request for quotation based on the freight request for quotation sent by the *Request Transportation Order Quotation Creation* outbound operation.

Features

The *Request Transportation Order Quotation Creation* outbound operation sends data such as the following to the receiving system:

- Price limit
- Parties involved (for example, shipper and consignee)
- List of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross volume, gross weight, net weight, and number of pieces)
- Means of transport and locations (for example, ship-from and ship-to location, including address information)
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Transportation terms and delivery terms

For more information, see the documentation for the *TransportationDocumentQuotationCreateRequestMessage* message data type in SAP Note 1512334.

Message Types

• Transportation Order Quotation Create Request

Notes on SAP Implementation

Integration

The *Request Transportation Order Quotation Creation* outbound operation is triggered when the tendering process is started manually or automatically for a freight order in the SAP Transportation Management (SAP TM) back-end system.

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 102] outbound interface.

Prerequisites

To use this operation, the following requirements must be met in addition those mentioned in the *Configuration* section of the <u>Transportation Quotation Requesting Out [Page 102]</u> outbound service interface:

- The freight request for quotation must fulfill all schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components*. For more information, see the documentation of the <u>Transportation</u> <u>Quotation Requesting Out [Page 102]</u> outbound service interface.
- The freight order for which tendering is to be carried out must have the status In Process.

Versioning

The *Request Transportation Order Quotation Creation* outbound operation performs a similar function to the *Request Shipment Quote* and *Request Freight Quote* outbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the *Request Transportation Order Quotation Creation* outbound operation and the <u>Create Transportation Request Quotation [Page 160]</u> inbound operation shared a common message data type:

TransportationDocumentQuotationCreateRequestMessage. As of SAP TM 1.01,

however, these operations use different message data types that are similar in structure, but not identical. The outbound operation continues to use message data type

TransportationDocumentQuotationCreateRequestMessage, whereas the inbound operation now uses a separate message data type *TransportationRequestQuotationCreateRequestMessage*. As a consequence, a mapping between these message data types is required. This mapping is usually implemented in the system landscape of the receiving party, that is, the carrier.

Enhancements

The BAdl for TransportationOrderQuotationCreateRequest_Out (/SCMTMS/TOR SE TPNORQ REQ) Business Add-In (BAdl) is available for this operation.

Request Transportation Order Quotation Cancellation

Definition

To request the processing of a canceled transportation order of the category "freight request for quotation".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderQuotationCancellationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRT
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer uses RFQ-based tendering to determine which carrier is to execute a particular freight order. If the customer cancels a freight request for quotation that has already been sent to a carrier, the *Request Transportation Order Quotation Cancellation* outbound operation informs the carrier about the cancellation and requests the cancellation of the corresponding forwarding request for quotation or forwarding quotation.

Related Operations

The <u>Cancel Transportation Request Quotation [Page 163]</u> inbound operation in the <u>Transportation Request Processing [Page 128]</u> process component can cancel a forwarding quotation based on a canceled freight request for quotation sent by the *Request Transportation Order Quotation Cancellation* outbound operation.

Features

The *Request Transportation Order Quotation Cancellation* outbound operation sends data such as the following to the receiving system:

• ID of the canceled freight request for quotation

• ID of the forwarding quotation in the receiving system that was created based on the freight request for quotation (optional)

For more information, see the documentation of the

TransportationDocumentQuotationCancellationRequestMessage message data type in SAP Note <u>1512334</u>.

Message Types

• Transportation Order Quotation Cancellation Request

Prerequisites

The <u>Request Transportation Order Quotation Creation [Page 104]</u> outbound operation has sent a freight request for quotation to one or more carriers.

Notes on SAP Implementation

Integration

The *Request Transportation Order Quotation Cancellation* outbound operation is triggered in the SAP Transportation Management (SAP TM) back-end system when a customer stops the tendering process. This results in the cancellation of all freight requests for quotation that have been sent to carriers during this tendering process.

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 102] outbound interface.

Versioning

The Request Transportation Order Quotation Cancellation outbound operation performs a similar function to the Request Freight Quote Cancellation and Request Shipment Quote Cancellation outbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdl for TransportationOrderQuotationCancellationRequest_Out (/SCMTMS/TOR_SE_TPNORQ_CNC) Business Add-In (BAdl) is available for this operation.

2Transportation Quotation Requesting In

Definition

An interface to receive confirmations in response to a request to process a transportation order of the category "freight request for quotation".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Quotation Requesting In* inbound service interface contains an operation that receives a confirmation indicating whether a carrier has accepted or rejected a freight request for quotation sent by a customer (for example, a shipper) during a tendering process.

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation in this service interface exchanges data with the operation in the <u>Transportation Quotation Requesting</u> <u>Out [Page 165]</u> outbound service interface in the <u>Transportation Request Processing [Page 128]</u> process component. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the carrier.

For more information about integration and configuration, see the documentation of the <u>Transportation Quotation Requesting Out [Page 102]</u> outbound interface.

More Information

Tendering

2Change Transportation Order Based on Transportation Order Quotation Confirmation

Definition

To change a transportation order of the category "freight request for quotation" based on the confirmation of this transportation order. The confirmation is either a freight quotation in response to the initial freight request for quotation, or it is a rejection of a freight request for quotation.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	TransportationOrderQuotationConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRM-FRT
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer uses RFQ-based tendering to determine which carrier is to execute a particular freight order. When the customer sends a freight request for quotation to a carrier, the carrier can either accept it by submitting a quotation, or reject it. The *Change Transportation Order Based on Transportation Order Quotation Confirmation* inbound operation receives a confirmation that contains either a quotation or the reason for rejecting the freight request for quotation. The operation updates the required data in the freight request for quotation.

Related Operations

The <u>Confirm Transportation Request Quotation [Page 167]</u> outbound operation in the <u>Transportation Request Processing [Page 128]</u> process component can send the confirmation that is received by the *Change Transportation Order Based on Transportation Order Quotation Confirmation* inbound operation.

Features

The Change Transportation Order Based on Transportation Order Quotation Confirmation inbound operation receives an acceptance code that specifies whether a carrier has accepted or rejected a freight request for quotation. The operation can receive the following data, for example:

- If a carrier rejects a freight request for quotation, the operation receives the rejection reason.
- If a carrier accepts a freight request for quotation, the operation receives the ID of the forwarding quotation and a quotation price, for example.

For more information, see the documentation of the *TransportationDocumentQuotationConfirmationMessage* message data type in SAP Note <u>1512334</u>.

Message Types

Transportation Order Quotation Confirmation

Prerequisites

The <u>Request Transportation Order Quotation Creation [Page 104]</u> outbound operation has sent a freight request for quotation to one or more carriers.

Notes on SAP Implementation

Integration

The Change Transportation Order Based on Transportation Order Quotation Confirmation inbound operation is triggered in the SAP Transportation Management (SAP TM) back-end system when a confirmation of a freight request for quotation is received from a carrier.

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 102] outbound interface.

Versioning

The Change Transportation Order Based on Transportation Order Quotation Confirmation inbound operation performs a similar function to the *Maintain Supplier Shipment Quote* and *Maintain Supplier Freight Quote* inbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the <u>Confirm Transportation Request Quotation [Page 167]</u> outbound operation and the *Change Transportation Order Based on Transportation Order Quotation Confirmation* inbound operation shared a common message data type: *TransportationDocumentQuotationConfirmationMessage*. As of SAP TM 1.01,

however, these operations use different message data types that are similar in structure, but not identical. The inbound operation continues to use message data type

TransportationDocumentQuotationConfirmationMessage, whereas the outbound operation now uses a separate message data type *TransportationRequestQuotationConfirmationMessage*. As a consequence, a mapping between these message data types is required. This mapping for a confirmation message is usually implemented in the system landscape of the sending party, that is, the carrier.

Enhancements

The BAdl for TransportationOrderQuotationConfirmation_In (/SCMTMS/TOR_SE_TPNORQ_CNF) Business Add-In (BAdI) is available for this operation.

Transportation Planning View

Definition

A view that selects and displays transportation orders and relevant resources, which are planned in a joint planning step. This step can be carried out either manually or by using one or more planning engines.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	TransportationPlanningView
Object Category	Transformed Object

Business Context and Use

The *Transportation Planning View* business object enables you to carry out planning activities and create delivery proposals for selected transportation orders. It is used to select and display transportation orders and relevant resources for which planning is to be carried out. It is also used to select and display transportation orders for which delivery proposals are to be created. It enables the relevant activity to be performed, and it can also display the result of the activity, for example, the created delivery proposals.

Features

The *Transportation Planning View* business object is used in manual processing and background processing. In both cases, it uses specified selection parameters and profiles to select the relevant transportation orders and resources.

Use Case : Interactive Freight Unit Planning

The transportation planning view uses specified selection profiles and parameters to select and display freight units (FUs) and relevant resources that are to be planned in a joint planning step. The user can then assign the FUs to the resources and trigger the planning step. Note that the resources comprise handling resources and vehicle resources (including passive resources). The planning step includes vehicle scheduling, with the option of creating freight orders or freight bookings if they are created during planning.

Use Case 2: Interactive Delivery Creation

The transportation planning view uses specified selection profiles and parameters to select and display freight units or freight orders for which delivery proposals are to be created. The user selects the required freight units or freight orders from the overview and triggers the creation of the delivery proposals. The transportation planning view displays the delivery proposals, which can then be sent to a connected logistics execution system.

Notes on SAP Implementation

Integration

This business object and its operations are used to exchange delivery data between SAP Transportation Management (SAP TM) and SAP ERP, as follows:

- When a user or a background report in the SAP TM back-end system sends delivery proposals to SAP ERP, the *Transportation Planning View* business object triggers the *Create Outbound Delivery as Bulk* outbound operation or the *Create Inbound Delivery* outbound operation.
- When SAP ERP informs SAP TM whether delivery creation was successful, SAP TM receives the confirmation data using the corresponding <u>Change Transportation Planning</u> <u>View Based on Delivery Bulk Confirmation [Page 125]</u> inbound operation or the <u>Change Transportation Planning View based on Delivery Confirmation [Page 118]</u> inbound operation. Note, however, that neither of these inbound operations change an instance of a *Transportation Planning View* business object. It is a transient business object that is not persisted in the database. Instead, these operations add the log entries in the confirmation messages to the business application log of the receiving SAP TM back-end system.

Configuration

To exchange delivery data between SAP TM and SAP ERP, you have to connect your SAP TM system to an SAP ERP system and make the required Customizing settings in both systems. For more information, see <u>Configuring Integration of Orders and Deliveries</u>.

Inbound Delivery Out

Definition

An interface to request the creation of inbound deliveries.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Inbound Delivery Out* outbound service interface contains an operation that requests the creation of inbound deliveries in the *Inbound Delivery Processing* process component, based on delivery proposals created in the <u>Transportation Order Processing [Page 11]</u> process component.

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Request Inbound Delivery Creation

Definition

To request the creation of an inbound delivery.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	InboundDeliveryCreateRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR-DLV
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses a transportation management system to carry out transportation planning and execution for orders created in a logistics execution system (for example, purchase orders and returns orders). During the planning process, optimized delivery proposals are created for the orders. The *Request Inbound Delivery Creation* outbound operation sends the delivery proposals to the logistics execution system and requests the creation of the inbound deliveries.

Related Operations

Delivery proposals for outbound deliveries can be sent to a logistics execution system using the <u>Request Outbound Delivery Creation As Bulk [Page 122]</u> outbound operation.

Features

The *Request Inbound Delivery Creation* inbound operation requests the creation of a delivery for items from one or more orders. The type of delivery created depends on the type of order to which the delivery relates (for example, inbound deliveries are created for purchase orders, and returns deliveries are created for returns orders). At header level, each inbound delivery creation request is identified by an ID and contains information about dates. At item level, it provides the referenced order items, as well as information about the product, quantities, and measurements (for example, gross weight and gross volume).

For more information, see the documentation of the *Create Inbound Delivery* inbound operation in the *Inbound Delivery Processing* process component.

Message Types

• InboundDeliveryCreateRequest

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Enhancements

The BAdI for InboundDeliveryCreateRequest_Out (/SCMTMS/DLVP_SE_IDLV) Business Add-In (BAdI) is available for this operation.

Inbound Delivery In

Definition

An interface to receive confirmations of requests to create inbound deliveries.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Inbound Delivery In* inbound service interface contains an operation that receives a confirmation of the creation of inbound deliveries in the *Inbound Delivery Processing* process component, based on delivery proposals created in the <u>Transportation Order Processing [Page 11]</u> process component.

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Change Transportation Planning View Based on Delivery Confirmation

Definition

To react to the receipt of a confirmation of the creation of an inbound delivery.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	InboundDeliveryConfirmation_In_V1
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR-DLV
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses a transportation management system to carry out transportation planning and execution for orders created in a logistics execution system (for example, purchase orders and returns orders). When the logistics execution system creates an inbound delivery based on a delivery proposal received from the transportation management system, it sends a confirmation of delivery creation (for example, using the *Confirm Inbound Delivery* outbound operation). The *Change Transportation Planning View based on Delivery Confirmation* inbound operation receives the confirmation and updates the required data in the transportation management system.

Related Operations

- The Change Transportation Planning View Based on Delivery Confirmation inbound operation can be used in a procure-to-pay process, for example. For more information, see the documentation of the <u>Request Inbound Delivery Creation [Page 115]</u> outbound operation.
- The <u>Change Transportation Planning View Based on Delivery Bulk Confirmation [Page</u> 125] inbound operation receives confirmations of outbound deliveries created in a logistics execution system.

Features

The Change Transportation Planning View Based on Delivery Confirmation inbound operation receives the following details:

- Information about the deliveries that were successfully created. The operation adds the total number of deliveries and the IDs of the deliveries to the business application log.
- Log items with information about delivery creation (for example, an error message that explains why a particular delivery could not be created). The operation adds the log items to the business application log.
- Processing result code (successful or unsuccessful) that relates to all log items sent in a message. The operation updates the processing result code and sets a confirmation timestamp in the freight units that are related to the delivery confirmation.

Note that the *Change Transportation Planning View Based on Delivery Confirmation* inbound operation does not change an instance of a <u>Transportation Planning View [Page 112]</u> business object (this is a transient business object that is not persisted in the database).

Error Handling

The Change Transportation Planning View Based on Delivery Confirmation operation supports Forward Error Handling [Page 268]. The following error categories are used:

- PRE.TEE.LRE: Lock Error
- DCE: Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type <u>LogItemCategoryCode [Page 272]</u>.

Message Types

• InboundDeliveryConfirmation_V1

Notes on SAP Implementation

Integration

You can use this operation and the related operations to integrate SAP ERP with SAP Transportation Management (SAP TM). For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

To determine whether a response has been received from SAP ERP for freight units that are related to an order-based transportation requirement (OTR) and that contain a timestamp for sending a delivery proposal, the monitoring process in SAP TM uses the confirmation timestamp that is set by this operation. For more information, see <u>Monitoring of Delivery Creation</u>.

Note that if the processing result code sent by SAP ERP is *Unsuccessful*, the SAP TM system raises an alert of category TMS_OI_DLV_CREATION_PROBLEM.

Enhancements

The BAdl for InboundDeliveryConfirmation_In_V1 (/SCMTMS/CPX_SE_IDLV_CNF1) Business Add-In (BAdl) is available for this operation.

Outbound Delivery Out

Definition

An interface to request the creation of outbound deliveries.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Outbound Delivery Out* outbound service interface contains an operation that requests the creation of outbound deliveries in the *Outbound Delivery Processing* process component, based on delivery proposals created in the <u>Transportation Order Processing [Page 11]</u> process component.

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Request Outbound Delivery Creation As Bulk

Definition

To request the creation of multiple outbound deliveries.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	OutboundDeliveryBulkCreateRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR-DLV
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
<u>Mode [Page 279]</u>	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses a transportation management system to carry out transportation planning and execution for orders created in a logistics execution system (for example, sales orders or returns orders). During the planning process, optimized delivery proposals are created for the orders. The *Request Outbound Delivery Creation As Bulk* outbound operation sends the delivery proposals to the logistics execution system and requests the creation of the outbound deliveries.

Related Operations

Delivery proposals for inbound deliveries can be sent to a logistics execution system using the <u>Request Inbound Delivery Creation [Page 115]</u> outbound operation.

Features

The *Request Outbound Delivery Creation As Bulk* outbound operation requests the creation of the relevant deliveries for the order items. The type of delivery created depends on the type of order to which the delivery relates (for example, outbound deliveries are created for sales orders, and replenishment deliveries are created for stock transport orders). At header level, each outbound delivery creation request is identified by an ID and contains information about dates. At item level, it provides the referenced order items, as well as information about the product, quantities, and measurements (for example, gross weight and gross volume). The delivery creation requests are sent in a bulk service operation to ensure that they are processed in the correct sequence (that is, first in first out).

For more information, see the documentation of the *Create Outbound Delivery as Bulk* inbound operation in the *Outbound Delivery Processing* process component.

Processing

For more information about bulk processing, see <u>Bulk, Bundle, Collection [Page 249]</u>.

Message Types

• Outbound Delivery Bulk Create Request

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Enhancements

The BAdI for OutboundDeliveryBulkCreateRequest_Out (/SCMTMS/DLVP_SE_ODLV_B) Business Add-In (BAdI) is available for this operation.

Outbound Delivery In

Definition

An interface to receive confirmations of requests to create outbound deliveries.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Outbound Delivery In* inbound service interface contains an operation that receives a confirmation of the creation of outbound deliveries in the *Outbound Delivery Processing* process component, based on delivery proposals created in the <u>Transportation Order Processing</u> [Page 11] process component.

Notes on SAP Implementation

For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

Change Transportation Planning View Based on Delivery Bulk Confirmation

Definition

To react to the receipt of a confirmation of the creation of multiple outbound deliveries.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	OutboundDeliveryBulkConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR-DLV
Web Service Definition (Back End)	/SCMTMS/OUTBDLVBULKCONF
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses a transportation management system to carry out transportation planning and execution for orders created in a logistics execution system (for example, sales orders and returns orders). When the logistics execution system creates an outbound delivery based on a delivery proposal received from the transportation management system, it sends a confirmation of delivery creation (for example, using the *Confirm Outbound Delivery as Bulk* outbound operation). The *Change Transportation Planning View Based on Delivery Bulk Confirmation* inbound operation receives the confirmation and updates the required data in the transportation management system.

Related Operations

- This operation can be used in a sell-from-stock process, for example. For more information, see the documentation of the <u>Request Outbound Delivery Creation As Bulk</u> [Page 122] outbound operation.
- The <u>Change Transportation Planning View based on Delivery Confirmation [Page 118]</u> inbound operation receives confirmations of inbound deliveries created in a logistics execution system.

Features

The <u>Change Transportation Planning View based on Delivery Confirmation [Page 118]</u> inbound operation receives the following details:

- Information about the deliveries that were successfully created. The operation adds the total number of deliveries and the IDs of the deliveries to the business application log.
- Log items with information about delivery creation (for example, an error message that explains why a particular delivery could not be created). The operation adds the log items to the business application log.
- Processing result code (successful or unsuccessful) that relates to all log items sent in a message. The operation updates the processing result code and sets a confirmation timestamp in the freight units that are related to the delivery confirmation.

Note that the *Change Transportation Planning View Based on Delivery Bulk Confirmation* inbound operation does not change an instance of a <u>Transportation Planning View [Page 112]</u> business object (this is a transient business object that is not persisted in the database).

Processing

For more information about bulk processing, see Bulk, Bundle, Collection [Page 249].

Error Handling

The Change Transportation Planning View Based on Delivery Bulk Confirmation operation supports Forward Error Handling [Page 268]. The following error categories are used:

- PRE.TEE.LRE: Lock Error
- DCE: Conversion Error
- PRE: Processing Error

For more information about the individual error categories, see the code list for the global data type <u>LogItemCategoryCode [Page 272]</u>.

Message Types

• Outbound Delivery Bulk Confirmation

Notes on SAP Implementation

Integration

You can use this operation and the related operations to integrate SAP ERP with SAP Transportation Management (SAP TM). For more information, see the documentation of the <u>Transportation Planning View [Page 112]</u> business object.

To determine whether a response has been received from SAP ERP for freight units that are related to an order-based transportation requirement (OTR) and that contain a timestamp for sending a delivery proposal, the monitoring process in SAP TM uses the confirmation timestamp that is set by this operation. For more information, see <u>Monitoring of Delivery</u> <u>Creation</u>.

Note that if the processing result code sent by SAP ERP is *Unsuccessful*, the SAP TM system raises an alert of category TMS_OI_DLV_CREATION_PROBLEM.

Enhancements

The BAdl for OutboundDeliveryBulkConfirmation_In (/SCMTMS/CPX_SE_ODLV_CNF) Business Add-In (BAdl) is available for this operation.

Transportation Request Processing

Definition

The processing of requests from an ordering party for the provision of transportation services.

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	TransportationRequestProcessing

Business Context and Use

The *Transportation Request Processing* process component provides functions for handling requests received from a customer for the provision of transportation services. A transportation service is represented by a request to transport goods from one or more shippers to one or more consignees in accordance with agreed terms and conditions. In a B2B scenario, the request can represent a forwarding quotation or a forwarding order. In an intracompany scenario (that is, an A2A scenario), the request can represent either an order-based transportation requirement (that is, a preliminary request to transport goods for a particular order) or a delivery-based transportation requirement (that is, a finalized request to transport goods for a particular delivery).

The *Transportation Request Processing* process component provides A2A enterprise services that enable order processing and delivery processing to be integrated with transportation request processing. It provides enterprise services for the following scenarios:

Order Integration

In this scenario, orders are transferred from order processing to transportation request processing. In transportation request processing, an order is represented by an orderbased transportation requirement (OTR). This scenario can be used for sales orders, purchase orders (including stock transport orders), and returns orders.

Delivery Integration

In this scenario, deliveries are transferred from delivery processing to transportation request processing. In transportation request processing, a delivery is represented by a delivery-based transportation requirement (DTR). This scenario can be used for inbound deliveries and outbound deliveries.

The *Transportation Request Processing* process component provides B2B enterprise services that enable a carrier to communicate directly with a customer. It provides B2B services for the following scenarios:

• Forwarding Quotations

In this scenario, a carrier receives a request for quotation from a customer, based on which transportation request processing creates a forwarding quotation. The carrier can then confirm the request for quotation, that is, send a quotation to the customer or send the reason for rejecting the request for quotation. The customer can also send a cancellation of a request for quotation that has already been sent to the carrier. Based on this, transportation request processing cancels the corresponding forwarding quotation.

• Forwarding Orders

In this scenario, a carrier receives a new or updated freight order from a customer, based on which transportation request processing creates or updates a forwarding order. The carrier can then send a confirmation to the customer to confirm the creation of the forwarding order. The customer can also send a cancellation of a freight order that has already been sent to the carrier. Based on this, transportation request processing cancels the corresponding forwarding order. (Note that an update or cancellation can only be carried out if the status of the forwarding order allows it.)

• Forwarding Orders Based on Forwarding Quotations

In this scenario, transportation request processing creates a forwarding order with reference to an existing forwarding quotation.

Note that a customer could be either a shipper, a logistics service provider, or a carrier who subcontracts transportation services to another carrier.

Notes on SAP Implementation

Master Data for B2B Communication

You have to define your customers as business partners in the SAP Transportation Management (SAP TM) back-end system. You define business partners in SAP NetWeaver Business Client (NWBC) by choosing Master Data General Define Business Partner.

We recommend that you assign standard IDs to each business partner and to each of the involved locations and products.

More Information

SAP Transportation Management (SAP TM)

Transportation Request

Definition

A request to transport goods from one or more shippers to one or more consignees in accordance with agreed terms and conditions. In an intracompany integration scenario, the request can represent either an order-based transportation requirement (preliminary) or a delivery-based transportation requirement (final). In a B2B scenario, it can represent a forwarding quotation or a forwarding order. A transportation request can also include the assignment of transportation stages.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	TransportationRequest
Object Category	Business Process Object

Business Context and Use

The *Transportation Request* business object enables a carrier to perform the following transportation activities:

- Receive requests for quotation from a customer and submit a forwarding quotation. If the quotation is accepted by the customer, the carrier can then create a forwarding order based on the forwarding quotation.
- Create a forwarding order based on an order received from a customer. The carrier uses the forwarding order to plan and execute the transportation activities. It is also used for the customer settlement process.

Note that a customer could be either a shipper, a logistics service provider, or a carrier who subcontracts transportation services to another carrier.

The *Transportation Request* business object enables a shipper to carry out transportation planning and execution for order-based transportation requirements and delivery-based requirements that were created based on orders and deliveries received from a logistics execution system.

For more information about the business context, see the documentation of the <u>Transportation</u> <u>Request Processing [Page 128]</u> process component.

Credit Usage Out

Definition

An interface to query the creditworthiness of business partners and to send information about their credit commitments.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Credit Usage Out* outbound service interface contains operations that exchange credit information about business partners with a connected credit management application.

Check Transportation Request Ordering Party Creditworthiness

Definition

To trigger the sending of information about the creditworthiness of a business partner involved in a transportation request in the role of a payer party.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CreditWorthinessQuery_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Synchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

Before you approve a new or changed forwarding order, you check the creditworthiness of the relevant business partner (that is, the payer) by performing a credit limit check. The *Check Transportation Request Ordering Party Creditworthiness* outbound operation requests information about the business partner from a connected credit management application. Based on the response from the credit management application, you can decide whether or not to proceed with the order.

Related Operations

- The <u>Notify of Credit Commitment [Page 135]</u> outbound operation in the <u>Transportation</u> <u>Request Processing [Page 128]</u> process component informs the credit management application about the credit limit amount approved for a business partner in a specific order.
- The <u>Notify of Credit Commitment [Page 228]</u> outbound operation in the <u>Customer Freight</u> <u>Invoice Request Processing [Page 225]</u> process component provides the credit management application with updated information about the business partner's credit commitments during forwarding settlement.

Features

The *Check Transportation Request Ordering Party Creditworthiness* outbound operation sends the following data to the credit management application:

- Business partner ID (that is, payer ID)
- Amount to be checked
- Internal ID of the credit segment

The operation receives data about the creditworthiness of the business partner, including the following:

- Flag that indicates whether the business partner is creditworthy
- Credit limit that is valid for the business partner for a specific period
- Total credit exposure amount of the business partner
- Flag that indicates whether the business partner is blocked in the credit management application
- Credit rating
- Credit risk class that indicates the risk of non payment

Message Types

- CreditWorthinessQuery
- CreditWorthinessResponse

Notes on SAP Implementation

In SAP Transportation Management (SAP TM), you use this operation to request credit limit information for a business partner from SAP Credit Management. If you have enabled credit limit checks for the relevant forwarding order types, the SAP TM system triggers the operation when you save a new or changed forwarding order or when you manually trigger a credit limit check for a forwarding order.

Note that a forwarding order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have connected your SAP TM system to the SAP Credit Management system.

In SAP Credit Management, you have carried out the following activities in Customizing for *Financial Supply Chain Management* under Credit Management Integration with Accounts *Receivable Accounting and Sales and Distribution* Integration with Accounts Receivable *Accounting*:

- Define Credit Segment
- Assign Credit Control Area and Credit Segment

In SAP TM, you have made the following Customizing settings:

You have enabled the credit limit check for the relevant forwarding order types. For more information, see Customizing for *Transportation Management* under *Forwarding Order Management Forwarding Order Define Forwarding Order Types*.

You have assigned the credit segment IDs that the SAP TM system uses to access the credit management functions in the SAP Credit Management application. For more information, see Customizing for *Transportation Management* under Basic Functions Credit Management Integration Assign Credit Segments to Sales Orgs and Company Orgs 1.

Enhancements

The BAdI for CreditWorthinessQuery_Out (/SCMTMS/CLC_SE_CRCMT) Business Add-In (BAdI) is available for this operation.

More Information

Forwarding Order Management

Notify of Credit Commitment

Definition

To send a notification about the credit commitments of business partners.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CreditCommitmentNotification_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

You have approved a new or changed forwarding order after performing a credit limit check for the relevant business partner (that is, the payer). You used a connected credit management application to perform the check. Either the credit limit check was successful, or the credit limit check was unsuccessful and you have decided to proceed with the order despite the result.

When you approve and save the order, the *Notify of Credit Commitment* outbound operation informs the credit management application about the credit limit amount approved for the business partner. This allows the credit management application to update the credit exposure information for the business partner. The operation also sends an update to the credit management application if you cancel an approved forwarding order.

Related Operations

During forwarding settlement, the <u>Notify of Credit Commitment [Page 228]</u> outbound operation in the <u>Customer Freight Invoice Request Processing [Page 225]</u> process component provides the credit management application with updated information about the business partner's credit commitments.

Features

The *Notify of Credit Commitment* outbound operation sends credit commitment data to the credit management application, including the following:

- Business partner ID (that is, payer ID)
- Amount committed (for example, total amount of the forwarding order)

- Forwarding order number
- Internal ID of the credit segment
- Validity date of the commitment

Message Types

CreditCommitmentNotification

Prerequisites

The <u>Check Transportation Request Ordering Party Creditworthiness [Page 132]</u> outbound operation has requested credit information about a business partner from a connected credit management application.

Notes on SAP Implementation

In SAP Transportation Management (SAP TM), you use this operation to send credit commitment information for a business partner to SAP Credit Management. The SAP TM system triggers the operation when you approve and save a forwarding order after you have carried out a credit limit check for the business partner; or when you cancel an approved forwarding order. SAP Credit Management updates the credit limit amount for the business partner accordingly (credit exposure category *Open Orders*). Note that a forwarding order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have made the required settings for credit limit checks. For more information, see the *Configuration* section in the documentation of the <u>Check Transportation Request Ordering Party</u> <u>Creditworthiness [Page 132]</u> outbound operation.

Enhancements

The BAdI for CreditCommitmentNotification_Out Business Add-In (BAdI) is available for this operation.

More Information

Forwarding Order Management

Intracompany Transportation Requesting In

Definition

An interface to simulate, create, change, or cancel in-house transportation requests.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Intracompany Transportation Requesting In* inbound service interface groups operations that simulate, create, change, or cancel transportation requirements, based on order or delivery data received from a logistics execution system.

Notes on SAP Implementation

Configuration

To integrate order and delivery processing in SAP ERP with transportation request processing in SAP Transportation Management (SAP TM), you have to connect your SAP TM system to an SAP ERP system and make the required Customizing settings in both systems. For more information, see <u>Configuring Integration of Orders and Deliveries</u>.

Note that an order-based transportation requirement (OTR) or a delivery-based requirement (DTR) in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request</u> [Page 130] business object.

Maintain Transportation Request

Definition

To create or change a transportation request of the category "order-based transportation requirement" or "delivery-based transportation requirement".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	IntracompanyTransportationRequestRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Yes
Change/Update Behavior [Page 257]	<u>Type1 [Page 258]</u>
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper uses transportation request processing to carry out transportation planning and execution for orders and deliveries created in a logistics execution system. The *Maintain Transportation Request* inbound operation receives the order or delivery data and creates or changes the corresponding order-based transportation requirements or delivery-based transportation requirements (DTRs). These are used as the basis for transportation planning.

This operation can be used in a sell-from-stock process, for example. For more information, see the documentation of the <u>Request Outbound Delivery Creation As Bulk [Page 122]</u> outbound operation.

Related Operations

The following operations can send order data to the *Maintain Transportation Request* inbound operation:

- Request Transportation Request outbound operation in the Sales Order Processing process component
- Request Transportation Request outbound operation in the Purchase Order Processing process component. Note that this operation is used for purchase orders, stock transport orders, and returns purchase orders.

• Request Transportation Request outbound operation in the Customer Return Processing process component

The following operations can send delivery data to the *Maintain Transportation Request* inbound operation:

- Request Transportation Request outbound operation in the Outbound Delivery Processing process component
- Request Transportation Request outbound operation in the Inbound Delivery Processing process component

In addition, you can use the following operations:

- The <u>Cancel Transportation Request [Page 143]</u> inbound operation cancels a transportation requirement based on a canceled order or delivery.
- The <u>Simulate Transportation Request [Page 141]</u> inbound operation simulates an orderbased transportation requirement for a sales order.

Features

The Maintain Transportation Request inbound operation receives data such as the following:

- Category of the transportation request that is to be created or changed, that is, an orderbased transportation requirement or a delivery-based transportation requirement
- ID of the document in the sending system for which a transportation requirement is to be created or changed
- Information about the items in the order or delivery
- Relevant dates, locations (for example, ship-from and ship-to locations), and business partners (for example, shipper and consignee)

Error Handling

Forwarding Error Handling

The *Maintain Transportation Request* inbound operation supports <u>Forward Error Handling [Page</u> 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Message Types

• TransportationRequestSUITERequest

Notes on SAP Implementation

The *Maintain Transportation Request* inbound operation can create DTRs or change DTRs as a result of a delivery split triggered by SAP ERP, the SAP Extended Warehouse Management (SAP EWM) application, or SAP TM. If SAP EWM triggers the split, the delivery split is processed in SAP ERP first and then transferred to SAP TM. The triggering application is included in the message sent by SAP ERP to enable SAP TM to distinguish between a split that is triggered by SAP TM (planning is correct in SAP TM) and a split triggered by SAP ERP or SAP EWM (planning is no longer correct and must be updated in SAP TM).

For information about delivery splits triggered by SAP TM, see the documentation of the <u>Request</u> <u>Outbound Delivery Split V1 [Page 146]</u> outbound operation.

Configuration

For more information, see the documentation of the <u>Intracompany Transportation Requesting In</u> [Page 137] inbound service interface.

Enhancements

The BAdI for IntracompanyTransportationRequestRequest_In (/SCMTMS/TRQ_SE_REQREQ) Business Add-In (BAdI) is available for this operation.

Simulate Transportation Request

Definition

To simulate a transportation request.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	IntracompanyTransportationRequestSimulateRequestConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR
Category [Page 293]	SAP A2A
Direction [Page_262]	Inbound
Mode [Page 279]	Synchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper carries out transportation planning synchronously in transportation request processing during sales order processing in a logistics execution system. This enables the transportation situation to be taken into account when calculating feasible dates and quantities for sales order items.

While creating, changing, or rescheduling a sales order in sales order processing, a user triggers transportation planning in transportation request processing. Sales order processing requests the simulation of an order-based transportation requirement (OTR) and the related planning activities. The *Simulate Transportation Request* inbound operation creates an order-based transportation requirement, triggers transportation planning, and returns the planning results to sales order processing.

Related Operations

The Simulate Transportation Request inbound operation can receive a simulation request from the Request Transportation Request Simulation outbound operation in the Sales Order Processing process component.

Features

The Simulate Transportation Request inbound operation receives data such as the following:

- ID of the sales order if the sales order has already been created in sales order processing
- Information about the items in the sales order
- Relevant dates, locations (for example, ship-from and ship-to locations), and business partners (for example, shipper and consignee)

The *Simulate Transportation Request* outbound operation returns the transportation planning results to the requesting system. For example, it sends the relevant dates and corresponding quantities for the schedule lines in the order (for example, delivery and loading date).

Message Types

- Transportation Request SUITE Simulate Confirmation
- Transportation Request SUITE Simulate Request

Notes on SAP Implementation

Configuration

To use this operation in SAP Transportation Management (SAP TM) to receive a simulation request from SAP ERP, you have to connect your SAP TM system to an SAP ERP system and make the required Customizing settings in both systems. For more information, see <u>Scheduling of SAP ERP Sales Orders in SAP TM</u>.

Enhancements

The BAdI for IntracompanyTranspRequestSimulateReqConfirmation_In (/SCMTMS/TRQ_SE_TPNREQ_SIM) Business Add-In (BAdI) is available for this operation.

Cancel Transportation Request

Definition

To cancel a transportation request of the category "order-based transportation requirement" or "delivery-based transportation requirement".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	IntracompanyTransportationRequestCancellationRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-ERP-TR
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Yes
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page_283]	Yes

Business Context and Use

A shipper cancels an order or delivery that has already been sent from order processing or delivery processing to transportation request processing. In addition, transportation request processing has already created the corresponding order-based transportation requirement (OTR) or delivery-based transportation requirement (DTR). The *Cancel Transportation Request* inbound operation receives a request to cancel an OTR or DTR for a canceled order or delivery. It cancels the OTR or DTR and any related business documents.

Related Operations

The following operations can send order cancellation data to the *Cancel Transportation Request* inbound operation:

- Request Transportation Request Cancellation outbound operation in the Sales Order Processing process component
- Request Transportation Request Cancellation outbound operation in the Purchase Order Processing process component

• Request Transportation Request Cancellation outbound operation in the Customer Return Processing process component

The following operations can send delivery cancellation data to the *Cancel Transportation Request* inbound operation:

- Request Transportation Request Cancellation outbound operation in the Outbound Delivery Processing process component
- Request Transportation Request Cancellation outbound operation in the Inbound Delivery Processing process component

Features

The *Cancel Transportation Request* inbound operation receives the ID of the canceled order or delivery, based on which it cancels the corresponding transportation requirement and any related documents.

Error Handling

Forward Error Handling

The *Cancel Transportation Request* inbound operation supports <u>Forward Error Handling [Page</u> 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Message Types

TransportationRequestSUITECancellationRequest

Prerequisites

The <u>Maintain Transportation Request [Page 138]</u> inbound operation has created a transportation requirement based on an order or delivery. Note that cancellation is not possible if the OTR or DTR has the status *Canceled* or *Completed*.

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Intracompany Transportation Requesting In</u> [Page 137] inbound service interface.

Enhancements

The BAdI for IntracompanyTranspRequestCancellationRequest_In (/SCMTMS/TRQ_SE_CNCLRQ) Business Add-In (BAdI) is available for this operation.

Outbound Delivery Out

Definition

An interface to request the split of outbound deliveries.

Technical Data

Category	A2A
Direction	Outbound

Business Context and Use

The *Outbound Delivery Out* outbound service interface contains an operation that sends information about a required outbound delivery split to a logistics execution system.

More Information

Request Outbound Delivery Split V1 [Page 146]

Request Outbound Delivery Split V

Definition

To request the split of an outbound delivery.

Technical Data

Release State	Released
Technical Name	OutboundDeliveryERPSplitRequest_Out_V1
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-ERP-TR
Category	A2A
Direction	Outbound
Mode	Asynchronous
Idempotency	No
Change/Update Behavior	Туре 1
P2P Communication Enabled	Yes

Business Context

A shipper performs transportation planning or changes the existing planning of a delivery-based transportation requirement (DTR). The DTR is based on an outbound delivery that was received from a logistics execution system. When the shipper saves the planning results, the system determines that a delivery split is required (for example, because freight units that belong to the DTR have been assigned to different freight orders).

To split the delivery-based transportation requirement, the outbound delivery must be split first in the logistics execution system. The *Request Outbound Delivery Split V1* outbound operation requests the delivery split in the logistics execution system.

Related Operations

- Delivery split requests sent by the *Request Outbound Delivery Split V1* outbound operation can be received by the *Maintain Outbound Delivery Based on Outbound Delivery Split Request V1* (OutboundDeliveryERPSplitRequest_In_V1) inbound operation in the *Outbound Delivery Processing* process component.
- The <u>Change Transportation Request Based on Outbound Delivery Split Confirmation V1</u> [Page 150] inbound operation receives a confirmation that specifies whether the outbound delivery split was successful.
- If the dates in an outbound delivery have to be updated because dates are changed during transportation planning or manually in a freight order, the <u>Request Outbound</u> <u>Delivery Update [Page 153]</u> outbound operation requests a delivery update in the logistics execution system. Note that if the system determines that a delivery update and

a delivery split are required for the same outbound delivery at the same time, both the split and update are requested by the *Request Outbound Delivery Split V1* outbound operation.

Features

The *Request Outbound Delivery Split V1* outbound operation sends information about the items that are to be split from the original outbound delivery (that is, IDs of the items in the original delivery, split quantity, unit of measure, and the required dates for the new delivery). If a delivery is to be split into several deliveries, each delivery is sent in a separate message.

If the logistics execution system splits the outbound delivery, it sends the following data to transportation request processing in separate messages:

- The new delivery that has been created for the items split from the original delivery. The data sent includes a reference to the original delivery and the triggering application.
- The changed original delivery. The data sent includes a reference to the new delivery.

The <u>Maintain Transportation Request [Page 138]</u> inbound operation creates the new deliverybased transportation requirement and updates the existing delivery-based transportation requirement accordingly.

Prerequisites

The <u>Maintain Transportation Request [Page 138]</u> inbound operation has created a delivery-based transportation requirement based on an outbound delivery received from a logistics execution system.

Notes on SAP Implementation

You use this operation in SAP Transportation Management (SAP TM) to request a delivery split in SAP ERP. Note the following:

- A delivery split is required only if the first stage or the last stage of the transportation chain is affected.
- SAP TM requests a delivery split only if the ERP outbound delivery does not have one of the following statuses:
 - Distribution status: Distributed
 - o Goods movement status: Partially Completed or Completed
- SAP TM can request a delivery split only for an outbound delivery. It cannot request a delivery split for an inbound delivery.

You can use a worklist to monitor DTRs for which a delivery split or update has not been completed yet. In SAP NetWeaver Business Client choose ERP Logistics Integration Worklist Overview Transportation Requirements (Not Finalized) DTRs with Incomplete Delivery Splits/Updates .

Configuration

 You have defined a delivery split/update type in Customizing for Transportation Management under Integration ERP Logistics Integration Delivery-Based Transportation Requirement Define Delivery Split/Update Types .

- You have assigned the delivery split/update type to the delivery-based transportation requirement type in Customizing for *Transportation Management* under Integration
 ERP Logistics Integration Delivery-Based Transportation Requirement Define Delivery-Based Transportation Requirement Types 1.
- You have assigned output profile /SCMTMS/TRQ_DTR to the delivery-based transportation requirement type in the Customizing activity *Define Delivery-Based Transportation Requirement Types*.

Enhancements

The Business Add-In (BAdI) *BAdI for OutboundDeliveryERPSplitRequest_Out_V1* (/SCMTMS/TRQ SE DLVSPLT RQ) is available for this operation.

More Information

Delivery Splits and Updates Triggered by SAP TM

Outbound Delivery In

Definition

An interface to receive a confirmation in response to a request for an outbound delivery split.

Technical Data

Category	A2A
Direction	Inbound

Business Context and Use

The *Outbound Delivery In* inbound service interface contains an operation that receives a confirmation of an outbound delivery split.

More Information

Change Transportation Request Based on Outbound Delivery Split Confirmation V1 [Page 150].

Change Transportation Request Based on Outbound Delivery Split Confirmation V

Definition

To change a transportation request of the category "delivery-based transportation requirement" based on the confirmation of an outbound delivery split.

Technical Data

Release State	Released	
Technical Name	OutboundDeliveryERPSplitConfirmation_In_V1	
Namespace	http://sap.com/xi/TMS/Global	
Application Component	TM-ERP-TR	
Category	A2A	
Direction	Inbound	
Mode	Asynchronous	
Idempotency	No	
Change/Update Behavior	Туре 1	
P2P Communication Enabled	Yes	

Business Context

An outbound delivery split has been requested in a logistics execution system by the <u>Request</u> <u>Outbound Delivery Split V1 [Page 146]</u> outbound operation. When the logistics execution system confirms whether the delivery split was successful, the *Change Transportation Request Based on Outbound Delivery Split Confirmation V1* inbound operation receives the confirmation and updates the corresponding delivery-based transportation requirement.

Related Operations

The Change Transportation Request Based on Outbound Delivery Split Confirmation V1 inbound operation can receive a confirmation from the Confirm Outbound Delivery Split V1 (OutboundDeliveryERPSplitConfirmation_Out_V1) outbound operation in the Outbound Delivery Processing process component.

Features

The Change Transportation Request Based on Outbound Delivery Split Confirmation V1 inbound operation receives the ID of the original delivery for which the delivery split was requested and a severity code that shows whether the split was successful. If the split was successful, the operation also receives the ID of the new outbound delivery. Note that it is not possible to trigger a new delivery split until the current delivery split has been successfully completed.

Prerequisites

The <u>Request Outbound Delivery Split V1 [Page 146]</u> outbound operation has requested an outbound delivery split.

Notes on SAP Implementation

For more information, see the documentation of the <u>Request Outbound Delivery Split V1 [Page</u> 146] outbound operation.

Enhancements

The Business Add-In (BAdI) *BAdI for OutboundDeliveryERPSplitConfirmation_In_V1* (/SCMTMS/TRQ_SE_ODLVSPLTCF) is available for this operation.

More Information

Delivery Splits and Updates Triggered by SAP TM

Outbound Delivery Processing Out

Definition

An interface to request the update of outbound deliveries.

Technical Data

Category	A2A
Direction	Outbound

Business Context and Use

The *Outbound Delivery Processing Out* outbound service interface contains an operation that sends information about a required outbound delivery update to a logistics execution system.

More Information

Request Outbound Delivery Update [Page 153]

Request Outbound Delivery Update

Definition

To request the update of an outbound delivery.

Technical Data

Release State	Released
Technical Name	OutboundDeliveryUpdateRequest_Out
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-ERP-TR
Category	A2A
Direction	Oubound
Mode	Asynchronous
Idempotency	No
Change/Update Behavior	Туре 1
P2P Communication Enabled	Yes

Business Context

A shipper performs transportation planning or changes the existing planning of a delivery-based transportation requirement (DTR). The DTR is based on an outbound delivery that was received from a logistics execution system. Dates are changed during planning or the shipper changes the dates of the relevant freight order manually. When the shipper saves the planning results or the changed freight order, the system determines that the dates in the freight order no longer match the dates in the DTR and the original outbound delivery.

To update the delivery-based transportation requirement accordingly, the dates must be updated first in the outbound delivery. The *Request Outbound Delivery Update* outbound operation requests the delivery update in the logistics execution system.

Related Operations

- A request sent by the *Request Outbound Delivery Update* outbound operation can be received by the *Update Outbound Delivery* (OutboundDeliveryUpdateRequest_In) inbound operation in the *Outbound Delivery Processing* process component.
- The <u>Change Transportation Request Based on Outbound Delivery Update [Page 157]</u> inbound operation receives a confirmation that specifies whether the outbound delivery update was successful.
- If an outbound delivery has to be split as the result of new or changed transportation planning, the <u>Request Outbound Delivery Split V1 [Page 146]</u> outbound operation requests a delivery split in the logistics execution system. Note that if the system determines that a delivery update and a delivery split are required for the same outbound

delivery at the same time, both the split and update are requested by the <u>Request</u> <u>Outbound Delivery Split V1 [Page 146]</u> outbound operation. In this case, the update is not requested by the *Request Outbound Delivery Update* outbound operation.

Features

The *Request Outbound Delivery Update* outbound operation sends the changed dates and the ID of the outbound delivery in the logistics execution system.

If the delivery update is successful, the logistics execution system sends the updated original delivery back to transportation request processing. The <u>Maintain Transportation Request [Page</u> 138] inbound operation receives the delivery data and updates the corresponding delivery-based transportation requirement.

Prerequisites

The <u>Maintain Transportation Request [Page 138]</u> inbound operation has created a delivery-based transportation requirement based on an outbound delivery received from a logistics execution system.

Notes on SAP Implementation

You use this operation in SAP Transportation Management (SAP TM) to request an outbound delivery update in SAP ERP. You can update the goods issue date, loading date, transportation start date, and delivery date in the outbound delivery based on changed dates in SAP TM.

Note the following:

- SAP TM requests a delivery update only if the SAP ERP outbound delivery does not have one of the following statuses:
 - Distribution status: Distributed
 - o Goods movement status: Partially Completed or Completed
- SAP TM can request a delivery update only for an outbound delivery. It cannot request a delivery update for an inbound delivery.

You can use a worklist to monitor DTRs for which a delivery split or update has not been completed yet. In SAP NetWeaver Business Client choose *ERP Logistics Integration Worklist Overview Transportation Requirements (Not Finalized) DTRs with Incomplete Delivery Splits/Updates*.

Configuration

- You have defined a delivery split/update type in Customizing for Transportation Management under I Integration ERP Logistics Integration Delivery-Based Transportation Requirement Define Delivery Split/Update Types .
- You have assigned the delivery split/update type to the delivery-based transportation requirement type in Customizing for *Transportation Management* under Integration
 ERP Logistics Integration Delivery-Based Transportation Requirement Define Delivery-Based Transportation Requirement Types 1.

• You have assigned output profile /SCMTMS/TRQ_DTR to the delivery-based transportation requirement type in the Customizing activity *Define Delivery-Based Transportation Requirement Types*.

Enhancements

The Business Add-In (BAdI) *BAdI for OutboundDeliveryUpdateRequest_Out* (/SCMTMS/TRQ_SE_DLVUPD_REQ) is available for this operation.

More Information

Delivery Splits and Updates Triggered by SAP TM

Outbound Delivery Processing In

Definition

An interface to receive a confirmation in response to a request for an outbound delivery update.

Technical Data

Category	A2A
Direction	Inbound

Business Context and Use

The Outbound Delivery Processing In inbound service interface contains an operation that receives a confirmation of an outbound delivery update.

More Information

Change Transportation Request Based on Outbound Delivery Split Confirmation [Page 150]

Change Transportation Request Based on Outbound Delivery Update Confirmation

Definition

To change a transportation request of the category "delivery-based transportation requirement" based on the confirmation of an outbound delivery update.

Technical Data

Release State	Released
Technical Name	OutboundDeliveryConfirmation_In_V1
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-ERP-TR
Category	A2A
Direction	Inbound
Mode	Asynchronous
Idempotency	No
Change/Update Behavior	Туре 1
P2P Communication Enabled	Yes

Business Context

An outbound delivery update has been requested in a logistics execution system by the <u>Request</u> <u>Outbound Delivery Update [Page 153]</u> outbound operation. When the logistics execution system confirms whether the delivery update was successful, the *Change Transportation Request Based on Outbound Delivery Update Confirmation* inbound operation receives the confirmation and updates the corresponding delivery-based transportation requirement.

Related Operations

The Change Transportation Request Based on Outbound Delivery Update Confirmation inbound operation can receive a confirmation from the Confirm Outbound Delivery V1 (OutboundDeliveryConfirmation_Out_V1) outbound operation in the Outbound Delivery Processing process component.

Features

The Change Transportation Request Based on Outbound Delivery Update Confirmation inbound operation receives the ID of the original delivery for which the delivery update was requested and a severity code that shows whether the update was successful. Note that it is not possible to trigger a new delivery update until the current delivery update has been successfully completed.

Prerequisites

The <u>Request Outbound Delivery Update [Page 153]</u> outbound operation has requested an outbound delivery update.

Notes on SAP Implementation

For more information, see the documentation of the <u>Request Outbound Delivery Update [Page</u> 153] outbound operation.

Enhancements

The Business Add-In (BAdI) *BAdI for OutboundDeliveryConfirmation_In_V1*(/SCMTMS/TRQ_SE_ODLVCNF1) is available for this operation.

More Information

Delivery Splits and Updates Triggered by SAP TM

Transportation Quotation Requesting In

Definition

An interface to create or cancel transportation requests of the category "forwarding quotation".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Quotation Requesting In* inbound service interface groups operations that receive freight request for quotation (RFQ) data from a customer (for example, a shipper) during a tendering process.

Note that the operations in this service interface are only used in RFQ-based tendering. The operations in the <u>Transportation Requesting In [Page 169]</u> inbound service interface and the <u>Transportation Requesting Out [Page 175]</u> outbound service interface are used for direct tendering.

Notes on SAP Implementation

Integration

If a customer also uses SAP Transportation Management (SAP TM), the operations in this service interface exchange data with the operations in the <u>Transportation Quotation Requesting</u> <u>Out [Page 102]</u> outbound service interface in the <u>Transportation Order Processing [Page 11]</u> process component. Otherwise, the operations can exchange data with an equivalent third-party application that is being used by the customer.

For more information about integration and configuration, see the documentation of the <u>Transportation Quotation Requesting Out [Page 165]</u> outbound service interface.

More Information

Freight Tendering

Create Transportation Request Quotation

Definition

To create a transportation request of the category "forwarding quotation". Prior to confirmation, this transportation request represents a "forwarding request for quotation". After confirmation, and provided it has not been rejected, it represents a "forwarding quotation".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestQuotationCreateRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWM-FWQ
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer uses RFQ-based tendering to determine which carrier is to execute a particular freight order. The customer starts the tendering process for a freight order by sending a freight request for quotation (RFQ) to one or more carriers. It contains relevant data from the freight order, for example, quantities and delivery dates. Based on this, the carrier can decide whether to submit a forwarding quotation or reject the RFQ. The *Create Transportation Request Quotation* inbound operation creates a forwarding request for quotation based on a freight request for quotation received from a customer. The carrier can then review the forwarding request for quotation and either accept it (that is, submit a forwarding quotation) or reject it.

Related Operations

- The corresponding <u>Request Transportation Order Quotation Creation [Page 104]</u> outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component can send a freight request for quotation, based on which the *Create Transportation Request Quotation* inbound operation creates a forwarding request for quotation.
- The <u>Confirm Transportation Request Quotation [Page 167]</u> outbound operation sends a confirmation indicating whether a carrier has accepted or rejected a forwarding request for quotation received from a customer.

• The <u>Cancel Transportation Request Quotation [Page 163]</u> inbound operation cancels a forwarding request for quotation or a forwarding quotation, based on a canceled freight request for quotation received from a customer.

Features

The *Create Transportation Request Quotation* inbound operation receives data such as the following from the sending system:

- Price limit
- Parties involved (for example, shipper and consignee)
- List of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross volume, gross weight, net weight, and number of pieces)
- Means of transport and locations (for example, ship-from and ship-to location, including address information)
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Transportation terms and delivery terms

Message Types

• Transportation Request Quotation Create Request

Prerequisites

A customer has sent a freight request for quotation (for example, using the <u>Request</u> <u>Transportation Order Quotation Creation [Page 104]</u> outbound operation in the <u>Transportation</u> <u>Order Processing [Page 11]</u> process component).

Constraints

In the Item node in the TransportationRequestQuotationCreateRequestMessage message data type, only StandardID and InternalID of a Product element are supported.

Items of the category "Active Vehicle Resource Item" and "Passive Vehicle Resource Item" are not supported.

Notes on SAP Implementation

Integration

Note that the forwarding request for quotation is part of the forwarding quotation. Only the term "forwarding quotation" is used on the user interface.

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 165] outbound interface.

Versioning

Note that in SAP TM 1.0, the <u>Request Transportation Order Quotation Creation [Page 104]</u> outbound operation and the *Create Transportation Request Quotation* inbound operation shared a common message data type: TransportationDocumentQuotationCreateRequestMessage. As of SAP TM 1.01, however, these operations use different message data types that are similar in structure, but not identical. The outbound operation continues to use message data type TransportationDocumentQuotationCreateRequestMessage. As a consequence, a mapping between these message data types is required. In addition, you must implement Business Add-In (BAdI) *BAdI for TransportationRequestQuotationCreateRequest_In* (/SCMTMS/TRQ_SE_TPNRQQ_REQ) to filter out the vehicle resource items, because these items are not supported (see *Constraints*).

Enhancements

The BAdl for TransportationRequestQuotationCreateRequest_In (/SCMTMS/TRQ_SE_TPNRQQ_REQ) Business Add-In (BAdl) is available for this operation.

Cancel Transportation Request Quotation

Definition

To cancel a transportation request of the category "forwarding quotation".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestQuotationCancellationRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWM-FWQ
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer uses RFQ-based tendering to determine which carrier is to execute a particular freight order. If the customer cancels a freight request for quotation that has already been sent to a carrier, the customer informs the carrier about the cancellation and requests the cancellation of the corresponding forwarding request for quotation or forwarding quotation. The *Cancel Transportation Request Quotation* inbound operation cancels a forwarding request for quotation or forwarding request for quotation and received from a customer.

Related Operations

The corresponding <u>Request Transportation Order Quotation Cancellation [Page 107]</u> outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component can inform a carrier about a canceled freight request for quotation.

Features

The *Cancel Transportation Request Quotation* inbound operation receives the following data from the sending system:

- ID of the canceled freight request for quotation
- ID of the forwarding quotation that was created based on the freight request for quotation (optional)

Message Types

Transportation Request Quotation Cancellation Request

Prerequisites

The <u>Create Transportation Request Quotation [Page 160]</u> inbound operation has been triggered by a freight request for quotation received from a customer.

Notes on SAP Implementation

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 165] outbound interface.

Enhancements

The BAdI for TransportationRequestQuotationCancellationReq_In (/SCMTMS/TRQ_SE_TPNRQQ_CNC) Business Add-In (BAdI) is available for this operation.

Transportation Quotation Requesting Out

Definition

An interface to send notifications or confirmations in response to a request to create a transportation request of the category "forwarding quotation".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Quotation Requesting Out* outbound service interface contains an operation that sends a confirmation indicating whether a carrier has accepted or rejected a freight request for quotation received from a customer (for example, a shipper) during a tendering process.

Notes on SAP Implementation

Integration

- If a customer also uses SAP Transportation Management (SAP TM), the operation in this service interface exchanges data with the operation in the <u>Transportation Quotation</u> <u>Requesting In [Page 159]</u> inbound service interface in the <u>Transportation Order</u> <u>Processing [Page 11]</u> process component. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the customer.
- A freight request for quotation in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A forwarding quotation in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Note that the forwarding request for quotation is part of the forwarding quotation. Only the term "forwarding quotation" is used on the user interface.

Configuration

You have made the following settings in the SAP TM system:

- You have defined one or more suitable output profiles, and schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings.
- You have assigned a suitable output profile to the relevant forwarding quotation types in Customizing for *Transportation Management* under Forwarding Order Management Forwarding Quotation Define Forwarding Quotation Types .

• You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound Queues* to this logical system. You do this in Customizing for *SAP Transportation Management* under *SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type*. Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for qRFC Communication.

For more information, see SAP Note 1517523.

More Information

Freight Tendering

Confirm Transportation Request Quotation

Definition

To confirm the receipt of a request to create a transportation request of the category "forwarding quotation". The confirmation is either a forwarding quotation or the rejection of a forwarding request for quotation.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestQuotationConfirmation_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWM-FWQ
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer uses RFQ-based tendering to determine which carrier is to execute a particular freight order. When the customer sends a freight request for quotation to a carrier, the carrier either accepts it by submitting a quotation, or rejects it.

The *Confirm Transportation Request Quotation* outbound operation sends a confirmation to a customer. The confirmation either contains a forwarding quotation or the reason for rejecting the RFQ.

Related Operations

The corresponding <u>Change Transportation Order Based on Transportation Order Quotation</u> <u>Confirmation [Page 110]</u> outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component can receive the confirmation sent by the *Confirm Transportation Request Quotation* outbound operation.

Features

The *Confirm Transportation Request Quotation* outbound operation can send the following data to the receiving system, for example:

• If a carrier rejects a freight request for quotation, the operation sends the rejection reason.

• If a carrier accepts a freight request for quotation, the operation sends the ID of the forwarding quotation and a quotation price, for example.

Message Types

Transportation Request Quotation Confirmation

Prerequisites

The <u>Create Transportation Request Quotation [Page 160]</u> inbound operation has created a forwarding request for quotation based on a freight request for quotation received from a customer.

Notes on SAP Implementation

Integration

The *Confirm Transportation Request Quotation* outbound operation is triggered in the SAP Transportation Management (SAP TM) back-end system when a carrier either submits a forwarding quotation or rejects an RFQ.

Configuration

For more information, see the documentation of the <u>Transportation Quotation Requesting Out</u> [Page 165] outbound interface.

Prerequisites

The forwarding quotation must fulfill all schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components*. For more information, see the documentation of the <u>Transportation Quotation Requesting Out [Page 165]</u> outbound service interface.

Versioning

Note that in SAP TM 1.0, the *Confirm Transportation Request Quotation* outbound operation and the <u>Change Transportation Order Based on Transportation Order Quotation Confirmation [Page</u> 110] inbound operation shared a common message data type:

TransportationDocumentQuotationConfirmationMessage. As of SAP TM 1.01, however, these operations use different message data types that are similar in structure, but not identical. The inbound operation continues to use message data type

TransportationDocumentQuotationConfirmationMessage, whereas the outbound operation now uses a separate message data type TransportationRequestQuotationConfirmationMessage. As a consequence, a mapping between these message data types is required.

Enhancements

The BAdl for TransportationRequestQuotationConfirmation_Out (/SCMTMS/TRQ_SE_TPNRQQ_CNF) Business Add-In (BAdl) is available for this operation.

Transportation Requesting In

Definition

An interface to create, change, or cancel transportation requests of the category "forwarding order".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Transportation Requesting In* inbound service interface groups operations that create, change, or cancel forwarding orders, based on freight order data received from a customer (for example, a shipper).

Note that the operations in this service interface can be used to receive orders in a direct tendering scenario. The operations in the <u>Transportation Quotation Requesting In [Page 159]</u> inbound service interface and the <u>Transportation Quotation Requesting Out [Page 165]</u> outbound service interface are used for RFQ-based tendering.

Notes on SAP Implementation

Integration

If a customer also uses SAP Transportation Management (SAP TM), the operations in this service interface exchange data with the operations in the <u>Transportation Ordering Out [Page 92]</u> outbound service interface in the <u>Transportation Order Processing [Page 11]</u> process component. Otherwise, the operations can exchange data with an equivalent third-party application that is being used by the customer.

For more information about integration and configuration, see the documentation of the <u>Transportation Requesting Out [Page 175]</u> outbound service interface.

More Information

Forwarding Order Management

Freight Tendering

Maintain Transportation Request

Definition

To create, change, or cancel a transportation request of the category "forwarding order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWM-FWO
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	<u>Type1 [Page 258]</u>
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

When a customer subcontracts transportation services to a carrier, the customer sends a freight order to the carrier. A freight order is the result of planning and contains essential information such as the goods to be transported and the delivery dates. Based on the freight order, the carrier can then create a forwarding order, which the carrier uses to plan the execution of the transportation services. The *Maintain Transportation Request* inbound operation creates or changes a forwarding order based on a new or changed freight order received from a customer.

Related Operations

- The *Maintain Transportation Request* inbound operation can create a forwarding order based on a freight order sent by the corresponding <u>Request Transportation Order [Page</u> 94] outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component.
- The <u>Confirm Transportation Request [Page 177]</u> outbound operation sends a confirmation indicating whether a carrier has accepted or rejected a freight order received from a customer.
- The <u>Cancel Transportation Request [Page 173]</u> inbound operation cancels a forwarding order based on a canceled freight order received from a customer.

Features

The *Maintain Transportation Request* inbound operation receives data such as the following from the sending system:

- Freight order ID
- Parties involved (for example, shipper and consignee)
- List of items that represent the goods to be transported and additional information about the goods (for example, containers, packages, or products, with the respective measurements and quantities, such as gross volume, gross weight, net weight, and number of pieces)
- Means of transport and locations, for example, ship-from and ship-to location, including address information. Note that if address information is not yet known or differs from existing master data, the operation automatically creates a one-time location in the background.
- Transportation stages and relevant dates (for example, pick-up and delivery dates)
- Transportation terms and delivery terms
- IDs of the business documents related to the freight order, for example, a sales order or purchase order

Error Handling

The *Maintain Transportation Request* inbound operation checks, for example, whether the required master data exists. If the master data is not available, the system displays error messages in the business application log.

Forwarding Error Handling

The *Maintain Transportation Request* inbound operation supports Forward Error Handling [Page 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Message Types

• Transportation Request Request

Prerequisites

A customer has sent a freight order (for example, using the <u>Request Transportation Order [Page</u> 94] outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component). Note that the *Maintain Transportation Request* inbound operation cannot change a forwarding order that has the status *Completed* or *Canceled*.

Constraints

In the Item node in the TransportationRequestRequestMessage message data type, only StandardID and InternalID of a Product element are supported.

Items of the category "Active Vehicle Resource Item" and "Passive Vehicle Resource Item" are not supported.

Notes on SAP Implementation

Integration

If all involved communication partners use a standard SAP Transportation Management (SAP TM) system, this operation is used only to create or change a forwarding order. However, some of the communication partners might have activated a feature called "cancellation with content" by means of enhancement techniques. To cover this case without requiring complex SAP NetWeaver Process Integration mapping, this operation can also be used to cancel a forwarding order.

For more information about cancellation with content, see SAP Note 1711010.

Configuration

For more information, see the documentation of the <u>Transportation Requesting Out [Page 175]</u> outbound service interface.

Versioning

The *Maintain Transportation Request* inbound operation performs a similar function to the *Maintain Freight Request* and *Maintain Shipment Request* inbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the <u>Request Transportation Order [Page 94]</u> outbound operation and the *Maintain Transportation Request* inbound operation shared a common message data type: TransportationDocumentRequestMessage. As of SAP TM 1.01, however, these operations use different message data types that are similar in structure, but not identical. The outbound operation continues to use the message data type TransportationDocumentRequestMessage, whereas the inbound operation now uses a separate message data type TransportationRequestRequestMessage. As a consequence, a mapping between these message data types is required. In addition, you must implement Business Add-In (BAdI) *BAdI for TransportationRequestRequest_In* (/SCMTMS/TRQ_SE_TPNRQ_REQ) to filter out the vehicle resource items, because these items are not supported (see *Constraints*).

Enhancements

The BAdI for TransportationRequestRequest_In (/SCMTMS/TRQ_SE_TPNRQ_REQ) Business Add-In (BAdI) is available for this operation.

Cancel Transportation Request

Definition

To cancel a transportation request of the category "forwarding order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestCancellationRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	SCM-TM-OM
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A customer subcontracts transportation services to a carrier. If the customer cancels a freight order that has already been sent to a carrier, the customer informs the carrier about the cancellation and requests the cancellation of the corresponding forwarding order.

The *Cancel Transportation Request* inbound operation cancels a forwarding order based on a freight order cancellation received from a customer.

Related Operations

The *Cancel Transportation Request* inbound operation can cancel a forwarding order based on a freight order cancellation received from the <u>Request Transportation Order Cancellation [Page 97]</u> outbound operation in the <u>Transportation Order Processing [Page 11]</u> process component.

Features

The *Cancel Transportation Request* inbound operation receives the following data from the sending system:

- ID of the canceled freight order, or the freight request for quotation ID if the canceled freight order was based on direct tendering
- ID of the forwarding order that was created based on the freight order (optional)

Message Types

Transportation Request Cancellation Request

Prerequisites

The <u>Maintain Transportation Request [Page 170]</u> inbound operation has created a forwarding order based on a freight order received from a customer.

Notes on SAP Implementation

Integration

If all involved communication partners use a standard SAP Transportation Management (SAP TM) system, this operation is used to cancel a forwarding order. However, some of the communication partners might have activated a feature called "cancellation with content" by means of enhancement techniques. To cover this case without requiring complex SAP NetWeaver Process Integration mapping, the <u>Maintain Transportation Request [Page 170]</u> operation can also be used to cancel a forwarding order.

For more information about cancellation with content, see SAP Note <u>1711010</u>.

Configuration

For more information, see the documentation of the <u>Transportation Requesting Out [Page 175]</u> outbound service interface.

Versioning

The Cancel Transportation Request inbound operation performs a similar function to the Cancel Freight Request and Cancel Shipment Request inbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Enhancements

The BAdl for TransportationRequestCancellationRequest_In (/SCMTMS/TRQ_SE_TPNRQ_CNC) Business Add-In (BAdI) is available for this operation.

Transportation Requesting Out

Definition

An interface to send notifications or confirmations in response to a request to create or change a transportation request of the category "forwarding order".

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Transportation Requesting Out* outbound service interface contains an operation that sends a confirmation indicating whether a carrier has accepted or rejected a freight order received from a customer (for example, a shipper).

Notes on SAP Implementation

Integration

- If a customer also uses SAP Transportation Management (SAP TM), the operation in this service interface exchanges data with the operation in the <u>Transportation Ordering In</u> [Page 99] inbound service interface in the <u>Transportation Order Processing [Page 11]</u> process component. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the customer.
- A freight order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A forwarding order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have made the following settings in the SAP TM system:

- You have defined one or more suitable output profiles, and schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings.
- You have assigned a suitable output profile to the relevant forwarding order types. You define forwarding order types in Customizing for *Transportation Management* under
 Forwarding Order Management Forwarding Order Define Forwarding Order Types
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound*

Queues to this logical system. You do this in Customizing for SAP Transportation Management under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities: Name Logical Systems, Assign Logical Systems to a Client, Maintain Business System Group, and Settings for qRFC Communication.

For more information, see SAP Note <u>1517523</u>.

More Information

Forwarding Order Management

Confirm Transportation Request

Definition

To confirm the receipt of a request to create or change a transportation request of the category "forwarding order".

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	TransportationRequestConfirmation_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWM-FWO
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

When a customer subcontracts a freight order to a carrier, the carrier is expected to send back a confirmation that indicates whether the freight order has been accepted or rejected. The *Confirm Transportation Request* outbound operation sends a confirmation indicating whether a carrier has accepted or rejected a freight order.

Related Operations

The corresponding <u>Change Transportation Order Based on Transportation Order Confirmation</u> [Page 100] inbound operation in the <u>Transportation Order Processing [Page 11]</u> process component can receive a confirmation sent by the *Confirm Transportation Request* outbound operation.

Features

The *Confirm Transportation Request* outbound operation sends an acceptance code that specifies whether a carrier has accepted or rejected the freight order. The operation can send the following data, for example:

- If a carrier rejects a freight order, the operation sends the rejection reason.
- If a carrier accepts a freight order without changes, the operation sends the ID of the forwarding order and the confirmed quantities and dates, for example.

• If a carrier accepts a freight order with changes, the operation sends the ID of the forwarding order and the changed data, for example, changed quantities and dates.

Message Types

• Transportation Request Confirmation

Prerequisites

The <u>Maintain Transportation Request [Page 170]</u> inbound operation has created a forwarding order based on a freight order received from a customer.

Notes on SAP Implementation

Integration

The *Confirm Transportation Request* outbound operation is triggered in the SAP Transportation Management (SAP TM) back-end system when a carrier confirms and then saves a forwarding order that was created based on a freight order received from a customer. It can also be triggered automatically by a background job.

Configuration

For more information, see the documentation of the <u>Transportation Requesting Out [Page 175]</u> outbound service interface.

Prerequisites

The forwarding order must fulfill all schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components*. For more information, see the documentation of the <u>Transportation Requesting Out [Page 175]</u> outbound service interface.

Versioning

The *Confirm Transportation Request* outbound operation performs a similar function to the *Confirm Freight Request* and *Confirm Shipment Request* outbound operations in SAP Transportation Management 7.0 (SAP TM 7.0).

Note that in SAP TM 1.0, the *Confirm Transportation Request* outbound operation and the <u>Change Transportation Order Based on Transportation Order Confirmation [Page 100]</u> inbound operation shared a common message data type: TransportationDocumentConfirmationMessage. As of SAP TM 1.01, however, these operations use different message data types that are similar in structure, but not identical. The inbound operation continues to use message data type TransportationDocumentConfirmation now uses a separate message data type TransportationRequestConfirmationMessage. As a consequence, a mapping between these message data types is required.

Enhancements

The BAdl for TransportationRequestConfirmation_Out (/SCMTMS/TRQ_SE_TPNRQ_CNF) Business Add-In (BAdI) is available for this operation.

Trade Compliance Check Requesting Out

Definition

An interface to request the processing of a trade compliance check.

Technical Data

Entity Type	Service Interface
Category	A2A
Direction	Outbound

Business Context and Use

The *Trade Compliance Check Requesting Out* outbound service interface groups operations that send data to a global trade services (GTS) application to request a trade compliance check or to request the cancellation of a trade compliance check for a forwarding order or forwarding quotation.

Notes on SAP Implementation

Integration

The operations in this interface and the corresponding inbound interface <u>Trade Compliance</u> <u>Check Requesting In [Page 185]</u> enable you to integrate SAP Transportation Management (SAP TM) with the SAP Global Trade Services application. Data is exchanged between the *GTS Integration* (TM-GT-GTS) component in SAP TM and the *GTS: Compliance Management* (SLL-LEG-CON) component in SAP Global Trade Services.

Note that a forwarding order or a forwarding quotation in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

To exchange data with SAP Global Trade Services, you must connect the SAP TM system to the global trade services (GTS) system and make the required Customizing settings in both systems.

In the SAP TM system, you must enable the trade compliance check for the relevant forwarding order or forwarding quotation types in Customizing for *Transportation Management*. For more information, see <u>Trade Compliance Check</u>.

For information about SAP Global Trade Services, see SAP Library for SAP Global Trade Services on SAP Help Portal at http://help.sap.com/grc under SAP Global Trade Services Compliance Management.

In addition, you have made the following message control settings in SAP TM:

You have defined one or more suitable output profiles, as well as schedule conditions that control whether a message is sent. You do this in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

- You have assigned a suitable output profile to the relevant forwarding order types and forwarding quotation types in Customizing for *Transportation Management* under
 Forwarding Order Management Forwarding Order Define Forwarding Order Types
 and Forwarding Order Management Forwarding Quotation Define Forwarding Quotation Types
- You have defined a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type Outbound Queues to this logical system. You do this in Customizing for SCM Basis under
 Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type Here, the logical system must be marked as an SAP system. Also check the settings in the following Customizing activities:
 - Name Logical Systems
 - Assign Logical Systems to a Client
 - Maintain Business System Group
 - Settings for qRFC Communication

Request Trade Compliance Check

Definition

To request a trade compliance check for a transportation request.

Technical Data

Entity Type	Service Operation
Release State	Released
Technical Name	TradeComplianceCheckSUITERequest_Out
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-GT-GTS
Category	A2A
Direction	Outbound
Mode	Asynchronous
Idempotency	Not Applicable
Change/Update Behavior	Type 1
P2P Communication Enabled	Yes

Business Context

You perform a trade compliance check for forwarding orders or forwarding quotations prior to commencing the required transportation activities and also throughout the ongoing transportation process. The trade compliance check helps you to ensure that your business transactions comply with international trade regulations.

The *Request Trade Compliance Check* outbound operation requests a trade compliance check for a forwarding order or forwarding quotation. It sends the business document data to a connected global trade services application.

Related Operations

- The inbound operation <u>Change Transportation Order Based on Trade Compliance Check</u> <u>Confirmation [Page 186]</u> receives the result of a trade compliance check.
- The outbound operation <u>Request Trade Compliance Check Cancellation [Page 183]</u> requests the cancellation of a trade compliance check.

Features

The *Request Trade Compliance Check* outbound operation sends the business document data that is required to perform the trade compliance check. This comprises the following mandatory data:

- Business partner of the sales organization
- At least one item
- At least the source location country and destination location country (the UNLOCDE or IATA code is not sufficient)

The operation also sends all business partner IDs (at header and item level), and the address data of a business partner in case of a deviating address (also at header and item level).

Notes on SAP Implementation

Integration

The *Request Trade Compliance Check* outbound operation can send business document data to the *Maintain Trade Compliance Check* inbound service operation in the *Trade Compliance Processing* process component. This enables you to perform a trade compliance check for an SAP Transportation Management (SAP TM) forwarding order or forwarding quotation in the SAP Global Trade Services application.

SAP TM sends a business document to the global trade services (GTS) system when a user creates a business document that is relevant for the trade compliance check (that is, the compliance check has been enabled in the business document type). If the business document is subsequently changed, SAP TM triggers a trade compliance check only if the changed fields are relevant for the compliance check (that is, the fields described in the *Features* section above). The system blocks a business document that is relevant for the trade compliance check until the check has been performed and the result is that the document is compliant.

- i
- The trade compliance check performed in SAP Global Trade Services for SAP TM consists of sanctioned party list screening and an embargo check.
- For sanctioned party list screening, SAP Global Trade Services checks address data that is derived only from business partner master data. It does not check address data derived from locations. In addition, it does not check addresses that a user enters in the *Printing Address* field on the *Business Partner* tab page in the forwarding order.
- For the embargo check, SAP Global Trade Services checks the countries in the transportation route.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 179].

Enhancements

The Business Add-In (BAdI) BAdI for TradeComplianceCheckSUITERequest_Out (/SCMTMS/CPC_SE_CPC_REQ) is available for this operation.

More Information

Trade Compliance Check

Request Trade Compliance Check Cancellation

Definition

To request the cancellation of a trade compliance check for a transportation request.

Technical Data

Entity Type	Service Operation	
Release State	Released	
Technical Name	${\tt TradeComplianceCheckSUITECancellationRequest_Out}$	
Namespace	http://sap.com/xi/TMS/Global	
Application Component	TM-GT-GTS	
Category	A2A	
Direction	Outbound	
Mode	Asynchronous	
Idempotency	Not Applicable	
Change/Update Behavior	Not Applicable	
P2P Communication Enabled	Yes	

Business Context

You have sent a forwarding order or forwarding quotation to a connected global trade services (GTS) application to perform a trade compliance check. The GTS application continues to check the business document until you request the cancellation of the check, for example, because the transportation activities have been completed or the business document has been canceled.

The *Request Trade Compliance Check Cancellation* outbound operation requests the cancellation of a trade compliance check for a forwarding order or forwarding quotation.

Features

The *Request Trade Compliance Check Cancellation* outbound operation sends the ID of the business document for which the trade compliance check is to be canceled.

Prerequisites

The <u>Request Trade Compliance Check [Page 181]</u> outbound operation has requested a trade compliance check.

Notes on SAP Implementation

Integration

The Request Trade Compliance Check Cancellation outbound operation can send business document data to the Cancel Trade Compliance Check inbound operation in the Trade Compliance Processing process component. This enables you to cancel a trade compliance check for an SAP Transportation Management (SAP TM) business document in the SAP Global Trade Services application.

SAP TM sends a cancellation if the transportation activities have been completed (life cycle status of the business document is *Executed*) or if the business document has been canceled (life cycle status of the business document is *Canceled*). The document that was created in SAP Global Trade Services is canceled accordingly.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 179].

Enhancements

The Business Add-In (BAdI) *BAdI for TradeComplianceCheckSUITECancellationRequest_Out* (/SCMTMS/CPC_SE_CPC_CANCREQ) is available for this operation.

More Information

Trade Compliance Check

Trade Compliance Check Requesting In

Definition

An interface to receive confirmations of requests for a trade compliance check.

Technical Data

Entity Type	Service Interface
Category	A2A
Direction	Inbound

Business Context and Use

The *Trade Compliance Check Requesting In* inbound service interface contains an operation that receives the result of a trade compliance check from a global trade services (GTS) application.

Notes on SAP Implementation

For more information, see <u>Trade Compliance Check Requesting Out [Page 179]</u>.

Change Transportation Request Based on Trade Compliance Check Confirmation

Definition

To change a transportation request of the category "forwarding order" or "forwarding quotation" based on the confirmation of a trade compliance check.

Technical Data

Entity Type	Service Operation
Release State	Released
Technical Name	TradeComplianceCheckSUITEConfirmation_In
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-GT-GTS
Category	A2A
Direction	Inbound
Mode	Asynchronous
Idempotency	Not Applicable
Change/Update Behavior	Not Applicable
P2P Communication Enabled	Yes

Business Context

You have sent a forwarding order or forwarding quotation to a connected global trade services (GTS) application to perform a trade compliance check. The GTS application checks the business document and returns the result of the check, that is, whether or not the business document complies with the relevant international trade regulations.

The inbound operation *Change Transportation Request Based on Trade Compliance Check Confirmation* receives the result of the check and updates the status of the forwarding order or forwarding quotation accordingly.

Features

The inbound operation *Change Transportation Request Based on Trade Compliance Check Confirmation* receives an indicator that specifies whether the business document is compliant. It sets the status of the business document based on this value.

Prerequisites

The <u>Request Trade Compliance Check [Page 181]</u> outbound operation has requested a trade compliance check.

Error Handling

Forward Error Handling

The inbound operation *Change Transportation Request Based on Trade Compliance Check Confirmation* supports Forward Error Handling [Page 268] (FEH). The following error categories are used:

- DCE: Determination and Conversion Error
- PRE: Processing Error
- PRE.TEE.LRE: Lock Request Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Notes on SAP Implementation

Integration

The inbound operation *Change Transportation Request Based on Trade Compliance Check Confirmation* can receive the result of a trade compliance check from the *Confirm Trade Compliance Check* outbound operation in the *Trade Compliance Processing* process component. This enables you to receive the result of a trade compliance check that was performed in the SAP Global Trade Services application for an SAP Transportation Management (SAP TM) business document.

When SAP TM receives the result of the check, it sets the compliance status of the business document to *Compliant* or *Not Compliant*. The system blocks a business document that is relevant for the compliance check until a trade compliance check has been performed and until the check determines that the business document is compliant.

Configuration

For more information, see Trade Compliance Check Requesting Out [Page 179].

Enhancements

The Business Add-In (BAdI) *BAdI for TradeComplianceCheckSUITEConfirmation_In* (/SCMTMS/CPC_SE_CPC_CNF) is available for this operation.

More Information

Trade Compliance Check

Freight Agreement Processing

Definition

The requesting of quotations or agreements from carriers.

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	FreightAgreementProcessing

Business Context and Use

The FreightAgreementProcessing process component enables shippers or logistics service providers (LSPs) to send freight agreement RFQs or freight agreements to multiple carriers for transporting goods. Each carrier can respond to the freight agreement RFQ or freight agreements with the prices and services that it can offer.

Since the shipper or LSP sends freight agreement RFQs or freight agreements to multiple carriers, the shipper or LSP receives a competitive price from each carrier. Also, the shipper or LSP can spread the business share among multiple carriers to ensure reliable transportation of goods.

Notes on SAP Implementation

Integration

The operations in the service interfaces exchange data with equivalent third-party applications used by the carriers.

A freight agreement RFQ or freight agreement in SAP Transportation Management (SAP TM) corresponds to an instance of a Freight Agreement business object.

More Information

SAP Transportation Management (SAP TM)

Freight Agreement

Definition

A freight agreement or a freight agreement request for quotation between shippers and carriers.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	FreightAgreement
Object Category	Business Process Object

Business Context and Use

The *Freight Agreement* business object enables the following transportation activities to be carried out by shippers and LSPs:

- The shipper or LSP sends out a freight agreement RFQ or freight agreement to one or more carriers for price, quantity, and transportation conditions to transport goods.
- Carriers respond with quotations or agreements based on the requirements in the freight agreement RFQ or agreement.

These activities enable the shipper or LSP to acquire the best price and service from various carriers. The shipper or LSP can easily determine the business share that a carrier receives. This enables the shipper or LSP to ensure the reliable transport of goods at the best price.

More Information

Freight Agreement Processing [Page 188]

Freight Agreement Requesting In

Definition

An interface to receive responses from a carrier or logistics service provider for a freight agreement.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Freight Agreement Requesting In* inbound service interface contains an operation that receives responses for freight agreements.

Maintain Freight Agreement

Definition

To process forwarding agreements received from a carrier.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	FreightAgreementRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FRA
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page_279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

If the shipper or LSP decides on a carrier, the carrier can create and release a forwarding agreement. The shipper or LSP uses the service operation <code>FreightAgreementRequest_In</code> inbound to receive the forwarding agreement and to create a freight agreement in the shipper's or LSP system.

Message Types

• TransportationAgreementRequest

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation exchanges data with the operation <code>ForwardingAgreementRequest_Out</code>. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the carrier. For more information, see <u>Maintain Forwarding Agreement [Page 220]</u>.

Freight Agreement Requesting Out

Definition

An interface to send freight agreements to carriers.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Freight Agreement Requesting Out* outbound service interface contains an operation that sends agreement data to carriers. When shippers or logistics service providers start transportation planning for the next fiscal year, they can use the operation to send agreements to carriers.

Request Freight Agreement

Definition

To send freight agreements to carriers.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	FreightAgreementRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FRA
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

After the shipper or LSP has decided to use the services of a particular carrier, the shipper or LSP creates and releases a freight agreement. The shipper or LSP can use the service operation <code>FreightAgreementRequest_Out</code> outbound to create a forwarding agreement in the carrier's system.

Features

The Request Freight Agreement outbound operation sends the following data to a carrier:

- Contract period
- List of items that represent the goods to be transported
- Information about the goods:
 - o Items such as containers, packages, or products
 - o Measurements such as gross volume, gross weight, net weight, and quantity
- Means of transport and locations
- Transportation terms such as the service levels and the transportation modes

Message Types

• TransportationAgreementRequest

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation exchanges data with the operation <code>ForwardingAgreementRequest_In</code>. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the carrier. For more information, see <u>Maintain Forwarding Agreement [Page 220]</u>.

Freight Agreement Quotation Notification In

Definition

An interface to receive responses from a carrier or logistics service provider for all the items in a freight agreement RFQ master.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Freight Agreement Quotation Notification In* inbound service interface contains an operation that receives responses for all the items in a freight agreement RFQ.

Change Freight Agreement RFQ Based on Notification

Definition

To receive responses for all the items in a freight agreement RFQ from logistics service providers (LSPs) or carriers.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	FreightAgreementQuotationNotification_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FRA-RFQ
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

You use SAP Transportation Management system to carry out transportation planning for the next fiscal year. As part of the planning, you want to start a bidding process to create agreements with carriers or LSPs. You create a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

You send the freight agreement RFQs to carriers or LSPs and they respond to the freight agreement RFQ with their rates.

Note that a carrier or an LSP can proactively create and send rates for a set of items. You can use this operation to receive this document as well.

The *ForwardingAgreementQuotationNotificationIn* inbound operation enables you to receive a carrier's response to the freight agreement RFQ master for all the items specified.

Message Types

• FreightAgreementQuotationNotification_In

Notes on SAP Implementation

Integration

This operation exchanges data with the carrier's or LSP's <u>Forwarding Agreement Quotation</u> <u>Notification Out [Page 215]</u> outbound service interface in the <u>Forwarding Agreement Processing</u> [Page 206] process component. The operation can also exchange data with an equivalent thirdparty application that is being used by the carrier or LSP.

For more information about integration and configuration, see <u>Forwarding Agreement Quotation</u> <u>Notification Out [Page 215]</u> outbound interface.

Freight Agreement Quotation Requesting In

Definition

An interface to process responses from carriers to freight agreement RFQs.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Freight Agreement Quotation Requesting In* inbound service interface contains an operation that processes responses from carriers to the freight agreement RFQs sent by the shipper or logistics service provider.

Change Freight Agreement RFQ Based on Confirmation

Definition

To process responses from carriers to freight agreement RFQs.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	FreightAgreementQuotationConfirmation_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FRA-RFQ
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

The FreightAgreementQuotationConfirmation_In inbound operation receives the quote sent by a carrier and saves the data in the carrier's individual freight agreement RFQ. The freight agreement RFQ includes the following details:

- The capacity that the carrier can provide for a requested capacity
- The rates at which the carrier can provide the transportation service

Message Types

• FreightAgreementQuotationConfirmation_In

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation in this service interface exchanges data with the operation in the <u>Forwarding Agreement Quotation</u> <u>Requesting Out [Page 211]</u> outbound service interface in the <u>Forwarding Agreement Processing</u> [Page 206] process component. Otherwise, the operation can exchange data with an equivalent third-party application that is being used by the carrier.

For more information about integration and configuration, see <u>Forwarding Agreement Quotation</u> <u>Requesting Out [Page 211]</u> outbound interface.

Freight Agreement Quotation Requesting Out

Definition

An interface to send freight agreement RFQs to carriers.

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Freight Agreement Quotation Requesting Out* outbound service interface contains an operation that sends RFQ data to carriers. When shippers or logistics service providers start transportation planning for the next fiscal year, they can use the operation to request quotations.

Request Freight Agreement Quotation

Definition

To request the processing of a new freight agreement RFQ master.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	FreightAgreementQuotationRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FRA-RFQ
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

The *Freight Agreement Quotation Request* outbound operation sends the freight agreement RFQ to the carriers.

Features

The *Freight Agreement Quotation Request* outbound operation sends the following data to the carrier system:

- Contract period
- List of items that represent the goods to be transported
- Information about the goods:
 - o Items such as containers, packages, or products
 - \circ $% \ensuremath{\mathsf{M}}$ Measurements and quantities such as gross volume, gross weight, net weight, and quantity
- Means of transport and locations
- Transportation terms such as service levels and transportation modes

Message Types

• Freight Agreement Quotation Request

Prerequisites

To use this operation, the freight agreement RFQ master must fulfill all the schedule conditions that are checked at runtime. You define schedule conditions in Customizing for *Cross-Application Components* under *Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings.*

Notes on SAP Implementation

Integration

The *Freight Agreement Quotation Request* outbound operation is triggered by the manual publication of a freight agreement RFQ master in SAP Transportation Management (SAP TM).

Configuration

You make the following settings in SAP TM:

• Define schedule conditions that control whether a message is sent

You make these settings in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

• Define a logical system that represents the client from which the outbound communication is to take place, and you have assigned a queue of the type *Outbound Queues* to this logical system.

You make these settings in Customizing for SAP Transportation Management under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type . You must mark the logical system as an SAP system. Also, check the settings in the following Customizing activities:

- Name Logical Systems
- Assign Logical Systems to a Client
- Maintain Business System Group
- Settings for qRFC Communication
- Define output management adapter settings in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain Output Management Adapter Settings .
- i

The /SCMTMS/FAG_RFQ_B2B action profile is provided in the standard Customizing settings and assigned to the node ROOT of the /SCMTMS/FREIGHTAGREEMENT business object. If required, you can replace this assignment by specifying another suitable action profile. Note that removing this assignment without replacing it with another one disables outbound communication through the Freight Agreement Quotation Requesting Out [Page 202] outbound service interface.

Forwarding Agreement Processing

Definition

A process to send a carrier's agreement and quotation details to a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	ForwardingAgreementProcessing

Business Context and Use

The *ForwardingAgreementProcessing* process component enables carriers to carry out the following activities

- To provide a quote or agreement based on the information in a freight agreement RFQ master or freight agreement sent by a shipper or LSP
- To proactively send its rates to a shipper or LSP
- To automatically create a forwarding agreement if the shipper or LSP accepts the quotation

These activities enable the carrier to plan transportation activities for the future. It enables the carrier to provide the best price and service for the transportation of goods to a shipper or LSP while maintaining a profit.

Notes on SAP Implementation

Integration

You must use SAP Transportation Management to use this feature.

More Information

SAP Transportation Management (SAP TM)

Forwarding Agreement

Definition

A business object that a carrier uses to respond to the shipper or logistics service provider request for rates for transportation services. The business object can also be used to establish a long-term contract that represents the contractual relationship with a shipper or logistics service provider to whom you, as a carrier, are selling transportation services.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	ForwardingAgreementRequest
Object Category	Business To Business

Business Context and Use

The *ForwardingAgreementRequest* business object enables carriers to carry out the following activities:

- To provide a quote or agreement based on the information in a freight agreement RFQ master or freight agreement sent by a shipper or LSP
- To proactively send a carrier's rates in a forwarding agreement quotation to a shipper or LSP
- To automatically create a forwarding agreement if the shipper or LSP accepts a quotation

These activities enable the carrier to plan transportation activities for the future. It enables the carrier to provide the best price and service for the transportation of goods to a shipper or LSP while maintaining a profit.

More Information

Forwarding Agreement Processing [Page 206]

Forwarding Agreement Quotation Requesting In

Definition

An interface to receive freight agreement RFQ masters from shippers or logistics service providers (LSPs).

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *Forwarding Agreement Quotation Requesting In* inbound service interface contains an operation that receives freight agreement RFQ masters sent by shippers or LSPs.

Maintain Forwarding Agreement Quotation

Definition

To process a freight agreement RFQ master received from a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ForwardingAgreementQuotationRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FWA-RFQ
Category [Page 293]	SAP B2B
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or LSP uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQ masters to carriers and the carriers respond to the freight agreement RFQ masters with its quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

The *Forwarding Agreement Quotation Request* inbound can be used by a carrier to create a forwarding agreement RFQ after receiving a freight agreement RFQ master from the shipper or LSP. The forwarding agreement RFQ contains the transportation requirements specified by the shipper or LSP in the freight agreement RFQ master.

Features

The ${\tt ForwardingAgreementQuotationRequest_In}$ operation receives the following data from the shipper or LSP:

- Contract period
- List of items that represent the goods to be transported
- Information about the goods:
 - o Items such as containers, packages, or products
 - o Measurements such as gross volume, gross weight, net weight, and quantity
- Means of transport and locations
- Transportation terms such as the service levels and the transportation modes

Message Types

• FreightAgreementQuotation

Notes on SAP Implementation

Integration

If a carrier also uses SAP Transportation Management (SAP TM), the operation in this service interface exchanges data with the operation in the *Freight Agreement Quotation Request Out* outbound service interface in the *Freight Agreement Quotation Processing* process component. Otherwise, the operation can exchange data with an equivalent third-party application used by the carrier. For more information about integration and configuration, see <u>Freight Agreement Quotation Requesting Out [Page 202]</u>.

More Information

Forwarding Agreement Quotation Requesting In [Page 208]

Forwarding Agreement Quotation Requesting Out

Definition

An interface to send responses to freight agreement RFQ masters received from shippers or logistics service providers (LSPs).

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Forwarding Agreement Quotation Requesting Out* outbound service interface contains an operation that sends responses to freight agreement RFQ masters received from a shipper or LSP.

More Information

Forwarding Agreement Quotation [Page 207]

Confirm Forwarding Agreement Quotation

Definition

To send responses to freight agreement RFQ masters received from a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ForwardingAgreementQuotationConfirmation_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FWA-RFQ
Category [Page 293]	SAP B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or LSP uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information, such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

The *Forwarding Agreement Quotation Confirmation* outbound operation sends a carrier's response to the shipper's or LSP's freight agreement RFQ master. The responses include the following:

• The total capacity that the carrier can provide

• The rate at which the carrier can offer the transportation services

Message Types

• FreightAgreementQuotation

Prerequisites

To use this operation, the freight agreement RFQ master must fulfill all the schedule conditions that are checked during execution. You define schedule conditions in Customizing for *Cross-Application Components* under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

Notes on SAP Implementation

Integration

The *Forwarding Agreement Quotation Confirmation* outbound operation is triggered when the carrier submits the response to the shipper's or LSP's freight agreement RFQ master.

Configuration

You make the following settings in SAP Transportation Management system:

• Define schedule conditions that control whether a message is sent.

You make these settings in Customizing for *Cross-Application Components* under *Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings*.

• Define a logical system that represents the client from which the outbound communication is to take place, and assign a queue of the type *Outbound Queues* to this logical system.

You make these settings in Customizing for SAP Transportation Management under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type You must mark the logical system as an SAP system. Also, check the settings in the following Customizing activities:

- Name Logical Systems
- Assign Logical Systems to a Client
- Maintain Business System Group
- Settings for qRFC Communication
- Define output management adapter settings for Cross-Application Components under
 Processes and Tools for Enterprise Applications Reusable Objects and Functions for
 BOPF Environment PPF Adapter for Output Management Maintain Output
 Management Adapter Settings .
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The /SCMTMS/FAG_RFQ_B2B action profile is provided in the standard Customizing settings and assigned to the ROOT node of the /SCMTMS/FREIGHTAGREEMENT business object. If required, you can replace this assignment by specifying another suitable action profile. Note that removing this assignment without replacing it with another one disables outbound communication through the Forwarding Agreement Quotation Requesting Out [Page 211] outbound service interface..

Forwarding Agreement Quotation Notification Out

Definition

An interface for you as a carrier to send rates for all the items in a freight agreement RFQ masters received from shippers or logistics service providers (LSPs).

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *Forwarding Agreement Quotation Notification Out* outbound service interface contains an operation that sends responses for all the items in a forwarding agreement quotation to a logistics service provider or a shipper.

More Information

Forwarding Agreement Quotation [Page 207]

Notify Forwarding Agreement Quotation

Definition

This service operation enables you as a carrier to send rates for all items in a freight agreement RFQ master received from a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ForwardingAgreementQuotationNotification_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FWA-RFQ
Category [Page 293]	SAP B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or LSP sends you a freight agreement RFQ master that contains items. Each of the items can specify agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The system displays the freight agreement RFQ master as a forwarding agreement quotation in your system. Subsequently, you specify the rates you can provide for individual items in the forwarding agreement quotation and send it back to the shipper or LSP.

Note that you can proactively create and send a forwarding agreement quotation with rates for a set of items to a shipper or LSP.

The ForwardingAgreementQuotationNotificationOut outbound operation enables you to send a response to the shipper or LSP for the items, all at once.

Message Types

• ForwardingAgreementQuotation

Prerequisites

To use this operation, the freight agreement RFQ master must fulfill all the schedule conditions that are checked during execution. You define schedule conditions in Customizing for *Cross-Application Components* under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

Notes on SAP Implementation

Integration

The *Forwarding Agreement Quotation Notification* outbound operation is triggered when you send a response to all the items in a forwarding agreement quotation or when you proactively send rates for all the items in a forwarding agreement quotation you have created.

Configuration

You make the following settings in SAP Transportation Management system:

• Define schedule conditions that control whether a message is sent.

You make these settings in Customizing for Cross-Application Components under Processes and Tools for Enterprise Applications Reusable Objects and Functions for BOPF Environment PPF Adapter for Output Management Maintain PPF Settings .

• Define a logical system that represents the client from which the outbound communication is to take place, and assign a queue of the type *Outbound Queues* to this logical system.

You make these settings in Customizing for SAP Transportation Management under SCM Basis Integration Basic Settings for Creating the System Landscape Assign Logical System and Queue Type . You must mark the logical system as an SAP system. Also, check the settings in the following Customizing activities:

- Name Logical Systems
- Assign Logical Systems to a Client
- Maintain Business System Group
- Settings for qRFC Communication
- Define output management adapter settings for Cross-Application Components under
 Processes and Tools for Enterprise Applications Reusable Objects and Functions for
 BOPF Environment PPF Adapter for Output Management Maintain Output
 Management Adapter Settings .

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The /SCMTMS/FWAQ_B2B action profile is provided in the standard Customizing settings and assigned to the ROOT node of the /SCMTMS/FREIGHTAGREEMENT business object. If

required, you can replace this assignment by specifying another suitable action profile. Note that removing this assignment without replacing it with another one disables outbound communication through the <u>Forwarding Agreement Quotation Notification Out [Page 215]</u> outbound service interface..

Forwarding Agreement Requesting In

Definition

An interface to receive freight agreements from shippers or logistics service providers (LSPs).

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Inbound

Business Context and Use

The *ForwardingAgreementRequestingIn* inbound service interface contains an operation that receives freight agreement sent by shippers or LSPs.

Maintain Forwarding Agreement

Definition

To process a freight agreement received from a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ForwardingAgreementRequest_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FWA
Category [Page 293]	B2B
Direction [Page 262]	Inbound
Mode [Page_279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

After the shipper or LSP has decided to use the services of a particular carrier, the shipper or LSP creates and releases a freight agreement. The carrier uses the service operation ForwardingAgreementRequest_In inbound to create a forwarding agreement in the carrier's system.

Features

The ForwardingAgreementRequest_In inbound operation receives the following data from the shipper or LSP:

- Contract period
- List of items that represent the goods to be transported
- Information about the goods:
 - o Items such as containers, packages, or products
 - Measurements such as gross volume, gross weight, net weight, and quantity
- Means of transport and locations
- Transportation terms such as the service levels and the transportation modes

Message Types

• TransportationAgreementRequest

Notes on SAP Implementation

Integration

If a shipper or LSP also uses SAP Transportation Management (SAP TM), the operation exchanges data with the operation <code>FreightAgreementRequest_Out</code>. Otherwise, the operation can exchange data with an equivalent third-party application used by the carrier. For more information, see <u>Request Freight Agreement [Page 194]</u>.

Forwarding Agreement Requesting Out

Definition

An interface to send responses to freight agreements received from shippers or logistics service providers (LSPs).

Technical Data

Entity Type	Service Interface
Category [Page 293]	B2B
Direction [Page 262]	Outbound

Business Context and Use

The *ForwardingAgreementRequestingOut* outbound service interface contains an operation that sends responses to freight agreements received from a shipper or LSP.

More Information

Forwarding Agreement Quotation [Page 207]

Request Forwarding Agreement

Definition

To send a forwarding agreement to a shipper or logistics service provider (LSP).

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released
Technical Name [Page 296]	ForwardingAgreementRequest_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component	TM-FWA
Category [Page 293]	B2B
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper or logistics service provider (LSP) uses a transportation management system to carry out transportation planning for the next fiscal year. As part of the planning, the shipper or LSP wants to start a bidding process to create freight agreements with carriers. The shipper or LSP creates a freight agreement RFQ master that contains agreement-relevant information such as:

- Commodities to be shipped
- Capacities
- Trade lanes
- Service levels
- Transportation modes

The shipper or LSP sends the freight agreement RFQs to carriers and the carriers respond to the freight agreement RFQ with their quotes. The shipper or LSP can consolidate these quotes and decide which carriers should be used for the transportation process.

After the shipper or LSP has decided to use the services of a particular carrier, the carrier can create and release a forwarding agreement. The carrier can use the service operation *ForwardingAgreementRequest_Out* to create a freight agreement in the shipper's or LSP's system.

Features

The ${\tt ForwardingAgreementRequest_Out}$ outbound operation sends the following data to a carrier:

- Contract period
- List of items that represent the goods to be transported
- Information about the goods:
 - o Items such as containers, packages, or products
 - Measurements such as gross volume, gross weight, net weight, and quantity
- Means of transport and locations
- Transportation terms such as the service levels and the transportation modes

Message Types

• TransportationAgreementRequest

Notes on SAP Implementation

Integration

If a shipper also uses SAP Transportation Management (SAP TM), the operation exchanges data with the operation FreightAgreementRequest_In. Otherwise, the operation can exchange data with an equivalent third-party application used by the shipper. For more information, see Maintain Freight Agreement [Page_191].

Customer Freight Invoice Request Processing

Definition

The requesting of invoicing for transportation services performed for a customer (for example, a shipper).

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	CustomerFreightInvoiceRequestProcessing

Business Context and Use

The *Customer Freight Invoice Request Processing* process component enables a carrier to trigger customer invoice processing for transportation services performed for a customer, for example, a shipper. It also enables credit commitment information to be transferred to a connected credit management application during forwarding settlement.

Notes on SAP Implementation

Integration

This process component enables transportation invoicing data to be transferred between the *Forwarding Settlement* (TM-FWS) component in SAP Transportation Management (SAP TM) and the *Sales Billing* (SD-BIL) component in SAP ERP. In addition, it enables credit commitment information to be transferred between SAP TM and SAP Credit Management.

Note the following:

- A forwarding settlement document or a credit memo in the SAP TM back-end system corresponds to an instance of a <u>Customer Freight Invoice Request [Page 226]</u> business object.
- A forwarding settlement document or a credit memo is created based on a forwarding order, which corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.
- An SD billing document in the SAP ERP back-end system corresponds to an instance of a *Customer Invoice* business object.

More Information

Forwarding Settlement

Customer Freight Invoice Request

Definition

A request sent to billing to create one or more customer invoices.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	CustomerFreightInvoiceRequest
Object Category	Business Process Object

Business Context and Use

The *Customer Freight Invoice Request* business object enables a carrier to trigger customer invoicing for transportation services performed for a customer, for example, a shipper. It enables the carrier to enter the required data (for example, transportation charges) and send this data to a customer invoicing system, which creates and processes the corresponding customer invoice.

Notes on SAP Implementation

For more information, see the documentation of the <u>Customer Freight Invoice Request</u> <u>Processing [Page 225]</u> process component.

Credit Usage Out

Definition

An interface to send information about the credit commitments of business partners.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Credit Usage Out* outbound service interface contains an operation that sends information about a business partner's credit commitments to a connected credit management application.

Notify of Credit Commitment

Definition

To send a notification about the credit commitments of business partners.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CreditCommitmentNotification_Out
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	No
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

Before you approve a new or changed forwarding order, you perform a credit limit check for the relevant business partner (that is, the payer) by using a connected credit management application. During forwarding settlement for an approved forwarding order, the *Notify of Credit Commitment* outbound operation sends updated information about the business partner's credit commitments to the credit management application. This allows the credit management application to update the credit exposure information for the business partner.

Features

The *Notify of Credit Commitment* outbound operation sends credit commitment data to the credit management application, including the following:

- Business partner ID (that is, payer ID)
- Amount committed (for example, total amount of the forwarding settlement document)
- Forwarding order number
- Internal ID of the credit segment
- Validity date of the commitment

Message Types

CreditCommitmentNotification

Prerequisites

- The <u>Check Transportation Request Ordering Party Creditworthiness [Page 132]</u> outbound operation in the <u>Transportation Request Processing [Page 128]</u> process component has requested information about a business partner from a connected credit management application.
- The <u>Notify of Credit Commitment [Page 135]</u> outbound operation in the <u>Transportation</u> <u>Request Processing [Page 128]</u> process component has informed the credit management application about the credit limit amount approved for a business partner in a specific order.

Notes on SAP Implementation

In SAP Transportation Management (SAP TM), you use this operation to send updated credit information for a business partner to SAP Credit Management during forwarding settlement. The operation sends credit commitment data to SAP Credit Management when you create, change, or cancel a forwarding settlement document and transfer it to SAP ERP, and SAP ERP subsequently confirms the creation, change, or cancellation of the corresponding invoice. SAP Credit Management can then update the credit limit amount for the business partner accordingly. For example, when SAP Credit Management receives information about credit commitments derived from a new forwarding settlement document, it does the following:

- Reduces the exposure value of the open order for the forwarding order by the amount of the forwarding settlement document
- Moves the new amount from the *Open Orders* exposure category to the *Billing Document Value* exposure category

SAP TM triggers the operation only in the following cases:

- The forwarding settlement document is related to a forwarding order with a successful credit limit check status.
- SAP ERP has sent a confirmation of invoice creation, change, or cancellation.

Note the following:

- A forwarding settlement document in the SAP TM back-end system corresponds to an instance of a <u>Customer Freight Invoice Request [Page 226]</u> business object.
- A forwarding order in the SAP TM back-end system corresponds to an instance of a <u>Transportation Request [Page 130]</u> business object.

Configuration

You have made the required settings for credit limit checks. For more information, see the *Configuration* section in the documentation of the <u>Check Transportation Request Ordering Party</u> <u>Creditworthiness [Page 132]</u> outbound operation.

Enhancements

The *BAdI for CreditCommitmentNotification_Out* Business Add-In (BAdI) is available for this operation.

More Information

For more information about credit limit checks in SAP TM, see Forwarding Order Management.

Customer Freight Invoicing Out

Definition

An interface to request the creation, change, or cancellation of customer invoices or credit memos.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound

Business Context and Use

The *Customer Freight Invoicing Out* outbound service interface groups operations that send data to a customer invoicing system to carry out invoicing or process credit memos for transportation services performed for a customer, for example, a shipper.

Notes on SAP Implementation

For more information, see the documentation of the <u>Customer Freight Invoice Request</u> <u>Processing [Page 225]</u> process component.

Simulate Customer Freight Invoice Request

Definition

To request the data required to simulate a forwarding settlement document or credit memo with a category of *Forwarding Settlement Document* or *Credit Memo*.

Technical Data

Entity Type	Service Operation
Release State	Released with Restrictions
Technical Name	CustomerFreightInvoiceRequestSUITESimulate_Out
Namespace	http://sap.com/xi/TMS/Global
Application Component	TM-FWS
Category	A2A
Direction	Outbound
Mode	Synchronous
Idempotency	Not Applicable
P2P Communication Enabled	Yes

Business Context and Use

A carrier performs transportation services for a customer such as a shipper and creates a forwarding settlement document or credit memo. The carrier wants to preview the corresponding customer invoice or credit memo before actually requesting the creation of the invoice or credit memo.

The *Simulate Customer Freight Invoice Request* outbound operation sends a new or changed forwarding settlement document or credit memo to the customer invoicing system and requests the transfer of data to preview the customer invoice or credit memo.

Related Operations

The Maintain Customer Invoice based on Customer Freight Invoice Request Request_V1 inbound operation in the Customer Invoice Processing process component returns data to simulate a customer invoice based on a request sent by the Simulate Customer Freight Invoice Request outbound operation.

Features

The *Simulate Customer Freight Invoice Request* outbound operation sends forwarding settlement document data to the customer invoicing system. The customer invoicing system returns invoice data such as tax information as a PDF stream, which the requesting system uses to generate a preview of the customer invoice.

You can change the tax parameters and other invoice-related data in the customer invoicing system by transferring additional request data, which may be required to simulate the customer invoice for the forwarding settlement document or credit memo. This data can include air waybill numbers, sources and destinations, freight booking numbers, charges incurred during each stage, and any transactional data relating to freight execution.

Prerequisites

The Simulate Customer Freight Invoice Request outbound operation can only be used if a customer invoice has not yet been created in the customer invoicing system. For more information, see the <u>Request Customer Freight Invoice Request_V1 [Page 234]</u> service operation.

Notes on SAP Implementation

A forwarding settlement document or a credit memo in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Customer Freight Invoice Request</u> [Page 226] business object.

Enhancements

The Business Add-In (BAdI) BAdI for CustomerFreightInvoiceRequestSUITESimulate_Out (/SCMTMS/CFI_SE_SIMRQ) is available for this operation.

Request Customer Freight Invoice Request_V

Definition

To request the creation or change of a customer invoice based on a forwarding settlement document with a category of *Forwarding Settlement Document* or *Credit Memo*.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CustomerFreightInvoiceRequestSUITERequest_Out_V1
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A carrier performs transportation services for a customer, for example, a shipper. To carry out forwarding settlement for the transportation services, the carrier creates a forwarding settlement document, which contains details of the transportation services and the calculated transportation charges. The carrier sends the forwarding settlement document to a customer invoicing system. The *Request Customer Freight Invoice Request_V1* outbound operation sends a new or changed forwarding settlement document to a customer invoicing system and requests the creation or change of the corresponding customer invoice. Note that this operation can also request the creation or change of a credit memo.

Related Operations

- The Maintain Customer Invoice based on Customer Freight Invoice Request Request_V1 inbound operation in the Customer Invoice Processing process component can create a customer invoice based on a request sent by the Request Customer Freight Invoice Request_V1 outbound operation.
- The <u>Change Invoice Request based on Customer Freight Invoice Request</u> <u>Confirmation_V1 [Page 239]</u> inbound operation receives a confirmation of the creation, change, or cancellation of the requested customer invoice.
- The <u>Request Customer Freight Invoice Request Cancellation_V1 [Page 236]</u> requests the cancellation of a customer invoice based on a canceled forwarding settlement document or credit memo.

Features

The *Request Customer Freight Invoice Request_V1* outbound operation sends data such as the following to customer invoice processing:

- Forwarding settlement document or credit memo ID
- Information about the transportation services and the corresponding charges
- Ship-from location

Versioning

The Request Customer Freight Invoice Request_V1 outbound operation is the successor of the Request Customer Freight Invoice Request outbound operation in SAP Transportation Management 7.0 (SAP TM 7.0). The new operation only contains those elements that are required to carry out customer invoice processing.

Message Types

Customer Freight Invoice Request SUITE Request_V1

Notes on SAP Implementation

A forwarding settlement document or credit memo in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Customer Freight Invoice Request [Page</u> 226] business object.

For more information about requesting invoicing for transportation services performed for a customer, see the documentation of the <u>Customer Freight Invoice Request Processing [Page</u> 225] process component.

Enhancements

The BAdI for CustomerFreightInvoiceRequestSUITERequest_Out_V1 (/SCMTMS/CFI_SE_CRTRQ) Business Add-In (BAdI) is available for this operation.

Request Customer Freight Invoice Request Cancellation_V

Definition

To request the cancellation of a customer invoice.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CustomerFreightInvoiceRequestSUITECancellationRequest_Out_V1
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page_248]	TM-FWS
Category [Page 293]	SAP A2A
Direction [Page 262]	Outbound
Mode [Page_279]	Asynchronous
Idempotency [Page 270]	Not applicable
P2P Communication Enabled [Page_283]	Yes

Business Context and Use

A carrier cancels a forwarding settlement document that has already been sent to a customer invoicing system. The *Request Customer Freight Invoice Request Cancellation_V1* outbound operation sends information about the canceled forwarding settlement document to the customer invoicing system and requests the cancellation of the corresponding customer invoice.

Note that this operation can also request the cancellation of a credit memo.

Related Operations

The Cancel Invoice based on Customer Freight Invoice Request Cancel Request_V1 inbound operation in the Customer Invoice Processing process component cancels a customer invoice based on a cancellation request sent by the Request Customer Freight Invoice Request Cancellation_V1 outbound operation.

Features

The *Request Customer Freight Invoice Request Cancellation_V1* outbound operation sends the ID of the canceled forwarding settlement document or credit memo to customer invoice processing.

Versioning

The Request Customer Freight Invoice Request Cancellation_V1 outbound operation is the successor of the Request Customer Freight Invoice Request Cancellation outbound operation.

Message Types

Customer Freight Invoice Request SUITE Cancellation Request_V1

Prerequisites

The <u>Request Customer Freight Invoice Request_V1 [Page 234]</u> outbound operation has sent a new or changed forwarding settlement document or credit memo to customer invoice processing.

Notes on SAP Implementation

A forwarding settlement document or credit memo in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Customer Freight Invoice Request [Page</u> 226] business object.

For more information about requesting invoicing for transportation services performed for a customer, see the documentation of the <u>Customer Freight Invoice Request Processing [Page</u> 225] process component.

Enhancements

The BAdI for CustFreightInvoiceReqSUITECancellationReq_Out_V1 (/SCMTMS/CFI SE CNCLNRQ) Business Add-In (BAdI) is available for this operation.

Customer Freight Invoicing In

Definition

An interface to receive customer invoice confirmations.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Customer Freight Invoicing In* inbound service interface contains an operation that receives a confirmation of the creation, change, or cancellation of a customer invoice based on a new, changed, or canceled forwarding settlement document or credit memo. The customer invoice is used to carry out customer invoicing for transportation services performed for a customer, for example, a shipper.

Notes on SAP Implementation

For more information, see the documentation of the <u>Customer Freight Invoice Request</u> <u>Processing [Page 225]</u> process component.

Change Invoice Request Based on Customer Freight Invoice Request Confirmation_V

Definition

To change a forwarding settlement document with the category *Forwarding Settlement Document* or *Credit Memo* based on the confirmation of a request to create or change a customer invoice.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	CustomerFreightInvoiceRequestSUITEConfirmation_In_V1
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FWS
Web Service Definition (Back End)	/SCMTMS/CFIRSUITE_CONF
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
Change/Update Behavior [Page 257]	<u>Type2 [Page 259]</u>
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

To carry out customer invoicing for transportation services performed for an ordering party, a carrier sends a forwarding settlement document to customer invoicing. The *Change Invoice Request based on Customer Freight Invoice Request Confirmation_V1* inbound operation receives a confirmation of the creation, change, or cancellation of the corresponding customer invoice.

Note that this operation can also receive a confirmation of the creation, change, or cancellation of a credit memo.

Related Operations

The Confirm Customer Freight Invoice Request_V1 outbound operation in the Customer Invoice Processing process component sends a confirmation of the creation, change, or cancellation of a customer invoice.

Features

The Change Invoice Request based on Customer Freight Invoice Request Confirmation_V1 inbound operation receives an acceptance code that specifies whether a customer invoice has been created, changed, or canceled for a forwarding settlement document or a credit memo. In the case of a confirmation of a created customer invoice, the operation updates the forwarding settlement document as follows:

- If invoice creation was successful, the operation receives the ID of the customer invoice. It adds this ID to the relevant forwarding settlement document and updates the invoicing status to *Invoicing Confirmed*.
- If invoice creation failed, it updates the status of the forwarding settlement document to *Invoicing Failed*.

Versioning

The Change Invoice Request based on Customer Freight Invoice Request Confirmation_V1 inbound operation is the successor of the Change Invoice Request based on Customer Freight Invoice Request Confirmation inbound operation in SAP Transportation Management 7.0 (SAP TM 7.0).

Message Types

Customer Freight Invoice Request SUITE Confirmation_V1

Prerequisites

The <u>Request Customer Freight Invoice Request V1 [Page 234]</u> outbound operation has sent a new or changed forwarding settlement document or credit memo to customer invoicing and requested the creation or change of the corresponding customer invoice; or the <u>Request</u> <u>Customer Freight Invoice Request Cancellation V1 [Page 236]</u> outbound operation has sent a canceled forwarding settlement document or credit memo to customer invoicing and requested the cancellation of the corresponding customer invoice.

Notes on SAP Implementation

A forwarding settlement document or credit memo in the SAP Transportation Management (SAP TM) back-end system corresponds to an instance of a <u>Customer Freight Invoice Request [Page</u> 226] business object.

For more information about requesting invoicing for transportation services performed for a customer, see the documentation of the <u>Customer Freight Invoice Request Processing [Page</u> 225] process component.

Enhancements

The BAdl for CustFreightInvoiceRequestSUITEConfirmation_In_V1 (/SCMTMS/CFI_SE_CNFRQ) Business Add-In (BAdl) is available for this operation.

Supplier Freight Invoice Request Processing

Definition

The requesting of invoice verification for invoices submitted by a supplier (for example, a carrier) for transportation services ordered from that supplier.

Technical Data

Entity Type	Process Component
Technical Name [Page 296]	SupplierFreightInvoiceRequestProcessing

Notes on SAP Implementation

This process component can exchange data with the *Supplier Invoice Processing* process component. This enables you to exchange data between the *Invoice Verification* (MM-IV) component in SAP ERP and the *Freight Settlement* (TM-FRS) component in SAP Transportation Management (SAP TM). Note the following:

- A freight settlement document in the SAP TM back-end system corresponds to an instance of a <u>Supplier Freight Invoice Request [Page 242]</u> business object.
- A freight settlement document is created based on a freight order or freight booking, which corresponds to an instance of a <u>Transportation Order [Page 13]</u> business object.
- A freight invoice in the SAP ERP back-end system corresponds to an instance of a Supplier Invoice business object.

Business Context and Use

The Supplier Freight Invoice Request Processing process component receives information about invoices that have been verified and posted in supplier invoice processing; for example, invoices submitted by a carrier for transportation services performed for a shipper.

More Information

Freight Settlement

Supplier Freight Invoice Request

Definition

A request sent to invoice verification advising that a freight invoice for specified quantities and prices is expected or is to be created through evaluated receipt settlement.

Technical Data

Entity Type	Business Object
Technical Name [Page 296]	SupplierFreightInvoiceRequest
Object Category	Business Process Object

Notes on SAP Implementation

For more information, see <u>Supplier Freight Invoice Request Processing [Page 241]</u>.

Business Context and Use

The *Supplier Freight Invoice Request* business object enables a shipper to perform invoice verification for transportation services subcontracted to a carrier, for example. It enables the shipper to enter the required data (for example, the expected transportation charges) and send this data to purchase order processing, which creates the documents required for invoice verification. The invoice sent by the carrier can later be verified and posted in supplier invoice processing.

Supplier Freight Invoicing In

Definition

An interface to receive supplier invoice confirmations.

Technical Data

Entity Type	Service Interface
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound

Business Context and Use

The *Supplier Freight Invoicing In* inbound interface contains an operation that receives a notification about a verified and posted invoice that relates to a specific freight settlement document.

Notes on SAP Implementation

For more information, see Supplier Freight Invoice Request Processing [Page 241].

Change Invoice Request Based on Invoice Notification

Definition

To change a freight settlement document with the category *Freight Settlement Document* based on an invoice notification.

Technical Data

Entity Type	Service Operation
Release State [Page 285]	Released with Restrictions
Technical Name [Page 296]	InvoiceNotification_In
Namespace [Page 280]	http://sap.com/xi/TMS/Global
Application Component [Page 248]	TM-FRS-IV
Web Service Definition (Back End)	/SCMTMS/INVOICENOTIFICATION_IN
Category [Page 293]	SAP A2A
Direction [Page 262]	Inbound
Mode [Page 279]	Asynchronous
Idempotency [Page 270]	Not Applicable
P2P Communication Enabled [Page 283]	Yes

Business Context and Use

A shipper carries out invoice verification in supplier invoice processing for transportation services subcontracted to a carrier, for example. When an invoice is received from the carrier, an invoicing clerk verifies and posts the invoice. The *Change Invoice Request Based on Invoice Notification* inbound operation receives a notification about the posted invoice and updates the corresponding freight settlement document.

Features

The Change Invoice Request Based on Invoice Notification inbound operation receives data such as the following:

- ID of the freight settlement document for which the invoice was posted
- Posted amounts

The operation updates the posted amounts in the relevant freight settlement document.

Error Handling

The Change Invoice Request Based on Invoice Notification inbound operation supports <u>Forward</u> <u>Error Handling [Page 268]</u> (FEH). The following error categories are used:

- PRE: Processing Error
- DCE: Determination and Conversion Error

For more information about the individual error categories, see the code list for the global data type LogItemCategoryCode [Page 272].

Message Types

InvoiceNotification

Notes on SAP Implementation

For more information, see Supplier Freight Invoice Request Processing [Page 241].

A freight settlement document in SAP Transportation Management (SAP TM) corresponds to an instance of a <u>Supplier Freight Invoice Request [Page 242]</u> business object.



Activate Industries for Enterprise Services

Industry Solutions are an integral part of Business Function Sets that are activated by means of the SAP Switch Framework. For this purpose, the Industry Solutions were structured as business function sets consisting of one or more business functions. You can activate a Business Function Set or selected business functions according to your requirements.

Enterprise Services support industry solutions via a Business Context called Industry Classification. The Business Context is a new approach that can be used to tailor service interfaces by classifying elements of the business information interfaces. A message type of an SAP service interface comprises both the elements used across all industries, and the elements relevant for certain industries only. Which elements are used in specific industries only, and in which industries, is indicated using the elements' Business Context: SAP assigns an industry classification to these elements (for instance Oil&Gas, Pharmaceuticals, etc.).

This industry classification ensures that industry-specific elements are only visible in application systems in which the industry solution concerned is active (in the service WSDLs retrieved from the application systems, to be precise). To use the industry business context in an application system, activating corresponding Business Functions may not be sufficient. The industry has to be activated in addition in the application system using the following IMG activity:

SAP Customizing Implementation Guide-> Cross-Application Components ->Processes and Tools for Enterprise Applications -> Enterprise Services -> General Settings for Enterprise Services -> Activate Industries for Enterprise Services.

In the SAP ERP enhancement packages, SAP delivers global data types (GDTs) that can contain industry-specific fields. The industry classification assigned to these fields determines that the fields are only displayed in systems of the respective industries.

If you want to use Enterprise Services for industries, you must activate the corresponding industry in Customizing for *Cross Application Components*.

To do so, log on to the system in *English* and go to the SV_INDUSTRY view by calling transaction SM30. By activating an industry view, you cause the system to display industry-specific fields at runtime. You must activate the industry view for each system and each client.

Application Component

An element of the SAP back-end system that contains a set of area-specific or cross-functional business processes. SAP application components are structured in an application component hierarchy.

You use this application component if you need to submit a customer message for this operation in the SAP Support Portal.

Bulk, Bundle, Collection

Basic service operation patterns, such as request-confirmation, operate on a single instance of a business object. However, this processing mode can cause performance issues when used in mass data run scenarios. Therefore, operation patterns have been introduced to allow many object instances to be processed together. The following types, each with a different error-handling behavior, are used:

- BulkThe bulk pattern groups multiple messages for processing. A bulk message is
 executed as a single operation call. The execution of this pattern assumes no logical
 sequence to the group of messages, nor any dependencies between individual
 messages. The result of a bulk pattern run is the same as if each message was
 processed as a single, consecutive service operation. However, use of the bulk pattern
 does not allow more than one operation on a given business object in a bulk message.
- Bundle The bundle pattern groups multiple Business Document Objects (BDO) for
 processing. A bundle message is executed as a single operation call. If an error occurs
 while processing a BDO, all BDOs in the bundle message are rolled back to their original
 state. The execution of this pattern assumes no logical sequence to the group of BDOs,
 nor any dependencies between individual BDOs. Use of the bundle pattern does not
 allow more than one operation on a given business object in a bundle message.
- CollectionThe collection pattern groups multiple BDOs for processing. A collection message is executed as a single operation call. If an error occurs in any one service operation, all objects in the bundle are rolled back to their original state. The BDOs contained in a collection message are grouped by business use and may have dependencies. However, use of the collection pattern does not allow more than one operation on a given business object in a collection message.

Business Events

Business Events describe a meaningful change of the state of a business object. Physically, a business event is defined in the Enterprise Services Repository (ESR) as an outbound stateless asynchronous service interface with a single operation. To distinguish between the event messages created, changed and cancelled, the event message contains an element of type ObjectNodeModificationTypeCode indicating the actual event.

For more information about business events, see SAP Library for SAP NetWeaver on SAP Help Portal at <u>http://help.sap.com/netweaver</u> -> SAP NetWeaver (2004s) -> SAP NetWeaver 7.0 including Enhancement Package 2. Search for:

- Event Enabling for Communication Across Systems in Distributed Landscapes
- Working with the SOA Manager

Business Object

Business objects describe the data of a well-defined and outlined business area. Business objects are defined free of business functionality redundancies and therefore serve as the central basis for modeling and defining services at SAP. Business objects represent a set of entities with common characteristics and common behaviors, which in turn represent well-defined business semantics. Business objects are generally accepted in the business world.

For example, the business object *Purchase Order* is a request from a purchaser to an external supplier to deliver a specified quantity of goods, or perform a specified service, at a specified price, within a specified time.

Business Process Chain Assignment

Definition

A business process chain assignment (BPCA) is an assignment of a business object or a part of a business object to a business process chain. A business process chain is a chain of subsequent business processes carried out in a business scenario.

BPCA is implemented using the *BusinessProcessChainAssignment* data type. This is generally used in messages to transmit required information about the assignment to a business process chain. The process carrying unit (header, item or other node) of a business object is assigned to a business process chain. For further information, see the Data Type Catalog.

Usage

BPCA is used when interactions between different systems are required to complete business processes. For example this might be during tracking/tracing, monitoring, auditing, analysis and optimization. BPCA is particularly useful when a process step is stuck, such as, if no answer is received from an asynchronous call.

Implementation across a Business Process Chain

The following applies to the implementation of a business process chain assignment across a business process chain.

- The business process chain is uniquely identifiable across the different components that it spans. This is done using the BusinessProcessChainUUID element, the universally unique identifier of the business process chain to which the initiating business object is assigned. The business object that initiates the business process creates the BusinessProcessChainUUID. Each business object that participates in the business process is assigned the same BusinessProcessChainUUID.
- The process type representing the classification of known business processes supported by SAP banking applications is specified. This is done using the BankingBusinessTransactionTypeCode element, the coded representation of the banking business transaction that is associated with the business process chain to which the hosting business object is assigned.
- In addition, the BankingBusinessTransactionTypeName element contains the name of the corresponding type code. It is returned by the read operation when the TypeCode and TypeName elements are maintained in the respective component.

As indicated in Figure 1, within the Financial Services Foundation namespace, the following two process components support the search functionality for BPCA:

- Process Integration Activity Journal
- Business Document Flow Processing

As shown, third parties may be involved either as process initiators and/or process participants.

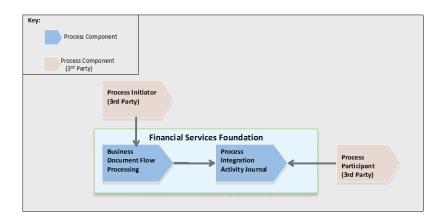


Figure 1: The process components within the Financial Services Foundation namespace that enable queries with BPCA and optional third party involvement

Current Status and Journal Entries

For activities triggered using asynchronous create, update and cancel operations within the Financial Services Foundation namespace, the current status and process integration relevant previous states of a business process chain are held in the process integration activity journal (PIAJ).

- The process component is the Process Integration Activity Journal.
- The business object is the Process Integration Activity Journal Entry.
- The corresponding term in the SAP back-end system is the process step journal (PSJ).

The status of a process integration activity is recorded in the PIAJ and consists of one or more entries, each of them reflecting the status of a process integration activity at a certain point in time.

To see the current status and journal entries, query the PIAJ using the Find Entry by Business Process Chain Assignment operation with the universally unique identifier of the business process chain (BusinessProcessChainUUID element). The operation finds all entries in the PIAJ that are assigned to the specified business process chain. The response of this find operation includes the current status of the specified business process chain. The current status includes the following information.

- The BusinessProcessChainUUID element.
- Relevant tracing information on where the process step is at present (one of service invocation, event processing or error processing).

- Only statuses that are relevant for process integration and tracing are stored in the PSJ. These statuses are service invocation, event processing and error processing. Business application level statuses such as business object statuses are not stored in the PSJ.
- 2. For asynchronous operations that write to the PSJ there is a relation between the following elements:
- ID element (an identifier for the instance of the business document within a (technical) message that is generated by the business application level at the sender)
- ProcessIntegrationActivityGroupID element (an identifier for a group of activities performed during process integration)

Business Document Flow Processing

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The entire collection of business document messages throughout a sequence related to a business process chain is also available.

- The process component is the Business Document Flow Processing.
- The business object is the Business Document Message Monitoring View.
- The corresponding term in the SAP back-end system is the global process journal.

The Business Document Message Monitoring View provides a view to monitor the transmission status as well as key data of a business document message. To obtain this view, query the Business Document Flow Processing process component using the Find Monitoring View by Business Process Chain Assignment operation with the universally unique identifier of the business process chain (BusinessProcessChainUUID element). As shown in Figure 2, this operation reads the local PSJ of the business system and retrieves all instances of entries in the PIAJ that belong to the specified business process chain.

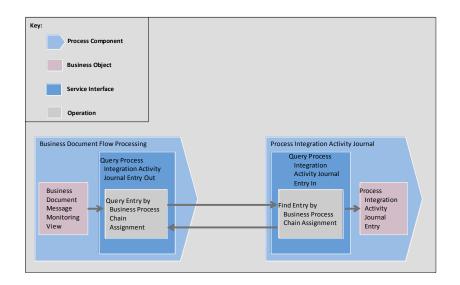


Figure 2: The Find Entry by Business Process Chain Assignment operation retrieves all instances of entries in the PIAJ that belong to a designated business process chain

The response of this operation includes the following:

- Depending on the origin of the entry in the PIAJ, data from one of the following nodes: ServiceInvocation, EventProcessing or ErrorProcessing
- The coded representation of the transmission status of the business document message monitored (BusinessDocumentMessageTransmissionStatusCode element)

Service Implementation

The delivered implementation of the BPCA data type only supports operations associated with certain business objects. These business objects can be used to support tracking/tracing and monitoring.

To see a list of the operations that support the BPCA data type within a namespace, perform the following:

- In the Enterprise Service Repository (ESR) select the software component, software component version, and namespace.
- Select the data type, for example CN_MANDATORY_BusProcChnAssgmtFSElmnts or MANDATORY_BusProcChnAssgmtFSElmnts or OPTIONAL_BusProcChnAssgmtFSElmnts.
- The where used list for these data types shows the operations that support BPCA.

Alternatively to establish whether a particular business object supports the BPCA data type, start transaction sproxy and examine the web service definition of the response of the read or retrieve operation. If the BPCA elements (BusinessProcessChainUUID,

BankingBusinessTransactionTypeCode and BankingBusinessTransactionTypeName) are present then the business object supports the BPCA data type.

This is useful for example when a third party system wants to read the PIAJ and make the information available within other connected external systems.

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- If a business object supports the BPCA data type, it does not guarantee that the corresponding PSJ in the SAP back-end system also supports BPCA.
- Although operations related to certain business objects contain the BPCA data type in their signatures, the extent of support for all status changes (for example creation, update, and cancel) might vary for each business object.

Change / Update Behavior

The *Change/Update Behavior* field defines how this operation changes the business object data in the back-end system. There are three possible update types:

Type 1

Data transferred by request messages completely overwrites corresponding objects in the backend system database. The back-end system expects a value for *all* elements that are found in the structure of the message type. This also applies to elements that are designated as optional in the message structure.

See also: Change / Update Behavior Type 1 [Page 258]

• *Type 2*

Data transferred by request messages only overwrites objects in the back-end system database that are *filled* in the message structure, with the exception of list-type elements.

See also: Change / Update Behavior Type 2 [Page 259]

• *Type 3*

The operation updates the database fields for a business object only if the corresponding elements are explicitly contained in the incoming request.

See also: Change / Update Behavior Type 3 [Page 260]

Change / Update Behavior Type

The standard behavior of a service when dealing with transferable data in an incoming request is to completely overwrite the part of the business object that can be changed. The service therefore expects each incoming request to contain values for all possible elements, and in the case of list-type elements to contain all list entries. If a request does not contain a value for an optional element (even though a value is stored in the appropriate field in the database), or if a request does not contain list entries despite there being corresponding list entries in the database, the data will be deleted upon successful execution.

Note that when using a service, data transferred by request messages completely overwrites corresponding objects in the back-end system database. Therefore, the back-end system expects a value for all elements that are found in the structure of the message type. This also applies to elements that are designated as optional in the message structure.

Caution: If elements are not filled in a request message, the back-end system interprets this information as a deletion entry and initializes the corresponding fields in the database. In the case of list-type elements that can contain several items, the items that are left out are interpreted as deletion entries. You can identify these list-type elements by checking the maxOccurs attribute, which has a value greater than 1, typically 'unbounded'.

For example:

An order contains a bill-to address that differs from the ship-to address, and items 10, 20, 30, 40, and 50. In the request message for a change operation, item 10 is to be changed and item 30 is to be deleted. The bill-to address and the other items are to remain unchanged.

To avoid deleting items 20, 40, and 50 with the change operation, you must also specify them even if they have not been changed. If you do not specify item 30, it is deleted. To avoid deleting the bill-to address, which would result in the bill being sent to the ship-to address, you also have to include the complete bill-to address in the request message.

Change / Update Behavior Type 2

A service only updates those parts of a business object for which the incoming request contains element values. If a request does not contain a value for an optional element, the corresponding database field remains unchanged (unless changes to other element values automatically lead to changes in that field value).

Note: In the case of a list-type element every request must contain values for all list entries, as they are updated as a single entity.

When using a service, data transferred by request messages only overwrites objects in the backend system database that are filled in the message structure, with the exception of list-type elements.

Note:

- If optional elements are not filled in a request message, the back-end system does not change the values of the corresponding fields in the database. The only exception to this behavior is when these values are automatically updated due to changes to other data.
- In the case of list-type elements that contain several items, the items that are left out are interpreted as a deletion entry and the corresponding rows in the database are removed. You can identify these list-type elements by checking the maxOccurs attribute, which has a value greater than 1, typically 'unbounded'.

For example:

An order contains a bill-to address that differs from the ship-to address, and items 10, 20, 30, 40, and 50. In the request message for a change operation, item 10 is to be changed and item 30 is to be deleted. The bill-to address and the other items are to remain unchanged.

To avoid deleting items 20, 40, and 50 with the change operation, you must also specify them even if they have not been changed. If you do not specify item 30, it is deleted. The unchanged bill-to address does not have to be specified in the request message. Note that if the bill-to address were to be removed, the request message would have to contain the corresponding element (or its child elements) without value or with the value 'nil' (represented as attribute xsi:nil=true in the XML message).

Change / Update Behavior Type 3

The service updates the database fields for a business object only if the corresponding elements are explicitly contained in the incoming request. If a request does not contain an optional element, the corresponding field in the database is not updated (the only exception to this is when a value is updated automatically as a result of changes to other data). For list type elements, only list entries that are detailed in the incoming request are changed or deleted. Those entries not detailed in the incoming request remain unchanged.

Optional elements are processed as follows:

- If an optional element is not transferred with the request, the corresponding database field is not updated.
- If an optional element is transferred, but does not contain a value, the element is processed and the corresponding database field is set to the initial value.

For example:

An order contains a bill-to address that differs from the ship-to address, and items 10, 20, 30, 40, and 50. In the request message for a change operation, item 10 is to be changed and item 30 is to be deleted. The bill-to address and the other items are to remain unchanged.

The request message has to contain line items 10 and 30 only, with the appropriate actionCode value. The unchanged line items and bill-to address do not have to be contained in the request. Note that if the bill-to address were to be removed, the request message would have to contain the corresponding element (or its child elements) without value or with the value 'nil' (represented as attribute xsi:nil=true in the XML message).

Deprecated

A new version of this enterprise service that covers the same or enhanced functionality is available in the same software component, or in a different software component for the same product. The new version is available when the release status of the enterprise service is set to "Deprecated" in the Enterprise Services Repository (ESR).

The status of an "original" service can only be changed to "Deprecated" within a new Enhancement Package, Support Package (in the case of corrections), or product version. The deprecated enterprise service is still available and supported in the new Enhancement Package, Support Package, or product version. The functionality of the deprecated enterprise service corresponds to the functionality of the same enterprise service in the previous version. After a minimum of one full main release cycle, the ESR status of the enterprise service can be changed to "Revoked". This means that the "outdated" and the "new" service versions are available in parallel for at least one full main release.

The link to the successor service is provided in the service documentation and in a Composite SAP Note. Any adjustments or potential migration efforts are described in the Composite SAP Note.

Direction

The direction of an operation can be either *inbound* or *outbound*.

An inbound operation in an application system can be called by a consuming application.

An outbound operation is triggered in the application system and sends a response to a consuming application.

Error Handling in Financial Services

A service implementation has functions such as validation and mapping and, for inbound services, calls of back-end functions (APIs). In each of these functions, error situations can occur, which are handled accordingly and based on whether communication is synchronous or asynchronous. Each error situation has a main error message and an error category that are sent to the service caller or a monitoring function.

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This is a general description of error and conflict handling. In some cases, such as for specific service interfaces or operations, deviations from this general description can occur.

The following sections describe the possible error situations and mode of communication. Additionally, internal errors such as technical system errors can occur in any of these functions.

Inbound Operations

Function	Error Handling for Synchronous Communication	Error Handling for Asynchronous Communication
Validation The input data is validated to ensure that all integrity conditions are fulfilled and all values are valid (for example, in the correct format and range).	If an error occurs during validation (for example, a mandatory element is missing) the message is returned to the sender describing the error using the Log node. The node for the business object is not returned.	If an error occurs during validation, a <i>fault message type exception</i> is raised and displayed in the monitoring of the integration engine (transaction SXMB_MONI or SRT_MONI) of the receiver system. I I If the transaction SRT_MONI is available in your system, we recommend to use this transaction. In asynchronous bulk operations, an error in a single instance results in the failure of the complete bulk message.
Mapping from External to Internal Format The input data is mapped to the internal format (structure and value mapping). Code	If an error occurs during the mapping (for example, an incorrect code value was provided in the message), the message is returned to the sender describing the error	If an error occurs during mapping, a "Fault Message Type Exception" is raised and displayed in the monitoring of the integration engine (transaction SXMB_MONI) of the receiver system. In asynchronous

The functions and error handling for inbound operations are as follows:

values, for example, are mapped to their corresponding values in the back-end system.	using the Log node.	bulk operations an error in a single instance results in the failure of the complete bulk message.
API Calls During processing, the back-end functions are called.	If an error occurs during processing, the message is returned to the sender describing the error using the Log node.	If an error occurs during processing, the message is forwarded to the ECH. In the ECH, you can set up automatic error resolutions such as an automatic retry if an object is locked. Depending on your ECH settings, the system may create a postprocessing order. In asynchronous bulk message operations, only the single instances that have errors are forwarded to the ECH depending on the technical implementation. Any successful single instances are processed and their confirmation is sent back. For certain operations, all single instances may be forwarded to ECH.
Mapping Internal to External Format In synchronous operations, the internal data format is mapped to the external format to generate the response message.	If an error occurs during mapping, the response message is still sent and uses the Log node to describe the error.	Not applicable

Outbound Operations

The functions and error handling for outbound operations are as follows:

Function	Error Handling for Synchronous Communication	Error Handling for Asynchronous Communication
Validation In outbound operations, the data must be validated to ensure that all integrity conditions are fulfilled before the message is sent to the receiver. The validation ensures that it is possible to assemble a valid message based on the given internal format.	If an error occurs during validation, the message is not sent. The error is returned to the caller of the operation as an exception.	If an error occurs during the validation of the internal format during the outbound processing, the message is returned to the caller. In asynchronous bulk messages, only the single instances that have errors are cancelled. Any successful single instances are processed.
Mapping Internal to External	If an error occurs during	If an error occurs during

<i>Format</i> The internal format of the data that is provided by the back-end functions is mapped to the external format.	mapping, the message is not sent. The error is returned to the caller of the operation.	 mapping from the internal to the external format, the message is forwarded to the ECH. Depending on the ECH settings, the system creates a postprocessing order. In asynchronous bulk messages, only the single instances that have errors are forwarded to the ECH. Any successful single instances are processed.
Mapping from External to Internal Format The input data is mapped to the internal format (structure and value mapping). Code values, for example, are mapped to their corresponding values in the back-end system.	If an error occurs during the mapping (for example, an incorrect code value was provided in the message), the message is returned to the sender describing the error using the Log node.	Not applicable

Error Handling Framework

The tools used are the *Error and Conflict Handler* (ECH), and the *Postprocessing Office* (PPO). For more information, see <u>Error and Conflict Handler</u> and <u>Postprocessing Office</u>. If an asynchronous service call is forwarded to the ECH and a postprocessing order is created, the Postprocessing Desktop provides the following options for solving the error:

• Discard: If you discard the postprocessing order, the message is returned to the sender. The message contains only the MessageHeader and Log nodes. The log contains the error messages that caused the message to be forwarded to the ECH.

You tried to change the account holder of a deposit account contract but the provided deposit account does not exist in the system. There is no way to solve the error manually so discard the postprocessing order so that the error is sent back to the service caller.

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This is valid only for operations where confirmation is relevant (in/out choreography). For operations without confirmation, the postprocessing order is closed without a confirmation message.

• *Repeat:* If you choose this option, the system tries to process the message again. This can be helpful if, for example, for errors (temporary or otherwise) that can be solved by editing the message payload. The postprocessing order enables you to edit the content of the sent message (payload). After you have corrected the payload, the message can be repeated.



You tried to change the account holder of a deposit account contract, but did not specify the correct identifier for the new account holder. The processor of the postprocessing order can correct this error by editing the payload and repeating the message.

• Confirm: You can use this option if you have solved the error in the back-end system manually. This option triggers the dispatch of the confirmation message. The message contains the technical information in the message header, the business object, and a log. The log usually does not contain any message. If the system cannot read the created or changed business object information during the processing of the confirm operation, it displays a dialog box. Select the business object to be returned in the message. Ensure that the business object is suitable for the original request. If you cannot identify the business object, choose *Discard*.

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This is valid only for operations where confirmation is relevant (in/out choreography). For operations without confirmation, the postprocessing order is closed without a confirmation message.

Use of Agent Framework

If an asynchronous service call is connected to the Agent Framework (FS-FND-AF), the system outputs an error message in the log of the agent framework.

Fault Message

Various errors can occur during the processing of an enterprise service. Some errors, such as input of inconsistent data, can be resolved by the end user of the application consuming the service. Errors that cannot be solved by an end user, such as non-availability of technical resources or implementation bugs in the consumer or provider application, are indicated using a 'fault message type' message. Each namespace contains a fault message type StandardMessageFault that is used by the operations of SAP service interfaces.

In the case of synchronous services, fault messages are returned to the consumer. When implementing the consumer application, they are typically reflected as exceptions thrown by the consumer proxy class. In the case of asynchronous services, the fault message is not returned to the consumer but is instead retained by the local SAP NetWeaver Process Integration (SAP NetWeaver PI) engine for monitoring.

Forward Error Handling

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

Asynchronous communication implies that the service consumer cannot react immediately to error messages returned by the provider. Delegating error removal back to the consumer is often inefficient or inappropriate.

- If the service is uni-directional (inbound notification and information services), no response message is foreseen in the consumer-provider interaction.
- If the service is bi-directional (request-confirmation or query-response pattern) it often makes sense for the provider to resolve errors and conflicts on the provider side, without returning an error message to the consumer.

Examples :

The error is temporary and would disappear automatically if the message were to be processed again at a later point in time. For example, the object to be changed is temporarily locked by another user, or another message needs to be processed first.

If a product is not available, the service provider might want to respond with an alternative offer in order to retain the customer.

Using the standard messaging channel to communicate errors back to the sender and ask for clarification would take too long – it would be more helpful to use the phone or another synchronous medium.

The ECH Framework is available in the SAP back-end system.

Errors that are handed over to the ECH Framework typically occur during data conversion or business logic processing. ECH enables administrators or even business users on the provider side to follow up on error messages. In SAP Business Suite 7, you can usetransaction ECH_MONI_SEL to search for and access error cases. You can also access this transaction from the SAP Easy Access menu by choosing Cross-Application Components --> Error and Conflict Handler.

The resolution process depends on the type of error. An error may be resolved automatically, resolved manually, or rejected and delegated back to the consumer.

- Automatic Resolution : The system retries processing or automatically rejects the request.
- Manual Resolution : An administrator or business user corrects the error (for example, by correcting the request, correcting Customizing settings, or entering transaction data), and restarts processing. If an error cannot be resolved by the provider, the user can call the sender and ask for the request to be corrected.

The ECH Framework classifies errors into error categories. Examples include:

- Conflict, restart not possible
- Authorization error; manual restart possible

- Lock request error; automatic or manual restart possible
- Value error; manual restart possible
- Internal term error; manual restart possible

You can define a resolution strategy individually for each error category.

To make use of the ECH capabilities, you must first activate and configure the ECH Framework in Customizing:

SAP Reference Implementation Guide -> Cross-Application Components -> Processes and Tools for Enterprise Applications -> Enterprise Services -> Error and Conflict Handling.

Idempotency

In business scenarios, reliable message transfer is required. It must be guaranteed that a message sent to the receiver to modify an object state is processed exactly once (EO). To avoid inconsistencies in the sender or recipient system, the relevant operations are implemented as idempotent.

Asynchronous Operations

The XI 3.0 or WS-RM protocol guarantees reliability. No specific guideline is needed for the implementation of these operations.

Synchronous Operations

There is no mechanism to guarantee that a request is processed exactly once by the recipient. If an idempotent service operation receives exactly the same request message multiple times within a limited timeframe, it will process it only once and return the corresponding response.

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A purchase order is to be created. If a message arrives several times, the concept prevents one or more duplicates from being created.

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You can define this timeframe using transaction WSIDPADMIN.

For more information, see SAP Note 1097348.

To be able to deal with messages that were sent multiple times, the recipient's application must incorporate the appropriate code and model.

To safely resend request messages, the following prerequisite must be met:

Service consumers must use the MessageHeader element and its subelement UUID in the operation's request messages. The UUID values must be globally recognizable and satisfy the format that is specified in Internet Engineering Task Force (IETF) RFC 4122. The system classifies service calls with the same message header UUIDs as identical.

The procedure for the development of consumer services depends on the developing platform used:

- Java: You can use the class java.util.UUID to generate UUIDs.
- ABAP: You can use the corresponding methods of the class CL_SYSTEM_UUID, followed by the method GUID OUTBOUND of the class CL GDT CONVERSION.

Log

The global data type (GDT) Log contains the sequence of log messages, such as error messages, that result when an application executes a task. Almost all SAP response messages and confirmation messages include a Log element of this type. Information contained in the Log element can be evaluated by the consumer of the service.

The value of the BusinessDocumentProcessingResultCode sub-element of a Log indicates whether a requested modification to a business document was successful or not. This tells the consumer of the service whether or not the message request was successful and if the requested modification to the service provider's object state was performed.

Note: Exceptions are not handled by the Log but are instead handled by a fault message type.

More Information

Fault Message [Page 267]

LogItemCategoryCode

Definition

A coded representation of a category of a log item.

Technical Data

Entity Type	Basic Global Data Type
Software Component Version	SAPGLOBAL MODEL 2.0
Technical Name	LogItemCategoryCode
Namespace	http://sap.com/xi/SAPGlobal/GDT
Dictionary Entry Name	Log Item. Category. Code

Base Type

This data type is derived from the Code data type in namespace 'http://sap.com/xi/SAPGlobal/GDT'.

Example

<LogItemCategoryCode>1</LogItemCategoryCode>

Object Class	Property	Representation	Туре	Type Name	Length	Remarks
Log Item	Category	Code	CDT	Code	115	restricted

Detailed Description and Value Ranges

Exactly one static SAP code list is assigned to the code.

Attribute	Description
listID	Identifies a list of codes that belong together. listID is only unique within the agency that manages this code list.
listAgencyID	Identifies the agency that manages the code list. The agencies from UN/EDIFACT data element 3055 (DE 3055) are used as the default, however, the roles defined in DE 3055 cannot be used. If the agency is not listed in DE 3055 it can be identified by using its web URI.
listVersionID	Identifies the version of a code list.

Notes

Proposed code list based on ESI Message Symptoms

LogItemCategoryCode - code list

Code List Type	ListAgencyID	ListID
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Static SAP		310	10078
Code	Name	Description	
'PRE.IDE'	Identification Error	Incorrect identification of the object instance.	
'PRE.VAE.FPV'	Field Property Violation Error	The value of a 'read only' field was cha	anged.
'BPR.TUS'	Temporarily Unavailable Service Provider	A service provider is temporarily unavailable. Automatic retries are being executed and the maximum number of retries has not been reached.	
'PRE.VAE'	Value Error	Incorrect value. Also refer to the error mapping error' (code: DCE.VME) and (code: DCE.ITE).	
'CON.LRC'	Late Request Conflict	Processing not possible. Example: A purchase order change request is received, but the ordered items have already been delivered. It is too late to process a reduction in the quantity.	
'FOE.SVE'	Scheme Violation Error	The XML message sent (remote) viola Example: Required fields are missing	tes scheme rules.
'ENV.COM.COU'	Configuration Unknown	Passed data must be checked against the configuration data, but the configuration data cannot be found.	
'SEI.SCV'	Service Contract Violation	Only used for process agents. Examples: - Hard action codes are used, even though soft action codes were agreed - Integrity conditions are violated	
'BPR.PEL'	Permanent Lock	Business object returns a 'foreign lock' error (code: FOL.FOL). Maximum number of retries reached.	
'SBM.SBM.CSM'	Service Business Object - Change State Mismatch	A requested change to the business object cannot be carried out because the current change state of the business object does not match the expected change state.	
'INC.BOI'	BO Inconsistency	Consistency rules defined for the business object (BO) have been violated. Either the BO is already in an inconsistent state (state message), or the BO would become inconsistent if the data change were to be accepted (transition message).	
'CON.POC'	Possible Conflict	Processing might not be possible. Exa order change request is processed, bu delivery date is close; the update is po also result in a conflict. In this case, au processing should be suppressed.	it the planned ssible but could
'ENV.CBM'	Cross BO Mismatch	There is an inconsistency between the business object being processed and an accessed business object.	
'DCE'	Determination and Conversion	Error resulting from data determination	and conversion.

	Error	
'FOE'	Format Error	(Technical) format error.
'FOE.FFE'	Field Format Error	The XML message contains field format errors that are not recognized by PI; the fields affected cannot be mapped to internal fields. Example: The string used for an external timestamp field is not a valid representation of a timestamp.
'PRE.TEE.OBE'	Outdated Buffer Error	The environment changed, but no locks were lost (for example, because no locks had been set).
'BPR.TUR'	Temporary Unknown Business Object Reference	Business object returns a 'business object reference unknown' error for specific business objects (code: ENV.CBM.BRU). Maximum number of retries not reached.
'BPR.TEL'	Temporary Lock	Business object returns a 'foreign lock' error (code: FOL.FOL). Maximum number of retries not reached.
'DCE.VME'	Value Mapping Error	Unable to map values from external fields to the internal presentation format. Examples: Mapping the ISO currency code to the local currency; mapping the Global Trade Item Number (GTIN) to the internal product ID; mapping the partner ID of the Data Universal Numbering System (DUNS) to the internal partner ID.
'CON'	Conflicts	Possible business conflicts.
'SBM.SBM'	Service BO State Mismatch	A requested change to the business object cannot be executed due to the current state of the business object data.
'PRE.TEE.LRE'	Lock Request Error	Unable to set the requested (exclusive) lock
'BPR.PUR'	Permanent Unknown Business Object Reference	Business object returns a 'business object reference unknown' error for specific business objects (code: ENV.CBM.BRU). Maximum number of retries reached.
'PRE.TEE'	Temporary Error	The error situation is temporary. Example: Object is locked by another user (A separate subcategory may be required for the special locking situation.)
'CON.DRC'	Deviating Response Conflict	Conflicting information in the business context. Example: Confirmation is received for a purchase order. Although the message does not confirm the full quantity (for example, delivery of 100 units has been promised, but only 70 units are in the warehouse), it is designated as the final confirmation.
'PRE.IDE.DRE'	Dangling Reference Error	A reference object is not available.
'SEI.FSI.FSS'	Synchronous	A synchronous call fails for technical reasons.

	Service Call Failed	
'PRE.CAE'	Cardinality Error	An attempt was made to create more nodes or associations than allowed by the metadata.
'PRE.TEE.LPE'	Lock Promotion Error	An upgrade to an exclusive lock is not possible because the underlying 'promotable request' no longer exists.
'DCE.KME'	Key Mapping Error	Unable to map external keys to internal keys. Example: The internal key of the business object or business object node cannot be determined from the external key.
'MIA.MIA'	Missing Authorization	Used by role-based access management (RBAM) to indicate authorization errors.
'CON.URC'	Unknown Reference Conflict	The message choreography involves several messages, whereby the first message contains business object information, and another message contains a different business object and a reference to the first business object. The second message cannot be processed before the first, since the referenced business object does not yet exist in the system. This error is related to the internal key term error (code: DCE.IKT).
'PRE.AUE'	Authorization Error	Unable to execute an action or field change due to missing authorizations.
'ENV.COM'	Configuration Mismatch	There is an inconsistency between the business object and the business configuration.
'PRE.CVE'	Cross Validation Error	An instance of an object or node is not available.
'CON.CMC'	Context Mismatch Conflict	Mismatched or contradictory information. Example: Delivery-related billing: A component (such as "Financial Accounting") receives messages from various other components (such as "Inventory Accounting" or "Inventory Change"). The messages contain contradictory infomation and it is not clear which message contains the correct information. Remark: In this case, the messages should be processed, but conflict handling should be triggered. Conflicts could also be handled at business object level rather than by the inbound processing layer.
'DCE.ICE'	Invalid Call Error	The application is attempting to access a technical component or deployment unit that is not available.
'PRE.IDE.KEY'	Key Error	An XML message contains action codes (such as 'create', 'update', or 'delete') for the business object node. If a processing error occurs during creation, the node does not exist for updates or deletion. The given business object node key is not valid. This error category is relevant for update and delete actions, as well as for duplicate keys.

'ENV.CBM.BRU'	Business Object Reference Unknown	No business object data found for a given business object reference.
'CON.ORC'	Outdated Response Conflict	
'DCE.ITE'	Internal Term Error	The application is unable to determine internal terms (for example, account determination, organization determination) and returns hard errors (no fault tolerance). This error category includes missing values in mandatory fields. Data cannot be processed because certain dependent attributes are missing.
'SEI.FSI'	Failed Service Invocation	Error when calling a service that belongs to a different entity.
'INC.COI'	Configuration Inconsistency	The consistency rules defined in the business configuration (tables) have been violated.
'FOL.FOL'	Foreign Lock	Lock required for further processing cannot be set.
'CON.OVC'	Overdue Conflict	A reaction is expected within a specific time frame. This deadline has been exceeded.
'PRE'	Processing Error	Error occurred during data processing.
'DCE.IKT'	Internal Key Term Error	Unable to determine internal key terms. Example: The system is unable to determine the business object type. As a result, the business object cannot be created.
'DCE.SME'	Structural Mismatch Error	The structure of the business object does not match the structure of the inbound message. Example: In the business object the currency is only defined at header level. However, in the message the currency is part of an item field, and different items could potentially have different currencies. The same error might occur for the units of measurement in schedule items or line items.

Message Data Type

A data type that describes the structure of the message used by a particular operation. A message data type adheres to one of the following communication patterns: information, notification, query-response, or request-confirmation.

2Message Header

The message header is an element in all asynchronous service interfaces and the synchronous service interfaces that implement the notification, information, or request-confirmation pattern. The underlying global data type, apart from a few exceptions, is either

BasicBusinessDocumentMessageHeader or

BusinessDocumentMessageHeader.BasicBusinessDocumentMessageHeader contains information about the identification of the message. BusinessDocumentMessageHeader can also contain additional administrative data, such as the date and time at which the message was sent, the sender, and the recipient party.

2Mode

Indicates whether enterprise services are called synchronously or asynchronously. The main difference between the two modes of operation is as follows:

- In *synchronous* mode, the service consumer sends a message to the service provider and waits for a response or a confirmation. It cannot perform another task until a response or confirmation is received.
- In *asynchronous* mode, the service consumer sends a message to the service provider and continues to perform other tasks while waiting for a response. When it receives a response, it can return to the original task and complete it.

2Namespace

Namespace in which the enterprise service has been defined in the Enterprise Services Repository (ES Repository). The namespace groups a set of operations within a software component version in the ES Repository.

Namespaces are used to avoid naming conflicts within object types in the ES Repository. When using design objects, the respective tools require that a design object can be defined uniquely by its technical name and namespace (at least within one system).

20peration

Operations are entities that perform specific tasks on a business object, such as creating, updating, or deleting a business object. An operation is a specification of a function with a set of message types assigned as the signature. Each operation is assigned to exactly one business object, whereas a business object can have multiple operations. Depending on the type of access required to the data or business object, operations can be asynchronous (for A2A or B2B communication) or synchronous (for access from other components in the same application).

For example, you can use the inbound service operation *Cancel Sales Order* to delete a realworld instance of a *Sales Order* business object (that is, a sales order document) in your system.

2Query Conditions

Query-response operations typically request information about business objects of a certain type, based on selection criteria. In the request message of the query, the consumer specifies the selection criteria and the view of the business object that is the basis of the query. The result is sent back to the consumer in the response message.

The general naming convention for query-response service operations is <BusinessObjectView>By<SelCrit>Query, where:

- <BusinessObjectView> is a view on the business object. It defines the object type that is returned in the response message.
- <SelCrit> is the selection criterion for the query.

It is useful to distinguish between two types of query, qualifying and non-qualifying:

- A qualifying query identifies a business object in a unique way by providing the ID of the object. For this purpose, a selection qualifier such as 'byID' is used.
- A non-qualifying query is a query that does not necessarily refer to a single object. For example, the query "Select all purchase orders for a specific buyer" generally returns zero or more objects.

In the case of a non-qualifying query, the message type of the request message generally allows any number of selection criteria. That means it is possible to indicate a single value, an interval, or a range (a set of intervals). It is also possible to use single values, intervals, or ranges in parallel.

Processing conditions are used in query-response data types that are expected to handle a large number of Business Document Object (BDO) instances. 'Query Processing Conditions' are used to define the maximum number of 'hits' to be returned by a query pattern. 'Response Processing Conditions' define the information to be returned by a response pattern if the maximum number of hits is exceeded. Note: The use of processing conditions is optional, but where they are used the default maximum number of hits is 100.

2Point-to-Point Communication Enabled

If point-to-point communication has been enabled, you can trigger enterprise services through the Web services protocol without using a mediator (such as SAP NetWeaver Process Integration). In other words, you can configure direct communication between the consumer and provider.

To set up a point-to-point communication for asynchronous services, you need to make additional settings in the SAP back-end system:

- You must activate the business function FND_SOA_REUSE_1.
- In Customizing for SAP Business Suite , choose Cross-Application Components -> Processes and Tools for Enterprise Applications -> Enterprise Services -> Point-to-Point Enablement for Asynchronous Enterprise Services.
- You use the SOA Manager application (transaction SOAMANAGER) to set up endpoints and logical ports.

For more information about the SOA Manager application, see SAP Library for SAP NetWeaver on SAP Help Portal at <u>http://help.sap.com/netweaver</u> -> SAP NetWeaver 7.0 (2004s) -> SAP NetWeaver 7.0 including Enhancement Package 2. Search for Working with the SOA Manager.

2Process Component

Process components are the building blocks of service-enabled solutions. A process component is a modular, context-independent, reusable pieces of software that exposes its functions as services. A process component contains at least one business object and is unique within a deployment unit. Process components are designed to represent a technical grouping of semantically-related business objects. Semantically, process components interact with other process components using enterprise services.

For example, the process component *Purchase Order Processing* handles purchase requests from a purchaser to an external supplier.

2Release States

The release state of a service is defined at service operation level in the Enterprise Services Repository. SAP uses this status to inform service consumers about the lifecycle state of an enterprise service. The following release statuses are possible:

Released

The service has been implemented and released by SAP and is available for consumption. Check the service documentation and SAP Notes for any limitations or prerequisites relating to the consumption of this service.

• Released with Restrictions

The service is released and supported by SAP for restricted consumption only. Before consuming this enterprise service, you must check the enterprise service documentation, the SAP Release Information Note, and SAP Notes for the corresponding application version to see if restrictions and/or limitations apply to the enterprise service. SAP can change the status "Released with Restrictions" to "Released" or "Revoked". The service itself might be changed incompatibly in one of the future support packages for the related application.

• Deprecated

A new version of this enterprise service that covers the same or enhanced functionality is available in the same software component, or in a different software component for the same product. The new version is available when the release status of the enterprise service is set to "Deprecated" in the Enterprise Services Repository (ESR).

The status of an "original" service can only be changed to "Deprecated" within a new Enhancement Package, Support Package (in the case of corrections), or product version. The deprecated enterprise service is still available and supported in the new Enhancement Package, Support Package, or product version. The functionality of the deprecated enterprise service corresponds to the functionality of the same enterprise service in the previous version. After a minimum of one full main release cycle, the ESR status of the enterprise service can be changed to "Revoked". This means that the "outdated" and the "new" service versions are available in parallel for at least one full main release.

The link to the successor service is provided in the service documentation and in a Composite SAP Note. Any adjustments or potential migration efforts are described in the Composite SAP Note.

Revoked

The enterprise service implementation is still in place, but the service is no longer supported by SAP.

If an enterprise service is flagged as "Deprecated", the ESR Release Status can be changed to "Revoked" after a minimum timeframe of one whole main release.

Note : The definition of the service operation may still be available in Enterprise Services Repository (ESR), in the ABAP proxy objects, and in the Web service. However, SAP no longer supports the usage of this enterprise service and strongly recommends that you replace it with the successor service. For more information about the release state of an enterprise service, see the documentation on SAP Help Portal at <u>http://help.sap.com/</u>. The release states are described in the SAP Library documentation for SAP NetWeaver Process Integration 7.1.

2Released

The service has been implemented and released by SAP and is available for consumption. Check the service documentation and SAP Notes for any limitations or prerequisites relating to the consumption of this service.

2Released with restrictions

The service is released and supported by SAP for restricted consumption only. Before consuming this enterprise service, you must check the enterprise service documentation, the SAP Release Information Note, and SAP Notes for the corresponding application version to see if restrictions and/or limitations apply to the enterprise service. SAP can change the status "Released with Restrictions" to "Released" or "Revoked". The service itself might be changed incompatibly in one of the future support packages for the related application.

3Replication, Migration and Transmission

Standard service interface patterns are not suitable for data services that transfer master data from one computer or application to another without triggering any business process steps. For these use cases, a transmission pattern using one of the following forms of data transfer is required:

- Transmission
- Replication
- Migration

Business objects do not have to be migrated or replicated in their entirety, nor do they have to mirror the structure of the corresponding objects on the receiver side.

Note

The terms 'replication' and 'migration' describe specific types of transmission pattern and should always be used where appropriate.

Transmission is an umbrella term for any transfer of business object data from one computer or application to another with the goal of enabling the data to be used at the receiver side.

Replication is the copying of business object data from a host computer or application to another computer or application with the goal of using the data on both systems. Replication is a permanent process that can happen multiple times, for example the replication of data between a groupware application such as Microsoft Outlook and a SAP CRM application. In this case the two applications have different data models, so a data transformation must take place during the replication, and synchronization of data between the two applications is performed frequently.

Migration is the transfer of business object data from a computer or application to a new computer or application with the goal of using the data only on the new system. The migration process happens only once and often requires data transformation due to differences in data models or formats. A typical example is the migration of data from a legacy system to a replacement system.

3Revoked

The enterprise service implementation is still in place, but the service is no longer supported by SAP.If an enterprise service is flagged as "Deprecated", the ESR Release Status can be changed to "Revoked" after a minimum timeframe of one whole main release.

Note : The definition of the service operation may still be available in Enterprise Services Repository (ESR), in the ABAP proxy objects, and in the Web service. However, SAP no longer supports the usage of this enterprise service and strongly recommends that you replace it with the successor service.

3Scheme Attributes at IDs and Codes

In the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT) Core Component Technical Specification (CCTS), the identification context of an identifier or a code is defined by supplementary components. The supplementary components may also be referred to as the attributes of an object ID or code. Identifier and code values are unique with respect to such a scheme. The values of these attributes are filled at configuration time or runtime.

Examples

- Standard Identifier/Standard Agency:<ProductID schemeID ="GTIN" schemeAgencyID="113">10614141000415</ProductID>
- Proprietary Identifier/Standard Agency:<ProductID schemeID ="householdappliance" schemeAgencyID="310">123</ProductID>
- Proprietary Identifier/Proprietary Agency:<ProductID schemeID ="householdappliance" schemeAgencyID=" anyurl.com ">456</ProductID>

"Identifier" Supplementary Component Attributes

- *schemeID* Identifies the ID scheme. It is released and maintained by the organization responsible for the ID scheme.
- *schemeVersionID* Identifies the version of the ID scheme. The version is released and maintained by the organization that is named in schemeAgencyID.
- schemeAgencyID ID of the organization that maintains the ID scheme.

"Code" Supplementary Components Attributes

- *listID* Identifies a list of the codes that belong together. Only unique for the agency that manages the list.
- *listVersionID* Identifies the version of a code list.
- *listAgencyID* Identifies the agency that manages the code list (such as a standardization body).

The following types of identifiers and codes can be represented by the corresponding AgencyID:

- Standardized scheme or list managed by an agency from the DE 3055 code list (excluding roles).
- Proprietary identifiers or codes whose scheme or code list is managed by an agency that is identified using a standardized ID.
- Proprietary identifiers or codes whose identification schemes or code lists are managed by an agency that is identified by a proprietary identifier.
- Proprietary identifiers or codes whose identification schemes or code lists are managed by an agency that is specified using a role, or by an agency that is not specified at all. The role is specified as a prefix in the tag name. schemeID and schemeVersionID, or listID and listVersionID, can be used as attributes if there is more than one identification scheme or code list respectively. No attributes are required if there is only one identification scheme or code list.

Note Where the defining agency is a standard agency from the DE3055 code list, the supplementary components are filled by SAP. In general, internal identifiers are not defined by SAP.

3Service Category

Services created by SAP are categorized according to the main purpose of the messages being communicated.

The following service categories exist:

• Application-to-Application (A2A)

A2A services facilitate the exchange of business information between different applications to connect business processes, within company borders.

• Business-to-Business (B2B)

B2B services facilitate the exchange of business documents across company borders.

• Application-to-Cross Application (A2X)

A2X services facilitate the exchange of business information between an application and an unspecified client. They are often used to build user interfaces (UIs) based on the back-end, without an intervening communication layer. For this reason, A2X messages contain all the necessary information for understanding the message, such as code names or texts to be displayed on the UI.

3Service Interface

Service interfaces are named groups of operations. A service interface belongs to exactly one process component, whereas a process component can contain multiple service interfaces. Service interfaces specify offered (inbound service interfaces) or used (outbound service interfaces) functions.

The operations and service interfaces are modeled using predefined patterns to ensure that the naming and definition of services are unified. These interface patterns are derived from the access type needed and cover the majority of use cases. Thus, service interfaces, operations, and message types are always modeled in the same way. Interface patterns define naming rules for operations and service interfaces based on the business object and its node structure, grouping rules for the operations in the service interfaces, naming rules for the message types, and rules for the message choreography of an enterprise service interaction.

For example, the service interface *Manage Sales Order In* could provide the service operations *Create Sales Order*, *Read Sales Order*, *Update Sales Order*, and *Cancel Sales Order*.

3Service Mapping Tool

The Service Mapping Tool (SMT) allows you to fill a target structure from a set of ABAP source structures.

Supported functions include:

- Simple field mappings
- Field mappings with field transformations
- Complex transformations
- Field checks

Possible uses of the tool include preparation of data for follow-on actions, conversion of enterprise service data to SAP-internal formats, and conversion of SAP-internal formats to enterprise service data. Special requirements for service implementations, such as extended XML handling and field checks, are supported. The SMT also provides a 'where-used' list for mapping steps that are used by enterprise services. It allows you to see all the service interfaces and operations that use a specific mapping step.

For more information about the SMT, see *Processes and Tools for Enterprise Applications -> Mappings for Enterprise Services* in the SAP Library.

3Technical Name

The name of the operation according to SAP's naming conventions for enterprise services. The technical name is used for the operation definition in the Enterprise Services Repository.



This section contains information about other Web services for SAP Transportation Management (SAP TM).

GetTransportationDocumentURI

Technical Data

Field	Value
Operation Name in Enterprise Services Repository (ES Repository)	GetTransportationDocumentURI
Namespace in ES Repository	http://sap.com/xi/TMS/UX
Software Component Version in ES Repository	Available as of SAPTM 1.0
Category	Inbound
Mode	Synchronous

Business Context and Use

The *GetTransportationDocumentURI* operation enables you to display SAP Transportation Management (SAP TM) documents in SAP ERP while using the following SAP ERP functions:

- Invoice verification (transactions MIRO, MIR7, and MIR4): You can display a specific freight settlement document in the Web browser from the SAP ERP system. For example, when you enter an invoice received from a carrier into the SAP ERP system, you can call up the corresponding freight settlement document to check if the invoice data is correct.
- Agency business (transactions WLF3 and WZR3): You can display a specific freight order or freight settlement document in the Web browser from the SAP ERP system. For example, when you create a payment document or vendor billing document in SAP ERP, you can display the corresponding SAP TM document to verify the data. Note that this is relevant for shippers who use the cost distribution function in SAP TM.

Features

The GetTransportationDocumentURI inbound operation in SAP TM is triggered by the GetTransportationDocumentURI outbound operation in SAP ERP. The GetTransportationDocumentURI outbound operation in SAP ERP requests the URL of a specific business document. The GetTransportationDocumentURI inbound operation in SAP ERP requests the URL of a specific generates the relevant URL and returns it to the requesting operation, which calls the browser and displays the document. To generate the URL, the inbound operation requires the type and number of the business document.

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In the Enterprise Services Repository, the *GetTransportationDocumentURI* outbound operation in SAP ERP is available in the SAP_APPL component (as of SAP_APPL 6.04) in the http://sap.com/xi/APPL/PI/TM/UX namespace.

Notes on SAP Implementation

Prerequisites

- For invoice verification, you have activated the *TMS-ERP: Invoice Integration* (LOG_TM_IV_INT) business function in SAP ERP (available as of SAP enhancement package 4 for SAP ERP 6.0 support package 9). If you activate this business function, the system displays the *TM Doc.* tab page in the relevant transactions in SAP ERP. The tab page contains the *Details* pushbutton for displaying an SAP TM business document. The *GetTransportationDocumentURI* outbound operation in SAP ERP is triggered when a user chooses the *Details* pushbutton.
- For agency business integration, you have activated the *ERP-TMS: Order and Invoice Integration* (LOG_TM_ORD_INT_II) business function in SAP ERP (available as of SAP enhancement package 5 for SAP ERP 6.0 support package 9 and SAP enhancement package 6 for SAP ERP 6.0 support package 4). If you activate this business function, the user can access the relevant SAP TM business documents from the agency business document in the SAP ERP system.
- You have set up point-to-point communication between the inbound and outbound operation. To enable the operations to exchange data, you must carry out the required settings in SAP TM and SAP ERP. For more information, see SAP Note <u>1451472</u>.

Enhancements

The BAdI for GetTransportationDocumentURI (/SCMTMS/TDO_IF_SE_GET_URI) Business Add-In (BAdI) is available for this operation in SAP TM.

More Information

Freight Settlement

BusinessDocumentFlowTMInformationbyBusinessObjec tReferenceQueryResponse_In

Field	Value
Operation Name in Enterprise Services Repository (ES Repository)	BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_In
Namespace in ES Repository	http://sap.com/xi/TMS/UX
Software Component Version in ES Repository	Available as of SAPTM 1.10
Category	Inbound
Mode	Synchronous

Technical Data

Business Context and Use

The inbound operation

BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_ In provides a logistics execution system with information about SAP Transportation Management (SAP TM) documents that relate to a specific business document in the logistics execution system. For example, TM documents that were created for an order or delivery that was sent to SAP TM to carry out transportation planning and execution. The operation provides the logistics execution system with information about the document flow and statuses of the TM documents.

Features

A logistics execution system sends the ID and type of the business document for which the TM document flow and status information is required. The inbound operation BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_In returns the required information. This includes the following:

- IDs of the individual TM documents, as well as the references between the TM documents and the business document in the logistics execution system
- Web URI (Uniform Resource Identifier) of each TM document

For example, Web URIs of the relevant order-based transportation requirement, deliverybased transportation requirement, and dependent documents such as freight units, freight orders, and freight settlement documents. This enables the user in the logistics execution system to directly display the TM documents from the original TM system in the Web browser.

• Statuses of the individual TM business documents and cumulated statuses for the entire business document in the logistics execution system

For each TM document, the operation sends the following statuses: life cycle status, execution status, confirmation status, subcontracting status, tendering status, consumption status, and invoicing status. The operation also sends cumulated statuses. These cumulated statuses apply to the entire business document in the logistics execution system. For example, if some of the relevant TM business documents have the life cycle status *New* and the rest have the status *In Process*, the life cycle status of the entire business document in the logistics execution system is set to *Partially In Process*.

Note the following:

- For freight settlement documents, the operation provides only the life cycle status and invoicing status. The operation does not provide information about charges (for example, prices or exchange rates).
- For freight orders, the operation provides only the document ID, category, description, and status.

Notes on SAP Implementation

Integration

You can use this Web service to send document flow and status information to SAP ERP. This enables the user in SAP ERP to access an overview of the entire ERP-TM process for an individual ERP document and to track the status of document processing in SAP TM from the SAP ERP system. The document flow and status information can be displayed for a specific ERP purchase order, stock transport order, sales order, outbound delivery, or inbound delivery for return orders and purchase orders.

Prerequisites

You have activated the *ERP-TMS:* Order and Invoice Integration 2 (LOG_TM_ORD_INT_II) business function in SAP ERP (available as of SAP enhancement package 5 for SAP ERP 6.0 support package 9 and SAP enhancement package 6 for SAP ERP 6.0 support package 4). If you activate the business function, the system displays the TM tab page in the transactions for changing or displaying orders, and it displays the TM pushbutton in the transactions for changing or displaying deliveries.

In addition, you have sent an ERP order or delivery to SAP TM. For more information about order and delivery integration, see <u>ERP Logistics Integration</u>.

Enhancements

The Business Add-In (BAdI) BAdI for BusinessDocumentFlowTMInformationbyBusinessObjectReferenceQueryResponse_In (/SCMTMS/BDF_SE_BFDINFO) is available for this operation.



This section contains information about additional Enterprise Services Repository (ESR) content for SAP Transportation Management (SAP TM).



This section contains information about the integration scenarios for SAP TM, which are available in the Enterprise Services Repository in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.



You can use this integration scenario to transfer settlement documents from SAP Transportation Management (SAP TM) to SAP ERP to create billing documents or accruals. In a typical shipper scenario, carrier settlement is achieved by performing accruals posting and invoice verification in SAP ERP based on data provided by SAP TM.

Prerequisites

In the Enterprise Services Repository, the *TM_ERPInvoiceIntegration* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

Process

The integration scenario comprises the following asynchronous communication steps between an SAP TM system and an SAP ERP system in the same company.

Forwarding Settlement

1. Send Forwarding Settlement Request

SAP TM requests the creation, change, or cancellation of a billing document in SAP ERP. The billing document is based on a forwarding settlement document in SAP TM.

For more information about the business context, see the documentation of the following enterprise services in the *Customer Freight Invoice Request Processing* process component:

- o Request Customer Freight Invoice Request_V1 [Page 234]
- o Request Customer Freight Invoice Request Cancellation_V1 [Page 236]
- 2. Create Customer Invoice

SAP ERP creates, changes, or cancels the billing document based on the request received from SAP TM. It then sends a confirmation to SAP TM. If SAP ERP cannot send a response for technical reasons, an error is triggered in SAP ERP.

3. Receive Forwarding Settlement Confirmation

SAP TM receives the confirmation and updates the corresponding forwarding settlement document. If SAP TM cannot process the confirmation, an error is triggered in SAP TM.

Note that SAP TM can now request the creation of a credit memo in SAP ERP, as follows:

- 1. SAP TM requests the creation, change, or cancellation of a credit memo in SAP ERP. The credit memo is based on the billing document that was created in step 2 above.
- 2. SAP ERP creates, changes, or cancels a credit memo. It then sends a confirmation to SAP TM. If SAP ERP cannot send a response for technical reasons, an error is triggered in SAP ERP.

3. SAP TM receives the confirmation and updates the corresponding credit memo. If SAP TM cannot process the confirmation, an error is triggered in SAP TM.

Freight Settlement

1. Send Freight Settlement Request

SAP TM requests the creation, change, or cancellation of accruals in SAP ERP (that is, the creation of a service purchase order and one or more service entry sheets). The accruals are based on a freight settlement document in SAP TM. SAP ERP also sends an update to SAP TM as soon as the corresponding supplier invoice has been posted (that is, invoice verification has been carried out and the accruals have been posted).

For more information about the business context, see the documentation of the following enterprise services in the *Transportation Order Processing* process component:

- o Request Transportation Order Invoicing Preparation [Page 78]
- o Request Transportation Order Invoicing Preparation Cancellation [Page 81]
- 2. Create Supplier Invoice

SAP ERP creates, changes, or cancels the accruals (that is, the service purchase order and one or more service entry sheets) based on the request received from SAP TM. It then sends a confirmation to SAP TM. If SAP ERP cannot send a response for technical reasons, an error is triggered in SAP ERP.

3. Receive Freight Settlement Confirmation

SAP TM receives the confirmation from SAP ERP and updates the corresponding freight settlement document. If SAP TM cannot process the confirmation, an error is triggered in SAP TM.

Invoice Notification

1. Send Invoice Notification

SAP ERP sends a notification about the receipt of a supplier invoice to SAP TM.

2. Receive Invoice Notification from ERP

SAP TM receives the invoice notification and updates the posted amounts in the corresponding freight settlement document. If SAP TM cannot process the invoice notification, an error is triggered in SAP TM.

Invoice Simulation

1. Simulate Customer Invoice

SAP TM sends a new or changed forwarding settlement document or credit memo to SAP ERP and requests the transfer of data to preview the customer invoice or credit memo. SAP ERP returns the required data to SAP TM.

2. Simulate Forwarding Settlement Request in ERP System

SAP TM uses the data provided by SAP ERP to generate a preview of the customer invoice or credit memo.

Note the following:

- SAP TM can initiate communication at any time starting with the action Send Forwarding Settlement Request or Send Freight Settlement Request (that is, these actions can be executed independently of each other).
- SAP ERP can initiate communication starting with the action Send Invoice Notification only if SAP ERP has already received and processed a freight settlement request from SAP TM (that is, the action Create Customer Invoice is a prerequisite).
- SAP ERP can initiate communication starting with the action Simulate Customer Invoice only if a customer invoice has not yet been created in SAP ERP (that is, the action Create Customer Invoice has not been performed).

More Information

Forwarding Settlement

Freight Settlement



Orders and deliveries in SAP ERP can be transferred to SAP Transportation Management (SAP TM) and saved there as transportation requirements. These transportation requirements can then be used as the basis for further transportation activities (for example, planning). In addition, SAP TM can propose deliveries that can be created in SAP ERP.

Prerequisites

In the Enterprise Services Repository, the *TM_ERPOrderIntegration* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

For more information about configuration and prerequisites, see <u>Configuring Integration of Orders</u> and <u>Deliveries</u>.

Process

The integration scenario comprises the following asynchronous communication steps between an SAP ERP system and an SAP TM system in the same company.

Send SAP ERP Order to SAP TM

 Send Sales Order to Transportation Management System/Send Customer Return to Transportation Management System/Send Purchase Order to Transportation Management System

When a sales order, returns order, or purchase order is created, changed, or canceled in the SAP ERP system, SAP ERP sends the order to SAP TM. The same applies to stock transport orders, returns purchase orders, and returns stock transport orders.

1

The documents are only sent to SAP TM if the SAP ERP system has been configured accordingly (in particular, with respect to the corresponding document types). For more information about the required settings, see <u>Configuring</u> Integration of Orders and Deliveries.

2. Import Order from SAP ERP

SAP TM creates, changes, or cancels an order-based transportation requirement (OTR) based on the request received from SAP ERP. Based on the OTRs, freight units can be created in SAP TM and transportation planning can be carried out. The results of transportation planning can then also form the basis of the creation of delivery proposals.

For more information, see Integration of ERP Orders and Deliveries in Transp. Planning.

Send Delivery Proposal to SAP ERP (Outbound Delivery)

1. Send Outbound Delivery Proposal (as Bulk)

SAP TM creates delivery proposals and sends them to SAP ERP to request the creation of the corresponding deliveries. In this step, multiple delivery proposals may be grouped

into a bulk message to enable joint transmission, and to ensure that the delivery proposals are processed in the correct sequence and with sufficient levels of performance.

For more information, see Creation of ERP Deliveries from SAP TM.

2. Create Outbound Delivery (as Bulk)

SAP ERP creates one or more outbound deliveries based on the delivery proposals received from SAP TM. SAP ERP might split the proposed deliveries (for example, based on additional split criteria defined in SAP ERP).

SAP ERP sends a bulk confirmation to SAP TM, which contains individual confirmations for each delivery proposal in the bulk request that was received from SAP TM. If SAP ERP cannot process the complete request, an error is triggered in SAP ERP.

3. Receive Outbound Delivery Bulk Confirmation

SAP TM receives the bulk confirmation from SAP ERP and creates an entry in the application log. The application log entry includes the system messages that were created in SAP ERP during delivery creation, as well as the total number of deliveries created in SAP ERP and the ID of each delivery. If an error occurred during delivery creation in SAP ERP, SAP TM generates an alert.

When a confirmation is received, SAP TM sets a confirmation timestamp in the relevant freight units. The timestamp is used to monitor whether SAP ERP has responded. For more information, see <u>Monitoring of Delivery Creation</u>.

Send Delivery Proposal to SAP ERP (Inbound Delivery)

1. Send Inbound Delivery Proposal

SAP TM creates delivery proposals and sends them to SAP ERP to request the creation of the corresponding deliveries. Note that inbound delivery proposals are sent using single messages; unlike outbound delivery proposals, which are sent using bulk messages.

For more information, see Creation of ERP Deliveries from SAP TM.

2. Create Inbound Delivery

SAP ERP creates one or more inbound deliveries based on the delivery proposals received from SAP TM. SAP ERP might split a proposed delivery (for example, based on additional split criteria defined in SAP ERP).

SAP ERP sends a confirmation to SAP TM. If SAP ERP cannot process the complete request, an error is triggered in SAP ERP.

3. Receive Inbound Delivery Confirmation

SAP TM receives the confirmation from SAP ERP and creates an entry in the application log. The application log entry includes the system messages that were created in SAP ERP during delivery creation, as well as the total number of deliveries created in SAP ERP and the ID of each delivery. If an error occurred during delivery creation in SAP ERP, SAP TM generates an alert.

When a confirmation is received, SAP TM sets a confirmation timestamp in the relevant freight units. The timestamp is used to monitor whether SAP ERP has responded. For more information, see Monitoring of Delivery Creation.

Send SAP ERP Delivery to SAP TM

1. Send Outbound Delivery to Transportation Management System/Send Inbound Delivery to Transportation Management System

When an outbound delivery or inbound delivery is created, changed, or canceled in the SAP ERP system, SAP ERP sends the delivery to SAP TM.

1

The execution of this step does not depend on delivery creation having been triggered by a delivery proposal received from SAP TM. For example, this step can also be carried out if the delivery was created manually in SAP ERP. For more information, see Integration of ERP Deliveries.

Outbound deliveries and inbound deliveries are sent to SAP TM only if the SAP ERP system has been configured accordingly (in particular, with respect to the corresponding delivery types). For more information about the required settings, see <u>Configuring Integration of Orders and Deliveries</u>.

2. Import Delivery from SAP ERP

SAP TM creates, changes, or cancels a delivery-based transportation requirement (DTR) based on the request received from SAP ERP. When SAP TM creates the DTR, the DTR consumes the transportation demand of the corresponding order-based transportation requirement or requirements, if applicable. That is, SAP TM determines the corresponding OTR items and reassigns the freight units to the DTR.

For more information, see Integration of ERP Orders and Deliveries in Transp. Planning.

Split Outbound Delivery

1. Send Outbound Delivery Split

Based on planning changes, SAP TM requests that an outbound delivery is split in SAP ERP.

2. Split Outbound Delivery

SAP ERP splits the outbound delivery and sends a confirmation to SAP TM.

3. Receive Outbound Delivery Split Confirmation

SAP TM receives confirmation of the split from SAP ERP.

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SAP ERP sends the new delivery and the changed original delivery to SAP TM in separate messages (see the steps under Send SAP ERP Delivery to SAP TM). SAP TM can then create the new DTR and change the original DTR.

Update Outbound Delivery

1. Send Outbound Delivery Update

Based on planning changes related to changed dates, SAP TM requests that an outbound delivery is updated in SAP ERP.

2. Update Outbound Delivery

SAP ERP updates the outbound delivery and sends a confirmation to SAP TM.

3. Receive Outbound Delivery Update Confirmation

SAP TM receives confirmation of the update from SAP ERP.

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SAP ERP sends the updated outbound delivery to SAP TM in a separate message (see the steps under Send SAP ERP Delivery to SAP TM). SAP TM can then update the corresponding DTR.

More Information

ERP Logistics Integration



A shipper can use this integration scenario to carry out transportation planning synchronously in SAP Transportation Management (SAP TM) during sales order processing in SAP ERP. This enables the transportation situation to be taken into account when calculating feasible dates and quantities for sales order items.

Prerequisites

In the Enterprise Services Repository, the *TM_ERPSalesOrderScheduling* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

For more information about configuration and prerequisites, see the documentation of the corresponding service interfaces:

- Intracompany Transportation Requesting Out outbound service interface in the Sales Order Processing process component
- Intracompany Transportation Requesting In inbound service interface in the Transportation Request Processing process component (see Intracompany Transportation Requesting In [Page 137])

Process

The integration scenario comprises the following synchronous communication steps between an SAP ERP system and an SAP TM system in the same company:

1. Simulate Sales Order in Transportation Management System

While creating, changing, or rescheduling a sales order in sales order processing in SAP ERP, a shipper triggers sales order scheduling for the sales order items. SAP ERP sends the sales order data to SAP TM and requests the simulation of an order-based transportation requirement (OTR) and the related planning activities.

2. Simulate ERP Sales Order

When SAP TM receives the sales order data, it creates a temporary OTR, triggers transportation planning, and returns the planning results to SAP ERP. When SAP ERP receives the results of the simulation, it updates the schedule lines of the sales order accordingly.

More Information

Simulate Transportation Request [Page 141]

Scheduling of SAP ERP Sales Orders in SAP TM

TM_ERPShipmentIntegration_Out

A shipper can use this integration scenario to perform transportation execution in SAP ERP. After carrying out transportation planning for delivery-based transportation requirements (DTRs), a shipper can carry out transportation execution for the resulting freight orders or freight bookings either in SAP Transportation Management (SAP TM) or in SAP ERP. If a shipper uses SAP ERP for transportation execution, the SAP TM system sends relevant information about the freight orders or freight bookings to SAP ERP, based on which the SAP ERP system creates shipments. The shipments can form the basis of further processing in SAP ERP, for example, execution tracking, invoicing, or output management.

Prerequisites

In the Enterprise Services Repository, the *TM_ERPShipmentIntegration_Out* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

For more information about configuration and prerequisites, see the documentation of the corresponding *Transportation Order Execution Out* outbound service interface in the *Transportation Order Processing* process component.

Process

The integration scenario comprises the following asynchronous communication steps between an SAP TM system and an SAP ERP system in the same company.

Create Shipment in SAP ERP

1. Send Freight Order

SAP TM requests the creation or change of a shipment in SAP ERP. The shipment is based on a freight order or freight booking in SAP TM and on one or more deliveries that are referenced by the freight order or freight booking.

2. Create Shipment

SAP ERP creates or changes a shipment based on the request received from SAP TM. SAP ERP then sends a confirmation to SAP TM. If SAP ERP cannot send a response for technical reasons, an error is triggered in SAP ERP.

3. Receive Shipment Confirmation

SAP TM receives the confirmation from SAP ERP and updates the corresponding freight order or freight booking. If SAP TM cannot process the confirmation, an error is triggered in SAP TM.

Notify of Status Change

1. Send Notification About Execution Status Change

When the execution status of the shipment changes, SAP ERP can send a notification to SAP TM. SAP ERP sends a notification only if you have configured the SAP ERP system accordingly.

2. Receive Notification About Shipment Status Change

SAP TM receives the notification from SAP ERP and updates the corresponding freight order or freight booking. If SAP TM cannot process the notification, an error is triggered in SAP TM.

Send Cancellation to SAP ERP

1. Send Freight Order Cancellation

If a freight order or freight booking that has already been sent to SAP ERP is canceled in SAP TM, SAP TM sends a cancellation request to SAP ERP to trigger the cancellation of the corresponding shipment. SAP TM sends a cancellation request only if you have configured the SAP TM system accordingly.

2. Delete Shipment

SAP ERP deletes the shipment based on the request received from SAP TM. If an error occurs during deletion, this error is only visible in SAP ERP.

Notify of Changed Delivery Assignment

1. Send Notification About Changed Delivery Assignment

If a delivery is removed from or assigned to the shipment, SAP ERP sends a notification to SAP TM. SAP ERP sends a notification only if you have configured the SAP ERP system accordingly.

2. Receive Notification About Changed Delivery Assignment

SAP TM receives the notification from SAP ERP and updates the corresponding freight order or freight booking. If SAP TM cannot process the notification, an error is triggered in SAP TM.

Notify of Changed Packaging and Item Assignment

1. Send Notification About Changed Packaging and Item Assignment

SAP TM can send packaging information to SAP ERP with the freight order or freight booking data. Based on this data, SAP ERP creates handling units, using container as the packaging material. When container IDs and items have been assigned to the handling units in SAP ERP, SAP ERP sends a notification to SAP TM.

2. Receive Notification About Changed Packaging and Item Assignment

SAP TM assigns the container IDs and package items to the containers in the freight order or freight booking.

More Information

Integration with SAP ERP Shipment Processing



A shipper can use this integration scenario to carry out tendering in SAP TM for shipments created in SAP ERP. SAP TM creates freight orders based on shipments received from SAP ERP. After the shipper has carried out tendering for a shipment-based freight order, SAP TM returns the tendering result to SAP ERP, which updates the original shipment.

Prerequisites

In the Enterprise Services Repository, the *TM_ERPShipmentIntegration_In* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

Process

The integration scenario comprises the following asynchronous communication steps between an SAP ERP system and an SAP TM system in the same company.

Send Shipment

1. Send Shipment

When a shipper initiates tendering for a shipment in SAP ERP, SAP ERP sends the shipment to SAP TM and requests the creation or change of a freight order. The freight order is based on the shipment and on the SAP ERP deliveries referenced by the shipment. In addition, a shipper can request the cancellation of an existing shipment-based freight order.

2. Receive Shipment

SAP TM creates, changes, or cancels a freight order based on the shipment data received from SAP ERP. The shipper can use a shipment-based freight order to carry out tendering.

Notify of Tendering Result

1. Send Notification About Tendering Result

When the tendering result is available, SAP TM sends the result to SAP ERP (for example, if a carrier has been found, SAP TM sends the carrier, price, and tendering status).

2. Receive Notification About Tendering Result

SAP ERP updates the shipment according to the tendering result received from SAP TM.

More Information

Shipment-Based Tendering



You can use this integration scenario to integrate SAP Transportation Management (SAP TM) with SAP Global Trade Services. When you create an export declaration in SAP TM, SAP Global Trade Services automatically handles the required customs processes. SAP TM receives a confirmation from SAP Global Trade Services and can then set the relevant customs status.

Prerequisites

In the Enterprise Services Repository, the *TM_GTSExportDeclarationIntegration* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

Process

The integration scenario comprises the following asynchronous communication steps between SAP TM and SAP Global Trade Services:

1. Send Export Declaration Request

On the basis of an order, SAP TM sends a request to create or cancel an export declaration.

2. Receive Export Declaration Request

SAP Global Trade Services receives the request, creates or cancels an export declaration, and sends back a confirmation.

3. Receive Export Declaration Confirmation

SAP TM receives the confirmation and updates the corresponding order.

More Information

Integration with SAP Global Trade Services



You can use this integration scenario to integrate SAP Transportation Management (SAP TM) with SAP Global Trade Services. It enables you to perform a trade compliance check in SAP Global Trade Services for SAP TM business documents.

Prerequisites

In the Enterprise Services Repository, the *TM_GTSTradeComplianceCheckIntegration* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

Process

The integration scenario comprises the following asynchronous communication steps between SAP TM and SAP Global Trade Services:

1. Send Trade Compliance Check Request

SAP TM requests a trade compliance check for a business document (for example, forwarding order or freight order). SAP TM sends the request to SAP Global Trade Services.

2. Receive Trade Compliance Check Request

SAP Global Trade Services receives the business document data, performs the trade compliance check, and returns the result to SAP TM.

3. Receive Trade Compliance Check Confirmation

SAP TM receives the result of the check and updates the status of the business document accordingly.

More Information

Trade Compliance Check



You can use this integration scenario to perform a credit limit check on a business partner in SAP Transportation Management (SAP TM) based on credit information provided by SAP Credit Management. It enables you to request information about a business partner and send updates to SAP Credit Management about the business partner's credit commitments.

Prerequisites

In the Enterprise Services Repository, the *TM_FINCreditManagementIntegration* integration scenario is in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

Process

The integration scenario comprises the following communication steps between an SAP TM system and an SAP Credit Management system in the same company.

Creditworthiness Query (Synchronous Communication)

1. Send Creditworthiness Query

When you create or change a forwarding order, you perform a credit limit check on the business partner specified in the forwarding order. SAP TM requests information about the business partner from SAP Credit Management.

2. Receive Creditworthiness Query

SAP Credit Management receives the request and sends back the relevant credit information. Based on the response, you can decide whether to approve the forwarding order.

Credit Commitment Notification (Asynchronous Communication)

1. Send Credit Commitment Notification

SAP TM informs SAP Credit Management about the business partner's credit commitments. Note that SAP TM sends a notification when you approve a forwarding order and when you perform forwarding settlement for an approved forwarding order.

2. Receive Credit Commitment Notification

SAP Credit Management receives the information and updates the credit exposure information for the business partner.

More Information

Credit Limit Check



This section contains information about the interface mappings and message mappings for SAP Transportation Management (SAP TM). They are available in the Enterprise Services Repository in the SAPTM IC software component in the *http://sap.com/xi/TMS/Global/IC* namespace.

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All interface mappings and message mappings use one of the following naming conventions, depending on the direction of communication:

- <Message name in SAP TM>_to_<IDoc type in SAP ERP>
- <IDoc name in SAP ERP> to <message name in SAP TM>

For more information about using mappings, see the *Description* field for each mapping in the Enterprise Services Repository.

Interface Mappings for Shipment Integration

In the integration scenarios *TM_ERPShipmentIntegration_Out* and *TM_ERPShipmentIntegration_In*, interface mappings are used to map messages from an SAP Transportation Management (SAP TM) system to IDocs in an SAP ERP system, and vice versa.

The following interface mappings are available for the *TM_ERPShipmentIntegration_Out* integration scenario:

- TransportationOrderSCMExecutionRequest to SHPMNTSHPMNT05
- SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionConfirmation
- SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionStatusNotificatio n
- TransportationOrderSCMExecutionCancellationRequest_to_SHIPPLTPSSHT 01

The following interface mappings are available for the *TM_ERPShipmentIntegration_In* integration scenario:

- SHPMNTSHPMNT05_to_TransportationOrderSCMRequest_In
- SHIPPLTPSSHT01_to_TransportationOrderSCMCancellationRequest_In
- TransportationOrderSCMTenderingResultNotification_to_SHPMNT_TNDRSH PMNT05
- SHPMNTSHPMNT05 to TransportationOrderSCMCancellationRequest In

More Information

Message Mappings for Shipment Integration [Page 320]

Message Mappings for Shipment Integration

The following message mappings are available for the *TM_ERPShipmentIntegration_Out* integration scenario:

• TransportationOrderSCMExecutionRequest to SHPMNTSHPMNT05

For more information, see <u>TransportationOrderSCMExecutionRequest to SHPMNTSHPMNT05 [Page 321]</u>

- SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionConfirmation
- SHPMNTSHPMNT05_to_TransportationOrderSCMExecutionStatusNotificatio n
- TransportationOrderSCMExecutionCancellationRequest_to_SHIPPLTPSSHT 01

For more information, see <u>TransportationOrderSCMExecutionCancellationRequest_to_SHIPPLTPSS [Page 323]</u>.

The following message mappings are available for the *TM_ERPShipmentIntegration_In* integration scenario:

- SHPMNTSHPMNT05 to TransportationOrderSCMRequest
- SHIPPLTPSSHT01 to TransportationOrderSCMCancellationRequest
- TransportationOrderSCMTenderingResultNotification_to_SHPMNT_TNDRSH PMNT05
- SHPMNTSHPMNT05 to TransportationOrderSCMCancellationRequest

TransportationOrderSCMExecutionRequest_to_SHPMN TSHPMNT05

You can use this message mapping to map the message type

TransportationOrderSCMExecutionRequest in SAP TM to the IDoc SHPMNT.SHPMNT05 in SAP ERP.

Note the following:

- For each line in the root structure of the message that provides the input for the mapping, the system creates a line in the root structure of the message that is created as a result of the mapping.
- The freight order ID (field ID of TransportatonOrderExecution) is mapped to field TKNUM in the resulting root structure E1EDT20; that is, the freight order ID in SAP TM is used as the ID of the shipment created in SAP ERP.

To enable the freight order ID to be used as the shipment ID, you have to configure the use of external number ranges for the relevant shipment types.

• The content of the fields E1EDT20-SHTYP (header level, shipment type) and E1ADRM4 [2]-E1ADRE4-EXTEND_D (address, transportation planning point) are defined dynamically at runtime using value mapping. This means that during system configuration, mapping tables that depend on the actual system landscape are defined in the Integration Directory of the PI system.

The following user-defined functions are used in this message mapping:

• convXSDduration

This function converts the duration in XSD format into the duration format expected in the ERP shipment. It contains the following parameters:

- Inbound parameter: Duration in XSD format
- Outbound parameter: Duration in the simple format expected by the ERP shipment
- GetLastTen

This function reformats freight order IDs and delivery IDs to 10 digits, if necessary by padding the ID with leading zeros (for example, ID 1489 is reformatted to 0000001489). It contains the following parameters:

- o Inbound parameter: String (that is, the ID of the freight order or delivery)
- Outbound parameter: String consisting of 10 digits
- deriveStageDel

This function derives the ID of the delivery that is assigned to a transportation stage. It contains the following parameters:

- Inbound parameter: Item ID; ID of the delivery to which the item is assigned; ID of the assignment of a transportation stage to the item

TransportationOrderSCMExecutionCancellationRequest _to_SHIPPLTPSSHT0

You can use this message mapping to map the message type

TransportationOrderSCMExecutionCancellationRequest in SAP TM to the IDoc SHPMNT.SHIPPL in SAP ERP.

Note the following:

- For each line in the root structure of the message that provides the input for the mapping, the system creates a line in the root structure of the message that is created as a result of the mapping.
- The freight order ID (field ID of TransportatonOrderExecution) is mapped to field SHPID in the resulting root structure ElTPSHH. That is, the freight order ID in SAP TM is the ID of the shipment in SAP ERP that is to be deleted.
- The content of the E1TPSHH-SHPPPT field (header level, transportation planning point) is defined dynamically at runtime using value mapping. This means that during system configuration, mapping tables that depend on the actual system landscape are defined in the Integration Directory of the PI system.