

# Interface Between the WMS and External Systems



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## Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

## Typographic Conventions

Type Style	Description
<i>Example text</i>	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options. Cross-references to other documentation.
<b>Example text</b>	Emphasized words or phrases in body text, titles of graphics and tables.
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, source code, names of variables and parameters as well as names of installation, upgrade and database tools.
EXAMPLE TEXT	Keys on the keyboard, for example, function keys (such as F2) or the ENTER key.
<b>Example text</b>	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.

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## Interface Between the WMS and External Systems

### Purpose

The *Warehouse Management system* (WMS) has an interface (WMS-WCU interface) with which you can connect

- Automated warehouse systems, such as warehouse control units (WCU)
  - Fork lift control systems or carousels
  - Decentralized warehouse management systems
- to the Warehouse Management system.

### Integration

The interface allows communication between the connected systems on the basis of the so-called transactional [Remote Function Call \[Extern\]](#) (tRFC).

Unlike the synchronous Remote Function Call (sRFC), the system saves the data in temporary storage before sending it to the connected system. This leads to the decoupling of application and communication.

### Features

#### Interface between the WMS and external systems (WMS-WCU interface)

On the basis of the WMS-WCU interface, you connect automated warehouse systems such as warehouse control units (WCU), fork lift control systems, or carousels to the *Warehouse Management system* (WMS).

For more information see [Scenarios for Connecting External Systems \[Seite 6\]](#) and [Description of the IDocs \[Seite 31\]](#).

#### Mobile data entry (LE-MOB) and the SAP console

Using this interface, you can enter data decentrally, for example via barcode readers or character-based radio frequency devices, and transfer the data to the database of your SAP system.

For more information, see [Mobile Data Entry \[Extern\]](#).

#### Decentralized Warehouse Management system

You can interface the Warehouse Management system as a stand-alone component with the SAP system or integrate the Warehouse Management system with any Enterprise Resource Planning system. This means that the ERP system and the *Warehouse Management system* can run on separate machines. For more information, see [Decentralized Warehouse Management \[Extern\]](#).

#### See also:

[Warehouse Management With Lean WM \[Extern\]](#)

[Electronic Data Interchange/IDoc Interface \[Extern\]](#) (SD-EDI)



## Scenarios for Connecting External Systems

You can connect various external systems to the *Warehouse Management system (WMS)* via the interface between the WMS and external systems (WMS-WCU interface). The following scenarios give you an overview of typical ways in which this interface can be used.

External systems include on the one hand WMS-dependent warehouse systems such as warehouse control units (WCUs) or fork lift control systems, and on the other hand systems, which only help themselves from the warehouse, for example production control stations.

### Features

The WMS-WCU interface supports the following communication processes between the systems:

- Transferring [transfer orders \[Extern\]](#) from the SAP WMS to the external system
- Transferring the [release of collective processes \[Extern\]](#) from the SAP WMS to the external system
- Transferring cancellation requests from the SAP WMS to the external system
- Creating transfer orders reported by the external system in the SAP WMS
- Confirming transfer orders reported as completed by the external system in the SAP WMS
- Moving [storage units \[Extern\]](#)
- Blocking storage units or aisles
- Creating [transfer requirements \[Extern\]](#) reported by the external system in the SAP WMS
- Canceling transfer orders in the SAP WMS, which the external system reports as not completed

The WMS generally takes on all of the warehouse management tasks. However, warehouse control and execution of transportation orders are not part of the SAP WMS's tasks.

For this reason, the external systems are always independent of the SAP system, and they can take over not only the control of the material flow, but also other tasks such as optimizing warehouse movements or additional control mechanisms.

The distribution of tasks between the WMS and the connected systems is in the foreground of the scenarios. The flexibility of the WMS-WCU interface allows you to make user-defined adjustments and enhancements. For further information, see [Modification Concepts: IDoc Inbound Processing \[Seite 79\]](#) and [Modification Concepts: IDoc Outbound Processing \[Seite 82\]](#).

### Activities

You distribute tasks between the WMS and the external system on an individual customer basis.



## Connecting a Semi-Automated Warehouse

### Purpose

In a semi-automated warehouse, you manage the warehouse with the *Warehouse Management system (WMS)*, while a connected external system executes the actual warehouse movements.

The WMS executes all of the warehouse management tasks, which include:

- Managing the material stocks and the storage bins
- Triggering warehouse movements (stock removal, putaway, stock transfers and posting changes)
- Determining the storage bins for warehouse movements based on fixed putaway and stock removal strategies
- Carrying out the inventory

To optimize procedures in the warehouse, you implement an external system alongside the WMS in order to:

- Connect fork lift systems
- Control automatic conveyors or conveyor equipment
- Allow picking without any documents, using RF devices
- Control the material flow



The following describes two variations of the scenario:

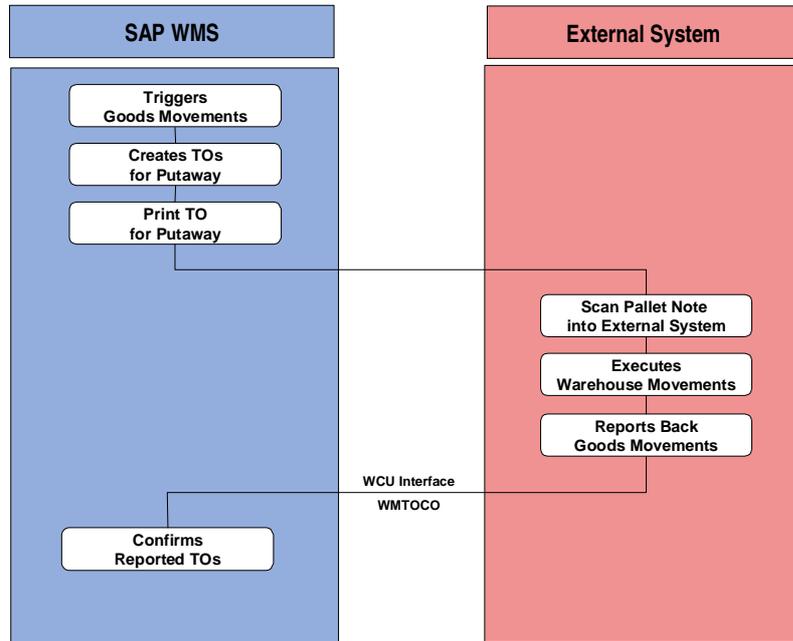
- The WMS does not transfer any data via the WMS-WCU interface to the external system. The interface is only used to confirm execution of the warehouse movements to the WMS.
- The WMS-WCU interface can be used to transfer any planned warehouse movements to the external system, and to report back to the WMS that warehouse movements have been executed.

### Prerequisites

You have set up the interface between the WMS and the external system in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#).

## Process Flow

### Confirmation via the WMS-WCU interface: Putaway

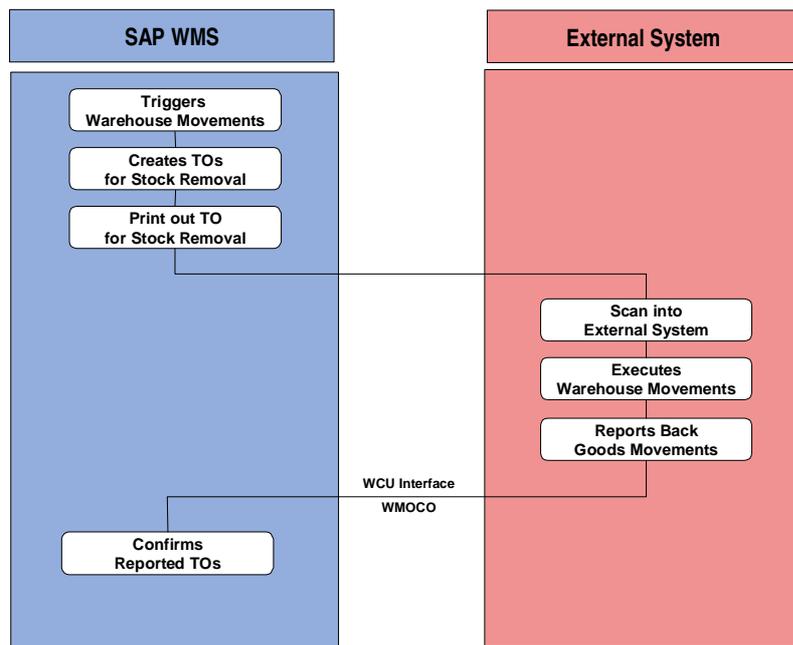


1. The WMS creates transfer orders (TOs) for the goods movements.
2. You print the transfer order to use as a pallet note.
 

The destination storage bin for putaway is printed on the pallet note in the form of a barcode.
3. You transport the pallet to the automatic conveyor.
4. You scan in the barcode with the destination storage bin at the automatic conveyor.
5. The automatic conveyor carries the pallet to the storage bin and puts it away.
6. If, according to the Customizing settings in the WMS, the TO transferred by the WMS has to be reported back, the external systems reports back to the WMS that the warehouse movements for the TO have been executed via message type **WMTOCO**.
 

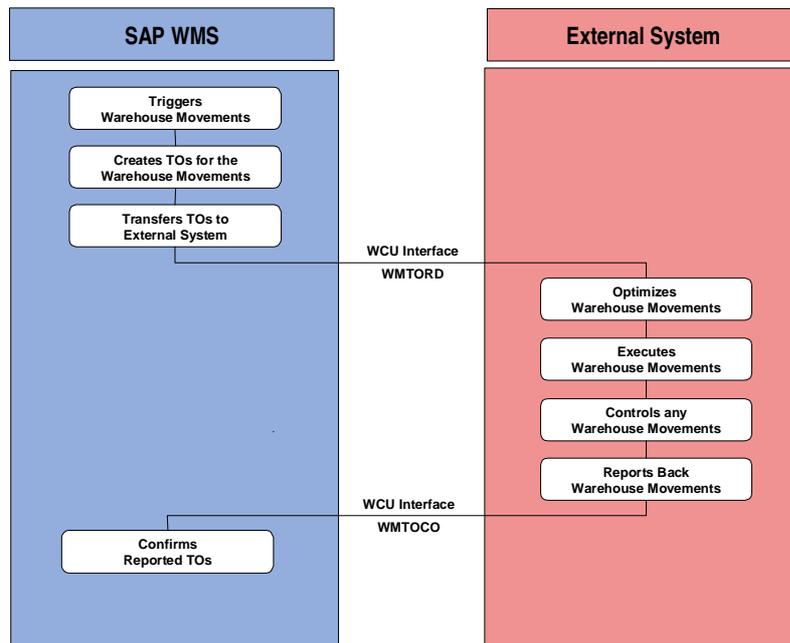
The external system constructs the transfer order data in the form of an IDoc in the fork lift control system and sends the IDoc to the WMS.
7. The WMS confirms the transfer order on the basis of the data that was transferred using message type **WMTOCO**.

## Confirmation via the WMS-WCU interface: Stock removal



1. The WMS creates transfer orders (TOs) for the stock removal.
2. You print the transfer orders to use as pick lists.  
The source storage bin for stock removal is printed on the pick list in the form of a barcode.
3. You scan the barcode with the source storage bins into the automatic conveyor.
4. The automatic conveyor removes the pallet from storage.  
If picking takes place directly at the storage bin, the automatic conveyor goes directly to the relevant source storage bin when you scan in the stock removal slip.
5. If, according to the Customizing settings in the WMS, the transfer order transferred by the WMS has to be reported back, the external systems reports back to the WMS via message type **WMTOCO** that the warehouse movements for the TO have been executed.  
The external system constructs the transfer order data in the form of an IDoc in the fork lift control system and sends the IDoc to the WMS.
6. The WMS confirms the transfer order on the basis of the data that was transferred using message type **WMTOCO**.

## Transferring transfer orders for warehouse movements to the external system



8. The WMS creates transfer orders (TOs) for the goods movements.
9. The WMS transfers the transfer orders to the external system using the message type **WMTORD**.
10. The external system executes the goods movements in the warehouse on the basis of the transferred data. The fork lift control system monitors all of the movements.
11. If you have defined in Customizing, that the TO transferred by the WMS has to be reported back to the WMS, the external system reports back to the WMS via message type **WMTOCO** that the warehouse movements for the TO have been executed.
 

The external system constructs the transfer order data in the form of an IDoc in the fork lift control system and sends the IDoc to the WMS.
12. The WMS confirms the transfer order on the basis of the data that was transferred using message type **WMTOCO**.

### Triggering warehouse movements manually via the external system

1. If you trigger goods movements manually (for example due to a stock transfer within a warehouse when you group together remaining quantities in order to make space), you enter the warehouse movements in the fork lift system.
2. The fork lift system reports the warehouse movements that have been executed to the WMS via the message type **WMTOCO**.
 

The external system constructs the transfer order data in the form of an IDoc in the fork lift control system and sends the IDoc to the WMS.
3. The WMS creates a transfer order on the basis of the data transferred using message type **WMTOCO**, and updates the stock data in the Warehouse Management system.



## Connecting a Fully Automated Warehouse

### Purpose

If you want to implement the *Warehouse Management system* (WMS) in a fully automated warehouse, take the warehouse structure and the warehouse automation functions into account when deciding how best to distribute the warehouse management tasks between the WMS and the external system.

The **WMS** takes on the most important warehouse management tasks, even in a fully automated warehouse:

- Managing material stocks
- Managing storage bins
- Triggering warehouse movements (stock removal, putaway, stock transfers and posting changes)
- Carrying out the inventory
- Determining the storage bins for warehouse movements based on fixed putaway and stock removal strategies

The **external system** takes over the entire warehouse controlling:

- Controlling the conveyor equipment
- Controlling the material flow
- Optimizing resources



If you want to implement the WMS together with a fully automated external system, you should also consider the ["black box" scenario \[Seite 15\]](#) and the scenario for [connecting an external warehouse management system \[Seite 18\]](#).

### Prerequisites

You have set up the interface between the WMS and the external system in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#).

You have defined how the warehouse management tasks are to be divided between the WMS and the external system. Here, the level of automation in the warehouse plays an important role:

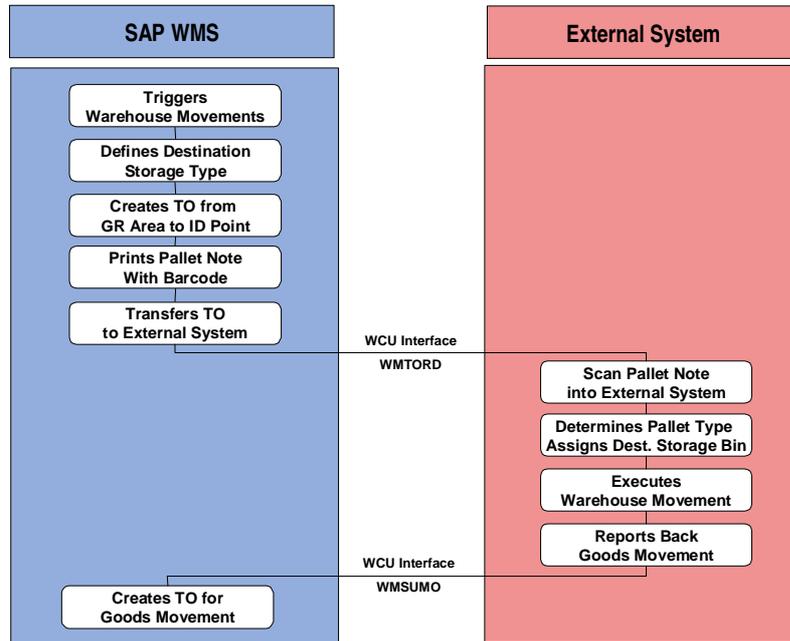
- For simple automated warehouses, the WMS usually takes on all of the warehouse management tasks. The external system takes on the warehouse controlling functions, whereby warehouse movements triggered by the WMS can be optimized on the basis of warehouse controlling. For more information, see [Connecting a Semi-Automated Warehouse \[Seite 7\]](#).
- For warehouses with complex automation, you should take the technology in the warehouse into account as early as during transfer order creation. The external system then takes on some of the warehouse management tasks. You therefore the material in this kind of storage type via [identification points \[Extern\]](#) (ID points) and [pick points \[Extern\]](#).



Depending on the WMS movement type in the TO, the system steers the warehouse technology towards various picking points.

## Process Flow

### Putaway via ID points

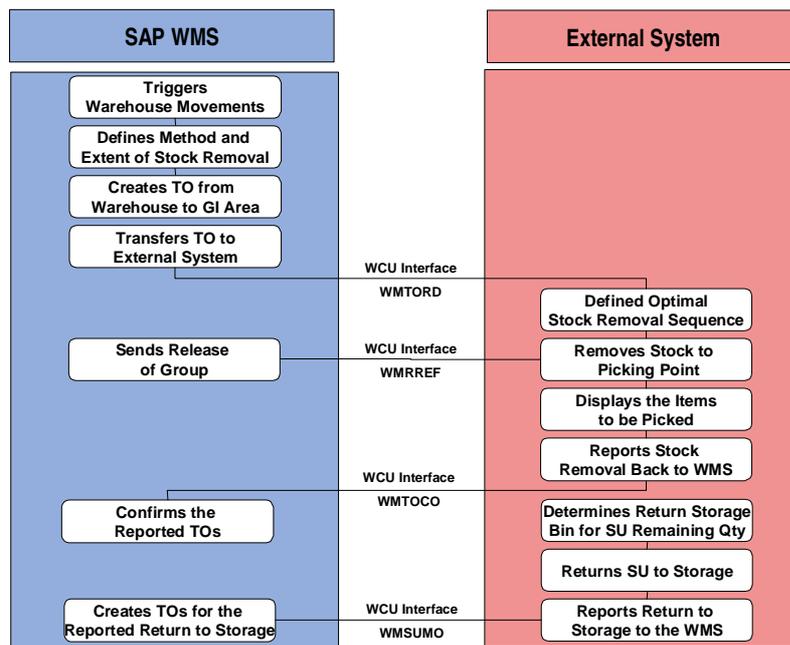


13. You receive an inbound delivery in the goods receipt interim storage area. You post the goods receipt for the inbound delivery and enter the pallet (storage unit) in the WMS.
14. The WMS determines the destination storage type for the storage unit (SU) that has been delivered.
15. If the stock is to be put away via an ID point, the WMS creates a transfer order (TO) from the goods receipt interim storage area to the ID point.
16. The WMS transfers the TO with the necessary data for the putaway (including the pallet number) using the [message type \[Extern\] WMTORD](#).
17. You print the TOs to use as pallet notes.
 

The destination storage bin for putaway is printed on the pallet note in the form of a barcode.
18. You transport the SU to the ID point.
19. The external system identifies the SU at the ID point on the basis of the barcode on the pallet note.
20. To achieve optimal utilization of the conveyor equipment during putaway, the external system assigns the destination storage bin for the SU.
21. The external system takes the SU to the destination storage bin and puts it away.
22. Using message type **WMSUMO**, the external system reports back to the WMS that the warehouse movement has been executed for the storage unit.
 

The external system constructs the transfer order data in the form of an IDoc in the external system and sends the IDoc to the WMS.
23. The WMS creates the transfer order for the stock putaway on the basis of the data transferred using message type **WMSUMO**, in order to post the warehouse movements triggered by the external system.

## Stock removal via a pick point



7. You trigger stock removal or picking in the WMS by, for example, grouping together the pick for several outbound deliveries in collective processing.
8. The WMS creates TOs for the outbound deliveries.
9. The WMS transfers the TOs to the external system using the message type **WMTORD**.

If you want to execute picking on the basis of outbound deliveries, the system treats each transfer order that is transferred as an independent pick order.

If you want to control picking according to other criteria (for example, relating to a route), you must ensure that the transmitted transfer orders are only picked by the external system once all of the relevant TOs have been transferred to the external system.



The TOs for a group can only be picked in the external system once the WMS has transmitted the release of the group using message type **WMRREF**.

10. The external system processes the pick order, which can consist of one or more transferred TOs.
11. The external system optimizes the individual warehouse movements from the pick order, by determining the order in which the necessary storage units are to be removed from storage.
 

If several pick points exist, the external system also assigns the individual picking activities and SUs to the available pick points. Only the external system can ensure optimal pick point assignment, since the utilization of the warehousing equipment is at the fore.
12. You execute picking at the pick point.
 

The external system displays the items to be picked on the screen at the pick point.
13. You confirm the pick and enter any differences that occurred.
14. The external system reports back to the WMS that the pick has been executed for the individual storage units using message type **WMTOCO**.

The external system constructs the transfer order data in the form of an IDoc in the fork lift control system and sends the IDoc to the WMS.

15. The WMS confirms the transfer order on the basis of the data that was transferred using message type **WMTOCO**.

#### Returning the storage unit with the remaining quantity to storage

1. After the pick, you take the SUs with the remaining quantities to the ID point so that they can be returned to storage.
2. The external system identifies the storage units at the ID point, by way of a contour control.
3. To achieve optimal utilization of the conveyor equipment during putaway, the external system assigns the destination storage bin for the SU.
4. The external system takes the SU to the destination storage bin and puts it away.
5. The external system reports back to the WMS that the warehouse movement has been executed for the storage unit using message type **WMSUMO**.

The external system constructs the transfer order data in the form of an IDoc in the external system and send the IDoc to the WMS.

6. The WMS creates the transfer order for the stock putaway on the basis of the data transferred using message type **WMSUMO**, in order to post the warehouse movements triggered by the external system.

For more information about returning storage units to stock, see [Partial Picking \[Extern\]](#) and [Picking via the Pick Point \[Extern\]](#).

#### Blocking Storage Bins

In automated warehouses, certain storage bins may not be accessible for the conveyor equipment.



Certain routes become inaccessible for the conveyor equipment, or certain storage bins can no longer be reached by the warehouse equipment.

Since you manage the warehouse in the WMS, you need to block these storage bins in the WMS as quickly as possible so that the WMS cannot plan any more warehouse movements for these storage bins.

The external system transfers the storage bins need to be blocked to the WMS using message type **WMBBIN**.

To trigger the WMS to lift the block on the blocked storage bins, the external system transmits the relevant storage bins or aisles to the WMS using message type **WMBBIN**.



## Connecting a Fully Automated Warehouse as a Black Box

### Purpose

You have set up various [storage types \[Extern\]](#) in your warehouse complex ([warehouse number \[Extern\]](#)), which you manage with the *Warehouse Management system (WMS)*. For one or more of these storage types, an external system executes all of the warehouse functions and thus takes over **the entire warehouse management and warehouse control** for this storage type.

The automated storage type is connected to the WMS as a black box. The WMS leaves the entire warehouse management and warehouse control in this storage type to the external system, since the storage type is highly automated and therefore requires immediate information about the current state of the warehouse equipment for the warehouse movements.



If you want to connect this kind of storage type to your warehouse, we recommend that you implement a system which combines warehouse controlling and warehouse management.

Since the automated storage type only represents a part of your warehouse complex, you can manage the overall warehouse complex (the warehouse number) with the **WMS**. The WMS distributes the individual putaway and stock removal activities amongst the various subordinate storage types. The WMS takes on the conventional functions in all of the storage types, which are not managed by the external system.

In the storage types, which are managed by the external system, the WMS takes on the following functions:

- Managing the summarized stocks per material
- Triggering and creating warehouse movements

On the other hand, the external system takes over the entire warehouse management and warehouse control within the storage type:

- Determining the storage bins for the individual warehouse movements
- Creating warehouse movements within the storage type
- Carrying out the inventory
- Controlling the conveyor equipment
- Controlling the material flow
- Optimizing the resources



When you decide on the type of interface connection, take into account the scenario for [connecting a fully-automated warehouse \[Seite 11\]](#) and the scenario for [connecting an external warehouse management system \[Seite 18\]](#) as well.

### Prerequisites

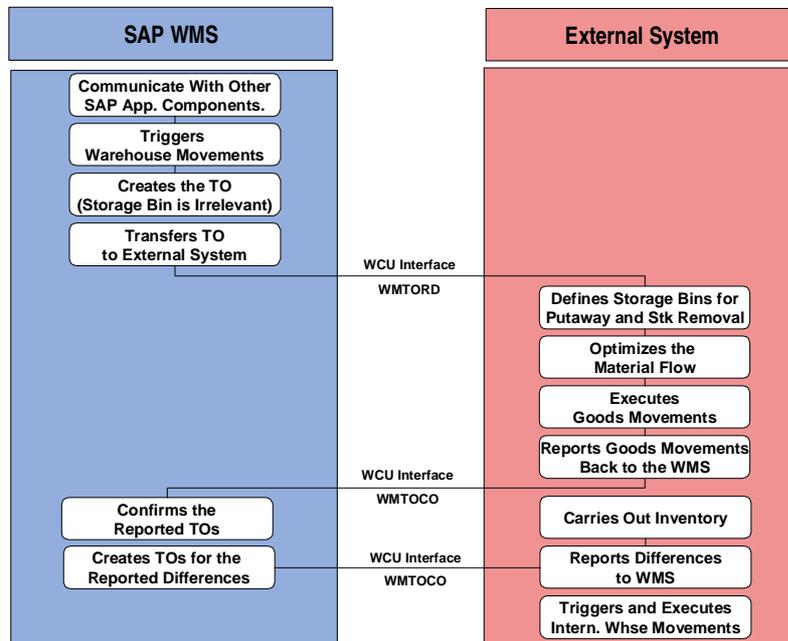
You have defined the automated area of your warehouse as a separate storage type in the WMS.

- **Either** you define one [fixed storage bin \[Extern\]](#) per material in this storage type, in order to be able to manage the stocks for each material in the storage type and control inventory activities,
- **Or** you define several storage bins in the warehouse type, which do not correspond to the physical storage bins. In doing so, you allow addition to existing stock for this storage type, so that the system always fills one storage bin with one material. The system cumulates the stocks of a material in one storage bin. A new material always goes into a new storage bin.



The storage bins that you created in the WMS for the individual materials have no significance for the external system.

## Process Flow



The WMS communicates with other SAP application components for the entire warehouse number.

### Putaway

1. You post the goods receipt of the goods in Inventory Management.
2. The WMS creates transfer orders for putaway on the basis of the corresponding transfer requirements. In doing so, the WMS defines the storage type in which the goods are to be put away.
3. If the storage type run by the external system is selected for the putaway, the WMS transfers the corresponding TO items to the external system using the [message type \[Extern\] WMTORD](#).
4. The external system identifies the goods to be put away either by the TO number and the TO items, or from the transmitted SU number.
5. If the WMS requires confirmation of the goods movement, the external system reports back to the WMS that the putaway has been executed using message type **WMTOCO**.

### Stock Removal

1. The WMS creates a transfer order (TO) for the stock removal.
2. The WMS sends the external system all of the stock removal TOs that are relevant for the storage type managed by using message type **WMTORD**.
3. The external system decides from which storage bin the necessary materials are to be removed.
4. The external system confirms the stock removal to the WMS using the message type **WMTOCO**.
5. The WMS confirms the individual items in the transfer orders based in the confirmation data and the actual quantities from the external system.

## Handling Differences

If differences occur in the storage type managed by the external system, either during an inventory or during operation, the external system reports these differences to the WMS via message type **WMTOCO**.

The WMS creates a transfer order on the basis of the differences transmitted by the external system, in order to post the differences to an interim record for differences.

**See also:**

[Handling Differences \[Extern\]](#)



The external system must not transmit all of the material movements within the storage type managed by the external system to the WMS, since the WMS only manages the summarized material for this storage type.



## Connecting an External Warehouse Management System

### Use

Your Enterprise Resource Planning system (ERP System) is an SAP R/3 System, to which you connect an external system that takes on all warehouse controlling and warehouse management functions for the entire warehouse.

The reasons for connecting an external system to an SAP R/3 System as a complete warehouse management system include:

- Along side a [fully automated warehouse \[Seite 11\]](#), there are no other storage types which you manage with the *Warehouse Management system* (WMS).
- You implement the SAP ERP System in a storage area, which is already managed by an external system. You want to retain this warehouse management system.

### Connection via the interface to the decentralized WMS

For more information, see [Decentralized Warehouse Management \[Extern\]](#).

### Connection via lean WM

You use [lean WM \[Extern\]](#) to communicate between the external warehouse management system and the SAP ERP System.

You set up the interface between the WMS and the external system in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#).

You define the warehouse managed by the external system as a storage type in the WMS.

- **Either** you define one [fixed storage bin \[Extern\]](#) per material in this storage type, in order to be able to manage the stocks for each material in the storage type and control inventory activities,
- **Or** you define several storage bins in the warehouse type, which do not correspond to the physical storage bins. In doing so, you allow addition to existing stock for this storage type, so that the system always fills one storage bin with one material. The system cumulates the stocks of a material in one storage bin. A new material always goes into a new storage bin.



The storage bins that you created in the WMS for the individual materials have no significance for the external system.

### Connection via component interfaces

The external warehouse management system communicates with the SAP ERP System via several component interfaces:

- Communication with *Inventory Management* (MM-IM)
  - Transmission of goods movements occurs via the [message type \[Extern\]](#) MBGMCR.
  - For more information, see *Inventory Management and Physical Inventory* → *Maintain Customer Exits and Business Add-Ins* → [Maintain Customer Exits for Inventory Management \[Extern\]](#) (for **MB\_CF001**) and [Maintain Business Add-Ins for Inventory Management \[Extern\]](#) (for BAdI **MB\_DOCUMENT\_BADI**) in the Implementation Guide for *Materials Management*.
- Communication with *Production Planning* (PP)
  - In Production Planning, there is a user exit for production orders. You can find this user exit via transaction /nCMOD for package CO.
- Communication to *Sales and Distribution* (SD)

For more information, see [Electronic Data Interchange/Idoc Interface \[Extern\]](#) (SD-EDI).



## Connecting an Non-Warehouse Management System

### Purpose

You can connect non-warehouse management systems to the *Warehouse Management system (WMS)* as external systems. These are usually Enterprise Resource Planning systems, which transmit the requests for goods movements to the WMS. These include:

- External pick systems or shipping systems
- External production planning and production control systems
- External inventory management systems

### Prerequisites

You have set up the interface between the WMS and the external system in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#).

### Process Flow

When the WMS receives requests for warehouse movements from an external system, the WMS creates [transfer requirements \[Extern\]](#) on the basis of these requests. Transfer orders are created in the system on the basis of these transfer requirements, with which you execute the physical warehouse movements.



It is not possible to report the confirmation of the transfer orders, that is to say, confirmation that the requested warehouse movements have been executed, back to the external system.

1. The external system defines the extent of the warehouse movements that is required.
2. The external system requests the warehouse movements via the WMS interface.  
In doing so, the external system constructs the necessary data and transmits the request via the [message type \[Extern\] WMTREQ](#).
3. The WMS creates transfer requirements based on the transmitted request.
4. The WMS creates transfer order for executing the requested warehouse movements on the basis of the transfer requirements.
5. You execute the physical warehouse movements based on the transfer orders from the WMS.



## Data Flow: WMS Transfers Data

The data flow across the interface between the *Warehouse Management system* (WMS) and the external system (WMS-WCU interface) is explained using the example of the communication flow for transferring transfer order data from the WMS to the external system.

For further information on the business background, see [Scenarios for Connecting External Systems \[Seite 6\]](#).

### Prerequisites

You have defined the necessary TCP/IP settings. For more information, see [BC – SAP Communication: Configuration \[Extern\]](#).

You have defined the ALE interface in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#) → *Warehouse Management View* → *Activate Interface per Whse Number*.

You have defined when a transfer order (TO) is relevant for transfer to the external system in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → *Configure Warehouse Management* → *R/3 System -> External System* → *Define Interface Control*.

- You can define that TO items are relevant for transfer to the external system:
  - For a storage type
  - For a WMS movement type
  - For a combination of storage type and WMS movement type
- You define the external system, which receives the TO item.

### Process Flow

1. During TO creation in the WMS, the system determines from the Customizing settings, that the TO or a TO item is relevant for transfer to the external system.
2. During TO creation, the system prepares the data to be transferred in the form of an [IDoc \[Extern\]](#).

#### NOTE

For further information on IDocs and their construction, see [Description of the IDocs \[Seite 31\]](#).

3. The system saves the IDoc in the database.
4. After creating the IDoc, the system triggers the transfer of the IDoc to the external system asynchronously.

The system can transfer individual IDocs or collect several IDocs and then transfer them to the external system later. The transfer is based on the [Remote Function Call \[Extern\]](#).

4. The external must be available with a corresponding program to receive the data transferred from the WMS.

For more information, see *Basis* → *Basis Services/Communication Interface* → *Remote Communications* → *The RFC API* → [Programming with the RFC API \[Extern\]](#).

5. The external system saves the IDoc data it receives and sends a delivery receipt back to the SAP system.



We recommend saving the data in the external system straight away to ensure that the transfer of the IDoc and processing of the transferred data occurs separately.

6. Status management for the data received should prevent the external system from processing the data twice.

The external system should be able to recognize IDocs that have been transferred by the SAP system before. This is made possible by the unique transaction identification number (transaction ID), which the SAP system assigns for each communication process. For more information, see *Basis* → *Basis Services/Communication Interface* → *Remote Communications* → *The RFC API* → [Transactional RFC Client Programs \[Extern\]](#).



The external system can also recognize double transfers from the IDoc number. Note that an IDoc number is only unique within one client of an SAP system. If several clients of an SAP system or several SAP systems are involved in the communication with the external system, the IDoc number is no longer unique. In this case the external system cannot recognize IDocs that have been transferred twice from this number.

## Error Processing

When you send an IDoc from the WMS to an external system, the following problems may occur:

### Troubleshooting

Symptom	What You Should Know
Update termination in the SAP system during the application	An update termination during creation of a transfer order does not affect communication with the external system, because the system only creates an IDoc once the source SAP system document exists.  The TO and the IDoc are created in the same LUW, therefore they are updated synchronously.
Error in the ALE interface: Transferred data is syntactically incorrect	ALE adopts the IDoc and saves it, but cannot transfer the IDoc to the external system. For more information, see <a href="#">IDoc Error Processing [Seite 69]</a> .
Error in the ALE interface: <ul style="list-style-type: none"> <li>The outbound partner profile for the receiving system</li> <li>The IDoc message type</li> </ul> are not defined	For more information, see <a href="#">IDoc Error Processing [Seite 69]</a> .
There is no connection between the SAP system and the external system	The SAP system tries to set up the connection to the external system by running a report in the background at a later time. As soon as the connection between the two systems exists again, the SAP system automatically transfers all IDocs, which have not yet been sent. You can also start this report manually.  For more information, see <a href="#">Processing Technical IDoc Errors [Seite 73]</a> .



## TCP/IP Settings

As a prerequisite for communication, make the following TCP/IP settings:

- The TCP/IP requirements must be met (especially the IP addresses in the *hosts* files) so that the SAP system can find the destination system.
- Enter the name of the gateway and the dispatcher in the file *services*, for example *sapgw00* and *sapdp00*.
- By default, IDocs are sent out from the update in the R/3 System. For this reason, the TCP/IP link must also be created for the updating system.
- Work in registration mode. By doing so, the connection between the external system program and the gateway remains open. For more information, see [Registering Server Programs with the SAP Gateway \[Extern\]](#).

If you do not work in registration mode, the SAP Gateway should be able to start the external program (RFC server) via the remote shell.

For more details on the TCP/IP settings, see the documentation [BC – SAP Communication: Configuration \[Extern\]](#).



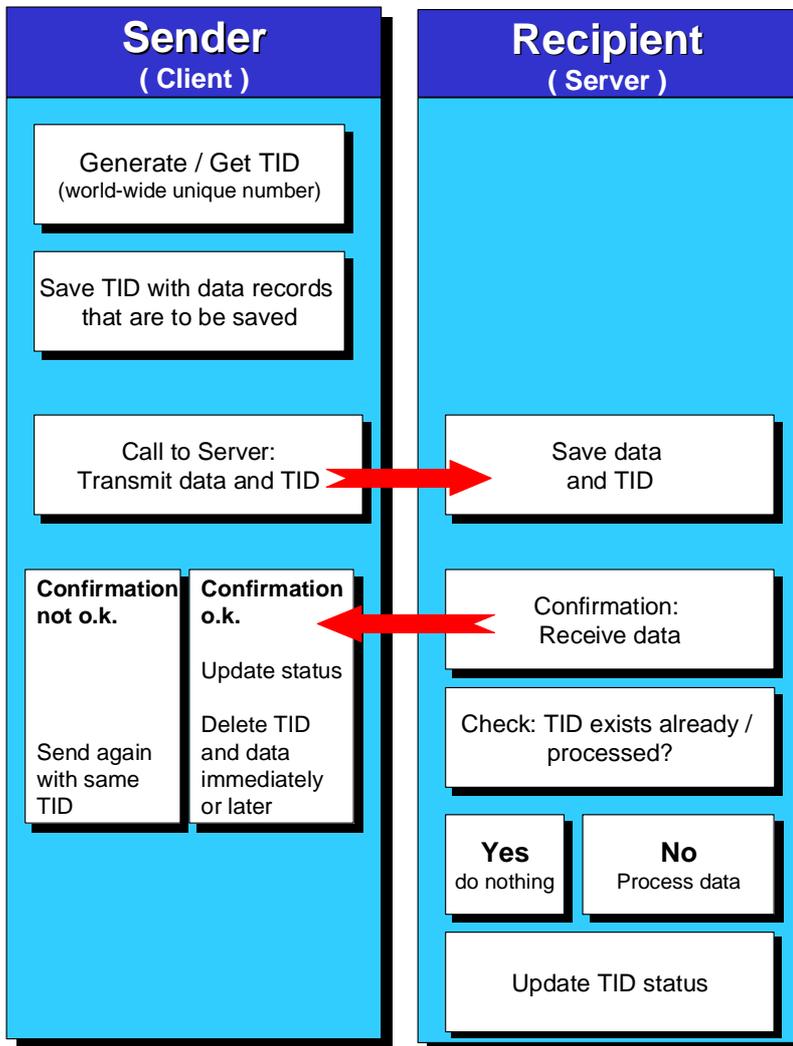
## Transaction Identification Management (TID)

A unique code must be used for a communication process in order to guarantee the integrity of the data to be transferred. The receiving system can then use this code to decide whether this data has already been received and processed.



For example, communication may break down during data transmission when goods receipts are entered on mobile data entry devices. The person handling the data would then have to send it again to make sure that it is posted in the SAP system. If, however, the data was successfully received and processed the first time it was sent to the SAP system, the system must be able to recognize this and then not process the second data record.

This example inevitably results in the following sequence of operations between the sending and receiving system.





## Data Flow: WMS Receives Data

The data flow across the interface between the *Warehouse Management system* (WMS) and the external system (WMS-WCU interface) is explained using the example of the communication flow for transferring data relevant to a transfer order (TO) from the external system to the WMS.

For further information on the business background, see [Scenarios for Connecting External Systems \[Seite 6\]](#).

### Prerequisites

You have defined the necessary TCP/IP settings. For more information, see [BC - SAP Communication: Configuration \[Extern\]](#).

You have defined the ALE interface in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#) → *Warehouse Management View* → *Activate Interface per Whse Number*.

### Process Flow

1. The external system saves the data relevant for transferring to the SAP system and formats it in an IDoc.
5. The external system transfers the IDoc with an appropriate program.
 

The transfer is based on the [Remote Function Call \[Extern\]](#). For more information, see *Basis* → *Basis Services/Communication Interface* → *Remote Communications* → *The RFC API* → [Programming with the RFC API \[Extern\]](#).

The central function module is in the ALE layer. As soon as the external system calls the function module on the SAP system side, the external system can transfer several IDocs.

 If an IDoc type is only designed to be transferred individually, this is noted in the relevant IDoc system documentation.
7. Status management for the data to be transferred should prevent the external system from not transferring data.
 

 If the system cannot successfully transfer IDocs, you must ensure that these IDocs are transferred again at a later time.
8. The SAP system should be able to recognize IDocs that have been transferred by the external system already. This is made possible by the unique transaction identification number (transaction ID), which the SAP system assigns for each communication process. For more information, see *Basis* → *Basis Services/Communication Interface* → *Remote Communications* → *The RFC API* → [Transactional RFC Client Programs \[Extern\]](#).
 

The external system must always provide the transferred data with this transaction ID. If the external system transfers an IDoc for a second time due to unsuccessful communication at an early time, the external system must issue the same transaction ID again.

 The SAP system does **not** use the **IDoc number** to recognize a double transfer of IDocs from the external system.
6. The SAP system receives the transferred IDoc via ALE, saves the IDoc in the database, and confirms receipt of the IDoc to the external system.
7. ALE transfers the IDoc to WMS asynchronously on receipt of the IDoc and the WMS takes over the processing of the IDoc.
8. The WMS creates transfer orders on the basis of the transferred data.
9. For each IDoc, the WMS reports a processing status back to ALE.

On the basis of the processing status, ALE triggers error processing of the IDoc where necessary.

## Error Processing

When you receive an IDoc in the WMS from an external system, the following problems may occur:

### Troubleshooting

Symptom	What You Should Know
There is no connection between the external system and the SAP system	Using status management, the external system should ensure that IDocs can be transferred again at a later time.
Error in the ALE interface: There are syntactical errors in the data that the external system sent to the ALE	ALE adopts the IDoc and saves it, but cannot transfer the IDoc to the WMS for processing. For more information, see <a href="#">IDoc Error Processing [Seite 69]</a> .
Error in the ALE interface: <ul style="list-style-type: none"> <li>Inbound partner profile for the sending system</li> <li>IDoc message type are not defined</li> </ul>	For more information, see <a href="#">IDoc Error Processing [Seite 69]</a> .
Application errors in the WMS	If errors occur in the processing of the received IDoc, the WMS transfers the processing status correspondingly. For more information, see <a href="#">Processing Logical IDoc Errors in the WMS [Seite 76]</a> .



## Data Formatting

The system transfers data to structures **EDI\_DC40** and **EDI\_DD40**. Since these structures are also used for EDI, some of the fields are redundant for the WMS-WCU interface.

For more information see *Basis* → *Basis Services/Communication Interface* → *The IDoc Interface* → *IDoc Interface/Electronic Data Interchange* → *Processing IDocs* → *Inbound Processing* → [Inbound Processing: Technical Background \[Extern\]](#).

### EDI\_DD40

Field	Format	Description	Relevant for Receipt	Note
TABNAM	CHAR 10	Table structure name		Not relevant
MANDT	CLNT 3	Client		Not relevant, but transferred to external system
DOCNUM	CHAR 16	IDoc number	X	Unique communication number
SEGNUM	CHAR 6	SAP segment number		Sequential numbering of IDoc segments is transferred to the external system, but is not required during receipt.
SEGNAM	CHAR 10	SAP segment name	X	IDoc segment name
PSGNUM	CHAR 6	Number of higher-level SAP segment		Transferred to external system, but not imperative during receipt
HLEVEL	CHAR 2	Hierarchy level of SAP segment		Transferred to external system, but not imperative during receipt
DTINT2	CHAR 2	Empty field for EDI_DD		Not relevant
SDATA	LCHR 1000	Application data	X	Actual application data in form of IDoc segment

### EDI\_DC40

Feld	Format	Description	Relevant for Receipt	Note
TABNAM	CHAR 10	Table structure name		

MANDT	CLNT 3	Client		
DOCNUM	CHAR 16	IDoc number	X	Unique communication number
DOCREL	CHAR 4	IDoc SAP release		Transferred to external system, nut not required for receipt
STATUS	CHAR 2	IDoc status		
DOCTYP	CHAR 8	IDoc type		Recommended as IDOCTYP
DIRECT	CHAR 1	Direction		
RCVPOR	CHAR 10	Recipient port		Not relevant
RCVPRT	CHAR 2	Partner type of recipient	X	Value: "LS"
RCVPRN	CHAR 10	Partner number of recipient	X	For example: "WM_SUB_001" for SAP to SUB
RCVSAD	CHAR 21	EDI: Total SADR fields		
RCVLAD	CHAR 70	Logical address of recipient		
STD	CHAR 1	EDI standard		
STDVRS	CHAR 6	Version of EDI standard		
STDMES	CHAR 6	EDI message type		
MESCOD	CHAR 3	Logical message code	*	Both fields can be used to define a function module other than the standard for processing the IDoc in the ALE service layer in the table of input methods
MESFCT	CHAR 3	Logical message function	*	Both fields can be used to define a function module other than the standard for processing the IDoc in the ALE service layer in the table of input methods

OUTMOD	CHAR 1	Output mode		
TEST	CHAR 1	Test indicator		
SNDPOR	CHAR 10	Sender port		Not relevant
SNDPRT	CHAR 2	Partner type of sender	X	Value: "LS"
SNDPRN	CHAR 10	Partner number of sender	X	For example: "S11MAN000" if S11 is the sending SAP system
SNDSAD	CHAR 21	EDI: Total SADR fields		
SNDLAD	CHAR 70	Logical address of sender		
REFINT	CHAR 14	Reference to transfer data		
REFGRP	CHAR 14	Reference to message group		
REFMES	CHAR 14	Reference to message type		
ARCKEY	CHAR 70	EDI archive key		
CREDAT	DATS D 8	IDoc creation date		
CRETIM	TIMS T 6	IDoc creation time		
MESTYP	CHAR 6	Logical message type	X	For example WMTORD for transfer orders
IDOCTYP	CHAR 8	Name of basis IDoc	X	For example WMTOID01 for TOs
CIMTYP	CHAR 8	Name of intermediate structure		
RCVPFC	CHAR 2	Partner function of recipient		
SNDPFC	CHAR 2	Partner role of sender		
SERIAL	CHAR 20	EDI/ALE: Serialization field		
EXPRSS	CHAR 1	Override during receipt		



You must not fill all of the EDI\_DC and EDI\_DD fields. Make sure that you **initialize** the fields that should not be filled first.

On creation of the IDoc in the SAP R/3 system with transaction /nWE30, the system automatically creates three structures for each IDoc segment, which are also numbered sequentially, for example for the transfer order item E1LTORI, E2LTORI, and E3LTORI. E1LTORI is release-independent, E2LTORI release-dependent, and E3LTORI is used for documentation.



We recommend choosing the E2 segment names during transfer of the segment name, since this is independent of the SAP release.

### Example

If, for example, you send a transfer order with three items for each IDoc from the external system to the Warehouse Management System (WMS), you transfer one header segment and three item segments per IDoc. In doing so, you send one EDI-DC40 record and four EDI\_DD40 records per IDoc. The four segments of an IDoc are pinned together with the unique number of the IDoc. The corresponding EDI\_DC record is also identified from the DOCNUM.

You transfer two internal tables with the following construction:

#### EDI\_DD40

9000000000123456	E2LTORH	00112345678905011 E	... (TO header data)
9000000000123456	E2LTORI	0001FRASCATI	... (Item)
9000000000123456	E2LTORI	0002BORDEAUX	... (Item)
9000000000123456	E2LTORI	0003CHIANTI	... (Item)
9000000000123457	E2LTORH	00112345678912011 A	... (TO header data)
9000000000123457	E2LTORI	0001CHATEAU- NEUF	... (Item)
9000000000123457	E2LTOR	0002BORDEAUX	... (Item)
9000000000123457	E2LTORI	0003SOAVE	... (Item)

#### EDI\_DC40

9000000000123456	DS	S11MAND002	DS	SUBSYSTEM1	WMTORD	WMTOID01
9000000000123457	DS	S11MAND002	DS	SUBSYSTEM1	WMTORD	WMTOID01



## Description of the IDocs

The interface between the *Warehouse Management system* and external systems (WMS-WCU interface) uses the following IDocs:

### WMS-WCU interface IDocs

IDoc	Partner Profile	Message Type	Validity	Description
WMTOID01	Inbound and outbound	WMTORD	As of 3.0A	Transfer order
WMTOID02	Inbound and outbound	WMTORD	As of 4.6C	Send pick HU
WMTCID01	Inbound	WMTOCO	As of 3.0A	Transfer order confirmation
WMTCID02	Inbound	WMTOCO	As of 4.0A	Transfer order confirmation
WMTCID03	Inbound	WMTOCO	As of 4.6C	Transfer order confirmation
WMCAID01	Inbound and outbound	WMCATO	As of 3.0A	TO cancellation/ cancellation request
WMTRID01	Inbound	WMTREQ	As of 3.0A	TO creation
WMBIID01	Inbound	WMBBIN	As of 3.0A	Storage bin blocking
WMRRID01	Outbound	WMRREF	As of 3.0A	Releasing Groups
WMSUID01	Inbound	WMSUMO	As of 3.0A	Moving a storage unit
WMIVID01	Inbound	WMINVE	As of 3.0A	Physical inventory document and count data entry
WMINID01	Inbound	WMINFO	As of 3.0A	Information text



## IDoc for Sending TOs to an External System

### Definition

You use IDoc *WMTOID01* or *WMTOID02*, in the *Warehouse Management system (WMS)*, in order to send data from transfer orders from the WMS to connected external systems.



The following describes IDoc *WMTOID02* only.

### Use

The WMS creates a transfer order for every warehouse movement, regardless of whether the movement is a putaway, stock removal, stock transfer, or a posting change. The WMS transfers the transfer order data to the connected external system in the form of IDoc *WMTOID02*.

The external system requires a precise division of warehouse movements according to type. You should differentiate between the transfer orders according to the respective warehouse movement type.

- Based on the data in the transfer order
  - Movement type
  - Transfer type
  - Based on the storage types involved in the warehouse movement
- Based on the variant of the WM message, which you have defined in the definition of the movement for connection to the interface.

Which IDoc the system fills and sends to the external system depends on several criteria:

Criteria	Details
Warehouse movement type	<ul style="list-style-type: none"> <li>• Putaway</li> <li>• Stock removal</li> <li>• Stock transfer</li> <li>• Posting change</li> </ul>
Movement type	Defining the movement type You define, for example, whether the goods receipt date should be set during putaway.
Transfer order initiator	<ul style="list-style-type: none"> <li>• Manual TO</li> <li>• TO for inbound or outbound delivery</li> <li>• TO for transfer requirement (TR)</li> <li>• TO for material document</li> </ul>

Storage unit managed (SU-managed) storage types	<p>If SU-managed storage types are affected by the warehouse movement, the system transfers the numbers of the storage units involved.</p> <ul style="list-style-type: none"> <li>• For <b>putaway</b> in SU-managed storage types, the system transfers the SU number in field NLENR.</li> <li>• For <b>stock removals</b> from SU-managed storage types, the system transfers the SU number in field VLENR.</li> <li>• For <b>stock transfers</b> between SU-managed storage types, the system transfers the SU number in both fields.</li> </ul> <p>If you transfer the complete SU, both SU numbers are the same. If you transfer material from one SU to another, the system transfers both SU numbers involved.</p>
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You determine the content on the IDoc for the individual customers. We recommend creating test transfer orders for transmission to the external system, so that you can check the content of the IDocs, which the system creates.

## Structure

### Message Type

You define the outbound partner profile for message type *WMTORD*.

### Segments

IDoc *WMTOID02* is made up of the following segments:

- E1LTOIRH (transfer order header)
- E1LTOIRI (transfer order items)
- E1LPHUX (pick handling unit)

#### Segment definition E2LTOIRH004 (TA header) (released as of SAP R/3 4.6C)

Field	Format	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	Activate linkage in warehouse number first
TANUM	NUMC 10	Transfer order number		
BWLVS	NUMC 3	Movement type Warehouse Management	X	
TBPRI	CHAR 1	Transfer priority		
TRART	CHAR 1	Transfer type		E = Putaway, A = Stock Removal U = Stock Transfer
REFNR	CHAR 10	Group		Grouping individual TOs

				possible
BETYP	CHAR 1	Requirement type		
BENUM	CHAR 10	Requirement number		
KZPLA	CHAR 1	Planned TO		
PLDAT	DATS 8	Planned execution date		
PLZEI	TIMS 6	Planned execution time		
LZNUM	CHAR 20	Additional reference number to transfer		
BNAME	CHAR 12	User name		
KISTZ	CHAR 1	Actual time required in TO		
KZLEI	CHAR 1	Performance Data		
PERNR	NUMC 8 –R-	User's personnel number		
SOLWM	QUAN 15	Planned processing time from WMS		
SOLEX	QUAN 15 –R-	Planned processing time from external system		Processing time determined externally, which is added to the internally determined processing time to calculate performance (useful in special cases, when the internal logic does not cover all details)
ISTWM	QUAN 15	Actually time of WMS transfer order		
ZEIEI	UNIT 3	Time unit for performance data		
STDAT	DATS 8	TO start date		
ENDAT	DATS 8	TO end date		
STUZZ	TIMS 6	TO start time		

ENUZT	TIMS 6	TO end time		
L2SKA	CHAR 1	Type of TO within 2-step picking		
LGTOR	CHAR 3	(Goods receipt/issue) gate of warehouse number		
LGBZO	CHAR 10	Staging area of warehouse number		
NOSPL	CHAR 1 –R-	No TO split		The split criteria predefined in the system are ignored
SWABW	NUMC 4	Threshold value of variance from planned/actual time in TO		Determined during TO creation and adopted in the outbound IDoc
AUSFB	CHAR 4	TO processing comment code		Allows confirmation of an indicator for TO execution
VBTyp	CHAR 1	Sales document type		The preceding document to which the TO refers (for example, inbound delivery, outbound delivery, return delivery)
QUEUE	CHAR 10	Queue		
KGVNQ	CHAR 1	Separate confirmation possible		
TAPRI	NUMC 2	TO priority		
INCOM	CHAR 1	Create transfer order, even if the requested quantity is only partly met.		
KVQUI	CHAR 1	Confirmation of stock removal occurs		

**Fields of segment E2LTORI004 (TO items) (released as of release 6.20)**

Field	Format	Description	Required Entry	Note
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TAPOS	NUMC 4	Transfer order item	X	
MATNR	CHAR 18	Material number		
WERKS	CHAR 4	Plant	X	
CHARG	CHAR 10	Batch number	X	If material is subject to batch management
BESTQ	CHAR 1	Stock category in Warehouse Management system	X	If stock has category
SOBKZ	CHAR 1	Special stock indicator	X	If special stock
LSONR	CHAR 24	Special stock number	X	If special stock
MEINS	UNIT 3	Base unit of measure	X	
LETYP	CHAR 3	Storage unit type		
KZQUI	CHAR 1	Subject to confirmation		See <a href="#">IDoc for Confirming TOs [Seite 42]</a>
KZKNO	CHAR 1	Execute zero stock check		
WEMPF	CHAR 12	Goods recipient		
ABLAD	CHAR 25	Unloading point		
WDATU	DATS 8	Goods receipt date		
WENUM	CHAR 10	Goods receipt number		
WEPOS	NUMC 4	Goods receipt item		
ZEUGN	CHAR 10	Certificate number		
VLTYP	CHAR 3	Source storage type	X	
VLBER	CHAR 3	Source storage area	X	
VLPLA	CHAR 10	Source storage bin	X	
VPPOS	CHAR 2	Item in source storage bin		
VSOLM	QUAN 15	Source target quantity in stockkeeping unit	X	
NLTYP	CHAR 3	Destination storage type	X	

NLBER	CHAR 3	Destination storage area	X	
NLPLA	CHAR 10	Destination storage bin	X	
NPPOS	CHAR 2	Item in source storage bin		
NSOLM	QUAN 15	Destination target quantity in stockkeeping unit	X	
RLTYP	CHAR 3	Return storage Type		
RLBER	CHAR 3	Return storage area		
RLPLA	CHAR 10	Return storage bin		
RPPOS	CHAR 2	Item in return storage bin		
RSOLM	QUAN 15	Return target quantity in stockkeeping unit		
MAKTX	CHAR 40	Material description		
VLENR	CHAR 20	Source storage unit number		
NLENR	CHAR 20	Destination storage unit number		
VFDAT	DATS 8	Shelf life expiration date	X	If material is SLED-required
HOMVE	CHAR 1	Indicator: Removal of an entire homogeneous storage unit from stock		
QPLOS	NUMC 12	Inspection lot number		
QPLOA	NUMC 12	Inspection lot from which usage decision was met		
KZSTI	CHAR 1	Indicator: Inspection sample		
KOBER	CHAR 3	Picking area		
LGORT	CHAR 4 -R-	Storage location		
SOLPO	QUAN 15	Target expense for transfer order		

		item		
ZEIEI	UNIT 3	Time unit for performance data		
L2SKR	CHAR 1	Relevance for two-step picking		
VOLUM	QUAN 15	Volume		
VOLEH	UNIT 3	Volume unit		
KGVNQ	CHAR 1	Separate confirmation possible		
NPLEI	CHAR 1	Destination storage bin can be changed on confirmation		
QUSUB	CHAR 1	Two-step confirmation for external system		
NWIRM	QUAN 15	Transferred active ingredient quantity		
WIRME	UNIT 3	Active ingredient unit of measure		
PVQUIT	CHAR 1	Material withdrawal has been confirmed		
FHUTA	CHAR 1	TO item is HU-TO item		
VNEST	CHAR 1	Source SU is a nested HU		
VHILM	CHAR 18	Packaging material		
VDUMM	CHAR 1	Source SU is a pseudo SU (only HUs)		
NDUMM	CHAR 1	Destination SU is a pseudo SU (only HUs)		
VSERI	CHAR 1	Source SU is an HU with serial numbers		
MATNR_EXTERNAL	CHAR 40	Long material number (future development)		
MATNR_VERSION	CHAR 10	Version number (future development)		
MATNR_GUID	CHAR 32	External GUID (future		

		development)		
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**Segment definition E2LPHUX001 (pick handling unit) (released as of release 4.6C)**

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	Switch on linkage in warehouse number
TANUM	NUMC 10	Transfer order number	X	
EXIDV	CHAR 20	External HU ID		
HUKNN	CHAR 18	Identifaction of an HU in a TO		
VHILM	CHAR 18	Packaging material		
LETYP	CHAR 3	Storage unit type		
LGTYP	CHAR 3	Storage type		
LGPLA	CHAR 10	Storage bin		
VBELN	CHAR 10	Delivery		
KZFIX	CHAR 1	Pick HU must not be changed		
KZRTN	CHAR 1	Pick HU transferred to initiator		
ANZHU	DEC 4	Number of HUs needed		
VHILM_EXTERNAL	CHAR 40	Long material number (future development) for field VHILM		
VHILM_VERSION	CHAR 10	Long version number (future development) for field VHILM		
VHILM_GUID	CHAR 32	External version number (future development) for field VHILM		



## IDoc for Receiving TOs from an External System

### Definition

You use IDoc *WMTOID01* or *WMTOID02* to send transfer order relevant data from the external system to the *Warehouse Management system (WMS)*.



The following describes IDoc *WMTOID02* only.

### Use

The external system triggers warehouse movements in a warehouse type and executes the physical transportation of materials. Only then does the external system transfer the data on the warehouse movements to the WMS.

You construct IDoc *WMTOID02* in the external system, in order to transfer the warehouse movement data to the WMS. The WMS receives the IDoc and creates a TO from it, in order to execute the physical warehouse movements and post the storage bins involved. The WMS creates a transfer order from the IDoc data it has received and immediately confirms it.

You can also create **transfer orders with incomplete entries in the external system** and send these to the WMS. In this case, the WMS, as leading system, adds the missing entries (for example, the coordinates of the destination storage bin) and sends the complete TO back to the external system. The external system confirms the TO, completing the warehouse movement.

### Structure

#### Message Type

You define message type *WMTORD* for the inbound partner profile.

#### Segments

IDoc *WMTOID02* is made up of the following segments:

- E1LTOIRH (transfer order header)
- E1LTOIRI (transfer order items)
- E1LPHUX (pick handling unit)

For more information in segment definition, see [IDoc for Sending TOs to an External System \[Seite 32\]](#).

The external system may sometimes have to transfer additional data other than the segment fields which are indicated as required entry fields. The extent to which this is the case depends on some of the Customizing settings in Warehouse Management. For example, these can include:

Entry	Effect on the IDoc
The movement type for putaway determines the destination storage type and the source storage type.	You must not transfer the source data (source storage type, source storage area, and source storage bin) in segment E1LTORI. However, you must enter the destination data with the destination storage type and destination storage bin.
The movement type determines a stock removal in a dynamic interface, which corresponds to the cost center.	Segment E1TORI must contain the source storage type and the source storage bin. To determine the dynamic interface, segment E1LTORI must contain requirement type <b>K</b> and the requirement number of the cost center assigned to the account.

The movement type determines a stock transfer within a warehouse number	Segment E1LTORI contains a source storage type and source storage bin, and also a destination storage type and destination storage bin.
The movement type requires the goods receipt date during putaway.	Segment E1LTORI must contain the goods receipt date.
The movement type or the storage types involved in the IDoc allow a return transfer.	If a return transfer has taken place, segment E1LTORI contains the return transfer date.
A storage type is SU-managed.	<ul style="list-style-type: none"> <li>• If you add stock to an SU in this storage type, segment E1LTORI contains the SU number in field NLENR.</li> <li>• If you pick from an SU in this storage type, segment E1LTORI contains the SU number in field VLENR.</li> <li>• If you transfer a material quantity from an SU in this storage type to another SU, segment E1LTORI contains both SU numbers.</li> <li>• If you transfer a material quantity from an SU in this storage type to another SU, segment E1LTORI contains both SU numbers.</li> </ul> <div style="text-align: center;">         If you move a complete SU, use IDoc <i>WMSUID01</i> for the transfer.     </div>



Only use movement types for this IDoc, which allow immediate confirmation. Usually, the physical warehouse movement has already taken place when you receive information on a transfer order from the external system in the WMS.



## IDoc for Confirming Transfer Orders

### Definition

Several IDocs are available for confirming a transfer order (TO) from the external system to the *Warehouse Management system (WMS)*.

- *WMTCID01* (as of release 3.0A)
- *WMTCID02* (as of release 4.0)
- *WMTCID03* (as of release 4.6C)



The following only describes IDoc *WMTOID03*.

### Use

Using these IDocs, you confirm transfer orders that have been executed to the WMS. Based on the confirmed data, the WMS confirms these TOs.

### Prerequisite

You have defined which transfer orders require confirmation in the Customizing for *Warehouse Management* under *Master Data* → [Define Storage Type \[Extern\]](#) or *Activities* → *Transfers* → [Define Movement Types \[Extern\]](#). For more information, see [Confirming Transfer Orders \[Extern\]](#).

When sending the TO data, the WMS first transferred the data which requires confirmation in IDoc *WMTOID01* or *WMTOID02* in segment E1LTROI with field *KZQUI* to the external system.



We recommend that you simulate sending a cancellation reply from the external system to the WMS, in order to test the relevant cancellation processes. Reports *RLCAT000* and *RLCAT010* are available for testing cancellation.

### Confirming Storage Units

If you work with storage units (SUs) in the warehouse and you move the entire storage unit, you confirm one transfer order for the entire SU for this stock movement.

If a storage unit with mixed storage is involved and you move individual materials from it, there are several transfer orders for this storage unit. You confirm the corresponding transfer order for each stock movement.

If you determine that there are differences in the SU when you execute the TO, confirm the entire storage unit and enter the difference quantities for the items for which differences occurred.

### Confirmation Without SU-Management

For stock removals, you normally confirm entire transfer orders.

For putaways, you can confirm TOs item by item if you put away several pallets with one TO.

If you confirm entire TOs, you can enter differences for individual TO items.

#### IDoc construction for confirmation

Case	Segment	Quantity	Meaning
A	E1LTCOX	1	Confirm complete SU
B	E1LTCOH	1	Confirm a complete TO
C	E1LTCOH E1LTCOI	1 1 to n	Confirm an entire TO and enter differences for items 1 to n

			for items 1 to n.
D	E1LTCOH E1LTCOI	1 1 to n	Confirm one or more TO items
E	E1LTCOX E1LTCOH E1LTCOI	1 1 to m 1 to n	Confirm a complete SU and enter differences for TOs 1 to n with TO items 1 to n

### Confirming Performance Data

You confirm performance data (actual TO processing time) to the WMS via segment E1LTCOG. Normally, the WMS determines the planned TO processing time and adds to this the planned processing time reported by the external system.

You can also report the actual data to the WMS independently of the confirmation, by only sending segment E1LTCOG.

You can report actual data if the transfer order data was transferred to the external system with the value 2, 3, or 4 for indicator *KZLEI* in IDoc *WMTOID01* or *WMTOID02*.

Depending on the value of indicator *KISTZ* in IDoc *WMTOID01* or *WMTOID02*, you confirm the actual data in segment E1LTCOG as follows:

Value of Indicator KIST	Relevant Fields
1: Actual time as net duration	ISTWM PERNR
Start and end time manual Start and end time automatic	STDAT STUZZ ENDAT ENUZZ PERNR

### Confirming Differences

If you determine during a stock movement that a difference exists, transfer these references via IDoc *WMTCID03* in segment E2LTCOI000, by filling the following fields:

#### Segment definition E2LTCOI000 (TO header) (released as of SAP R/3 4.6C)

Field	Value
SQUIT	Blank
NISTA	Actual moved or removed quantity
NDIFA	Difference quantity of the stock movement: Difference between the quantity in the TO and the actual quantity moved
RISTA	Actual quantity of the return item if applicable
RDIFA	Difference quantity for return item
ALTME	Unit of measure to which the quantities refer (from the TO that was already send)
KZDIF	If you want to override the storage type and the storage bin to which the difference is posted

To confirm differences to the WMS, use case 3, 4, or 5.



You must confirm the entire actual quantity of the relevant TO item. The following is valid for field VSOLM in structure E1LTORI:

VSOLM = NISTA + NDIFA + RISTA + RDIFA.

### Confirmation for Zero Stock Check

For confirmation with zero stock check, use case 3 or 4.

For stock removal from a storage type with zero control, you must explicitly confirm the bin, which has become empty as a result of the confirmed stock movement.

If the indicator *KZSKO* was set for the stock movement in IDoc *WMTOID01* or *WMTOID02*, IDoc *WMTCID03* must confirm the zero stock check to the WMS in segment E1LTCOI.

If the storage bin is empty following the stock removal, set the indicator *KZNUL* in the IDoc.

If there is a remaining quantity in the storage bin, transfer the following fields in segment E1LTCOI:

Field	Value
KZNUL	Blank
PISTA	Remaining stock counted The system issues any remaining stock found separately
ALTME	Unit of measure to which the quantities refer (from the TO that was already send)

Even if the zero stock check was not required, the external system can confirm the zero stock check to the WMS if the storage bin becomes empty as a result of the stock movement. In this case, the physical stock level differs from the stock level in the system. For this, you set indicator *KZSKO* in IDoc *WMTCID02*.

### Confirming Batch-Managed Material

If, during goods movements, you confirm batch-managed material in SU-managed bulk storage or in a warehouse with lean WM, you transfer the batch number of the materials that have been removed with the confirmation data. To do this, you use field *CHARG* in segment E2LTCOI004 (confirm batch for lean WM or bulk storage).

### Stock Overview in SU-Managed Bulk Storage

You confirm the storage units (SUs) that have been removed to the WMS along with the confirmation of the transfer order.

#### Confirm withdrawal of a complete SU

Field	Value
LENUM	Number of storage unit removed
VQUIT	X

#### Confirm withdrawal of the SU with difference and remaining quantity

Field	Value
LENUM	Number of storage unit removed
PICKM	Pick quantity
DIFFM	Difference quantity
RESTM	Remaining quantity

ALTME	Unit of measure upon which the quantities are based
-------	---

When confirmation of the individual SUs is complete for a TO item, set the field BQUIT in segment E1LTCOI.

In this case, you confirm the TO item by item (see case 4). This means that there can be several TO items per confirmation. Only one confirmation is permitted per storage unit withdrawn.



If a material with batch management is involved, you transfer the batch number along with the confirmation data. To do this, you use field CHARG in segment E2LTCOI004 (confirm batch for lean WM or bulk storage).

### Confirmation in Bulk Storage with Mixed Storage

If you confirm transfer orders for a bulk storage type with mixed storage, you must transfer the quant data to the WMS for the material that has been moved. The WMS can only confirm the transfer order if the goods movement is clearly assigned to certain quants.

- You can determine the quant number of the material that has been moved via user exit MWMIDI02 and confirm this to the WMS.
- If the quant number of the material that has been moved is known in the subsystem, transfer this quant number to the WMS by adding a "Quant number" field to segment E1LTCOI for the confirmation.

### Special Features of Confirmation for Lean WM

If you use lean WM, we recommend confirming the quant number to the WMS, since no quant data is known in a warehouse with lean WM.

- In this case, we recommend transferring the batch number of a material with batch management during the confirmation of a goods movement to the lean WM.  
You transfer the batch number of a batch-managed material with the confirmation data via field CHARG in segment E2LTCOI004.
- To confirm movements of consignment stock in lean WM, transfer the fields SOBKZ (with the value **K**) and SONUM (the special stock number of the vendor).  
If you use handling units, field PAPOS, along with TAPOS, serves as a pointer to the HU data records that belong to the TO item in table T\_LTAP\_CONF\_HU.

## Structure

### Message Type

You define message type *WMTOCO* for the inbound partner profile.

### Segments

The IDoc for transferring confirmation data is constructed as follows:

- WMTCID01 (as of release 3.0A)
  - E1LTCOX: Confirm entire storage unit
  - E1LTCOH: Confirm TO header
  - E1LTCOI: Confirm TO items
- WMTCID02 (as of release 4.0)
  - E1LTCOX: Confirm entire storage units
  - E1LTCOG: Reporting performance data via confirmation
  - E1LTCOH: Confirm TO header
  - E1LTCOI: Confirm TO items
- WMTCID03 (as of release 4.6C)
  - E1LTCOX: Confirm entire storage units

- E1LCOSE: Confirm with serial number
- E1LCOHU: Confirm HU data per TO item
- E1LTCOG: Reporting performance data via confirmation
- E1LTCOH: Confirm TO header
- E1LTCOI: Confirm TO items

**Segment definition E2LTCOX002: Confirm storage unit (as of release 4.6A)**

Field	Data Type	Description	Required Entry Field	Note
LGNUM	CHAR 3	Warehouse number	X	
LENUM	CHAR 20	Storage unit number	X	
QNAME	CHAR 12	User name for confirmation		
SQUIT	CHAR 1	Confirm entire storage unit	X	Value 'X'
NLPLA	CHAR 10	Destination storage bin		The destination storage bin is based on the deviating storage bin of the complete SU (Customizing)
NPPOS	CHAR 2	Destination position		The destination storage bin position is based on the deviating storage position of the complete SU (Customizing)
ENAME	CHAR 12	User name of the pick confirmation		
QUKNZ	CHAR 1	Confirmation indicator for separate confirmation		1 = Confirm stock removal only 2 = Confirm material transfer only

**Segment definition E2LCOHU000: HU data per TO item (as of release 4.5A)**

Field	Data Type	Description	Required Entry Field	Note
TANUM	NUMC 10	TO number		
TAPOS	NUMC 4	TO item		

VONHU	CHAR 20	Source HU		
NACHU	CHAR 20	Destination HU		
SERNR	CHAR 18	Serial number		
PAPOS	NUMC 4	Current number of HU data row within TO item		

**Segment definition E2LCOSE000: Confirm with serial number (as of release 4.5A)**

Field	Data Type	Description	Required Entry Field	Note
TANUM	NUMC 10	TO number		
TAPOS	NUMC 4	TO item		
VONHU	CHAR 20	Source HU		
NACHU	CHAR 20	Destination HU		
HUENT	CHAR 1	HU is removed completely		
MENGA	QUAN 15	Quantity for repacking in alternative unit of measure		
ALTME	UNIT 3	Alternative unit of measure to stock keeping unit		
DMGEA	QUAN 15	Source difference quantity in alternative unit of measure		
PAPOS	NUMC 4	Current number of HU data row within TO item		

**Segment definition E2LTCOG001: Report performance data (as of release 4.5A)**

Field	Data Type	Description	Required Entry Field	Note
LGNUM	CHAR 3	Warehouse number		
TANUM	CHAR 10	Transfer order for which data is confirmed		
SOLEX	CHAR 15	Target processing time from external system		
PERNR	CHAR 8	TO processor		

		(personnel number)		
STDAT	CHAR 8	TO start date		
ENDAT	CHAR 8	TO end date		
STUZZ	CHAR 6	TO start time		
ENUZZ	CHAR 6	TO end time		
ISTWM	CHAR 15	WM-TO actual processing time		
AUSFB	CHAR 4	TO processing comment code		

**Segment definition E2LTCOH003: TO header (as of release 4.6A)**

Field	Data Type	Description	Required Entry Field	Note
LGNUM	CHAR 3	Warehouse number	X	
TANUM	CHAR 10	Transfer order number	X	
QNAME	CHAR 12	User name for confirmation		
SQUIT	CHAR 1	Indicator: Confirm entire transfer order	X	If the entire transfer order is to be confirmed. (Versions 2, 3, and 5)
KOMIM	CHAR 1	Transfer pick quantities to delivery / post goods issue (as of release 4.0)		GI posting (2) occurs only after all of the items in the delivery have been confirmed
EINLM	CHAR 1	Transfer putaway quantity to inbound delivery		(See following note)
TBELI	CHAR 1	Complete TR		Set the source TR to "completed" on confirmation of TO
ENAME	CHAR 12	User name of the pick confirmation		
QUKNZ	CHAR 1	Confirmation indicator for separate confirmation		1 = Confirm stock removal only 2 = Confirm material transfer only

## &lt;NOTE&gt;

If you set the indicator KOMIM to **2**, the IDoc can no longer be used for mass processing: If you want to post the goods issue for an outbound delivery via the IDoc, you can only transfer a single transfer order in the IDoc, for each IDoc and communication activity.



If you confirm a TO for an inbound delivery, indicator EINLM determines whether the putaway quantity is to be transferred to the inbound delivery and the goods receipt is to be posted.

This indicator acts in the same way as indicator KOMIM for the outbound delivery.

**Segment definition E2LTCOI004: TO items (as of release 6.20)**

Field	Data Type	Description	Required Entry Field	Note
TAPOS	CHAR 4	Transfer order item	X	
SQUIT	CHAR 1	Indicator: Confirm without difference	X	If the item is to be confirmed without any differences
NISTA	CHAR 15	Destination actual quantity	X	If there are differences in the destination storage bin
NDIFA	CHAR 15	Destination difference quantity	X	If there are differences in the destination storage bin
RISTA	CHAR 15	Return actual quantity	X	If there are differences in the destination storage bin
RDIFA	CHAR 15	Return difference quantity	X	If there are differences in the destination storage bin
KZNUL	CHAR 1	Indicator: Bin empty on zero stock check	X	If there is a zero stock check
PISTA	CHAR 15	Remaining quantity after zero stock check	X	If there is a zero stock check
ALTME	CHAR 3	Unit of measure	X	If quantity is entered
KZDIF	CHAR 1	Differences indicator	X	If you want to post differences to certain interim record for differences

LENUM	CHAR 20	Storage unit number	X	In case of confirmation in bulk storage
VQUIT	CHAR 1	Confirmation in bulk storage, removal of entire SU	X	In case of confirmation in bulk storage
PICKM	CHAR 15	Pick quantity for bulk storage confirmation		
DIFFM	CHAR 15	Difference quantity in bulk storage		
RESTM	CHAR 15	Remaining quantity on bulk storage confirmation		
BQUIT	CHAR 1	Confirmation in bulk storage, no further items		
KZFOL	CHAR 1	Indicator: Subsequent actions		You can use this field individually, for example to trigger a user-defined process via a user exit. You can, for example, trigger a user-defined follow-up action for differences.
NLPLA	CHAR 10	Destination storage bin		If the destination storage bin differs from that suggested by the system
NPPOS	CHAR 2	Destination position		If the destination storage bin differs from that suggested by the system
PAPOS	NUMC 4	Current number of HU data row within TO item		
PARTI	CHAR 1	Confirming a partial quantity for a TO item		Only relevant for handling units (HUs)
CHARG	CHAR 10	Confirm batch number for lean WM or bulk storage		



## IDoc for Canceling Transfer Orders

### Definition

Using IDoc *WMCAID01*, you can send a cancellation request to an external system, or confirm execution of a cancellation movement to the *Warehouse Management system* (WMS).

### Use

When physical stock movements are executed via the connected external system, the WMS cannot determine whether the TOs transferred to the external system have already been executed. For this reason, the WMS can only send a cancellation request to the external system.

The external system then decides whether or not the movement has already been executed. If the stock movement has already been executed, the external system confirms to the WMS that the stock movement has already been completed and that cancellation is therefore no longer possible. In this case, the user receives a corresponding message in the WMS.

You decide for each individual case what should happen with a TO item that cannot be cancelled. In this case, you make the necessary adjustments manually in the system.



You can only cancel these transfer orders (TOs) if they have not yet been confirmed.

### Sending a Cancellation Request from the WMS to the External System

To send a cancellation request from the WMS, fill the following fields in IDoc *WMCAID01*:

Segment	Field
E2LTCAH	LGNUM
	TANUM
	CANRQ
E2LTCAI	TAPOS
	VLENR (if SU-management is active)
	NLENR (if SU-management is active)

### Sending a Cancellation from the External System to the WMS

To send a cancellation of a TO to the WMS, fill the following fields in IDoc *WMCAID01*:

#### Cancellation is possible

Segment	Field
E2LTCAH	LGNUM
	TANUM
	CANCL
E2LTCAI	TAPOS

#### Cancellation is not possible

Segment	Field
E2LTCAH	LGNUM
	TANUM

	CANCL
E2LTCAI	TAPOS
	SFEHL
	SFTXT



You can also cancel a transfer order from the external system and send the cancellation to the WMS, even if the WMS has not sent a cancellation request first.



We recommend that you simulate sending a cancellation reply from the external system to the WMS, in order to test the relevant cancellation processes. Reports *RLCAT000* and *RLCAT010* are available for testing cancellation.

## Structure

### Message Type

You define message type *WMCATO* for the inbound and outbound partner profile.

### Segments

IDoc *WMCAID01* is made up of two segments:

- E2LTCAH (TO header data)
- E2LTCA (TO item data)

#### Segment definition E2LTCAH001 (as of release 4.0A)

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	
TANUM	CHAR 10	Transfer order number	X	
CNAME	CHAR 12	User name for TO cancellation		
CANRQ	CHAR 1	Request cancellation transfer order	X	<b>X</b> for cancellation request
CANCL	CHAR 1	Response cancellation transfer order	X	<b>X</b> for cancellation from external system
SOLEX	CHAR 15	Target processing time from external system		The system resets the target processing time when you send a cancellation request  If you cancel the TO via the IDoc, you can transfer the target processing time determined by the external system to the TO

**Segment definition E2LTCAI (as of release 3.0A)**

Field	Data Type	Description	Required Entry	Note
TAPOS	CHAR 4	Transfer order item	X	
VLENR	CHAR 20	Source storage unit number	X	
NLENR	CHAR 20	Destination storage unit number	X	
SFEHL	CHAR 1	Error during cancellation		
SFTXT	CHAR 80	Error text for cancellation		This text appears in the inbox for error messages
KZFOL	CHAR 1	Indicator: Subsequent actions		You can use this field individually, for example to trigger a user-defined process via a user exit. You can, for example, trigger a user-defined follow-up action for differences.



## IDoc for Releasing Groups

### Definition

Using IDoc *WMRRID01*, you can release transfer orders for a [group \[Extern\]](#) that have already been send to an external system. The system sends the group number to the header data of the transfer order to be created.

### Use

#### Prerequisites

You have transferred the group number to the external system via IDoc *WMTOID01* or *WMTOID02* for the TOs that have been grouped together.

#### Features

You group together the transfer orders so that you can execute the goods movements for these TOs in one step (for example processing transfer orders for a certain shipping point or removing stock in the same interim storage type). In this case, you cannot execute the goods movement immediately after the external system receives the transfer order data. Using the IDoc *WMRRID01*, you trigger the start of the stock movements for a certain group by releasing the group.

### Structure

#### Message Type

You define the outbound partner profile for message type *WMRREF*.

#### Segments

The IDoc is made up of segment E1LRRFX.

#### Segment definition E2LRRFX001 (as of release 4.0A)

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number		
REFNR	CHAR 10	Group		
DATUM	CHAR 8	Date		
UZEIT	CHAR 6	Time		
L2KSR	CHAR 1	Relevance for 2-step picking		
LSKSO	CHAR 1	2-step picking: Release approval level		



## IDoc for Blocking Storage Bins

### Definition

Using IDoc *WMBIID01*, you can send individual storage bin data or comprehensive storage bin data (for example all of the storage bins in one aisle) for **blocking** or **unblocking** from the external system to the WMS.



We recommend that you simulate blocking and unblocking storage bins from the external system to the WMS, in order to test the relevant processes. Report *RLBBIN00* is available for the test.

### Use

When, for example, certain storage bins or aisles are not accessible for the external system due to technical problems, you block these storage bins in the WMS so that they are not considered during storage bin determination.

The external system initializes the block on the storage bins via IDoc *WMBIID01*. As soon as the storage bins are available again, the external system triggers the unblocking of the external system by the WMS via IDoc *WMBIID01*.

### Structure

#### Message Type

You define message type *WMBBIN* for the inbound partner profile.

#### Segments

IDoc *WMBIID01* is made up of the following segments:

- E1BINH (Blocking storage bins IDoc header)
  - You determine whether blocking or unblocking storage bins is involved.
  - To block storage bins, set the indicator BLOCK.
  - To unblock storage bins, set the indicator DEBLO.
- E1BINI (Blocking storage bins IDoc items)
  - TO block certain storage bins individually, transfer an E1LBINI segment for each storage bin.

#### Segment definition E2LBINH (as of release 3.0A)

Field	Data Type	Description	Required Entries	Note
LGNUM	CHAR 3	Warehouse number	X	
LGTYP	CHAR 3	Storage type	X	
BLOCK	CHAR 1	Blocking storage bins	X	Either BLOCK or DEBLO
DEBLO	CHAR 1	Unblocking storage bins	X	Either BLOCK or DEBLO

#### Segment definition E2LBINI (as of release 3.0A)

Field	Data Type	Description	Required Entries	Note
LGPLA	CHAR 10	Storage bin	X	Entry also

				generic, for example 01
SKZUA	CHAR 1	Block indicator: For stock removal	x	At least one of the three indicators
SKZUE	CHAR 1	Block indicator: For putaway	x	At least one of the three indicators
SKZSI	CHAR 1	Blocking indicator: Current inventory	x	At least one of the three indicators
SPGRU	CHAR 1	Blocking reason		



Set at least one of the three indicators.

- To block a range of storage bins, use \*. For example, enter **01\*** to block all storage bins, which begin with 01.
- You can only enter a blocking reason if the corresponding text is maintained in the Customizing for Warehouse Management under *Master Data* → *Storage Bins* → [Define Blocking Reasons \[Extern\]](#)



## IDoc for Creating and Canceling Transfer Requirements

### Definition

Using IDoc *WMTRID01*, you can send data on [transfer requirements \[Extern\]](#) from the external system to the *Warehouse Management system (WMS)*, so that the WMS can create TRs on the basis of the data. You can also use the IDoc to cancel TRs that have already been created in the WMS.



We recommend simulating construction and sending of the IDocs to the WMS in order to test the relevant activities. Report *RLTREQ00* is available for the test.

### Use

#### Creating Transfer Requirements

Take the following into account when creating transfer requirements via IDoc *WMTRID01*:

##### Segment E1LTRQH (IDoc header data)

Field	Note
TBNUM	You do not transfer the TR number, since the WMS issues the TR number
BETYP	You transfer this field if the movement type used expects a requirement number, in order to generate the link to the initiator of the stock movement.
BENUM	You transfer this field if the movement type used expects a requirement number, in order to generate the link to the initiator of the stock movement.
VLTYP	You use this field to define the source of the stock movement.
VLPLA	You use this field to define the source of the stock movement.
NLTYP	You use this field to define the destination of the stock movement.
NLPLA	You use this field to define the destination of the stock movement.
PDATU	You define when the TR should be converted to a TO.
PZEIT	You define when the TR should be converted to a TO.
LZNUM	To keep the TR clearly identifiable from the point of view of the external system, the external system assigns a reference number and transfers this to the WMS. You can only cancel TRs in the WMS from the external system via a unique reference number.

TBRUE	This field is designed for customer modifications in case confirmation of processed TRs to the external system is required.
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**E1LTRQI (IDoc item data)**

Field	Note
ABLAD	You define the destination of the goods movement for individual items in the TR.
WEMPF	<p>You define the destination of the goods movement for individual items in the TR.</p>  <p>You generate a transfer requirement (TR) in order to stage several materials for a production order within production. You define the production storage type in the transfer order header. However, you define the work center where the material is to be staged for each individual TR item. You enter the individual work centers in field WEMPF.</p>
WENUM	You use this field if you want to send notification of a goods receipt or plan a goods receipt with the TR.
WDATU	You use this field if you want to send notification of a goods receipt or plan a goods receipt with the TR.

**Canceling Transfer Requirements**

Take the following into account when canceling transfer requirements (TRs) via IDoc WMTRID01:

**E1LTRQH (IDoc header data)**

Field	Note
LGNUM	Required entry
LZNUM	Required entry

**E1LTRQI (IDoc item data)**

Field	Note
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TBPOS	<p>The external system does not transfer any TR item numbers during creation of TRs in the SAP system. The SAP system assigns the TR item numbers on creation of the TR.</p> <p>The system cancels TRs item by item. The external system must therefore transfer the TR item number of the TR item that is to be cancelled. If the number is known in the external system, the entire quant ID of a TR item must be transferred to the SAP system with the IDoc. In this case, you must fill fields MATNR, BESTQ, CHARG, SOBKZ and LSONR.</p>
ELIKZ	<p>This indicator must be set if the TR item is to be completely cancelled.</p> <p>If you only want to cancel a partial quantity of the item, transfer the quantity to be cancelled.</p> <p>To increase the quantity of an item, transfer a negative quantity for cancellation.</p> <p>You transfer fields MENGE and MEINS.</p>

## Structure

### Message Type

You define message type *WMREQ* for the inbound partner profile.

### Segments

IDoc *WMTRID01* is made up of two segments:

- E1LTRQH (Transfer requirement, IDoc header data)
- E1LTRQI (Transfer requirement, IDoc item data)

#### Segment definition E2LTRQH (as of release 3.0A)

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	
TBNUM	CHAR 10	Transfer requirement number		
TRART	CHAR 1	Transfer type		
TBPRI	CHAR 1	Transfer priority		
TBKTX	CHAR 40	Transfer requirement header text		
BNAME	CHAR 12	User name		
BETYP	CHAR 1	Requirement type		
BENUM	CHAR 10	Requirement number		
BWLVS	CHAR 3	Movement type Warehouse Management	X	
VLTYP	CHAR 3	Source storage		

		type		
VLPLA	CHAR 10	Source storage bin		
NLTYP	CHAR 3	Destination storage type		
NLPLA	CHAR 10	Destination storage bin		
PDATU	CHAR 8	Date of planned execution		
PZEIT	CHAR 6	Time of planned execution		
LZNUM	CHAR 20	Additional reference number	X	On cancellation
TBRUE	CHAR 1	Indicator: Confirm transfer requirement		
KTBAE	CHAR 1	Indicator: Cancel transfer requirement	X	On cancellation

#### Segment definition E2LTRQI002 (as of release 4.6C)

Field	Data Type	Description	Required Entry	Note
TBPOS	CHAR 4	Transfer requirement item		
MATNR	CHAR 18	Material number	X	
WERKS	CHAR 4	Plant	X	
BESTQ	CHAR 1	Stock category in warehouse	X	If stock has category
CHARG	CHAR 10	Batch number	X	If material is subject to batch management
SOBKZ	CHAR 1	Special stock indicator	X	If special stock
LSONR	CHAR 24	Special stock number	X	If special stock
MENGE	CHAR 15	Transfer requirement quantity	X	
MEINS	CHAR 3	Unit of measure	X	
WEMPF	CHAR 12	Goods recipient		
ABLAD	CHAR 25	Unloading point		
WENUM	CHAR 10	Goods receipt number		
WDATU	CHAR 8	Goods receipt date		

ZEUGN	CHAR 10	Certificate number		
ELIKZ	CHAR 1	Indicator: Final delivery		
VFDAT	CHAR 8	Shelf life expiration date	X	If there is a SLED requirement
LGORT	4 R	Storage location		
L2SKR	1 R	Relevance for two-step picking		Can have value '2' or 'blank'
MATNR_EXTERNAL	CHAR 40	Long material number (future development) for field MATNR		
MATNR_VERSION	CHAR 10	Version number (future development) for field MATNR		
MATNR_GUID	CHAR 32	External GUID (future development) for field MATNR		



The external system may also have to transfer other data, as well as the required entries. The extent of the IDoc data that is required depends on the type of requirement (for example, putaway from production or staging for production) and above all on the entries and settings in the WMS.



## IDoc for Stock Movements with Storage Units

### Definition

Using IDoc *WMSUID01*, you report stock movements of storage units (SUs), for example stock transfers, from the external system to the WMS.



We recommend simulating construction and transmission of the IDocs to the WMS in order to test the relevant activities. Report *RLSUM000* is available for the test.

### Use

#### Prerequisite

You have already created the SU that you want to move in the external system in the WMS. The data on the SU is available in the WMS.

#### Features

When you trigger a stock transfer of SUs in the external system, or when the external system determines the final storage bin for a SU in a high rack storage area for putaway of the SU, the external system reports the stock movement data to the WMS.

In certain cases, it is necessary to trigger a stock transfer of **storage units** in the external system. For putaway of a pallet, it can also make sense for the external system to assign the final storage bin for the material in a high rack storage area. The external system must report the executed movement of a SU to the WMS. The WMS subsequently posts the reported SU movement in the system.

Using IDoc *WMSSUID01*, you can also transfer the external target processing time for the stock movement to the WMS.

#### Putaway Using an Identification (ID) Point

If you putaway the SU using an ID point, you can call function module `L_SU_MOVE_LSR` synchronously in the WMS in place of IDoc *WMSUID01*. In doing so, you avoid inadvertent double posting in the WMS.

1. The WMS reports the transfer order for putaway at the ID point to the external system and prints the pallet note.
2. The external system identifies the pallet and executes the contour control.
3. The external system changes the SU type of the pallet according to the contour control, and may also define the destination storage bin of the pallet in high rack storage.
4. The external system calls function module `L_SU_MOVE_LSR`.
  - a. The WMS reports the destination storage bin of the pallet to the external system if the WMS is the dominant system.
  - b. The external system transfers the destination storage bin in the high rack storage area to the WMS if the WMS is the dominant system and waits for successful posting of the destination storage bin in the WMS.

If the SU has already been putaway from the ID point, the function module reads the corresponding destination storage bin and reports this to the WMS.

### Structure

#### Message Type

You define message type *WMSUMO* for the inbound partner profile.

#### Segments

The IDoc consists of segment `E1LSUMX` with the following fields:

**Segment definition `E2LSUMX001` (Move storage unit IDoc segment) as of release 4.0A**

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	
LENUM	CHAR 20	Storage unit number	X	
BWLVS	CHAR 3	Movement type Warehouse Management	X	
LETYP	CHAR 3	Storage unit type		You do not always have to transfer this field
LZNUM	CHAR 20	Additional reference number		You use this field for transfer of a transfer order
BNAME	CHAR 12	User name		
KZQUI	CHAR 1	Indicator: Confirmation required		Normally you do <b>not</b> set this field since the stock movement that is transferred has usually already been executed and therefore no longer requires confirmation.
VLTYT	CHAR 3	Source storage type		Is available in the WMS
VLBER	CHAR 3	Source storage area		Is available in the WMS
VLPLA	CHAR 10	Source storage bin		Is available in the WMS
VPPOS	CHAR 2	Item in source storage bin		
NLTYT	CHAR 3	Destination storage type		
NLBER	CHAR 3	Destination storage area		
NLPLA	CHAR 10	Destination storage bin		
NPPOS	CHAR 2	Item in source storage bin		You only use this field with putaway strategy P. The field gives the exact position of the SU in the shelf section.
STATU	CHAR 1	Status of storage unit		Not used for transferring from the external

				system to the WMS
REFNR	CHAR 10	Group		Not used for transferring from the external system to the WMS
PERNR	8 R	TO processor (personnel number)		
SOLEX	15 R	Target processing time from external system		

## IDoc for Inventory

### Definition

Using IDoc *WMIVID01*, you send inventory documents from the WMS to the external system and report the count results from the external system to the WMS.



We recommend testing the transfer of inventory data between the WMS and the external system. Report *RLINVE00* is available for the test. In doing so, the WMS simulates data entry via a mobile data entry device.

The WMS takes data from existing inventory documents in order to simulate the receipt of IDoc *WMIVID01*.



Note that during a test in a productive system, the WMS does actually posts a document.

### Use

#### Sending the Physical Inventory Document

To send physical inventory documents from the WMS to an external system, choose *Logistics* → *Logistics Execution* → *Internal Whse Processes* → *Physical Inventory* → *In Warehouse Management* → *Physical Inventory Document* → *Print Warehouse Inventory List*.

To send physical inventory documents, use report *RLLI0405*. Enter the receiving system and select *send*.



You can print the physical inventory documents parallel to transmission.

The WMS updates the data, both on sending and on printing the physical inventory documents. If you send or print the physical inventory documents again, the system indicates that this has been done before.

#### Receiving the Inventory Count Results

You also use IDoc *WMIVID01* to report inventory count results to the WMS. In doing so, you send one *E1LINVX* segment for each quant counted.

The sequence in which the WMS receives the IDoc segment is not relevant for the inventory count results. You can therefore send an IDoc with a number of *E1LINVX* segments. The posting sequence in the WMS is irrelevant.

### Structure

#### Message Type

You define the outbound partner profile for message type *WMINVE* for sending the physical inventory documents to the external system.

For reporting the count results from the external system, you define the inbound partner profile for message type *WMINVE*.

#### Segments

IDoc *WMIVID01* consists of segment *E1LINVX* with the following fields:

##### Segment definition *E2LINVX003* (as of release 4.6C)

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	
IVNUM	CHAR 10	Physical		

		inventory document number		
IVPOS	CHAR 4	Inventory item		
LGTYP	CHAR 3	Storage type	X	
LGPLA	CHAR 10	Storage bin	X	
PLPOS	CHAR 2	Position in storage bin	X	If putaway strategy P in storage type
MATNR	CHAR 18	Material number	X	
WERKS	CHAR 4	Plant	X	
CHARG	CHAR 10	Batch number	X	If working with batches
SOBKZ	CHAR 1	Special stock indicator	X	If special stock
LSONR	CHAR 24	Special stock number	X	If special stock
BESTQ	CHAR 1	Stock category in warehouse	X	If stock in quality inspection
WDATU	CHAR 8	Goods receipt date		
LENUM	CHAR 20	Storage unit number	X	If SU-managed storage type
MENGA	CHAR 15	Quantity for count results	X	Either here or quantity 0 KZNUL
ALTME	CHAR 3	Unit of measure	X	
LQNUM	CHAR 10	Quant number		
NANUM	CHAR 2	Inventory recount number		
NVERS	CHAR 2	Recount version		
ISTAT	CHAR 1	Inventory item status		
IDATU	CHAR 8	Date of Inventory		
KZINV	CHAR 2	Inventory method		
IRNUM	CHAR 10	Inventory reference number		
MAKTX	CHAR 40	Material description		
ISEIT	CHAR 4	Inventory side		
LETYP	CHAR 3	Storage unit type		
KZNUL	CHAR 1	Indicator: Bin empty		Either here or quantity MENGA

VFDAT	CHAR 8	Shelf life expiration date	X	If there is a SLED requirement
LGORT	4 R	Storage location		
UNAME	CHAR 25	Name of counter		Allows you to transfer the name of the person who carried out the physical inventory
MATNR_EXTERNAL	CHAR 40	Long material number (future development) for field MATNR		
MATNR_VERSION	CHAR 10	Long version number (future development) for field MATNR		
MATNR_GUID	CHAR 32	External GUID (future development) for field MATNR		



## IDoc for Transferring Information Texts

### Definition

Using IDoc *WMINID01*, you can send information texts from the external system to the WMS.



We recommend simulating construction and transmission of the IDocs in order to test the relevant activities. Report *RLINFO00* is available for the test.

### Use

The WMS transfers the information texts from the external system as messages to the inbox of the user, who is assigned to the respective position. For more information, see [IDoc Error Processing \[Seite 69\]](#).

### Structure

#### Message Type

You define message type *WMINFO* for the inbound partner profile.

#### Segments

IDoc *WMINID01* consists of segment E1LINVX with the following fields:

#### Segment definition E2LINFx (as of release 3.0A)

Field	Data Type	Description	Required Entry	Note
LGNUM	CHAR 3	Warehouse number	X	
ITEXT	CHAR 80	Information text for linkage	X	
DATUM	CHAR 8	Date		
UZEIT	CHAR 6	Time		



## IDoc Error Processing

### TCP/IP Errors

The basis for IDoc transfer between the systems is [TCP/IP \[Extern\]](#). If an error occurs during the transfer, the connection between the sending system and the receiving system is interrupted.

Based on return codes in the RFC function used, you can see in the sending system whether an RFC call has worked. If there are TCP/IP errors, break the connection and send the IDoc again.

### Technical Errors

Errors which occur in the ALE service layer on sending or receiving IDocs are technical errors.

If a technical error occurs, the SAP WMS sends a workflow work item for each IDoc containing errors. This is an error message, which the system sends to all users responsible. Based on the error message, the user can analyze the error and post the document subsequently. For more information, see [Processing Technical IDoc Errors \[Seite 73\]](#).

### Logical Errors

The system saves a received IDoc in the database before the IDoc has actually been processed. The system breaks off communication with the external system before the transferred data is then processed.

If an error occurs in the application system (the Warehouse Management system) during processing of an IDoc, then it is a logical error. In this case, the SAP WMS creates a workflow work item for every IDoc containing errors.

For more information, see [Processing Logical IDoc Errors in the WMS \[Seite 76\]](#).

#### See also:

[Exception Handling \[Extern\]](#)



## Activating IDoc Error Processing

### Use

If an error occurs during processing of an IDoc in the *Warehouse Management system* (WMS), the system sends an error message to the assigned user.

### Prerequisites

For more information on the prerequisites, see [Rule Resolution in Exception Handling \[Extern\]](#).

### Features

To assign error messages to the corresponding user, assign a [standard task \[Extern\]](#) for each message type in a position. One or more users are assigned to the position.

For more information, see *Interfaces → External systems → [Configure Warehouse Management \[Extern\]](#) → Error Handling → Org.units and standard tasks* in the implementation guide (IMG) for *Warehouse Management*.

There are three options:

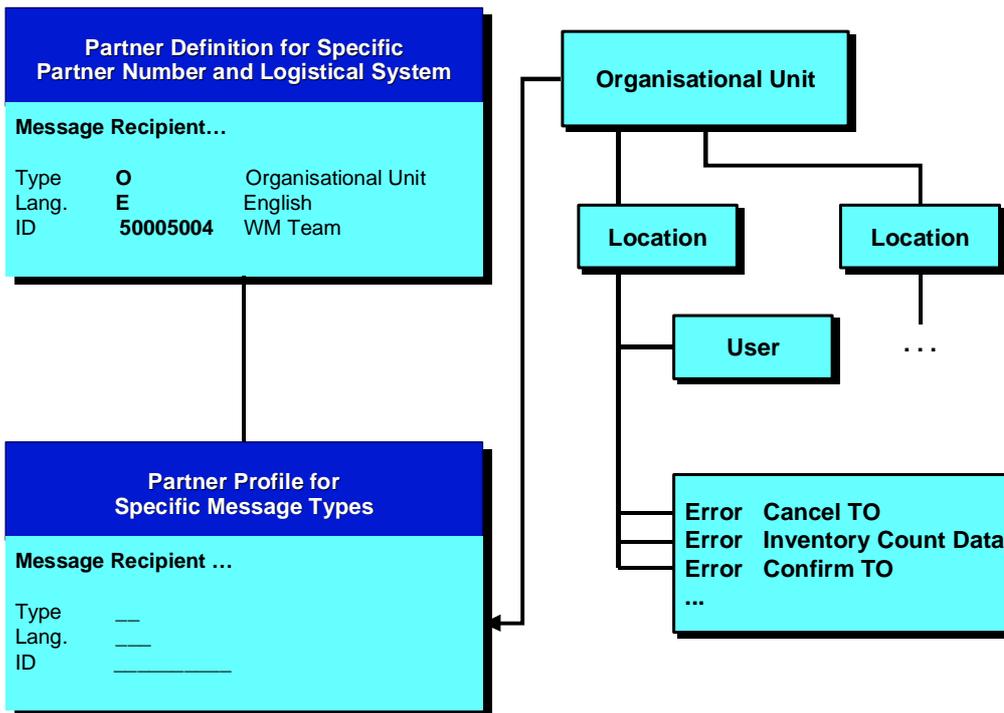
- You enter the organizational unit generally in the partner definition and make no further entries in the actual partner profile for each message type.  
In this case, the messages go to all of the users who are assigned to the organizational unit and who have the standard task in question assigned to their position.
- You do not enter the organizational unit in the partner profile: You enter a specific position.
- You override the entry in the partner definition with entries in the partner profile for a message type.



We recommend entering the organizational unit overall in the partner profile.

If, however, you connect two external systems to the WMS and want to assign different users to each system, you should separate the error messages through different partner positions.

### Assigning Error Messages



It is not enough to enter user names directly into the partner definition or the partner profile because the system cannot assign the standard tasks in this case.

### Activities

1. You define an organizational unit. You can assign the organizational unit to several different positions.
2. You define a position.
3. You assign the users to the position.
4. You assign the users a standard task.

### Standard Tasks

Area	Description
IDoc processing (technical errors)	Outbound, Error message with IDoc
	Inbound, Error message with IDoc
	Outbound, syntax error in IDoc
	Inbound, syntax error in IDoc
Application errors (logical errors)	Error, TO cancellation
	Error, inventory count data
	Error, TO confirmation
	Error, goods movement
	Error, transfer orders
	Error, moving storage unit
	Error, blocking storage bins

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	Error, user-defined message
	Error, transfer requirement
	Error, Pick HU creation
	Information



## Processing Technical IDoc Errors

### Use

During communication between the external system and the *Warehouse Management system* (WMS), technical problems can occur in the ALE layer. The following errors can occur:

- Syntax error in the IDoc
- Missing partner profile
- The IDoc was not transferred to a synchronous Remote Function Call on transmission
- The IDoc was not transferred to the application on receipt

### Error During Outbound IDoc Processing

#### IDoc status 07: Syntax error in IDoc

On sending and receiving IDocs, the system checks the syntax of the individual IDocs. The IDoc definition defines the syntax of the IDoc. The syntax includes:

- The individual segments of an IDoc type
- The relationship between the individual segments
- How many segments can be sent in one IDoc

Normally, incorrect syntax in IDocs only occurs in testing. IDocs with incorrect syntax cannot be repaired. You correct the IDoc structure in the SAP system and send the IDoc again.



We recommend only switching on the syntax check during testing of IDocs created yourself. You activate the syntax check via the partner profile for one IDoc type and a one particular partner.

#### IDoc status 29: Missing or incorrect partner profile

To **send** an IDoc from the SAP system to the external system, you must define outbound parameters for the message type and all relevant partners.

For more information, see *Interfaces → External Systems → [Configure Warehouse Management \[Extern\]](#) → Communication R/3 -> External System → Maintain Partner Profile* in the Implementation Guide for *Warehouse Management*.

If the system cannot find the partner (that is, the connected partner system) for sending the IDocs, proceed as follows:

- Define the missing partner profile.
- Resend all existing IDocs, which the system has not yet been able to send.

For this error, the system triggers a workflow work item for the standard task *Output: Error processing with IDoc* and sends a message to the inbox of the corresponding user.

You trigger subsequent sending of the IDocs that contained errors from the inbox.

On subsequent transmission, the incorrect IDoc is flagged with status 31 and copied to a new IDoc, which is enhanced with data from the partner profile and transferred to the asynchronous RFC.



Errors in partner profiles normally only occur in the test run.

#### IDoc status 30: The IDoc is not transferred to the asynchronous RFC

Although the partner profile is defined and the IDoc has been constructed, the IDoc cannot be transferred to the asynchronous RFC. The IDoc is not sent, and there is no official entry in the RFC valuation (/nSM58) for the relevant subsystem.

You trigger transmission of the IDoc using report *RSEOUT00*. To start the report manually, choose *Tools* → *Business Communication* → *IDoc Basis* → *Test* → *Outbound Processing from IDoc* (/nWE14), or schedule a regular job in background processing for this report.

Check the outbound processing mode for the IDoc in the partner profile.

- Outbound processing mode **2**: The system sends the IDoc immediately
- Outbound processing mode **4**: The system collects IDocs that have been created and sends them in packets of a predefined size.

IDocs are not intended to be sent directly.

Status **30** in the IDoc can normally only occur if outbound mode is set to 4.

## Error During Outbound IDoc Processing

### IDoc status 60: Syntax error in IDoc

On sending and receiving IDocs, the system checks the syntax of the individual IDocs. The IDoc definition defines the syntax of the IDoc. The syntax includes:

- The individual segments of an IDoc type
- The relationship between the individual segments
- How many segments can be sent in one IDoc

Normally, incorrect syntax in IDocs only occurs in testing. IDocs with incorrect syntax cannot be repaired. You correct the IDoc structure in the SAP system and send the IDoc again.



You activate the syntax check via the partner profile for one IDoc type and one particular partner. We recommend that you activate the syntax check, particularly for any IDocs that you have created yourself.

### IDoc status 63: Missing or incorrect partner profile

To **receive** an IDoc in the SAP system from the external system, you must define the outbound partner profile for the message type and all relevant partners.

For more information, see *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#) → *Communication Ext. System -> R/3* → *Maintain Partner Profile* in the Implementation Guide for *Warehouse Management*.

If the system cannot find the partner (that is, the connected partner system) for receiving the IDocs, proceed as follows:

- Define the missing partner profile.
- Trigger receipt of all existing IDocs, which the system has not yet been able to process, again.

For this error, the system triggers a workflow work item for the standard task *Input: Error processing with IDoc* and sends a message to the inbox of the corresponding user.

From the inbox, you trigger the subsequent transmission of the IDocs which contained errors.

Errors in partner profiles normally only occur in the test run.

### IDoc status 64: IDoc is not transferred to the application

Although the partner profile is defined and the IDoc has been received, the IDoc cannot be transferred to the application.

You trigger transmission of the IDoc using report *RBDAPP01*. To do this, plan a regular job in background processing for this report.

Check the processing mode for the IDoc in the partner profile:

- Processing mode **1**: The system transmits the IDoc immediately after receipt in the application.
- Output mode **3**: The system collects received IDocs.

IDocs are not intended to be transmitted directly to the application.

Status **64** in the IDoc can normally only occur in conjunction with processing mode **3** and output mode **2**.

## Processing Logical IDoc Errors in the WMS

When you receive an IDoc in the SAP system from the external system, the following errors can occur in the *Warehouse Management system (WMS)*:

- Missing or incorrect Customizing settings in the WMS
- Missing or incorrect data in the IDoc
- Error due to blocked objects



Logical IDoc errors do not occur during outbound IDoc processing from the SAP system, because the missing or incorrect Customizing settings in the WMS cause an error before this can occur.

The system flags the incorrect IDocs with status **51**.

### Missing or Incorrect Customizing Settings

#### Cause

The SAP system cannot process the received IDoc further if:

- Certain data from the IDoc is not defined in the SAP system



In the IDoc, you transfer a stock movement from the external system with a movement type that the SAP system does not recognize.

- The received IDoc data does not correspond to the Customizing settings in the SAP system.



The stock movement reported by the external system is defined for immediate confirmation. However, the movement type in the WMS does not allow immediate confirmation for this stock movement.

#### Procedure

1. You correct the relevant Customizing settings.
2. You subsequently post the incorrect IDoc
  - Either** from the inbox of the assigned user
  - Or** via report *RBDMANIN*, which you schedule periodically in background processing.

### Missing or Incorrect IDoc Data

If the data in the received IDoc is incomplete, you must decide whether the incorrect IDoc should be transmitted again or whether it is possible or appropriate to carry out corrections in the SAP system:

- You can make the corrections to the IDoc using the IDoc editor.



Only correct the IDoc using the IDoc editor in exceptional cases.

- You can subsequently post IDocs of the type *WMIVID01* on reporting physical inventory data and correct the data in the relevant transaction.

#### Procedure

You subsequently post the incorrect IDoc

- Either from the inbox of the assigned user
- Or via report *RBDMANIN*, which you schedule periodically in background processing.

## Error Due to Blocked Objects

If blocking problems occur in the SAP system, IDoc processing leads to an error.



If there are concurrent attempts (by different users) to access the same SAP object, the system terminates processing, with an error note for the blocked object.

### Procedure

You do not need to intervene manually. Schedule report RBDMANIN for periodical background processing.

Using the parameter *error status*, you can define in the report that IDocs with the error message for a blocking error should be automatically subsequently posted.

### Important Error Notes in Inbox

For the errors listed above, the system creates a workflow work item in the inbox of the person responsible. For more information, see [Rule Resolution in Exception Handling \[Extern\]](#).

Workflow work items are also suitable for important notes,

- Which the external system sends to the SAP system
- Which are created during IDoc processing in the *Warehouse Management system* (WMS).

These workflow work items

- Inform the user about a problem or a conflict situation
- Send on important messages from the external system to the SAP system.

The external system transmits the messages via message type *WMINFO*.



The external system triggers an internal message if a transfer order or a storage unit can no longer be confirmed because confirmation has already taken place. Someone has to be informed of this situation since this confirmation can usually only be carried out by the external system.

You do not process workflow work items for notes from the inbox as you do for errors, but rather complete the workflow work item.



## Modification Possibilities

### Use

The interface between the Warehouse Management system (WMS) and the external system (WMS-WCU interface) offers the following possibilities for customer modification at the interface:

- [Modifying inbound IDoc processing \[Seite 79\]](#)
- [Modifying outbound IDoc processing \[Seite 82\]](#)

Several [customer exits \[Seite 84\]](#) are also available at this point for adjusting and enhancing interface processing to suit individual needs.



## Modification Concepts: IDoc Inbound Processing

### Use

The following modification scenarios are available to you:

- You use the standard IDoc but want to define the processing yourself.  
You create a user-defined processing module, which you copy from the standard function module for the respective message type and adjust accordingly.
- You use the standard IDoc but want to adjust the standard IDoc processing. That is to say, you want to modify error processing or want to interpret the contents of the IDocs to suit your individual needs.  
You activate the customer exits in the standard function module:
  - If you want to influence error processing, you activate the customer exit for *Own error status*.
  - If you want to influence IDoc processing, you activate the customer exit for *Own updates*.
- You use a modified IDoc with user-defined segments and want to execute a particular process for the data from these segments.  
You define your own IDoc segments in the standard IDoc and use the customer exit for *Own update* to process the data from the user-defined segments.
- You use a modified IDoc with customized segments and want to define IDoc processing yourself.  
You define customized IDoc segments in the standard IDoc and create a customized processing function module.
- You use a user-defined IDoc with a new message type and have to implement processing of the IDoc on your own.  
You define a user-defined IDoc and create a user-defined processing function module. You can use the standard auxiliary function module to create the function module.

### Features

#### Adjusting the Standard Function Module

As soon as the SAP system has received the IDoc and saved it, the system calls a main function module of the application, which takes over the processing of the IDoc.

At this point, you have the first opportunity to intervene in the IDoc processing, by creating a **user-defined function module**.

You enter this function module in the SAP menu under *Tools* → *Business Communication* → *IDoc-Basis* → *Development* → *Inbound Processing Settings* → *Message/Application Object*.

There, you can also enter an additional partner profile for a certain message variant or message function from the external system in order to differentiate processing in the SAP system.

#### Main function modules for inbound IDoc processing

Message Type	Function module	Use
WMBBIN	L_IDOC_INPUT_WMBBIN	Blocking storage bin
WMCATO	L_IDOC_INPUT_WMCATO	Canceling TO
WMINFO	L_IDOC_INPUT_WMINFO	Information
WMINVE	L_IDOC_INPUT_WMINVE	System inventory records
WMMBXY	L_IDOC_INPUT_WMMBXY	Goods movements

WMSUMO	L_IDOC_INPUT_WMSUMO	Moving a storage unit
WMTOCO	L_IDOC_INPUT_WMTOCO	Confirming TO
WMTORD	L_IDOC_INPUT_WMTORD_MULTIPLE	Transfer orders (TO)
WMTREQ	L_IDOC_INPUT_WMTREQ	Releasing group

The main function module filters out the data for each IDoc and calls the actual processing function module of the application in a loop.

### Activating Customer Exits

A **customer exit** is implemented both before and after the call of this function module.

- You can use the customer exit after the function module call to update a **user-defined error status** or to change the set error status.
- You can use the customer exit before the call of the function module, for example to execute **user-defined updates** or to valuate user-defined segments, which you have added in the IDoc definition.



Take the names of the customer exits from the source code of the main function module.

If you create a function module or use customer exits, note that **no COMMIT WORK** command is set, as this can lead to errors in IDoc processing and to inconsistencies in error processing. The system returns to the ALE layer following processing, where the system updates any application errors that have occurred, sets the IDoc status, and may even execute database rollbacks.



Note, that additional I/Os which occur in the customer exit, can affect performance.

### Defining User-Defined IDoc Segments

You defined your own IDoc segments by choosing *Tools* → *Business Communication* → *IDoc Basis* → *Development* → *IDoc Types*. For more information, see [Segment Editor \[Extern\]](#).

### Creating User-Defined Processing Function Modules

The SAP system offers function modules for general use for the following tasks for using user-defined main function modules:

#### Auxiliary function modules for inbound IDoc processing

Function module	Task
L_IDOC_CONTINUE_SAVE	Continuously save application objects for subsequent activities
L_IDOC_CREATED_OBJECTS_SAVE	Continuously save the documents created from an IDoc
L_IDOC_ERROR_SAVE	Continuously save IDocs with errors
L_IDOC_INPUT_REFRESH	Initialization for IDoc processing (table refresh)
L_IDOC_OK_SAVE	Continuously save processed IDocs
L_IDOC_RETURN_CREATE	Determine and construct status record for the IDoc
L_IDOC_ROLLBACK_SAVE	Update IDoc tables after necessary rollback
L_IDOC_STATUS_CREATE	Determine and construct status record for the IDoc

L_IDOC_TIDOC_FETCH	Fetch internal table for the purpose of status update
--------------------	---

### Defining User-Defined IDocs

If you define user-defined IDocs (interim structure) via *Tools* → *Business Communication* → *IDoc Basis* → *Development* → *IDoc Types*, assign this IDoc to a new message type. For more information, see [Defining New IDoc Types \[Extern\]](#).

You create a partner profile for this message type.

You define the tables for inbound processing for this IDoc under *Tools* → *ALE* → *ALE Development* → *IDoc* → *Inbound Processing*.

Standard task TS00008099 is available for error processing.



## Modification Concepts: IDoc Outbound Processing

### Use

The following modification scenarios are available:

- You use the standard IDoc but want to influence the construction of the IDoc.  
 You create a user-defined processing module, which you copy from the standard function module for the respective message type and adjust accordingly.  
 You activate the user-exit in the standard function module in order to influence the standard IDoc construction.
- You use the standard IDoc but want to define when and to whom a transfer order item should be sent yourself. In this case, you do not use the standard flow of the interface.  
 You implement your own interface connection between the *Warehouse Management system (WMS)* and the external system.
- You use a modified IDoc with user-defined segments and you want to trigger user-defined processing to construct the data in the segments.  
 You define your own IDoc segments in the standard IDoc and use the user exit fill your user-defined segments with data.
- You use a modified IDoc with user-defined segments and want to implement IDoc construction yourself.  
 You define your own IDoc segments in the standard IDoc and create your own processing function module, which you copy from the standard function module of the relevant message type and adjust accordingly.
- You use a modified IDoc with user-defined segments and do not want to use the standard flow of the interface.  
 You define your own IDoc segments in the standard IDoc and implement an individually defined interface connection between the WMS and the external system.
- You use an individually defined IDoc with a new message type and have to implement IDoc construction yourself.  
 You define an individual IDoc and create an individually defined function module. Standard auxiliary function modules are available for this purpose.
- You use a modified IDoc with a new message type and do not want to use the standard flow of the interface.  
 You define an individual IDoc and implement an individually defined interface connection between the WMS and the external system.

### Features

#### Adjusting the Standard Function Module

The WMS prepares for the IDoc to be sent to the external system. The system constructs the IDoc in the relevant application function module, determines the partner (the connected system), and steers towards the ALE layer for further processing.

At this point, you have the first opportunity to intervene in the IDoc processing, by creating a **customized function module**.

You enter this function module in the Customizing for *Warehouse Management* under *Interfaces* → *External Systems* → [Configure Warehouse Management \[Extern\]](#) → *Whse Management View* → *R/3 -> External System* → *Function Modules for IDoc Creation* → *Assign*.

The WMS uses the following function modules for constructing and sending IDocs:

#### Function modules for outbound IDoc processing

Function module	Description
L_IDOC_CREATE_WMTOID01	Transfer orders
L_IDOC_CREATE_WMRRID01	Group release
L_IDOC_CREATE_WMCAID01	Cancellation request TO
L_IDOC_CREATE_WMIVID01	System inventory records



User exits are available in the function modules for adding individually-defined segments or influencing the standard IDoc construction.

### Realizing an Individually Defined Interface Connection

You realize an individually defined interface connection in order to be able to decide yourself when communication with the external system should occur and to which external system the data should be sent.



In this case, the interface in the WMS should not be active.

You use the user exit *Enhancement at End of TO Creation (MWMTO01)* to implement an individually defined connection between the systems.

### Defining User-Defined IDoc Segments

You define your own IDoc segments by choosing *Tools → Business Communication → IDoc Basis → Development → IDoc Types*. For more information, see [Segment Editor \[Extern\]](#).

### Defining User-Defined IDocs

If you define user-defined IDocs (interim structure) via *Tools → Business Communication → IDoc Basis → Development → IDoc Types*, assign this IDoc to a new message type. For more information, see [Defining New IDoc Types \[Extern\]](#).

You create a partner profile for this message type.

### Creating Individually Defined Send Function Modules

For creating individual send function modules, SAP provides the following function modules, which are already used in SAP send function modules.

#### Modification Concepts: IDoc Outbound Processing

Function module	Task
L_IDOC_HEADER_CREATE	Construction of the necessary EDIDC data per IDoc
L_IDOC_SEGMENT_CREATE	Construction of an IDoc segment
L_IDOC_SEND	Sending the constructed IDoc
L_IDOC_FETCH	For access to the data in your program after calling your IDOC_CREATE_....



## Interface Customer Exits

The *Warehouse Management system (WMS)* offers the following customer exits:

### Enhancements to the WMS-WCU interface

Enhancements	Description
MWMIDI01	Error processing for IDoc inbound processing for IDocs WMTOCO, WMCATO, WMBBIN, WNTREQ, WMSUMO collectively
MWMIDI02	Message WMTOCO (TO confirmation) inbound
MWMIDI03	Message WMCATO (TO cancellation) inbound
MWMIDI04	Message WMBBIN (block storage bin) inbound
MWMIDI05	Message WNTREQ (TR creation) inbound
MWMIDI06	Message WMSUMO (Move storage unit) inbound
MWMIDI07	Message WMPIHU (pick HU creation) inbound
MWMIDO01	IDoc WMTOID01 (transfer order) outbound
MWMIDO02	IDoc WMCAID01 (TO cancellation request) outbound
MWMIDO03	IDocs WMRRID01 (release group) outbound
MWMIDO04	IDoc WMIVID01 (system inventory record) outbound
MWMIDO07	Error processing for IDoc inbound processing: Mobile data entry for IDocs WMMBXY, WMINVE, WMTORD collectively
MWMIDO08	Message WMMBXY (goods movement) inbound
MWMIDO09	Message WMINVE (inventory count data) inbound
MWMIDO10	Message WMTORD (TO creation) inbound
MWMIDO11	Message WMTORD: TO with several items
MWMIDO12	Message WMPIHU (pick HUs) outbound
MWMIDO13	Message WMMBXY: Follow-up action after goods posting