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Product Assistance for SAP S/4HANA for Manufacturing Logistics

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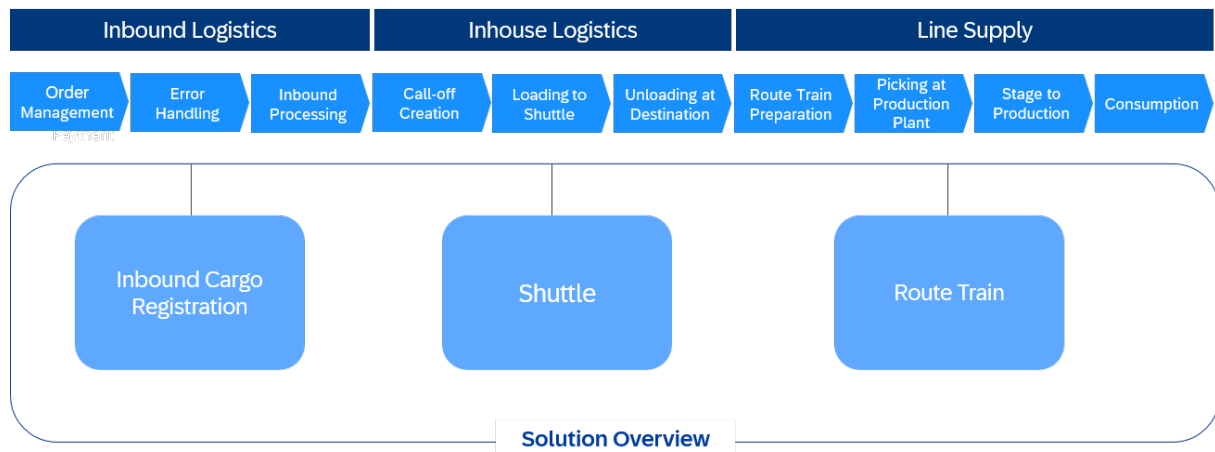
1 SAP S/4HANA for Manufacturing Logistics

SAP S/4HANA for manufacturing logistics supports you in all activities connected with inbound cargo registration, warehouse-internal cargo transport via public roads and scheduled tour delivery to production supply.

It provides capabilities for managing business processes for:

- Inbound Cargo Registration
- Shuttle
- Route Trains for Production Supply

The following image allows you to explore the capabilities. Hover over each one to see more information.



- Represents the central workplace at a goods receipt office for a business user who is responsible for registering inbound trucks and their cargo. Inbound cargo registration is used to verify inbound freight order documents against pre-notified consignment orders and delivery notes. [page 10]
- Defines the handling of road transport of cargo for one warehouse number. A shuttle transports cargo from different buildings or sites of the same warehouse number using public roads. [page 70]
- Offers an end-to-end support for route train operations, introducing new business master data, route train loading, cross functions, and unloading features with built-in monitoring capabilities. [page 103]

1.1 About SAP S/4HANA for Manufacturing Logistics

SAP S/4HANA for manufacturing logistics offers a seamless process integration between inbound checkpoints, warehousing, production, and external storage.

Product Information

Product Available as of Release and Feature Package Stack (FPS)	SAP S/4HANA 2025 Feature Package Stack 00
Documentation Published	October 2025
Documentation on SAP Help Portal	https://help.sap.com/s4ml

1.2 Integration

Overview of integration types and applications for SAP S/4HANA for manufacturing logistics.

SAP S/4HANA for manufacturing logistics is integrated with the following applications:

Integration with SAP Applications:

Application	Integration Type
Extended Warehouse Management(EWM)	<ul style="list-style-type: none">Flexible and automated production supply processes with route trains as connecting link between the warehouse and production supply areas (PSA) Business processes, which you trigger in other application components, lead to physical goods movements in your warehouse that can be physically performed by route trains. You organize, control, and monitor route train processes directly using with SAP S/4HANA for manufacturing logistics.Shuttle process for goods movements between different buildings or sites of the same warehouse using public roads Business processes within one EWM warehouse number, which you trigger in other application components, lead to goods movements between different buildings or sites of the same warehouse using public roads.Extended work processing based on the radio frequency (RF) framework offering new RF transactions for warehouse worker activities.New SAP Fiori apps for route and tour management and for master data maintenance.
Transportation Management (TM)	<ul style="list-style-type: none">Shuttle process for cargo transport between different buildings or sites of the same warehouse number by a shuttle that is defined via a freight order.Inbound cargo registration processes delivery note, consignment, and freight order data that integrates with the delivery functions and the Advanced Shipping and Receiving functions of the embedded TM, EWM, and Stock Room Management SAP S/4HANA applications.

Related Information

[Route Trains for Production Supply \[page 103\]](#)

[Shuttle \[page 70\]](#)

[Inbound Cargo Registration \[page 10\]](#)

1.3 Getting Started

Make sure to read the information in this section before you get started with SAP S/4HANA for manufacturing logistics.

Glossary

SAP S/4HANA for manufacturing logistics terms are included in the SAP terminology database under the components **SCM-EWM-IL0** and **SCM-EWM-FIO-IL0**.

Useful Links

Useful Links

Resource	Where to Find It
Product assistance for EWM Goods Distribution with Distribution Equipment	https://help.sap.com/
Information about creating customer incidents	http://support.sap.com/incident 
SAP Notes search	http://support.sap.com/notes 
SAP Software Download Center	http://support.sap.com/swdc 
Product Availability Matrix	http://support.sap.com/pam 
Early Knowledge Transfer and role-specific learning maps	http://support.sap.com/ekt 
Sizing	http://www.sap.com/sizing 
Information about support package stacks, latest software versions and patch level requirements	http://support.sap.com/sp-stacks 

2 Inbound Cargo Registration

Inbound cargo registration is the central workplace at a goods receipt office for a business user who is responsible for registering inbound trucks and their cargo.

You use inbound cargo registration to review the cargo and freight related data previously received by electronic data interchange (EDI) and check it against the freight documentation. You can amend, correct, or create the data about the loaded consignments, delivery notes, and packages. Once you verify the data, freight orders are ready for warehouse processing and are driven to unloading points to execute follow-up processes. You can use inbound cargo registration at the physical goods receipt as a desktop application to verify the unloaded goods against the system data, change the data where required, and trigger the goods receipt posting.

The EDI Scenario

Suppliers send delivery notifications as advanced shipping notification (ASN) via EDI; carriers send transport notifications as ASN via EDI. You, the customer, receive ASNs containing data about your inbound cargo. This data is stored in Transportation Management (TM) as a consignment, which contains references to delivery notes issued by the supplier.

A carrier can send you an ASN via EDI to inform you about a transport that is on its way. This ASN contains data about which consignments are loaded on the transport bound for you. This data is stored in TM as a freight order.

TM combines the data from the two ASNs and assigns the consignments to the freight order.

Inbound cargo registration provides an overview of this combined data so that you can drill down through the expected load of an incoming transport and investigate if the data is complete, error free, and compliant with the freight documentation.

Integration

Inbound cargo registration is based on TM and is integrated with the following:

- The embedded SAP S/4HANA application for Inventory Management and Delivery Processing
Therefore, a prerequisite is using lean Warehouse Management.
- The Advanced Shipping and Receiving (Adv. SR) process of Extended Warehouse Management (EWM)
- The goods receipt process of Stock Room Management
- The new Just-in-Time (JIT) process in SAP S/4HANA

Prerequisites

In inbound cargo registration, you can only process TM documents when all documents' receiving stops are relevant for Adv. SR. This applies to freight orders and consignments.

Note

Freight orders can have multiple receiving locations whereas consignments have exactly one receiving location.

If a document includes at least one non-Adv. SR receiving location, you can still select it and its data is displayed. However, you cannot edit it and a warning message informs you of this. The same as for completed documents, you cannot change the data and no actions can be executed for the document.

Features

- **Configurable user interface**
You can configure the user interface of inbound cargo registration to suit the needs and tasks performed by users for the different steps executed along the goods receipt process.
See [Inbound Cargo Registration User Interface \[page 12\]](#) and [Profile and Layout Sets \[page 61\]](#).
- **Load breakdown**
You can review what is loaded on a truck that has arrived at the goods receipt office and break it down into the loaded consignments together with the supplier's delivery note data about the delivered goods and packages.
See [Document Types \[page 20\]](#).
- **Delivery notes**
Inbound cargo registration extracts the supplier's delivery note data from the ASN data and provides a dedicated user interface to enter, change, and review delivery note data.
See [Delivery Note \[page 22\]](#) and [Document Maintenance \[page 26\]](#).
- **EDI error handling**
You benefit from an enhanced error handling for freight orders and consignments, received by EDI, which can be directly corrected in the business application without the need to work in the technical layers.
See [Document Error Handling \[page 34\]](#).
- **Shelf life**
You can validate the data of incoming consignments for shelf life controlled products.
See [Shelf Life \[page 33\]](#).
- **Packaging**
Inbound cargo registration has enhanced capabilities to single and mass create packages, including the use of TM's unified package building to use packing instructions from Logistics Execution (LE) or the packing specification from EWM. You can build packages using an automatically determined unified package building rule or by selecting any determined unified package building rules offered by the system. You can have the actual packaging data of product items maintained in the delivery note checked against the packaging data according to unified package building rules.
See [Packages \[page 43\]](#).
- **Receiving cargo for summarized JIT calls**
You can handle the receipt of cargo requested by summarized JIT calls.
See [Registering Just-in-Time \(JIT\) Deliveries \[page 47\]](#).
- **Goods receipt**
You can trigger the goods receipt posting in inventory management, Stock Room Management, and EWM.
See [Document Statuses \[page 54\]](#).
- **Status overview**
The status management helps you, for example, as follows to monitor the various steps from the registration of cargo to goods receipt.
 - You can check in freight orders to report that the cargo is in yard and, therefore, about to be available.
 - You can set the status of consignments and deliveries to Ready for Warehouse Processing to indicate that the data is complete and that the warehousing process can begin.
 - You can set the status of delivery notes with errors in a consignment to On Hold and then process the other correct delivery notes in the warehouse. You can correct the errors in the on hold delivery notes later after the processing of the correct delivery notes. Once you correct the errors in the delivery

notes with the On Hold status, you remove their On Hold status and process them so that the complete consignment is to be Ready for Warehouse Processing and subsequent settlement.

- You can trigger goods receipt posting or receive data about goods receipt from the SAP S/4HANA warehousing applications.

See [Setting Document Statuses \[page 57\]](#) and [Place Delivery Notes with Errors On Hold \[page 37\]](#).

Inbound Cargo Registration-Specific Apps

The following inbound cargo registration-specific apps are available in the *Inbound Cargo Registration* group on the SAP Fiori launchpad (transaction code/UI2/FLP/):

- [Inbound Cargo Registration](#)
- [PLS Management for Inbound Cargo Registration](#)
- [Page Layouts for Inbound Cargo Registration](#)
- [Create Inbound Cargo Registration Settings](#)
- [Change Inbound Cargo Registration Settings](#)

For more information, see [Apps for Inbound Cargo Registration \[page 69\]](#).

TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under ► [Product Assistance](#) ► [Enterprise Business Applications](#) ► [Supply Chain](#) ► [Delivery and Transportation](#) ► [Transportation Management \(TM\)](#) ►.

2.1 Inbound Cargo Registration User Interface

The streamlined user interface (UI) of inbound cargo registration enables you to have all relevant data to hand in the way you want it. It provides a flexible and powerful set of functions that can be set up the way users or user groups need it.

To launch inbound cargo registration, in the *Inbound Cargo Registration* group of the *Fiori Launchpad*, choose the *Inbound Cargo Registration* Fiori tile. The *Profile and Layouts Sets* (PLSs) screen is displayed. Select a PLS and choose *Continue* to have the inbound cargo registration UI displayed.

📘 Note

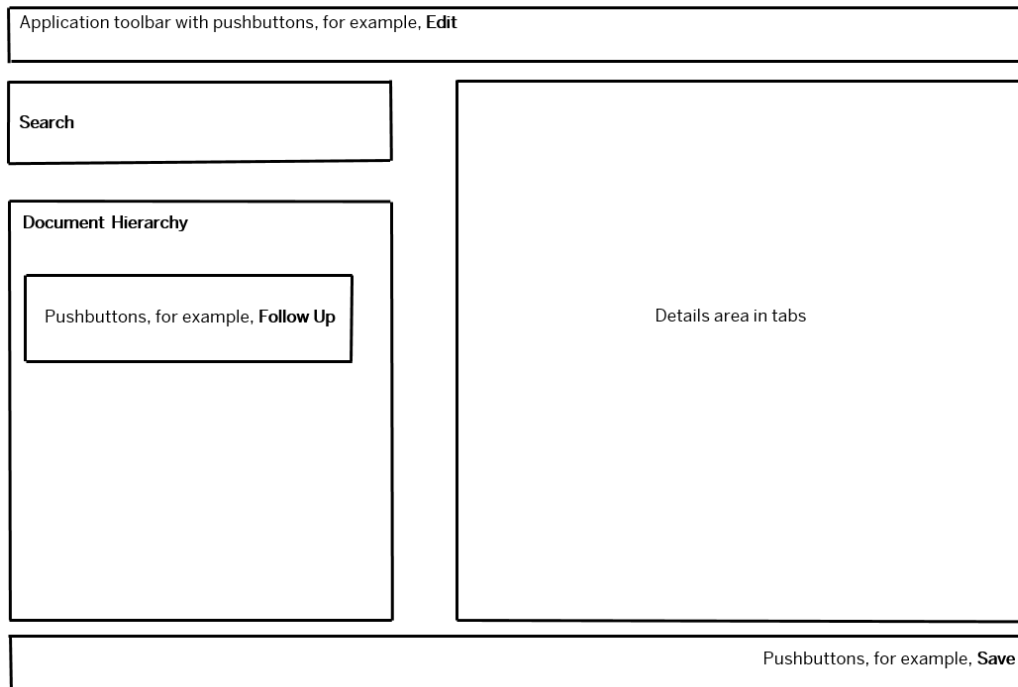
If you have previously set a default PLS and selected the *Hide Screen* checkbox on the *Profile and Layouts Sets* page, the inbound cargo registration user interface is displayed when you choose the *Inbound Cargo Registration* Fiori tile.

📘 Note

PLSs are a prerequisite for using inbound cargo registration. PLSs restrict the documents that you can select and define the layout of the screen. On the *Profile and Layouts Sets* page, you can select an existing PLS, you can create one, and you can choose to set a default one. For more information, see [Profile and Layout Sets \[page 61\]](#).

Delivered Default Screen

Default Screen



The default screen has the following layout:

- Pushbuttons
 - At the top of the default screen
There is an application toolbar of pushbuttons, for example, [Edit](#). These pushbuttons work on the details area on the right.
 - At the bottom right of the screen
There are various pushbuttons, for example, [Save](#).
 - At the top of the [Document Hierarchy](#)
There are several pushbuttons, for example, [Copy](#), and a few dropdown lists, for example, [Follow Up](#) [Post Goods Receipt](#). You can use these pushbuttons to execute actions for multiple documents that you have selected in the [Document Hierarchy](#) so long as you have not edited any data for a selected document on the details tabs on the right of the screen. The execution of these actions results in the documents being saved automatically. If you edit the data of a single document and save it, you can return to mass processing of actions for multiple documents in the [Document Hierarchy](#).

For more information about pushbutton details, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

Note

All the pushbuttons are defined in [Page Layouts for Inbound Cargo Registration](#), which you can access in the [Inbound Cargo Registration](#) group of the [Fiori Launchpad](#).

- [Search](#)
On the left side of the default screen, there is a search area above the [Document Hierarchy](#). You can fast search for a freight order, consignment, or delivery note using the external number. The document that is found is displayed in the [Document Hierarchy](#). You can also use the advanced search.
For more information, see [Document Search \[page 24\]](#).

- [Document Hierarchy](#)

The document tree structure offers a clear overview of freight documents and their assignments as well as an overview of unassigned consignments.

The details for your currently selected document are displayed in the details area on the right side. You can execute actions for this selected document, even in edit mode, by choosing an action from a context menu that you open by right clicking on the selected document. The context menu options are not available for documents you have not selected.

- Documents

In the [Document Hierarchy](#), you have an overview of the following documents in a hierarchical tree:

- Freight orders
- Consignments assigned to freight orders
- Delivery notes assigned to consignments
In edit mode, you can move between delivery notes and their consignment without saving your changes. This is because delivery notes and their consignment are just one document, a consignment order, in TM. If you then select a freight order, a popup is displayed and you need to save your changes.
- Unassigned consignments and their assigned delivery notes
- On hold consignments containing the delivery notes with errors whose status has been set to On Hold

You can choose [Next](#) and [Previous](#) at the bottom of the screen to move in sequence in the tree between, for example, delivery notes, as well as, [Return](#) to move between, for example, delivery notes and their consignments. You can edit data in a sequence of delivery notes using these pushbuttons and then save all the changes by choosing [Save](#) when you are finished editing. If you now select the consignment to which these delivery notes are assigned, the last delivery note you edited is marked as selected on the [Delivery Notes](#) tab for the consignment.

- Details on the main tabs

On the right side of the default screen, there is the details area where document details are displayed on various tabs depending on the document that you select in the [Document Hierarchy](#). For more information, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

- [Items](#) and [JIT Calls](#)

If there are product items for a selected delivery note, the details are displayed on an [Items](#) tab at the bottom of the details area.

If there are JIT calls for a selected delivery note, the details are displayed on a [JIT Calls](#) tab at the bottom of the details area.

Note

You can drag any tab from the details area and drop it alongside the [Items](#) and [JIT Calls](#) tabs.

- [Document Errors](#)

If there are documents with errors, there is a [Document Errors](#) area displaying error details at the top right of the screen above the tabs. The highest-level document in the [Document Hierarchy](#) will have a blue icon to indicate that at least one lower level document has an error.

For more information, see [Document Error Handling \[page 34\]](#).

- Additional UI Controls

- You can [Collapse](#) and [Expand](#) any of the screen areas such as [Search](#) and [Document Hierarchy](#).
- You can [Maximize](#) and [Minimize](#) any of the screen areas such as [Packages](#). This allows you to fill the screen with your selected area of interest for a time and then return to the original page layout.
- You can choose [Enable Column Resizing](#) at the top right side of the screen to drag a column, for example, the [Document Hierarchy](#), to a new width.

2.1.1 User Interface Pushbutton and Tab Details

The following tables contain details about the pushbuttons and the main tabs on the user interface of inbound cargo registration.

Application Toolbar Pushbuttons

Pushbutton	Dropdown List	Comment
Edit		Choose to work in edit or display mode. Inbound cargo registration opens in edit mode by default. If you have selected the Show Documents in Display Mode checkbox in the Inbound Cargo Registration Settings on the Profile and Layouts Sets page, then inbound cargo registration opens in display mode.
Follow Up	<ul style="list-style-type: none"> • Set to Checked In • Set to Not Checked In • Set to Ready for Warehouse Processing • Set to Not Ready for Warehouse Processing • Post Goods Receipt • Cancel Goods Receipt 	<p>You can only use the follow up actions in the application toolbar for a single document that you have currently selected in the Document Hierarchy.</p> <p>If you select multiple documents, this pushbutton is not available to you. If you choose one of these actions for a document, you can choose Cancel at the bottom of the screen to cancel the execution of the action.</p>
Set Status	<ul style="list-style-type: none"> • Set to Completed • Set to In Process 	
Create Deliveries		
Print	<ul style="list-style-type: none"> • Print Immediately • Print Preview 	
Refresh		
Clear Hierarchy		
Hide Hierarchy		Choose to hide or show the Document Hierarchy .
Filter by Receiving Locations		When you choose Filter by Receiving Locations , in the Document Hierarchy , the system filters consignment documents according to the receiving locations that are maintained in Inbound Cargo Registration Settings .
Switch Page Layout		All the pushbuttons are defined in the page layout. In the application toolbar, you can choose Switch Page

Pushbutton	Dropdown List	Comment
		Layout and use another page layout with a different predefined selection of pushbuttons, for example, in the application toolbar. For more information, see Maintaining Page Layouts [page 63] .
Change Selection Profile		<p>You can select another selection profile from the dropdown list.</p> <p>You can choose ► Change Profile Selection ► Profile Selection Screen ► to access the Profile and Layouts Sets screen.</p>

Pushbuttons at the Bottom Right of the Screen

Pushbutton	Comment
Save and Assign	If you create a consignment for a freight order and the system cannot find the consignment, the freight order is saved, and the consignment is displayed under Unassigned Consignments . Choose Save and Assign to assign the consignment to the freight order and to save it. In this case, if you choose Save instead, the consignment is saved under Unassigned Consignments .
Save	When you are in edit mode and you make a change to the data, the Save pushbutton is highlighted for your use.
Cancel	Cancels an action
Back	Takes you up one level in the tree, for example, from delivery note to consignment. If you had been working on delivery notes and you return to a consignment, the Delivery Notes tab is displayed on the right and the last delivery note you edited is marked in the list.
Previous	Moves your selected document in reverse sequence between documents at one level in the hierarchy, for example, from a delivery note to the previously selected delivery note.
Next	Moves your selected document in sequence between documents at one level in the tree, for example, from a delivery note to the next delivery note in the hierarchy.

Main Tabs per Document Type

Tabs	Freight Orders	Consignments	Delivery Notes
General Data	X	X	X
Additional Data	X	X	
Output Management	X	X	X
Notes	X	X	X
Attachments	X	X	X
Execution	X	X	
Communication History	X	X	
Consignments	X		
Delivery Notes		X	
Packages			X
Document Flow			X
Load Overview	X		

2.2 Registering Inbound Cargo

The following are examples of the process of registering inbound cargo from the truck's arrival at the gate through to its departure for the unloading point.

Context

When the truck arrives, the truck driver hands over the freight documents and you receive them in the goods receipt office. To reduce the amount of time the truck is waiting to unload, you want to reflect the load with detailed data quickly in the system. Inbound cargo registration presents you with as much data as possible up front, for example, as in the following 2 cases:

- All the transportation and consignment data is fully available and correct in the system.
In this case, once you have verified the data in the system, you can handle the follow up processes (for example, check in, ready for warehouse processing, and goods receipt) for the freight order. When you have finished the registration of the inbound cargo, the truck is released and is ready to go to the unloading point.
- All of the transportation and consignment data has not been transmitted correctly.
The data is, for example, as follows:
 - In inbound cargo registration and in the freight documents, there is a consignment and delivery notes with reference to a purchasing document.
 - In inbound cargo registration, there is no freight order. The freight documents have data for a freight order.
 - On the freight documents, there is another consignment that is not in the system. The consignment and its delivery note have packaging data.

In this case, you need to create and assign the delivery objects according to the freight documents.
Proceed as follows:

Procedure

1. Search for delivery data either by entering the external ID or the bill of lading number in [Search](#). In the [Advanced Search](#) option, you can also search for the various documents using individual search criteria. For more information, see [Document Search \[page 24\]](#) and [Document Types \[page 20\]](#).

In the [Document Hierarchy](#), the consignment and its delivery notes are displayed in [Unassigned Consignments](#). You have confirmed that the freight order is not in the system.

2. Create a freight order, using a specific freight order type or a default one, in the [Document Hierarchy](#). Enter data, for example, the bill of lading number, carrier, and information about the truck. Save the freight order. For more information, see [Maintaining Documents \[page 26\]](#).
3. Assign the consignment in the [Document Hierarchy](#) to the freight order by entering data about both the external consignment number and vendor on the [Consignments](#) tab of the freight order. Save. For more information, see [Assignment of Delivery Notes and Consignments \[page 29\]](#).

The consignment and its delivery notes are assigned to the freight order and no longer appear in [Unassigned Consignments](#) of the [Document Hierarchy](#).

4. Create a new consignment for the freight order manually by selecting the freight order and entering the external consignment number and vendor on the [Consignments](#) tab. Save.

The consignment is assigned to the freight order in the [Document Hierarchy](#).

5. If the freight documents contain data for the new consignment, choose [Create Consignment](#) and save the freight order.

The consignment and its delivery note appear in [Unassigned Consignments](#) of the [Document Hierarchy](#).

6. Enter data, for example, goods supplier, for the new consignment.
7. Enter the external delivery note number. To enter data on the [Items](#) tab of the selected delivery note, enter the product ID and quantity and reference the relevant purchasing document.

Item data, such as locations and unloading point, is populated from the purchasing document.

8. Pack the delivery note items by choosing the [Packages](#) tab. Enter a product item quantity, create a packaging material, and choose [Pack](#). For more information, see [Packages \[page 43\]](#) and [Packing \[page 44\]](#).
9. Save and assign the consignment and delivery note to the freight order by choosing [Save and Assign](#).

The freight order contains the two consignments with the freight data and the product items packed into packages. There are no consignments in [Unassigned Consignments](#).

10. Check, for example, the status for a delivery note on the corresponding inbound (LE or EWM) delivery by selecting [Inbound Delivery](#) on the [General Data](#) tab for the selected delivery note.
11. Set the freight order to checked in, for one or more receiving locations, by choosing [Follow Up](#) and [Set to Checked In](#). For more information, see [Document Statuses \[page 54\]](#).

The freight order is checked in for the receiving locations you selected. If, for example, you select one receiving location that is relevant for just one consignment, then only that consignment is checked in.

The status for a delivery note on the corresponding inbound (LE or EWM) delivery is now [In Plant](#).

12. Set the freight order to Ready for Warehouse Processing manually by choosing *Follow Up* and *Set to Ready for Warehouse Processing*. For more information, see [Document Statuses \[page 54\]](#).

The Ready for Warehouse Processing status is set for the freight order, consignments, and delivery notes. Data entry and user actions are now restricted.

Note

You are still able to add a delivery note and its delivery note items to a consignment. You can determine the purchasing document for the new delivery note items and have their data populated from the purchasing document. You can also delete a delivery note at this stage.

13. Post the goods receipt manually by choosing *Follow Up* and *Post Goods Receipt*. For more information, see [Document Statuses \[page 54\]](#).
14. You can manage output, for example, you can print. You can add notes and attachments. For more information, see [Manage Output \[page 40\]](#) and [Notes, Attachments, and Communication History \[page 41\]](#).
15. The truck is released and is driven to the unloading point.

2.3 Registering Customer Returns

Inbound cargo registration allows you to handle the goods receipt process related to customer returns. The process is similar to regular incoming cargo based on purchasing orders. Difference is that customer returns are based on sales orders for customer returns.

Delivery Note Creation for Customer Returns

The following sample process describes how to create a delivery note for a customer return. In a preceding process step, a sales order with freight units has been created.

1. In inbound cargo registration, in the [Document Hierarchy](#), create a consignment by entering an external consignment ID and a document date.
2. Create a delivery note by entering an external delivery note ID and, in the [Delivery Note Details](#), select the [Customer Returns](#) checkbox.
3. The column headers in the delivery item table changes from [Purchasing Document](#) and [Purchasing Document Item](#) to [Customer Return Document](#) and [Customer Return Document Item](#).
4. Enter the delivery note details: Choose either of the following options:
 - Enter the ID of the customer return document:
 1. The system retrieves the details from the freight unit that is created for the customer return.
 2. Save your entries.
 - Enter the product ID of the customer return document and choose [Determine Reference](#).
 1. The [Determine Reference Documents](#) popup shows all customer returns with open freight units.
 2. Choose a customer return document.
 3. Save your entries.

5. In the background, the system assigns a freight unit.
6. The item reference status indicates that the assignment has been successful.
7. Set the freight order to *Ready for Warehouse Processing* or *Set to Checked In* manually by choosing  *Follow Up*  *Set to Ready for Warehouse Processing*  or *Set to Checked In*.

Result

The inbound delivery process is now completed. If you've chosen *Set to Ready for Warehouse Processing*, the inbound delivery process with route trains could, for example, now be started.

2.4 Documents

Describes the types of documents and activities you can perform with them in inbound cargo registration.

[Document Types \[page 20\]](#)

This section provides information about the following documents used in inbound cargo registration:

[Document Search \[page 24\]](#)

In inbound cargo registration, you can fast search for documents or you can use the flexible advanced search.

[Document Maintenance \[page 26\]](#)

In inbound cargo registration, documents can either be generated from inbound EDI data or created manually.

[Document Flow \[page 31\]](#)

You can get an overview of the successor documents of a delivery note and you can navigate to these individual documents.

[Document Validation \[page 32\]](#)

Inbound cargo registration supports you with document validation.

[Automated Processing of Document Data \[page 38\]](#)

Automated extraction of document data uses generative Artificial Intelligence (AI) technology. In inbound cargo registration, you can use Document Information Extraction with generative AI technology to analyze delivery documents and consignment orders, extract their header data, item data, and item reference data. Automated extraction enables efficient logistics operations, reduces manual efforts, compares extracted data to existing system data, and stores errors for user evaluation and correction.

2.4.1 Document Types

This section provides information about the following documents used in inbound cargo registration:

- [Freight Order \[page 21\]](#)
- [Consignment Order \[page 21\]](#)
- [Delivery Note \[page 22\]](#) including delivery notes for customer returns.

TM Product Assistance

For more information, see <https://help.sap.com/s4hana> under ► *Transportation Management (TM)* ► *Freight Order Management* ►.

2.4.1.1 Freight Order

A freight order is an order whose execution is planned by a carrier or a shipper.

Freight orders are standard objects in TM. A freight order represents the entire load or part of the load that arrives on a truck at the goods receipt office and it is comprised of one or more consignments.

In inbound cargo registration, you can search for freight orders and have them displayed in the *Document Hierarchy*. For each freight order you select in the *Document Hierarchy*, you have standard and inbound cargo registration-specific freight order fields organized on tabs. For more information about the main tabs available for a freight order in inbound cargo registration, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

To access the full selection of standard freight order screen, tabs, and fields in TM, choose the freight order number (highlighted in blue) on the *General Data* tab for a selected freight order. The *Display Road Freight Order* screen is displayed in TM. For more information about freight orders in TM, see <http://help.sap.com/s4hana> under *Transportation Management (TM)* ► *Freight Order Management* ► *Freight Order* ►.

You use the freight order type to define parameters that influence how the system processes the freight order. The freight order type is defined in Customizing for ► *Transportation Management (TM)* ► *Freight Order Management* ► *Freight Order* ► *Freight Order Types* ►.

In inbound cargo registration, you can do the following, for example, for freight orders:

- Create, copy, maintain, delete, and display
For more information, see [Maintaining Documents \[page 26\]](#).
- Assign and unassign consignments to them
For more information, see [Assignment of Delivery Notes and Consignments \[page 29\]](#).
- Perform follow up processes, for example, check in
For more information, see [Document Statuses \[page 54\]](#).

📌 Note

When a freight order can contain both inbound and outbound consignments, inbound cargo registration ensures the correct processing of the inbound consignments.

2.4.1.2 Consignment Order

A consignment is used to group transportation requirements for pick-up at one single location of a supplier and delivery to one single location of a consignee.

Consignment orders are standard objects in TM. One or more consignments make up a freight order.

In inbound cargo registration, you can search for consignments and have them displayed in the [Document Hierarchy](#), where you have an overview of the following in a hierarchical tree:

- Consignments, and their assigned delivery notes, assigned to freight orders
- Unassigned consignments, and their assigned delivery notes, displayed under [Unassigned Consignments](#)
- On hold consignments, under which on hold delivery notes are displayed and which are linked to their original consignments

For each consignment you select in the [Document Hierarchy](#), you have standard and inbound cargo registration-specific consignment fields organized on tabs. For more information about the main tabs available for a consignment order in inbound cargo registration, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

To access the full selection of standard consignment order screen, tabs, and fields in TM, choose the consignment number (highlighted in blue) on the [General Data](#) tab for a selected consignment. The [Display Consignment Order](#) screen is displayed in TM. For more information about consignment orders in TM, see <http://help.sap.com/s4hana> under ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ► [Consignment Order](#) ►.

You use the consignment order type to define parameters that influence how the system processes the consignment order. The consignment order type is defined in Customizing for [Transportation Management \(TM\)](#) under ► [Freight Order Management](#) ► [Freight Order](#) ► [Consignment Order Types](#) ►.

You can specify that an external consignment number is not required for a consignment document by selecting the [No External Consignment No. Required](#) checkbox in Customizing for [Transportation Management \(TM\)](#) under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Define Consignment Order Types and Delivery Note Settings](#) ►.

In inbound cargo registration, you can do the following, for example, for consignments:

- Create, copy, maintain, delete, and display
For more information, see [Maintaining Documents \[page 26\]](#).
- Assign and unassign them to freight orders
- Assign and unassign delivery notes to them
For more information, see [Assignment of Delivery Notes and Consignments \[page 29\]](#).
- Process correct delivery notes in consignments that also contain delivery notes with errors, which are placed On Hold awaiting correction.
For more information, see [Place Delivery Notes with Errors On Hold \[page 37\]](#).
- Perform follow up processes, for example, goods receipt posting
For more information, see [Document Statuses \[page 54\]](#)

2.4.1.3 Delivery Note

A delivery note is a document, issued by a supplier to accompany a delivery, listing detailed information about the items sent.

Delivery notes are inbound cargo registration-specific. They can be given by a truck driver to the goods receipt office for the verification of the relevant data in inbound cargo registration.

In inbound cargo registration, you can search for delivery notes and have them displayed in the [Document Hierarchy](#). Delivery notes are always assigned to a consignment and there can be one or more per

consignment, all having the same source location, destination location, vendor, and goods supplier as the consignment. For each delivery note you select in the [Document Hierarchy](#), you have delivery note fields organized on tabs.

For more information about the main tabs available for a delivery note in inbound cargo registration, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

In inbound cargo registration, you can do the following, for example, for delivery notes:

- Create, copy, maintain, delete, and display delivery notes within consignments
For more information, see [Maintaining Documents \[page 26\]](#).
- Assign and reassign delivery notes to consignments
For more information, see [Assignment of Delivery Notes and Consignments \[page 29\]](#).
- Display the successor documents of a delivery note and navigate to them
For more information, see [Document Flow \[page 31\]](#).
- Edit the document date in the delivery note thus causing the date to be changed in the LE inbound delivery
- Retrieve unloading points from referenced purchasing documents
- Change unloading points for delivery notes
- Have certain data prefilled from determined purchasing documents

Note

An error message restricts the use of purchasing documents for data prefill when some connected freight units have multiple stages.

- Prioritize preplanned freight units during delivery note creation
You can register delivery notes in a consignment based on preplanned freight units, that is, freight units that were assigned to the consignment during preplanning done prior to shipping.
During delivery note creation in previous releases, the system searched for unplanned freight units. As of this release, the system uses purchasing attributes to first determine the preplanned and assigned freight units before searching amongst unplanned freight units.
- Set the status of delivery notes with errors to On Hold
For more information, see [Place Delivery Notes with Errors On Hold \[page 37\]](#).
- Perform follow up processes for delivery notes, for example, goods receipt posting
For more information, see [Document Statuses \[page 54\]](#).
- Manage delivery notes with multiple deliveries
For more information, see [Managing Delivery Notes with Multiple Deliveries \[page 37\]](#).

Delivery Note Item

Delivery note items consist of products, packages, and auxiliary packaging materials. They are linked to the purchasing documents, either purchase orders or scheduling agreements.

Delivery notes that are created for customer returns are linked to customer return documents.

Delivery notes that are created for (Just-In-Time) JIT deliveries for component groups are linked to JIT/ JIS (Just-In-Sequence) call offs. Delivery note items are inbound cargo registration-specific.

When you select a delivery note in the [Document Hierarchy](#), the following tabs are displayed on the bottom part of the main [General Data](#) tab:

- Items
- Packages

These 2 tabs contain the details and functions for the delivery note items.

In inbound cargo registration, you can do the following, for example, for delivery note items:

- Create, copy, maintain, delete, and display delivery note item details
For more information, see [Maintaining Documents \[page 26\]](#).
- Determine the reference to the purchasing document
- Change unloading points
- Maintain JIT call details
- Maintain serial numbers per item or package
- Pack delivery note items into packages
For more information, see [Packages \[page 43\]](#).

2.4.2 Document Search

In inbound cargo registration, you can fast search for documents or you can use the flexible advanced search.

You can restrict your fast search by choosing from the following in the *Document Type* field:

- *All*
- *Freight Order*
- *Consignment*
- *Delivery Note*

If you know the external document number, you can fast search by entering this value in the *External Document No.* field. As you enter the external document number, a list is displayed showing documents of the type you have selected that match the characters you are entering. When you have entered the full external document number, only the matching document is listed. You can also enable fuzzy search for the fast search.

Note

To enable fuzzy search, you must activate it in class /ICR/CL_CALL_PROF_QUERY_AMD in Customizing for *Transportation Management* under [SAP S/4HANA for Manufacturing Logistic](#) [General Parameters for Inbound Cargo Registration](#) [Define Parameters](#).

For more information, see the latest *Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Inbound Cargo Registration*.

Select the document you are interested in from the list.

The document that you select is displayed in the *Document Hierarchy* and its details are displayed on tabs.

To access the *Advanced Search* screen, choose the search icon in the *External Document No.* field. On this screen, you can restrict your search, firstly, by choosing from the following in the *Document Type* field there:

- *Freight Order*
- *Consignment*
- *Delivery Note*
- *Document with Error*

You can search for documents with errors and correct them directly in inbound cargo registration. For more information about searching for documents with errors, see the relevant section in [Document Error Handling \[page 34\]](#).

You can further restrict the search by using the various [Search Criteria](#) for each document type. Some of the search criteria have further searching assistance. For example, if you want to search for delivery notes with a certain document date, a calendar is displayed from which you can select the date. Here, you can also select [Today](#), [Yesterday](#), or [Tomorrow](#) from a dropdown list for the [Date](#) and find all delivery notes with a document date matching one of those days. Other search criteria have drop downlists for your selection. For example, if you want to search for freight orders that are ready for warehouse processing, you can choose this status from several other possible warehouse processing statuses in the relevant dropdown list.

The documents that are found that match your search criteria are displayed in the [Items](#) list at the bottom of the [Advanced Search](#) screen. You can limit the number of documents that are displayed there. If you select one, many, or all documents, they are displayed in the [Document Hierarchy](#).

You can save a search so that search criteria are prefilled according to the selection you have saved under a specific name. For example, if you want to search frequently for consignments from one vendor, then you can select this vendor as your search criterion and enter [\[Vendor Name\]_\[My User ID\]](#) in [Save Search As](#). When you enter this search name in [Saved Searches](#) and choose [Search](#) for consignments, consignments are only found for this vendor.

Note

The documents that you can find are restricted by the settings in the selection profile. For example, if you have restricted your selection profile using a destination location, you will not find documents that exist but that do not match this destination location. For more information about selection profiles, see [Profile and Layout Sets \[page 61\]](#).

2.4.2.1 Searching for Documents

In this example, you want to use the advanced search functionality of inbound cargo registration to find freight orders that are due to be delivered to you in a certain time frame from 2 particular carriers located in one city.

Context

Procedure

1. In inbound cargo registration, choose the search icon in the [External Document No.](#) field.
The [Advanced Search](#) screen is displayed.
2. Choose **Freight Order** in the dropdown list of the [Document Type](#) field.
3. In the first dropdown list on the left side under [Search Criteria](#), choose **Carrier**.

4. In the middle dropdown list, choose **Is**.
5. Double click on the field on the right side.
A [Select: Carrier](#) screen is displayed.
6. On the [Select: Carrier](#) screen, enter the city where the 2 carriers are located.
The carriers in that city are listed under [Items](#) and the number of carriers found is displayed.
7. Select the two relevant carriers and choose **OK**.
There are 2 lines in [Advanced Search](#), one for each of the carriers.
8. In another line, in the dropdown list on the left side, choose **Planned Arrival Date**, and in the middle dropdown list, choose **Is Between**.
A new field is displayed on the far right.
9. Double click on the first field on the right side and choose a date in the calendar. Repeat for the second new field on the right to give the time frame for the delivery of the freight order.
10. Choose [Search](#).
The freight orders from the two carriers that are expected in that time frame are displayed in [Items](#).
11. Select the freight orders you are interested in for display in the [Document Hierarchy](#).

2.4.3 Document Maintenance

In inbound cargo registration, documents can either be generated from inbound EDI data or created manually.

In this section, the following is described:

- Creating, copying, editing, and deleting documents
For more information, see [Maintaining Documents \[page 26\]](#).
- Assigning documents to each other and unassigning documents from each other
For more information, see [Assignment of Delivery Notes and Consignments \[page 29\]](#).

2.4.3.1 Maintaining Documents

In inbound cargo registration, you can edit, create, copy, and delete your freight orders, consignments, delivery notes, and delivery note items.

Context

If you have not selected the [Display Mode](#) checkbox in [Inbound Cargo Registration Settings](#), inbound cargo registration launches in edit mode as default. If you are in display mode, choose [Edit](#) in the [Application Toolbar](#) to change to edit mode. In edit mode, you can do the following maintenance for documents, for example:

- Edit

When you open a document in edit mode, the document is not locked to other users until you make the first change. Once you do this, it is locked and the [Save](#) pushbutton is available to you.

In the following cases, a warning message explains why you cannot edit a selected document:

- The document is completed
- The document type is not customized for inbound cargo registration
- The document includes non-Advanced Shipping and Receiving receiving locations
- Create as follows:
 - Choose the [Create](#) pushbutton at the top of the [Document Hierarchy](#)
If you choose the [Create](#) pushbutton, you can choose whether you want to create a freight order with a specific freight order type or use the default one. This is also true for consignment orders. If you choose to create a document with a specific type, a [Document Type Selection](#) popup is displayed and you can either enter a document type, choose one from a dropdown list, or search for one. The document types are defined in Customizing for ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ► [Freight Order](#) ► under:
 - [Freight Order Types](#)
 - [Consignment Order Types](#)
 - Right click on a document and choose the relevant context menu option
 - Choose the [Consignment](#) tab for a selected freight order or the [Delivery Notes](#) tab for a selected consignment and create the appropriate documents
 - Choose the [Items](#) and [Packages](#) tabs for a selected delivery note and create delivery note items
For more information about the [Packages](#) tab, see [Packages \[page 43\]](#).

See an example of a basic procedure below for creating documents manually.

- Copy
You can copy single or multiple documents you have selected in the [Document Hierarchy](#) by choosing the [Copy](#) icon at the top of the [Document Hierarchy](#). You can also copy individual documents by right clicking and choosing [Copy](#) in the context menu option. Choose the [Items](#) and [Packages](#) tabs for a selected delivery note to copy delivery note items.
- Delete
You may want to delete documents that, for example, were created incorrectly or that are obsolete. You can do the following:
 - Delete single or multiple documents you have selected in the [Document Hierarchy](#) by choosing the [Delete](#) icon at the top of the [Document Hierarchy](#)
 - Delete individual documents you select in the [Document Hierarchy](#) by right clicking and choosing [Delete](#) in the context menu option
 - Choose the [Consignment](#) tab for a selected freight order or the [Delivery Notes](#) tab for a selected consignment and delete the appropriate documents
 - Choose the [Items](#) and [Packages](#) tabs for a selected delivery note and delete delivery note items
 -

Note

In inbound cargo registration, when you delete delivery notes or consignments, the corresponding LE deliveries are also deleted.

- Drag&Drop
In the [Document Hierarchy](#), you can use drag&drop to move a delivery note from one consignment to another and to move consignments from one carrier to another.

The following is an example of the basic manual creation of a freight order and its assigned consignment with 2 delivery notes:

Procedure

1. To create a freight order, in edit mode, choose ► [Document Hierarchy](#) ► [Create](#) ► [Freight Order](#) ► for the default freight order type.

The freight order is displayed in the [Document Hierarchy](#).

2. A freight order has a road bill of lading number, which you can either enter manually or have generated by the system by selecting the icon at the right side of the [Road Bill of Lading Number](#) field.
3. Choose [Save](#) to save your freight order.
4. To create a consignment, choose ► [Document Hierarchy](#) ► [Create](#) ► [Consignment](#) ► for the default consignment order type.

The consignment is displayed in [Unassigned Consignments](#) in the [Document Hierarchy](#). A delivery note is created automatically under the consignment.

5. Enter an external consignment number.
6. On the [General Data](#) tab for the delivery note, enter an external delivery note number and a document date. The document date is important for the downstream processes in Logistics Execution (LE) as it sets the document date of the material document of the goods receipt and it can be used in the pricing of the vendor invoice. If you do not enter a document date, LE uses today's date. On the [Items](#) tab, enter a product ID and a vendor, or enter a reference to a purchasing document, either manually or from the dropdown list.

Note

If you have selected the [Show PD Determination Popup](#) checkbox in the [Inbound Cargo Registration Settings](#), a popup is displayed for you to determine the purchasing document and to have certain data prefilled from it. If you cannot reference a purchasing document, you can save a delivery note but it will have an error.

Note

You can edit consignments, delivery notes, and delivery note items without saving in between as all 3 are contained in one business document.

7. For the consignment, create a second delivery note with an external ID. A product item is created automatically for the delivery note and you must enter a product ID and a vendor, or a reference to a purchasing document.
8. Choose [Save](#).

Note

When you save a consignment and its delivery note, details for the delivery note, inbound LE delivery, and inbound EWM delivery can be displayed in a hierarchical list on the [Document Flow](#) tab for an individual delivery note. For more information, see [Document Flow \[page 31\]](#).

9. Assign the consignment to the freight order by choosing [Assign](#).

The consignment and its 2 delivery notes are displayed under the freight order in the [Document Hierarchy](#). The freight order has the source and destination location for the consignment.

2.4.3.2 Assignment of Delivery Notes and Consignments

In inbound cargo registration, you want to reassign documents if, for example, they have not been transmitted or created correctly.

In inbound cargo registration, you can assign delivery notes to consignments and assign consignments to freight orders. You can also unassign delivery notes from consignments and unassign consignments from freight orders. You can choose pushbuttons to do the assigning or you can use drag and drop. You can see the changes you need to make to the document assignments in the system when the freight documentation is handed over by the truck driver.

Assignment of Delivery Notes to Consignments

In the [Document Hierarchy](#), you can reassign delivery notes from one consignment to another. If you want to reassign a delivery note from a source to a target consignment with differing good suppliers, you must decide if you want to change the good supplier of the delivery note to that of the target consignment. For an example of the procedure, see [Reassigning a Delivery Note \[page 30\]](#).

A consignment can have only one source location and one destination location. Any delivery notes assigned to a consignment must have the same source and destination location as the consignment. If you try to reassign a delivery note from a source to a target consignment with differing locations, the system displays an error message and the delivery note is not reassigned. To reassign in this case, you need to correct the data, for example, you change the locations as appropriate.

If you have a consignment with a delivery note that has does not have a reference to a purchasing document, the consignment and the delivery note are listed under [Unassigned Consignments](#) in the [Document Hierarchy](#). You can reassign this delivery note to another unassigned consignment and subsequently correct the reference to the purchasing document. The number of delivery notes for the consignment, displayed on the [Delivery Note](#) tab, will have increased by 1.

Assignment of Consignments to Freight Orders

You want to reassign a consignment with a particular destination location from, for example, [Unassigned Consignments](#), to a freight order. The freight order already has an existing consignment with a different destination location assigned to it. After the reassignment, the freight order will have 2 receiving points, one for each consignment. The number of consignments for the freight order, displayed on the [Consignment](#) tab, will have increased by 1.

Note

There can be several receiving locations for a freight order. If you choose follow on processes, for example, to check in the freight order, a popup is displayed that shows you all the receiving points for the consignments assigned to the freight order.

In [Edit](#) mode, on the [Consignments](#) tab of a freight order, you can do the following:

- Enter the consignment external number to search for a missing consignment for a freight order

If this consignment is found, it is assigned to the freight order. It is displayed in the list of consignments on the [Consignments](#) tab with all its data populated including a blue [Assigned](#) icon in the [Assigned](#) column. The number of consignments for the freight order displayed on the [Consignment](#) tab will have increased by 1. The consignment is also displayed under the relevant freight order in the [Document Hierarchy](#). If you select the consignment, its full data is displayed on the various tabs.

- Enter the consignment external number for a consignment that is not in the system
If you only enter the consignment external number from the freight documents, a reference consignment is displayed under the relevant freight order and a red [Unassigned](#) icon is displayed in the [Assigned](#) column. Once the consignment is in the system, it can be assigned to the freight order.
- Create and assign a consignment and delivery note to a freight order
You can also create a new consignment and enter data for it by choosing [Create Consignment](#) on the [Consignments](#) tab. You can create a delivery note and, for example, add a product that has a reference to a purchasing document. Choose [Save and Assign](#) to assign the consignment and delivery note to the freight order. In this case, the consignment and delivery note are displayed under the relevant freight order in the [Document Hierarchy](#).

2.4.3.2.1 Reassigning a Delivery Note

In this example procedure, there is a delivery note assigned to a consignment that is not assigned to a freight order. You want to reassign this delivery note to a consignment that is assigned to a freight order.

Context

ⓘ Note

If you want to reassign a delivery note from a source to a target consignment with differing good suppliers, you must decide if you want to change the good supplier of the delivery note to that of the target consignment in order to proceed.

ⓘ Note

To reassign a delivery note, you can also use drag and drop.

Procedure

1. Select the delivery note in the consignment in the [Unassigned Consignments](#) list in the [Document Hierarchy](#).
2. Select the target consignment under the freight order in the [Document Hierarchy](#).
The [Assign](#) pushbutton is available for you in the [Document Hierarchy](#).
3. Choose [Assign](#) in the [Document Hierarchy](#).

4. As there are different goods suppliers for the source and target consignments, a popup is displayed asking you if you want to change the goods supplier for the selected delivery note to that of the target consignment. In this case, choose [OK](#) to continue.

The selected delivery note is now assigned to the target consignment that is assigned to the freight order. The goods supplier for the selected delivery note is changed to that of the target consignment. The number of delivery notes for the consignment is displayed on the [Delivery Note](#) tab and it will have increased by 1.

2.4.4 Document Flow

You can get an overview of the successor documents of a delivery note and you can navigate to these individual documents.

The [Document Flow](#) Tab

There is a [Document Flow](#) tab for delivery notes you select in the [Document Hierarchy](#). When you save a consignment and its delivery note, details for the following document types can be displayed in a hierarchical list on this tab for an individual delivery note:

- Delivery note
Data, for example, the creation time, is displayed at the top of the hierarchy.
If you select a delivery note that does not have a reference to a purchasing document, only the delivery note is displayed in the hierarchy list.
- Warehouse inbound delivery (Extended Warehouse Management (EWM))
EWM inbound deliveries are based on the purchasing document assigned to the delivery note items.
- Inbound delivery (Logistics Execution (LE))
LE inbound deliveries are based on the purchasing document assigned to the delivery note items. If there is more than one LE inbound delivery assigned to a delivery note, all inbound deliveries created for this delivery note are displayed in the hierarchy.
- Returns Delivery (Logistics Execution (LE))
Return deliveries are LE outbound deliveries that are used in the customer returns scenario. They are based on customer return documents.

You can select the numbers displayed in the [Document Number](#) field to navigate to screens where LE and EWM inbound delivery data is displayed and can be edited. Data for LE inbound deliveries distributed to EWM cannot be edited. Data for EWM inbound deliveries can only be edited after you set [Ready for Warehouse Processing](#).

The [Inbound Delivery](#) Field

If you create a consignment and a delivery note manually, there is no data displayed initially in the [Inbound Delivery](#) field on the [General Data](#) tab of the delivery note. The document type and the document number are displayed here when you do the following:

- Add a product with a reference to a purchasing document to the delivery note
- Save the consignment
This depends on whether the delivery creation has been carried out or not. There is a Customizing setting for the consignment order type that LE inbound deliveries are created automatically for consignments once the data is sufficient. If you have not selected this Customizing setting, you must trigger the delivery creation manually (or use background jobs).
- Refresh the data

The document type shown in the [Inbound Delivery](#) field is the final one listed for the delivery note in the hierarchy list on the [Document Flow](#) tab. If both an LE inbound delivery and EWM inbound delivery are listed, then the warehouse inbound delivery data is displayed here. You can select the number displayed in the [Inbound Delivery](#) field to navigate to a screen where you can edit data for the current inbound delivery. If there is more than one LE inbound delivery assigned to a delivery note, [Multiple](#) is displayed in the [Inbound Delivery](#) field and you cannot navigate to the LE inbound delivery screen.

2.4.5 Document Validation

Inbound cargo registration supports you with document validation.

Examples of document validation in inbound cargo registration are as follows:

- For a consignment, you cannot create a second delivery note with the same external delivery note ID and items with reference to the same purchasing document ID as a first one. If you try, an error message is displayed and you are prevented from saving unless the first delivery note has the status Ready for Warehouse Processing.
- You can validate the data of incoming consignments for shelf life controlled products. For more information, see [Shelf Life \[page 33\]](#).
- You can use inbound cargo registration's document error handling to identify and correct errors in data in inbound EDI documents. For more information, see [Document Error Handling \[page 34\]](#).
- You can process correct delivery notes in consignments that also contain delivery notes with errors, which are placed On Hold awaiting correction. For more information, see [Place Delivery Notes with Errors On Hold \[page 37\]](#).
- You can have the actual packaging data of product items maintained in the delivery note checked against the packaging data according to unified package building rules. For more information, see [Validation of Packages Against Unified Package Building Rules \[page 46\]](#).

📌 Note

The [Documentation Validated](#) checkbox can be used to indicate that you have verified the paper document against the system data for a consignment/delivery notes. In this way, you can keep track of the documentation you have already validated as correct when you compared it to the system data. Select the [Documentation Validated](#) checkbox in the [Document Hierarchy](#) as appropriate to indicate that you have done the following:

- Validated consignment data
Select [Documentation Validated](#) in the freight order's consignment view.
- Validated delivery note data
Select [Documentation Validated](#) in the consignment's delivery note view.

2.4.5.1 Shelf Life

You can check if the shelf life expiration date (SLED) is present in the data of incoming consignments for shelf life controlled products. You can block the processing of consignments with shelf life controlled products if their minimum remaining shelf life or the total shelf life falls short.

Prerequisites

In Customizing for ► [Transportation Management](#) ► [SAP S/4 HANA for Manufacturing Logistics](#) ► [Set Up SLED Check Rules](#) ►, you can define as follows how a SLED check is conducted for a product item in a delivery note:

- You can set up the SLED check rules per warehouse number.
- Depending on whether the consignment is created manually or per EDI, you can define if the SLED check is run when the consignment is saved or when the corresponding delivery note is set to [Ready for Warehouse Processing](#).
- If a SLED check fails, you can define if the system issues warnings or document errors.

In Customizing for ► [Transportation Management](#) ► [SAP S/4 HANA for Manufacturing Logistics](#) ► [Define Consignment Order Types and Delivery Note Settings](#) ►, select the [SLED Check](#) checkbox to run the SLED check at consignment level.

Features

In inbound cargo registration, you can validate the following:

- That the mandatory SLED is entered
In Customizing, you set the SLED check rule to ensure the shelf life expiration date is a mandatory entry during inbound cargo registration. For consignments created either manually in inbound cargo registration or per EDI, the system checks if the SLED is present in the product items of the corresponding delivery note. If the SLED is not entered, the system raises either a warning or a document error based on your settings in Customizing, when you save or when you change the document status to Ready for Warehouse Processing.
- The remaining shelf life against the product master
If you set the SLED rule to check the shelf life, the system calculates the shelf life from the shelf life expiration date and the arrival date and compares this duration to the minimum remaining shelf life in the product master. This validation is carried out when you save or when you change the status of the document in inbound cargo registration to Ready for Warehouse Processing. If the validation of the shelf life fails, the system raises either a warning or a document error based on your settings in Customizing.
- The total shelf life against the product master
You have to maintain the total shelf life in the product master. If you have done so, you will have to maintain the date of manufacture for the product items for the delivery note. The system calculates the duration between the SLED and the date of manufacture and compares it to the total shelf life from the product master. If the validation on the total shelf life fails, the system raises either a warning or a document error based on your settings in Customizing.

2.4.5.2 Document Error Handling

Inbound cargo registration has its own document error handling that works alongside standard document error handling. It supports you, the business user, in correcting errors in data in inbound EDI documents.

You want to create as many LE deliveries as possible for consignments that have been transmitted with incorrect data. In inbound cargo registration, you have the data and the means to continue verifying documents even if they contain errors, for example, from the following 2 main categories:

- Master data errors (for example, incorrect product)
- Reference errors (for example, a consignment is not found for a freight order)

The following combinations are possible:

- Multiple errors for the same document or its items
- Multiple document items with the same error

Note

Some document errors set execution blocks and planning blocks that prevent certain follow up operations. You can see these blocks in inbound cargo registration. To see more details about these blocks, select a consignment, navigate to the standard system, and choose the *Blocking Information* tab.

Prerequisite: Customizing Setting

In Customizing for ► *Transportation Management* ► *Freight Order Management* ► *Freight Order* ► *Define Freight Order Types* ►, in *Integration Settings*, you have selected **Enable Saving of Documents with Errors** in the *Handling of Incorrect Inbound Messages* field.

Icons in the *Document Hierarchy*

The following 3 icons are displayed in the *Errors* column of the *Document Hierarchy*:

- Blue
There are one or more errors in one or more documents at a lower level.
- Red
There are one or more errors in this document.
- Yellow
A consignment is not assigned to the freight order under which it is displayed. However, an unassigned consignment exists with the matching external consignment ID and the shipper mentioned in the freight order matches either the goods supplier or, if not available, the vendor.

Note

These 3 icons are also displayed in the *Assigned* column of the *Consignment* tab of a freight order.

Errors in Delivery Notes of Consignments

In inbound cargo registration, you can see that there are document errors in delivery notes of consignments. In the *Document Hierarchy*, there are one or two error icons in the *Error* column; one icon is for master data errors and the other icon is for purchasing document reference errors. If you select a delivery note with errors, this is indicated by an icon on the *Items* tab and the relevant errors are listed in *Document Errors*.

If you choose the *Items* tab, you can see the error icon, for example, for *Missing Purchasing Document Reference*, in the *Error* column there. The individual items are numbered, and you see these item numbers for the document errors listed in *Document Errors*.

In *Document Errors*, you can select the following icons in the *Actions* column:

- Select *Retry* to check if the error has been fixed in the system since its receipt.
- Select *Check and Insert Product* and enter a master data value in the *Correct Value* field. You can also enter the master data value in the *Product* field on the *Items* tab. If the error is resolved and you save the document, the following happens:
 - A message informs you.
 - The correction is applied in the document.
 - The error is no longer displayed in *Document Errors*.
 - The relevant icon is no longer displayed in the *Error* column of the *Document Hierarchy*.
 - If you have corrected the only error in the delivery note, the error icon is no longer displayed in the *Error* column of the *Items* tab.
 - If the master data correction allows the system to reference the purchasing document, the purchasing document error is also resolved and the relevant information about it is also no longer displayed.

Note

If you choose *Cancel*, the error data is still displayed.

Errors in Consignments of Freight Orders

You can see that there are document errors in consignments of a freight order as there is a red error icon per consignment in the *Error* column of the *Document Hierarchy*.

The freight order refers to a consignment whose data has not yet been imported, or it has the wrong reference, or there are two with the same reference. There is no consignment document found in the system or several are found and the system is not able to choose one. (You can consider creating one manually if needed.)

In the *Document Hierarchy*, the reference to this consignment is displayed below the relevant freight order. If you select this reference consignment, only a very limited amount of general data is displayed on the right side of the screen.

Note

If you search for this consignment using its consignment number, it is displayed with this red error icon under the relevant freight order in the *Document Hierarchy*. The consignment is not yet assigned to the freight order, but it would be once its data is available in the system.

If you select a freight order that has a consignment with errors, the relevant error is indicated by an error icon in the *Assigned* column of the *Consignments* tab and it is listed in *Document Errors*.

In *Document Errors*, you can select the following icons in the *Actions* column:

- Select *Retry* to check if the error has been fixed in the system since its receipt
- Depending on the error category, select *Execute Detailed Assignment* and enter, for example, a correct consignment ID in the *Correct Value* field. In this example, the missing document is found due to the corrected ID and the consignment can be assigned to the freight order.

Errors in Delivery Notes for Just-in-Time (JIT) Component Groups

You can see that there are document errors in delivery notes for JIT component groups. In the [Document Hierarchy](#), there is an error icon in the [Error](#) column. If you select a delivery note with errors, this is indicated by an icon on the [Items](#) tab, and the relevant errors are listed under [Document Errors](#), for example, if no freight unit can be found for a JIT call.

- If you choose the [Items](#) tab, you can see the corresponding error icon in the [Error](#) column.
- If you choose the [JIT Calls](#) tab, you can see one or multiple incorrect JIT calls and the corresponding icon in the [Item Reference Status](#).
- To correct a JIT call, you have the following options:
 - Under [Document Errors](#), you can select the correct JIT call number in the [Correct Value](#) field.
 - On the [JIT Calls](#) tab, you can enter the correct JIT call number.

Search for Documents with Errors

On the [Advanced Search](#) screen, you can search for the [Document with Error](#) document type. For example, you can search for all documents with errors that will be delivered after a specific date in the future. You might want to do this to resolve errors before the cargo arrives. In [Items](#) at the bottom of the screen, the following, for example, are displayed per listed document with errors:

- Document type, for example, freight order or delivery note
- Error icon in the [Error](#) column
- Standard error category with description

If you select one or more documents, they are displayed in the [Document Hierarchy](#).

On the [Advanced Search](#) screen, you can also perform searches for documents with errors for the [Freight Order](#), [Consignment](#), and [Delivery Note](#) document types. For example, you can search for all delivery notes with errors by choosing the [Delivery Note](#) document type and selecting the [Document with Error](#) checkbox.

Note

You can search for a freight order using an external consignment ID for a consignment with assignment errors (with a red icon).

For more information about searching for documents in inbound cargo registration, see [Document Search \[page 24\]](#).

Place Delivery Notes with Errors On Hold

You can set the status of delivery notes with errors to [On Hold](#) while you proceed with validating and processing the other delivery notes in a consignment. For more information, see [Place Delivery Notes with Errors On Hold \[page 37\]](#).

Related Information

For more information about document error handling in Transportation Management (TM), open the TM Product Assistance on SAP Help Portal at <http://help.sap.com/s4hana> and under [Transportation Management \(TM\)](#), choose ► [Freight Order Management](#) ► [Creation or Update of Consignment or Freight Orders on Inbound Messages](#) ► [Correction of Errors in Business Documents](#) ►.

2.4.5.2.1 Place Delivery Notes with Errors On Hold

Unblock your business process by processing correct delivery notes in consignments that also contain delivery notes with errors, which are placed On Hold awaiting correction.

Prerequisites

In Customizing for ► [Transportation Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Define Consignment Order Types and Delivery Note Settings](#) ►, select the *On Hold DN* checkbox to indicate that the status of delivery notes with errors can be set to On Hold.

Process

You can handle the cargo in the warehouse for the correct delivery notes in a consignment while correcting delivery notes with errors at a later point in time. Proceed as follows:

1. Under [Follow Up](#) in the [Document Hierarchy](#), choose options to set the status of a consignment to Ready for Warehousing after setting the status of its delivery notes with errors to On Hold.
2. In the [Document Hierarchy](#) under [On Hold Consignments](#), the on hold delivery notes are displayed in an on hold consignment, which is linked to the original consignment in its original position in the [Document Hierarchy](#).
3. Once you correct errors, you can remove the On Hold status for the delivery notes that had errors and return them to the consignment for validation and processing.

Advanced Search

In [Advanced Search](#), the following options enable you to search as follows:

- Show on hold consignments
When you search for consignments, select this option from the dropdown list and select the checkbox to have the on hold consignments additionally displayed.
- Goods movement status in the context of on hold consignments
When you select the ► [Goods Movement Status](#) ► [Partially Processed](#) ► search option, you also find consignments where goods receipt is posted for all their delivery notes but they still have linked on-hold delivery notes that exist with missing goods receipt.

2.4.5.3 Managing Delivery Notes with Multiple Deliveries

You can manage delivery notes (DNs) that include multiple deliveries, especially when some of these deliveries contain errors. This feature allows you to control complex delivery situations and handle deliveries that contain errors without disrupting valid deliveries.

Displaying Delivery Notes with Multiple Deliveries

Under [Delivery Note Details](#) of a delivery note, click on the [Multiple](#) link next to the [Warehouse Inbound Delivery](#) field.

The [Delivery Note](#) dialog box appears showing all deliveries associated with your selected delivery note.

Settings Statuses and Handling Errors

In the [Delivery Note](#) dialog box, you can:

- View detailed information for each associated delivery of a DN
- Set or correct statuses for individual or multiple deliveries. To do so, in the dialog box, choose [Follow Up](#) and select the appropriate status.

❖ Example

You have a delivery note with multiple deliveries. They have different advanced statuses. One delivery includes errors. You can revert this erroneous delivery to **Set for Ready for Warehouse Processing** but leave the other associated deliveries in their advanced statuses.

2.4.6 Automated Processing of Document Data

Automated extraction of document data uses generative Artificial Intelligence (AI) technology. In inbound cargo registration, you can use Document Information Extraction with generative AI technology to analyze delivery documents and consignment orders, extract their header data, item data, and item reference data. Automated extraction enables efficient logistics operations, reduces manual efforts, compares extracted data to existing system data, and stores errors for user evaluation and correction.

You can automatically extract and process document data and create:

- Delivery notes for a consignment based on supplier delivery documents attached to the consignment.
- Consignment orders including their related delivery notes based on attached shipping documents.

📘 Note

- Use of this AI-assisted feature may require additional entitlement and authorization. Please consult your account executive for more information.
- Always validate information extracted using generative AI before using it for critical applications.

Prerequisites

You've made **all mandatory** settings for automated processing of document data of standard Transportation Management (TM).

For more information about the **latest** prerequisites, see [Automated Processing of Delivery Document Data](#).

Document Errors

During the process, you might run into errors. You can view and resolve any document errors related to this process on the **Document Errors** tab of the consignment order or delivery note. Depending on the

error solution, you can either continue with the delivery note data/consignment order data or with the extracted data. You must resolve all document errors before the system can determine the correct requirement documents to continue.

Note

If there are critical document errors for your consignment order or delivery note **before** you start the data extraction, for example, master data errors or reference errors, your attachments can't be automatically sent for data extraction.

For more information about handling errors related to the extraction of document data, see [Error Handling](#).

Example: Creating a Delivery Note from an Attached Document

To create a delivery note for a consignment automatically, proceed as follows. Make sure that qualified consignments exist.

1. On the [Attachment](#) tab, attach a delivery note file.
The attachment can, for example, be a file of format PDF or JPEG.
2. In the application toolbar, choose [Extract Attachment Data](#).
3. In the [Extract Attachment Data](#) dialog box, choose [OK](#) to confirm that you want to save the consignment order to continue.

Note

You can disable the dialog box if this better suits your needs. To do this, set the user parameter / SCMTMS/DOX_AUT_SAVE to [X](#). If you disable the dialog box, the consignment order is automatically saved when you submit your attachments to the extraction service.

4. In the background, the system saves the consignment.
5. Document Information Extraction receives the data from the attachment and extracts and analyzes it.
6. Based on the extracted attachment data, the delivery note is created. You can attach one or several delivery documents.

If you create a consignment from an attached shipping document, directly navigate to the [Attachment](#) tab, and then start the extraction without entering any further data for the consignment.

Related Information

- **Intelligent Scenario Lifecycle Management:** See the documentation for ABAP Platform and SAP NetWeaver on SAP Help Portal at https://help.sap.com/docs/SAP_NETWEAVER?locale=en-US. Open the relevant ABAP Platform documentation and search for **Intelligent Scenario Lifecycle Management**.
- [What is SAP Document AI](#).

2.5 Manage Output

You can print output and you can trigger workflows and interfaces for your documents.

You can manage output for the following:

- Freight orders
- Consignments
- Delivery notes

Only inbound cargo registration enables you to manage output for delivery notes.

For any document you select in the *Document Hierarchy*, there is an *Output Management* tab where you can do the following:

- Preview the various listed print forms
- Automatically or manually generate print forms and save them
- Choose to print, with or without condition checks

For example, if you have not made an entry in a specific mandatory field on a shipping form, and you activate the printing, an error is shown if you have chosen to print with condition checks.

You can also print freight orders by selecting a freight order in the *Document Hierarchy* and choosing **Print** **Print Immediately** in the application toolbar.

Customizing

You can define which print forms are available for each document type in Customizing for **Transportation Management** **Basic Function** **Printing**.

You can view the output profile in *Output Options* in Customizing, for example, for **Transportation Management** **Freight Order Management** **Freight Order** **Define Freight Order Types**.

You can set actions and conditions for output management in Customizing for **Service** **Basic Function** **Actions** **Actions in Transactions** **Change Actions and Conditions**, in the following activities:

- *Define Action Profiles and Actions*
- *Define Conditions*

For more information about printing, see [Printing Consignments \[page 41\]](#).

TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under **Transportation Management (TM)** **Output Management**.

2.5.1 Printing Consignments

In this example, you want to print forms for 2 different consignments.

Context

You want to manually generate a print form for the first consignment while you want to use an available print form for the second consignment. You only want to have condition checks for the second consignment. The destination printer is set up in Customizing for these consignment order types.

Procedure

1. Select the first consignment in the *Document Hierarchy* and choose *Output Management*.
You can preview any of the listed print forms by selecting the *Document Preview* icon in the *Actions* column.
2. In *Edit* mode, choose ► *Generate* ► *List of Actions* ► to see the list of print forms available for the consignment.
3. Select an action in the list and choose ► *Generate Action* ► *Skip Condition Checks* ► to generate the chosen print form.
4. Select the generated action in the list and choose ► *Execute Action* ► *Skip Condition Checks* ► to start printing.
The form is automatically printed by the printer that has been set up in Customizing for the relevant consignment order type.
5. Select a second consignment in the *Document Hierarchy* and choose *Output Management*.
6. Select an action in the list and choose ► *Execute Action* ► *Include Condition Checks* ► to start printing.
As the form does not fail the condition checks, it is automatically printed by the printer that has been set up in Customizing for the relevant consignment order type.

2.6 Notes, Attachments, and Communication History

You can add notes and attachments for freight orders, consignments, and delivery notes. You can read ASNs in the communication history of freight orders and consignments.

For the documents you select in the *Document Hierarchy*, there are the following tabs where you can do the following:

- *Notes*
The text schema determines the types of text that you can choose for creating notes on the *Notes* tab. Text schemas for notes are selected for freight orders and consignments in *Output Options* in Customizing, for

example, for [Transportation Management](#) > [Freight Order Management](#) > [Freight Order](#) > [Define Freight Order Types](#).

To maintain text schemas, in [Output Options](#), choose the field help for [Text Schema](#) and choose the link to [Maintain Text Schemas](#). Here, for example, you can set whether the checkbox is selected to define that the text type is internal.

If there is no setting in [Output Options](#), there is an unrestricted default text schema list on the [Notes](#) tab.

Note

If you copy a document, the notes are not copied.

- [Attachments](#)

You can attach the following:

- Files
You can also drag and drop files.
- Folders
- URLs

For example, if there is damage to a load, you can attach a photo of the damage.

- [Communication History](#)

Displays the ASNs used during EDI inbound when documents have been created. You can select the XML file and read, for example, which ASN was used.

Adding Notes

To add notes, proceed as follows:

1. In [Edit](#) mode, choose [Insert](#).
A new line appears.

Note

You can do this even if the document is set to ready for warehouse processing.

2. Select a text type and a language from the relevant dropdown lists.
3. Add your content.
4. [Save](#).
The name of the person who created the note and the date and time of creation is recorded. The number of notes is increased by one on the [Notes](#) tab.

Add Notes and Attachments to Events on the [Execution](#) Tab

The [Execution](#) tab is only available for freight orders and consignments. It tracks the execution of the actions for these documents and records when an event happened, who executed it, and in which location. It tracks the setting of the statuses that are listed on the Transportation Management [Overview](#) tab in the details for a freight order or consignment.

Events are generally recorded automatically and you cannot add a note or an attachment for these events. You can insert an event and add a note and an attachment for it.

2.7 Packages

You can enter data in the system to reflect data about packages in the freight documentation.

On the [Packages](#) tab, you can pack the following:

- Delivery note items (product items and auxiliary packaging material) into packages
- Partial quantities of delivery note items into packages
- Packages into other packages

Prerequisites:

The delivery note items for the products to be packed have already been created.

The Ready for Warehouse Processing status is not set.

Packages - tab

The screenshot displays the 'Packages' tab interface with four distinct panels:

- Product Items – top left:** Contains buttons for 'Delete', 'Build Packages', and 'Choose Unified Package Building Rule'.
- Packaging Materials – bottom left:** Contains buttons for 'Pack', 'Pack Multiple', and 'Delete'.
- Packaging Hierarchy – right side:** Contains buttons for 'Pack', 'Remove', 'Unpack', 'Copy Single', 'Copy Multiple', and 'Maintain Serial Numbers'.

[Product Items](#) - top left of the screen

The following items that can be packed into packages are displayed:

- **Product items**
You cannot create product items here. You must have created the product items beforehand in the delivery note item view. You can maintain some data, for example, the quantity to be packed. You cannot delete product items.
- **Auxiliary packaging materials**
You can create and maintain auxiliary packaging materials here or in the delivery note item view. Only auxiliary packaging materials can be deleted here.

To automatically pack the product items you select for one delivery note, choose [Build Packages](#). To automatically pack to an alternative unified package building rule, choose from the options under [Choose Unified Package Building Rule](#). For more information, see [Unified Package Building \[page 45\]](#).

The [Packaging Check Status](#) field displays the status of the validation of the current packaging data against unified package building rules. For more information, see [Validation of Packages Against Unified Package Building Rules \[page 46\]](#).

[Packaging Materials](#) - bottom left of the screen

The packaging materials that can be used for packing are displayed. You can create new packaging materials or delete them.

Packaging Hierarchy - right side of the screen

The packaging hierarchy for the individual packages is displayed. You get information about what is packed in which packaging material for each package.

TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under ► *Transportation Management (TM)* ► *Planning* ► *Unified Package Building* ►.

2.7.1 Packing

On the *Packages* tab, you can pack single or multiple items in one step into a package, you can pack items in an identical way into many packages, and there are multiple functions you can perform, for example, remove, unpack, and copy packages.

ⓘ Note

To pack auxiliary packaging materials, follow the same procedures as for product items.

Single Pack

To pack a product item into a package, proceed as follows:

1. In *Product Items*, select a product item.
2. In *Packaging Materials*, select the packaging material.
3. In *Packaging Materials*, choose *Pack*.

This creates a package, with a packed product item, which is displayed in the *Packaging Hierarchy* on the right side of the screen. The quantity to be packed of the product item is reduced to 0. The unused quantity of the packaging material is reduced by 1.

To pack partial quantities of a product item into a package, proceed as follows:

1. In *Product Items*, enter the quantity (number, weight, or volume) to be packed per item.
2. In *Packaging Materials*, select the packaging material.
3. In *Packaging Materials*, choose *Pack*.

You can pack several product items and several auxiliary package materials in one step into a package.

Pack Multiple

To pack product items in an identical way into many packages, in *Packaging Materials*, choose *Pack Multiple*.

This creates multiple packages, with packed product items, which are displayed in the *Packaging Hierarchy*.

The system calculates the number of possible packages based on the following:

- The quantity to be packed you have entered for one or more product item lines
- The available quantity of the selected package material

Packing and the Packaging Hierarchy

In the [Packaging Hierarchy](#), you can choose pushbuttons to do the following:

- Pack product items into existing packages
To pack a product item into an existing package in the [Packaging Hierarchy](#), select them and choose [Pack](#).
- Add an outer package
To add an outer package, select a packaging material, select an existing package in the [Packaging Hierarchy](#), and choose [Pack](#).
- Remove
To remove an item from the [Packaging Hierarchy](#), choose [Remove](#).
This results in the following:
 - The product item is removed from the package.
 - The quantity to be packed of the relevant product item is increased in [Product Items](#).
 - The package and all the assigned elements are removed from the [Packaging Hierarchy](#).
 - The quantity of the packaging material item increases in [Packaging Materials](#).
- Unpack
To remove the packed product items from the [Packaging Hierarchy](#), choose [Unpack](#).
Any packed packages are unpacked, but remain in the [Packaging Hierarchy](#).
- Copy a single package
To copy a package, choose [Copy Single](#).
This results in a new package with the same packaging material and all packed product items, auxiliary packaging materials, and other inner packaging.
You can do this only if the following are true:
 - There is sufficient unpacked quantity of the product item or the auxiliary packaging material.
 - There is sufficient unused quantity of the packaging material.
- Create multiple copies of packages
To create multiple copies of a selected package item, choose [Copy Multiple](#). Define the number of copies in the popup that is displayed.
The system calculates the maximum number of possible copies based on the package details and the available quantities of product items, auxiliary packaging materials, and packaging materials.
- Maintain serial numbers
To enter serial numbers for selected packed product items, choose [Maintain Serial Numbers](#).
The number of serial numbers must be the same as the packed quantity for the package of the product items, otherwise an icon is displayed in the [Serial Numbers Maintained](#) column alerting you that serial numbers need maintenance.

Packing by Drag and Drop

To pack by drag and drop, select a product item, drag it to the package you want to pack it in, and drop it. The system creates a package containing the product item in the [Packaging Hierarchy](#).

To pack a package into another package, drag and drop a selected packaging material for the outer package into a package in the [Packaging Hierarchy](#).

2.7.2 Unified Package Building

Reduce manual effort for package building by using unified package building.

In inbound cargo registration, unified package building packs only for delivery notes. It packs all product items of an individual delivery note. You cannot select product items from multiple delivery notes for automatic

unified package building. To automatically pack the product items you select for one delivery note, choose *Build Packages* in the *Product Items* area of the *Packages* tab of a delivery note.

You can build packages using an automatically determined unified package building rule or by selecting any determined unified package building rules offered by the system. There is the following dropdown list of unified package building rule options on *Product Items* on the *Packages* tab for a delivery note under *(Choose Unified Package Building Type)*:

- *Apply Alternative Unified Package Building Rule*
If you choose this option, a new *Select Unified Package Building Rule* popup is displayed. Once you make a selection, you can choose the *Build Packages* pushbutton to create packages.
On this popup, you can choose the *Validate Packages against Rule* pushbutton to have the packaging data validated against the alternative unified package building rule of your choice. For more information, see [Validation of Packages Against Unified Package Building Rules \[page 46\]](#).
- *Use Default Unified Package Building Rule*
Choose if you want to return to the default unified package building rule.

TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under ► *Transportation Management (TM)* ► *Planning* ► *Unified Package Building* ►.

2.7.3 Validation of Packages Against Unified Package Building Rules

You can have the actual packaging data of product items maintained in the delivery note checked against the packaging data according to unified package building rules.

You can check if there is any deviation between the actual packaging data in the delivery note in inbound cargo registration and the packaging data according to the relevant unified package building rules. This information enables you to decide the next step, for example, in case of any deviation, you can forward the truck to another unloading point where the cargo is repacked according to the unified package building rules maintained in the system.

Prerequisites

You need to set up unified package building in Transportation Management (TM). For more information, see <http://help.sap.com/s4hana> under ► *Transportation Management* ► *Planning* ► *Unified Package Building* ►.

To switch on the validation of packaging against unified package building rules, choose the *Packaging Check* (Run Automatic Packaging Check) checkbox in Customizing for ► *Transportation Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Define Consignment Order Types and Delivery Note Settings* ►.

Features

Packaging data is validated against the default packaging building rule.

You can also display all alternative unified package building rules proposed by the system and select one of them, which the system then uses for validation. To do this, on *Product Items* under *(Choose Unified Package Building Type)*, choose *Apply Alternative Unified Package Building Rule* and the *Select Unified Package Building Rule* popup is displayed. On this popup, you can choose the *Validate Packages against Rule* pushbutton to have the packaging data validated against the alternative unified package building rule of your choice.

The [Packaging Check Status](#) field (at delivery note header level, product item level, and in the [Packaging Hierarchy](#) level) has the following three icons to indicate which packages match or deviate from the unified package building rules:

- Green square - OK
- Red square - Not OK
- Blue diamond - Not Checked

The main validation runs per package. Inbound cargo registration validates if the packages are structured with regards to packed quantity, packed products, packages, and auxiliary package items as defined in the unified package building rules. If a package deviates from what is defined in the rules, Not OK is displayed on the top package level. It deviates when the package materials, auxiliary package materials, or materials of the product items used are one of the following:

- Different
- Having different quantities
- On the wrong levels in the hierarchy of the package

If a package, an auxiliary package item, or a package item has a package that deviates from what is defined in the rules, Not OK is also displayed.

For product items, inbound cargo registration validates if the unpacked quantity matches the one if packed by rules.

For packaging materials (package items or auxiliary package items), inbound cargo registration additionally validates if all quantity is used. The icons in [Packaging Check Status](#) indicate whether packaging materials have or have not been used completely for packaging as follows:

- Red icon - There is unused packaging material
- Green icon - All the quantity of packaging material is used

2.8 Registering Just-in-Time (JIT) Deliveries

In inbound cargo registration, you can maintain Just-in-Time (JIT) data. You can assign JIT calls to delivery note items and packages via packaging.

In inbound cargo registration, you can only handle summarized and sequenced JIT calls, which are a type of next generation JIT call. These are defined as follows:

- Next Generation JIT calls
JIT calls that specify the quantity, date, time, destination production supply area, destination storage location, material and partner information, scheduling agreement for each requested material.
- Summarized JIT calls
JIT calls that are for the receipt of JIT calls, whose items represent a pair of date and quantity. The items do not have any reference to the finished product and are not delivered in sequence. The reference number of the JIT call controls all subsequent processes, such as the delivery.
- Sequenced JIT calls
Special JIT calls that are used primarily in the automotive industry. The aim of the sequenced JIT call is the sequence-specific staging of the parts delivered to production. Therefore, the sequenced JIT call has a vehicle reference and sequence information.

Note

You can only assign JIT calls to packed items.

Customizing

You can specify that a document error is created during EDI inbound when the JIT check fails due to an inconsistency between the data of a delivery note item and the connected JIT call for the item. To do this, select the checkbox *Create Document Error on Failed JIT Check During EDI Inbound* in Customizing for *Transportation Management (TM)* under **SAP S/4HANA for Manufacturing Logistics** > *Define Consignment Order Types and Delivery Note Settings* > *Delivery Note Settings*.

The JIT Calls Tab

On the *Items* tab for a delivery note, choose the *JIT Calls* tab on the right of the *Item Details* tab at the bottom of the default screen.

Note

You can only enter JIT data for product items (of the item category PRD). If you select packaging or auxiliary packaging material, you cannot maintain data on the *JIT Calls* tab.

On the *JIT Calls* tab, you can do the following:

- Enter JIT call numbers and JIT call item numbers to link JIT calls to a delivery note item. You can link multiple JIT calls to one delivery note item.
When you enter a JIT call number, the following are filled automatically:
 - The dependent (read only) fields, for example, product and control cycle
 - The connected fields, for example, purchasing document number and purchasing document item number
- Create a delivery note using the unloading point of the JIT call
When you create a delivery note item that contains a reference to a JIT call and the actual unloading point, you can choose to take the unloading point of the JIT call for the delivery note item (and thus, change the actual unloading point of the delivery note item).
- Create new lines and delete lines
- Use a search help for JIT call numbers and JIT call item numbers
- Navigate from JIT call entry to the *Manage JIT Calls* JIT standard application.

JIT Calls on the Packages Tab

Packages tab in JIT calls mode

The diagram illustrates the layout of the Packages tab in JIT calls mode, divided into three main sections:

- JIT Calls – top left:** Contains two buttons: "Switch to Product Items" and "Delete". Below them is a button labeled "Filter Packages for JIT Calls".
- Packaging Materials – bottom left:** Contains two buttons: "Pack per JIT Call" and "Delete".
- Packaging Hierarchy – right side:** Contains a group of buttons: "Assign" and "Unassign" at the top, followed by "Pack", "Remove", and "Unpack" in the middle, and "Maintain Serial Numbers" at the bottom.

On the [Packages](#) tab, there is a JIT calls mode, which includes the following:

- A [JIT Calls](#) view that replaces the [Product Items](#) view in the top left of the screen when in JIT mode.
- In [JIT Calls](#), a toggle to switch between JIT calls mode and product items mode.
- In [JIT Calls](#), two columns, namely, [JIT Call](#) and [JIT Call Item](#).
- Action pushbuttons, for example, [Assign](#) and [Unassign](#) in [Packaging Hierarchy](#).

JIT Calls at the Top Left of the Packages Tab

📌 Note

Prerequisite: You have assigned a JIT call to a delivery note item on the [JIT Calls](#) tab for a delivery note.

The system only considers JIT calls that are assigned to a package. Therefore, on the [Packages](#) tab, you need to either assign JIT calls to items that are already packed or you need to pack them. For more information, see [Assigning and Packing JIT Calls \[page 51\]](#).

On the [JIT Calls](#), you can do the following:

- Switch between product items mode and JIT calls mode
You can switch from the [Product Item](#) view to the [JIT Calls](#) view and vice versa. Therefore, you can choose the [Packages](#) tab and decide if you want to pack product items or JIT calls. The switch is only available to you if JIT calls exist on the delivery note item level (either entered manually or imported by EDI). Choosing this switch results in the following:
 - The top left area switches between [Product Items](#) and [JIT Calls](#)
 - The [Packaging Hierarchy](#) on the right side displays or hides JIT calls data
 - Packing or JIT pushbuttons are displayed in the [Packaging Hierarchy](#)
- Delete JIT calls
If you choose [Delete](#), the following occurs:
 - The selected line is deleted
 - All corresponding JIT calls are unassigned on the right side of the screen
 - The JIT call is removed from the delivery note item view
 You can multiselect for deletion.

- Filter packages for JIT calls
Activate JIT call filtering to have only packages that contain suitable product items (linked delivery note items) displayed on the right side for the selected JIT call on the top left.
For more information, see [Assigning JIT Calls Using Filtered Packages \[page 52\]](#).

Packaging Materials in JIT Mode at the Bottom Left of the Packages Tab

If you want to do a one-step pack and assign, choose [Pack per JIT Call](#), which packs the corresponding product into a package and assigns the JIT call. Select one or more JIT calls and enter the quantity to be packed in [JIT Calls](#) at the top left. Then, select one package material in [Packaging Materials](#) at the lower left and choose [Pack per JIT Call in JIT Calls](#).

If you do not enter a quantity to be packed, the full available quantity is packed.

Note

You cannot pack multiple JIT calls in the same package. If you select more than one JIT call, each JIT call gets packed into its own package. You can pack multiple items of the same JIT call in one package.

Packaging Hierarchy in JIT Call Mode

In the [Packaging Hierarchy](#), in JIT call mode, you can choose pushbuttons to do the following:

- Assign
To assign a selected JIT call on the top left to a selected packed product line on the right, choose [Assign](#). You can assign one selected JIT call to many packed product lines by selecting multiple packed product entries. The packed product lines need to match the JIT call, otherwise, an error message is displayed when you choose [Assign](#).
On the right, the columns [JIT Call Number](#) and [JIT Call Item Number](#) are filled on the packed product line level. On the top left, the displayed JIT delivered quantity is adjusted by the quantity of the assigned packed products.
- Unassign
To unassign a JIT call from selected packed product line on the right, choose [Unassign](#). You can multiselect for unassigning JIT calls.
This results in the following:
 - The entries are removed from the [JIT Call Number](#) and [JIT Call Item Number](#) columns in the [Packaging Hierarchy](#) on packed product line level.
 - The displayed JIT call delivered quantity in [JIT calls](#) on the top left is adjusted by the quantity of the unassigned packed products.
 Even if a JIT call is unassigned from all packages in the [Packaging Hierarchy](#), the JIT call still appears on the following:
 - [JIT calls](#) on the top left of the [Packages](#) tab
 - [JIT calls](#) tab for the delivery note item (delivered quantity is zero)
- Pack
This action can have one of the following two functions, depending on which entries you select:
 - To pack a package into a packaging material
Select a packaging material in [Packaging Materials](#) on the lower left and a package in the [Packaging Hierarchy](#), and choose [Pack](#).
 - To pack a JIT call item into a package
Select a JIT call item in [JIT calls](#) on the top left and a package in the [Packaging Hierarchy](#), and choose [Pack](#).

Note

Only one JIT call can be packed in one package. Multiple items of the same JIT call can be in one package. An example of this is multiple component materials from a bill of materials that are delivered in the same package.

- **Unpack**
One-Step: To remove a product from a package and unassign a JIT call, choose [Unpack](#).
- **Remove**
One-Step: To remove a package, unpack the content, and unassign a JIT call, choose [Remove](#).

2.8.1 Assigning and Packing JIT Calls

In inbound cargo registration, you can link JIT calls to delivery note items. You can then use the packaging functionality to pack JIT calls or to assign JIT calls to already packed delivery note items.

Context

You have the following 2 options:

- **A.** You pack the product items into packages.
Assign the JIT call items to the product items in packages.
For option **A**, proceed as in steps 1 to 7 below.
- **B.** You do not pack the product items into packages.
On the [JIT Call](#) tab, in JIT call mode, select JIT call items and pack them into packages. This means that the assigned product items of those JIT call items are packed into those packages.
For option **B**, proceed as in steps 8 to 11 below.

Procedure

1. Option **A**: In inbound cargo registration, select a delivery note in the [Document Hierarchy](#).
2. On the [Items](#) tab under [General Data](#), select a product item (item type PRD) in the delivery note [Items](#) list.
3. At the bottom of the [General Data](#) tab, choose the [JIT Data](#) tab.
4. Enter the JIT call number and JIT call item number. The system finds data from the JIT call, for example, the production supply area and connected scheduling agreement.
5. Choose the [Packages](#) tab. In the [Packaging Hierarchy](#) in product item mode, you can use the packing functionality to pack product items.
6. In [Product Items](#), choose [Switch to JIT Calls](#).
7. In the [Packaging Hierarchy](#), choose [Assign](#) to assign JIT calls to packages containing delivery note items.
8. Option **B**: Choose the [JIT Data](#) tab.
9. Choose the [Packages](#) tab.

10. Choose [Switch to JIT Calls](#).
11. Select a JIT call item and a package and choose [Pack](#). Alternatively, you can enter a [Quantity to Be Packed](#) for the JIT call item, then select the JIT call item and a package and choose [Pack](#).
The product item is packed into the package and, at the same time, the JIT call item is assigned to the package.

2.8.2 Assigning JIT Calls Using Filtered Packages

You can filter packages for JIT call assignment.

Context

You can activate or deactivate the filtering of packages when assigning JIT calls to packaged delivery note items. Proceed as follows, for example, for one JIT call:

Note

You can select multiple JIT calls for assignment.

Procedure

1. In inbound cargo registration, in the [Document Hierarchy](#), select a delivery note and choose the [Packages](#) tab.
2. In [JIT Calls](#) on the top left, activate JIT call filtering by choosing [Filter Packages for JIT Calls](#).

This activates JIT call filtering, which links [JIT Calls](#) on the top left with the [Packaging Hierarchy](#) on the right.

3. In [JIT Calls](#), select a JIT call in the table.

In the [Packaging Hierarchy](#), only packages that contain matching delivery note items (product items) are displayed. For a matching product item, the complete path, for example, pallet → box → product, is displayed.

4. In the [Packaging Hierarchy](#), select the product and choose [Assign](#).

The JIT call is assigned to the packaged product.

In [JIT Calls](#), for the selected JIT call, the delivered quantity is adjusted according to the quantity of the product in the [Packaging Hierarchy](#).

In the [Packaging Hierarchy](#), for the selected product, the JIT call number and JIT call item number are populated accordingly.

2.9 Registering Just-in-Time (JIT) Deliveries for JIT Component Groups

Inbound cargo registration allows you to create and process delivery notes for JIT component groups. In this process, you can add Just-in-Time (JIT) calls to delivery note items and package them.

Prerequisites

- On the [General Data](#) tab for a delivery note, the [DN for a JIT Component Group](#) checkbox is either selected manually or automatically by the system.
- The control cycle for the JIT calls has a replenishment strategy for external procurement, which is relevant for the TM integration. The control cycle also provides the production supply area (PSA) and component group material.

The JIT Calls Tab

On the [Items](#) tab for a delivery note, choose the [JIT Calls](#) tab on the right of the [Item Details](#) tab at the bottom of the items list. On the [JIT Calls](#) tab, you can do the following:

- You can link multiple JIT calls to one delivery note item. Each linked JIT call adds a quantity of 1 to the DN item.
- Enter a JIT call number.
When you enter a unique JIT call number, the call item number is filled automatically. When your entered JIT call number isn't unique, you must enter the JIT call item number.
- Enter an external JIT call number.
When your entered external JIT call number isn't unique, use the search help to select the correct number.
- Use a search help for internal and external call numbers.
These search help only displays JIT or JIS calls that aren't added to a delivery note, yet.
- Create a delivery note using the unloading point of the JIT call
When you create a delivery note item that contains a reference to a JIT call and the actual unloading point, you can choose to take the unloading point of the JIT call for the delivery note item (and thus, change the actual unloading point of the delivery note item).
- Create new lines and delete lines.
- Navigate from the JIT call entry to the corresponding JIT application based on the type of the JIT call ([Manage JIT Calls](#), [Manage JIS Calls and Reorder](#), [Manage Forwarded JIS Calls](#))
- When you enter a JIT call number, the following data is filled automatically:
 - The dependent (read-only) fields, for example, product and control cycle, storage location, planned unloading point, product supply area.
 - [Item Reference Status](#)
This field can be used to identify issues with the reference to a freight unit. Possible values are:
 - Failed: No freight unit found

- Successful: Freight unit found, but not yet assigned.
- Freight Unit Assigned: A freight unit has been assigned upon save.

→ Remember

If the *DN for a JIT Component Group* checkbox is selected for a delivery note:

- Data maintenance is based on component group material instead of the component material.
- You can't enter the quantity of the DN item because it's taken from the JIT or JIS call number that you enter on the *JIT Calls* tab of the DN item.
- You don't need to enter a purchase document reference because freight units are directly based on JIT calls.

2.9.1 Packing JIT Calls for Delivery Notes for JIT Component Groups

On the *Packages* tab, you can pack single or multiple JIT calls for delivery notes for JIT component groups into a package.

Procedure

1. Choose the *Packages* tab.
2. Select one or more JIT call items and a package material and, under *Packaging Materials*, choose *Pack per JIT Call*.

This packs each JIT call in its own package.

3. Optional: Under *Packaging Materials*, select a packaging material and choose *Add*

This creates a package in the *Packaging Hierarchy*.

4. First select the package, and then a single or more JIT call items. Choose *Pack*.

This packs all selected JIT call items into the same package. Remember the following restrictions:

- You can't pack different JIT calls into one inner package. This is only possible for JIS calls.
- You can only pack JIS calls with same production supply area (PSA) into same inner package.

2.10 Document Statuses

In inbound cargo registration, you can set and revert several statuses, for example, the posting of goods receipt, for documents.

You can set and revert the following from a dropdown list by choosing *Follow Up* either in the *Document Hierarchy* or in the application toolbar:

- Check in
- Ready for warehouse processing
If you set the ready for warehouse processing status first, then the relevant documents are automatically checked in.
- Goods receipt
Posting goods receipt in inbound cargo registration triggers a posting in Extended Warehouse Management (EWM) and has an impact on, for example, accounting.

You can do this for the following document types:

- Freight orders

Note

Check in can only be performed for freight orders and not for consignments and delivery notes.

- Consignments
- Delivery notes

Note

You cannot set the ready for warehouse processing status for a delivery note with local items (that is, either a product, package, or auxiliary package with no freight unit assigned).

Note

For more information about how to set these statuses in inbound cargo registration, see [Setting Document Statuses \[page 57\]](#).

You can set and revert an On Hold status for delivery notes only by choosing the relevant options from a dropdown list under [Follow Up](#) in the [Document Hierarchy](#).

Note

For more information about setting the status of delivery notes with errors to On Hold, see [Place Delivery Notes with Errors On Hold \[page 37\]](#).

Receiving Locations and Checking in Freight Orders

A receiving location is the destination location of the consignment. You can maintain receiving locations in the [Relevant Receiving Locations](#) area of the [Change/Create Inbound Cargo Registration Settings](#) screens.

In inbound cargo registration, you can check in a freight order for one or more receiving locations. To do this, choose [Follow Up](#) and [Set to Checked In](#). If you have maintained multiple relevant receiving locations, a [Set Checked In](#) popup is displayed listing them. Select one or more receiving locations from the list. The freight order is checked in for the first receiving location. The next receiving location can only be checked in when the previous one is checked out and when its unloading stops have the status Unloading Completed.

If, for example, you select all receiving locations of a freight order, the system only checks in the first one. After the stop of this receiving location is checked out, you can repeat the steps and the system checks in the stop of the next receiving location.

Note

If you have selected the [Single Step Status Change](#) checkbox in [Inbound Cargo Registration Settings](#), the [Set Checked In](#) popup is not displayed even if you have maintained relevant receiving locations.

Inbound Cargo Registration Settings

- [Single Step Check In](#)
If you select this checkbox, the follow up processes are executed in one step. This means that a pop-up with possible receiving locations is not displayed to you, even if various receiving locations are maintained in [Inbound Cargo Registration Settings](#).
- [Max. Wait Time for Updating GR Posting status \(0-240 Sec.\)](#)
You can set the maximum time (in seconds) that you want to wait for an update of the goods receipt posting status when you have selected to post goods receipt for one or more documents. During this time, a progress bar is displayed in a [Goods Movement in Progress](#) popup. The progress bar is no longer displayed if goods receipt is posted during the waiting time specified in [Inbound Cargo Registration Settings](#). The progress bar shows 100% if the maximum waiting time is reached. In this case, the goods receipt is not posted during the waiting time. One reason might be an issue occurred, for example, you are being blocked, and you can move onto your next task for now. If you set this maximum waiting time to zero, the popup is not displayed.
- [Show Popup for GR Cancellation Reason](#)
If you select this checkbox, when you choose to cancel the posting of goods receipt for multiple documents, a popup is displayed with a reminder to you to make an entry in the [Reason Code for GR Cancellation](#) field.

For more information, see [Maintaining Inbound Cargo Registration Settings \[page 64\]](#).

Customizing

- Confirmation control keys
Confirmation control keys are defined in Customizing for [Materials Management](#) under ► [Purchasing](#) ► [Confirmations](#) ► [Set Up Confirmation Control](#) .
In Customizing for ► [Transportation Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Set Up Confirmation Control](#) , you can make settings for confirmation control keys for inbound cargo registration. Depending on your settings, during EDI inbound, one of the following can occur for related documents if all prerequisites are met:
 - The warehouse processing status is set automatically to **Ready for Warehouse Processing**
 - The warehouse processing status is set automatically to **Ready for Warehouse Processing** and the goods receipt status is set automatically to **Completely Processed**
 - After you manually set the warehouse processing status to **Ready for Warehouse Processing**, the goods receipt status is set automatically to **Completely Processed**

Note

For the automatic process to function, the consignment must be assigned to a freight order.

You can use this automatic process for the following types of EDI messages sent by carriers:

- Separate inbound ASN messages
Consignment data is sent by an EDI message and freight order data is either sent by a separate EDI message or is created manually
- Combined inbound ASN messages

A freight order and its related consignments are sent by a single message

- Remove freight units without delivery note reference on **Ready for Warehouse Processing**
In Customizing for ► *Transportation Management (TM)* ► *SAP S/4HANA for Manufacturing Logistics* ► *Define Consignment Order Types and Delivery Note Settings* ►, you can select the checkbox *Remove Freight Units Without Delivery Note Reference on RfWP* to remove freight units without delivery note reference when the **Ready for Warehouse Processing** status is set.
- Define reason codes
In Customizing for ► *Transportation Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Define Reason Codes* ►, you can add a reason code, for example, for the cancellation of the posting of goods receipt.

ⓘ Note

In *Inbound Cargo Registration Settings*, you can select the *Show Popup for GR Cancellation Reason* checkbox. When you choose to cancel the posting of goods receipt for multiple documents, a popup is displayed as a reminder to you to make an entry in the *Reason Code for GR Cancellation* field.

ⓘ Note

The reason code from inbound cargo registration is updated to Transportation Management where it is recorded in the change documents.

- Allow on hold delivery notes
In Customizing for ► *Transportation Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Define Consignment Order Types and Delivery Note Settings* ►, select the *On Hold DN* checkbox to indicate that the status of delivery notes with errors can be set to On Hold.

TM Product Assistance

For more information about document statuses, see <https://help.sap.com/s4hana> under ► *Transportation Management (TM)* ► *Freight Order Management* ► *Additional Business Document Attributes in FOM* ► *Statuses of Business Documents* ►.

2.10.1 Setting Document Statuses

In inbound cargo registration, you can set several statuses, for example, the posting of goods receipt, for individual freight orders, consignments, and delivery notes.

Context

In this example, you have the following:

- 1 freight order with 2 consignments assigned to it
- 2 consignments with 2 different receiving locations; each has a delivery note assigned to it
In *Inbound Cargo Registration Settings*, the 2 receiving locations are listed under *Relevant Receiving Locations*.

- 2 delivery notes, one of which has a warehouse assigned to it
On the *Document Flow* tab, you can see the LE inbound delivery for each of the delivery notes.
- **Not Checked In** status for all 3 types of documents, that is, no statuses have been set
The status icon is displayed in the *Status* field in the *Document Hierarchy*.
- *Single Status Check In* checkbox is not selected and *Max. Wait Time for Updating GR Posting Status (0-240 Secs)* is set to **10** in *Inbound Cargo Registration Settings*.

You want to do the following:

- Set the checked in status for the freight order but first for one receiving location and then for the other
- Set the ready for warehouse processing status and post goods receipt for one of the consignments

Procedure

1. In the *Document Hierarchy*, select the freight order and choose ► *Follow Up* ► *Set to Checked In* ►.

The *Set Checked In* popup is displayed showing both relevant receiving locations.

Note

If the *Single Status Check In* checkbox is selected in *Inbound Cargo Registration Settings*, this popup is not displayed.

2. Select one receiving location and choose *Apply*.

In the *Status* field, an icon is displayed for one consignment and its delivery note indicating that they are checked in. The icon for the freight order and the other consignment and delivery note remain unchanged indicating that they are not checked in.

Note

In this example, one stop is now checked in for the freight order. However, the status of the freight order only changes to **Checked In** when all its assigned consignments are checked in.

3. Select the freight order. In the application tool bar, in edit mode, choose ► *Follow Up* ► *Set to Checked In* ► and *Save*.

In the *Status* field, the same icon is displayed for the freight order and all consignments and delivery notes indicating that they are all checked in.

4. In the *Document Hierarchy*, select the consignment with an assigned delivery note that has a warehouse assigned to it. Choose ► *Follow Up* ► *Set to Ready for Warehouse Processing* ►.

In the *Status* field, an icon is displayed for this consignment and its delivery note indicating that they are ready for warehouse processing. The icon for the freight order and the other consignment and delivery note remain unchanged indicating that they are checked in but not ready for warehouse processing.

On the *Document Flow* tab for the delivery note that is ready for warehouse processing, the EWM inbound delivery is displayed in a hierarchy under the LE inbound delivery. After you set *Ready for Warehouse Processing*, it is also displayed on the *General Data* tab.

5. Select the consignment that is ready for warehouse processing. Choose ► *Follow Up* ► *Post Goods Receipt* ►.

A message is displayed that the posting of goods receipt has been triggered. A *Goods Movement in Progress* popup with a progress bar is displayed.

The following are the 3 possible outcomes:

- Successful

This is indicated by the following:

- The *Goods Movement in Progress* popup is no longer displayed.
- A *Goods movement posted* message is displayed.
- A **Goods Receipt Posted** (tick) icon is displayed in the *Status* field for the consignment and delivery note.

The icon for the freight order and the other consignment and delivery note remain unchanged indicating that they still only have the checked in status.

🕒 Note

The status of the freight order only changes to **Goods Receipt Posted** when all its assigned consignments have goods receipt posted for them.

- Failed

This is indicated by the following:

- The *Goods Movement in Progress* popup is no longer displayed.
- A *Goods movement failed* message is displayed.
- A Transportation Management (TM) error message that relates to the delivery note items is displayed in *Document Errors*.
- A **Posting Failed** alert icon is displayed in the *Status* field for the delivery note of the consignment.

- In Process

Goods receipt posting stays in process.

Once 10 seconds is up, displayed as 100% on the progress bar of the *Goods Movement in Progress* popup, this is indicated by the following:

- The *Goods Movement in Progress* popup is no longer displayed.
- A *Goods movement still in progress* message is displayed, and you should move onto your next delivery.
- A **Not Yet Processed/Posting Requested** icon is displayed in the *Status* field for the delivery note of the consignment.

🕒 Note

In this example, 10 seconds is the current setting for the maximum waiting time for an update of the goods receipt posting status in *Inbound Cargo Registration Settings*.

6. To see the status of the consignment on the *Overview* tab in Transportation Management, select the consignment in the *Document Hierarchy* and select *Consignment* (the field entry highlighted in blue) on the *General Data* tab. If the goods receipt is not yet posted as you requested, an icon with **Not Yet Processed/Posting Requested** is displayed there.
7. To find the consignment from this example at a later stage, search for consignments for which goods receipt posting is **In Process** on the *Advanced Search* screen.

2.10.2 Customs and Compliance Statuses

Customs and compliance statuses are displayed in ICR and you can search for documents using customs and compliance statuses in [Advanced Search](#).

Customs Statuses

Data about customs statuses supports the unloading permission process in ICR by informing you in the following ways about the progress of the overall unloading status:

- Customs data is displayed for freight orders and consignments per document in the [Customs Status](#) field on the [Additional Data](#) tab of freight orders and consignments.
- Customs-relevant icons are displayed in the [Status](#) field in the [Document Hierarchy](#).
You can customize these customs-relevant icons in Customizing for Transportation Management under [SAP S/4HANA for Manufacturing Logistics > Set Up Icons per Cumulated Customs Status](#).
- The standard [Customs](#) tab from Transportation Management (TM) is displayed in ICR.

Note

The format of the previous document number is checked during data entry in the [Previous Document No.](#) field under [Customs](#) on the [Additional Data](#) tab of the consignment.

Compliance Statuses

To ensure that business transactions comply with international trade regulations, you can configure the system to perform a trade compliance check for your freight documents prior to commencing the required transportation activities.

The following statuses, returned from SAP Global Trade Service (SAP GTS) and displayed in the [Compliance Status](#) field on the [Additional Data](#) tab of freight orders, inform you about individual freight documents in terms of their compliance with relevant international trade regulations:

- [Not Relevant](#)
- [Not Checked](#)
- [Compliant](#)
- [Not Compliant](#)

Advanced Searching

You can use customs and compliance statuses to do an advanced search for freight orders and consignment orders as follows:

- Freight orders
Search by customs and compliance statuses
- Consignment orders
Search by customs status

2.11 Profile and Layout Sets

Profile and layout sets (PLSs) provide a flexible and powerful set of functions that enable you to set up inbound cargo registration the way users and user groups need it.

To access PLS management for inbound cargo registration, in the *Inbound Cargo Registration* group of the *Fiori Launchpad*, you can choose the following:

- [PLS Management for Inbound Cargo Registration](#) Fiori tile
- [Page Layouts for Inbound Cargo Registration](#) Fiori tile
- [Create Inbound Cargo Registration Settings](#)
- [Change Inbound Cargo Registration Settings](#)

PLS Management for Inbound Cargo Registration

On the [Profile and Layout Set Management for Inbound Cargo Registration](#) screen, selection profiles for freight orders, consignments, and delivery notes are listed alongside page layouts and [Inbound Cargo Registration Settings](#) for individual PLSs. For more information, see the sections below.

For PLSs, you can do the following, for example:

- Search
- Create
- Copy a selected set
- Delete a selected set
- Transport a selected set
- Manage users for a selected set
- Show sets assigned to individual users
- Merge and auto-merge similar sets

Selection Profiles

Administrators can define selection profiles, so that users are supported to select the freight orders, consignments, and delivery notes for which they are responsible. There are time-related, geographical, and additional selection attributes that can be assigned to profiles. For example, you could define a selection profile to restrict the display of freight orders in inbound cargo registration to only those from certain locations or those expected today. Select individual selection profiles and maintain them on screens in TM.

Page Layouts

Administrators can define page layouts for individual users, user roles, and user groups to control who can execute functions or see specific data within inbound cargo registration. A default page layout is delivered. If you want to have your own page layout, an administrator creates it on the [Page Layouts for Inbound Cargo Registration](#) screen. On this screen, you can do the following for page layouts, for example:

- Search
- View details of individual page layouts
- Create
- Copy a selected page layout
- Delete a selected page layout
- Transport a selected page layout
- Set a default page layout

For an individual page layout, you can define the following:

- *General Data*
For example, the name and description of the page layout
- *Users*
For example, you can define that only you can access the page layout
- *Page Layout Switch*
The page layouts to be available in a dropdown list on the *Application Toolbar* on the *Inbound Cargo Registration* screen
- *Application Toolbar* pushbuttons to be available on the *Inbound Cargo Registration* screen
- 6 potential areas of the *Inbound Cargo Registration* screen
For example, which tabs should be displayed on which area of the screen for the document types

For more information about the pushbuttons on the *Application Toolbar* and the main tabs, see [User Interface Pushbutton and Tab Details \[page 15\]](#).

For an example of page layout maintenance, see [Maintaining Page Layouts \[page 63\]](#).

Inbound Cargo Registration Settings

Inbound Cargo Registration Settings are a collection of settings that allow you to customize the appearance of the user interface and control its behavior.

For more information about individual settings, see [Inbound Cargo Registration Settings Details \[page 65\]](#).

For an example of *Inbound Cargo Registration Settings* maintenance, see [Maintaining Inbound Cargo Registration Settings \[page 64\]](#).

TM Product Assistance for PLS

For more information, see <http://help.sap.com/s4hana> under ► *Transportation Management (TM)* ► *Planning* ► *Manual Planning* ► *Use of Profile and Layout Sets* ►.

2.11.1 Maintaining Page Layouts

A default page layout is delivered. If you want to have your own page layout, an administrator creates it on the [Page Layouts for Inbound Cargo Registration](#) screen.

Context

In this example, you want to copy your page layout named **ICR_PL_EXAMPLE_01** and change the access, pushbuttons, and tabs as follows:

- Make it valid for all users not just for yourself as an individual user.
- There will be no longer be an option to print.
- There will be no longer be an [Output Management](#) tab in the details area of the [Inbound Cargo Registration](#) screen.

Procedure

1. To access page layout management for inbound cargo registration, in the [Inbound Cargo Registration](#) group of the [Fiori Launchpad](#), choose the [Page Layouts for Inbound Cargo Registration](#) Fiori tile.

The [Page Layouts for Inbound Cargo Registration](#) screen is displayed.

2. At the top right of the screen, choose the search icon and enter **ICR_PL_EXAMPLE_01** in the search field and press **Enter**.

ICR_PL_EXAMPLE_01 is highlighted in the [Page Layout](#) column.

Note

If you have 5 page layouts named **ICR_PL_EXAMPLE_01** in sequence to **ICR_PL_EXAMPLE_05** and you entered **ICR_EXAMPLE_0** in the search field, all 5 page layouts would be highlighted in the [Page Layout](#) column.

3. To see the details of page layout **ICR_PL_EXAMPLE_01**, choose the [Details](#) icon in the [Actions](#) column for its line.
4. To copy this page layout, select its checkbox and choose [Copy](#).

A **Copy of ICR_PL_EXAMPLE_01** is listed and highlighted in the [Page Layout](#) column and a message that the page layout has been copied is displayed.

5. Choose the [Details](#) icon in the [Actions](#) column for **Copy of ICR_PL_EXAMPLE_01**.

The [Page Layouts for Inbound Cargo Registration: Copy of ICR_PL_EXAMPLE_01](#) screen is displayed.

6. In the [General Data](#) area of the screen displayed, enter a name and a description for the copied page layout.
7. In the [Users](#) area, in the [User Range](#) column, select **All Users** instead of **Individual User** from the dropdown list.

Your ID is no longer displayed in the [User](#) column.

8. In the *Pushbuttons for Application Toolbar* area, deselect the *Print Immediately* and *Print Preview* checkboxes.
9. In the *Bottom Right Area*, select the 3 checkbox for *Output Management* (one each for freight order, consignment, and delivery note) and choose *Remove Content*.
10. Choose *Save*.

2.11.2 Maintaining Inbound Cargo Registration Settings

You can create and change *Inbound Cargo Registration Settings*.

Context

Note

For details about the individual settings, see [Inbound Cargo Registration Settings Details \[page 65\]](#).

In this example, in *Inbound Cargo Registration Settings*, you want to change an existing setting, named ICR_01, by listing 2 receiving locations and filtering the documents displayed in the *Document Hierarchy* according to these 2 receiving locations.

Procedure

1. To access *Inbound Cargo Registration Settings*, in the *Inbound Cargo Registration* group of the *Fiori Launchpad*, choose *Change Inbound Cargo Registration Settings*.

The *Change Inbound Cargo Registration Settings* screen is displayed.

2. Search for **ICR_01** and choose *Continue*.

The *Change Inbound Cargo Registration Settings ICR_01* screen is displayed.

3. In the *General Data* area at the top of the screen, select the *Filter by Receiving Locations* checkbox.
4. In the *Relevant Receiving Locations* area at the bottom of the screen, choose *Create* and search, for example, by location for a receiving location. Repeat for the second location.
5. Choose *Save*.

When you launch inbound cargo registration, in the *Document Hierarchy* are displayed only those consignments whose destination location matches the receiving locations defined in the *Inbound Cargo Registration Settings*, independent of whether these consignments are already assigned to freight orders or not.

2.11.2.1 Inbound Cargo Registration Settings Details

This table contains details about the fields in the [General Data](#), [Application Start Settings](#), [Location-Based Settings](#), and [Action Settings](#) areas of [Inbound Cargo Registration Settings](#).

Fields	Details
General Data	
Inbound Cargo Registration Settings	Identify your Inbound Cargo Registration Settings profile uniquely.
Description	Add a meaningful description for your Inbound Cargo Registration Settings profile.
Default Freight Order Type	<p>You can specify a freight order type to be used during freight order creation in inbound cargo registration.</p> <p>If you do not specify a value, the global default freight order type is used.</p>
Default Consignment Order Type	<p>You can specify a consignment order type to be used during consignment order creation in inbound cargo registration.</p> <p>If you do not specify a value, the global default consignment order type is used.</p>
Don't Show Matching Unassigned Consignments in FO Hierarchy	<p>You can switch off the functionality to have the unassigned matching consignments displayed directly under the freight order in the Document Hierarchy. When you select this checkbox, the unassigned matching consignments are displayed in the Unassigned Consignments area.</p> <p>The checkbox is not selected by default.</p>
Don't Consider Selection Profile Attributes in Advanced Search	If you select this checkbox, the advanced search does not consider the criteria of the selection profiles and documents not matching the selection profiles can also be added to the Document Hierarchy .
Application Start Settings	
Prepopulate Based on Selection Profiles	Select this checkbox to have the system select documents according to the selection profiles maintained in the relevant Profile and Layout Sets in inbound cargo registration and to have the Document Hierarchy prepopulated with the result of this selection.
Open Documents in Display Mode	Select this checkbox to have display mode, and not edit mode, as the default when opening documents.
Location-Based Settings	
Filter by Receiving Locations	Select this checkbox to have documents in the Document Hierarchy filtered according to receiving locations when launching inbound cargo registration.

Fields	Details
	<p>You maintain the receiving locations in Relevant Receiving Locations on the lower part of the Inbound Cargo Registration Settings screen.</p>
Action Settings	
Single Step Status Change	<p>Select this checkbox to have the process of setting and reverting the following statuses executed in one step:</p> <ul style="list-style-type: none"> • Check In • Ready for Warehouse Processing • Goods Receipt <p>This means that a popup with possible receiving locations is not displaying to users, even if various receiving locations are maintained in Inbound Cargo Registration Settings.</p>
Show PD Determination Popup	<p>Select this checkbox to have a popup displayed for you to determine the purchasing document and to have data prefilled from it when you enter an item.</p>
Max. Wait Time for Updating GR Posting Status (0-240 Sec.)	<p>Select this checkbox to set the maximum waiting time for an update of the goods receipt posting status. This setting applies when you have selected to post goods receipt for one or more documents.</p> <p>If you set this maximum wait time to zero, the popup is not displayed.</p>
Show Popup for GR Cancellation Reason	<p>Select this checkbox to have the popup for setting the reversal reason code displayed during the goods receipt reversal process.</p> <p>If you trigger the reversal of goods receipt for multiple documents, the popup is shown. After you set the reversal reason code in the popup, it is propagated to all underlying delivery note headers.</p>

2.12 Mass Goods Receipt Using RF

Extended Warehouse Management (EWM) includes the implementation of a radio frequency (RF) framework. Mass goods receipt enables you to post goods receipt in one step for all or a selection of handling units, which belong to the deliveries connected to a consignment or a bill of lading.

Context

You can use RF handheld functions to do each of the following for all handling units in one step:

- Post a complete goods receipt based on the supplier's consignment number
- Post a complete goods receipt based on the carrier's BoL number
- Unload all handling units based on the carrier's BoL number
- Unload all handling units based on the supplier's consignment number
- Exclude individual handling units from an unloading or from goods receipt posting

In this example procedure, you want to do the following:

- Steps 1 to 11: Post goods receipt for a consignment for 5 of its 6 handling units, from 1 vendor
- Steps 12 to 15: Unload 12 handling units for a BoL, all from 1 of its 2 carriers

Note

You can use the standard RF transactions, for example, to navigate between screens.

Procedure

1. Enter the RF application manager and choose menu option [10 Mass Goods Receipt](#).

The following menu options are displayed:

- [01 Mass Goods Receipt \(Ext. Con\)](#)
- [02 Mass Goods Receipt \(BoL\)](#)
- [03 Mass Unloading \(BoL\)](#)

For [03](#) and [04](#) - The handling units you select here are unloaded but goods receipt is not posted for them.

- [04 Mass Unloading \(Ext. Consignment\)](#)

2. For mass good receipt for a consignment with multiple unloading points, enter [01](#) in the [Menu](#) field.
3. Enter the external consignment number and press [Enter](#). Alternatively, you can scan one of the handling units to identify the consignment.

On the next screen, the unloading points are listed. There are 2 in this example.

4. Enter [2](#) in the [Unl. Point](#) (Unloading Point) field. You only want to select the handling units for which that particular unloading point (at position 2 in the list) has been maintained.

An **X** is displayed in the [Selected](#) column for position 2.

The number of **Sel.** (Selected) is now 1 out of 2 possible unloading points, changed from 0 out of 2.

5. Press **Enter**.

On the next screen, there is an overview of the handling units from the deliveries with reference to the external consignment number. Open, posted, and excluded handling units are displayed. In this example, there are 6 open handling units, and none are posted or excluded. You could select **F4 Post** to post goods receipt for all 6 handling units for the consignment. However, in this example, you only want to post goods receipt for 5 handling units.

Note

If the external consignment number is used for deliveries from different vendors, you can follow the steps above but just select a vendor from the list of vendors displayed for the consignment. You continue with the next steps to post goods receipt for handling units from the selected vendor.

6. Select **F1 OLIST**.

On the next screen, the **INCLUDE** view is set. This means that the list of handling units displayed only includes those that are selected for goods receipt posting. The **EXCLUDE** mode is set. This means that any handling units you now select in the list will be excluded from those that are selected for goods receipt posting.

You can use the tooltip to read the full number in fields in the **Ex. Del.** (External Delivery) column.

7. Enter the number **3** in the **HU** field (or scan it) and press **Enter**.

The handling unit that was at position 3 is no longer displayed in the list. It is excluded from the list as you are in exclude mode.

8. Select **F1 VIEW** to switch to the **EXCLUDE** view to check the list of excluded handling units.

The handling unit you selected for exclusion is displayed in the list of excluded handling units.

Note

You could include it again by selecting **F2 Mode** and then **INCLUDE** in the **Mode** field. If you enter the number for the handling unit from the list in the **HU** field (or scan it) and press **Enter**, the handling unit would no longer be displayed in the exclude list. Instead, it would once again be included in the list for posting goods receipt. It would be displayed in its original place in the list in the **INCLUDE** view.

9. Select **F1 VIEW** to switch to the **INCLUDE** view where the 5 handling units are displayed in the include list.
10. Select **F4 POST**.

A *5 HUs successfully posted* success message is displayed. The following is also displayed:

- 0 **Open HUs**
- 5 **Posted HUs**
- 1 **Excluded HUs**

Goods receipt is posted for the 5 handling units. They are also set to unloaded if you have not already done so.

11. For unloading handling units according to the BoL, enter **03** in the **Menu** field to select **03 Mass Unloading (BoL)**.
12. Enter the BoL ID and press **Enter**.

As the BoL in this example refers to 2 carriers, both are displayed on the following screen along with their arrival dates.

13. Enter the number for the carrier, which is relevant for the handling units you want to unload, in the [Index](#) field and press [Enter](#).

12 is displayed in the [Open HUs](#) field to show that there are 12 open handling units from deliveries with reference to the BoL and the carrier. There are no open or excluded handling units.

14. Select [F4 UNLOAD](#).

A *12 HUs successfully unloaded* success message is displayed. The following is also displayed:

- 0 [Open HUs](#)
- 12 [Unloaded HUs](#)
- 0 [Excluded HUs](#)

The 12 handling units are unloaded.

2.13 Apps for Inbound Cargo Registration

You can access inbound cargo registration and also profile and layout sets (PLS) management for inbound cargo registration by choosing the apps in the [Inbound Cargo Registration](#) group on the SAP Fiori launchpad (transaction code/UI2/FLP/).

Key Features

The inbound cargo registration-specific apps are as follows:

- [Inbound Cargo Registration](#)
This feature enables you to access inbound cargo registration. When you choose this tile, you navigate to the [Inbound Cargo Registration: Profile and Layout Sets](#) screen. Select a profile and layout set and choose [Continue](#) to access inbound cargo registration.
- [PLS Management for Inbound Cargo Registration](#)
This feature enables you to access the [Profile and Layout Set Management for Inbound Cargo Registration](#) screen when you choose this tile. For more information, see [Profile and Layout Sets \[page 61\]](#).
- [Page Layouts for Inbound Cargo Registration](#)
This feature enables you to access the [Page Layout for Inbound Cargo Registration](#) screen when you choose this tile. For more information, see [Maintaining Page Layouts \[page 63\]](#).
- [Create Inbound Cargo Registration Settings](#)
This feature enables you to access the [Create Inbound Cargo Registration Settings](#) screen when you choose this tile. For more information, see [Inbound Cargo Registration Settings Details \[page 65\]](#).
- [Change Inbound Cargo Registration Settings](#)
This feature enables you to access the [Change Inbound Cargo Registration Settings](#) screen when you choose this tile. Select an inbound cargo registration setting to change, for example, ICR_01 and select [Continue](#) to navigate to the [Change Inbound Cargo Registration Settings ICR_01](#) screen. For more information, see [Maintaining Inbound Cargo Registration Settings \[page 64\]](#).

Supported Device Types

Desktops are the devices that are allowed for these apps.

3 Shuttle

The shuttle process defines the handling of road transport of cargo for one warehouse number. A shuttle transports cargo from different buildings or sites of the same warehouse number using public roads.

Integration

The shuttle process is integrated with Extended Warehouse Management (EWM) and Transportation Management (TM). This integration is an enhancement of Advanced Shipping and Receiving in EWM.

The shuttle process in EWM connects warehouse-internal goods movements with the freight order management of TM.

Freight orders and consignment orders are TM documents that are used in the shuttle process. For more information, see [Shuttle Documents \[page 76\]](#).

Goods movements that move stock across public roads are based on handling units that are connected to freight units. These freight units are assigned to freight orders during loading. Through this correlation, you can use TM functionality for charge calculation, freight order-based printouts, or dangerous goods checks. For more information about loading and unloading shuttles, see [Shuttle Loading \[page 81\]](#) and [Shuttle Unloading \[page 83\]](#).

You can control and monitor the execution of the goods movements on the level of physical sites in a shuttle-specific node of the EWM Warehouse Management Monitor. For more information, see [Monitoring of Shuttles \[page 86\]](#).

Overview

The shuttle process defines the warehouse number internal road transport of cargo for one EWM warehouse number. The shuttle process for in-house logistics integrates external storage of materials and goods into warehouse processes, particularly the integration into replenishment, picking, putaway, and stock movements from and to external storage areas.

The shuttle process provides flexible and supportive handling of warehouse internal transports, fulfilling legal and logistical requirements such as:

- Flexible transportation handling within one warehouse number
- Loading processes including dangerous goods checks via desktop and mobile radio frequency (RF) devices
For more information, see [Loading Using RF \[page 81\]](#).
- Unloading processes supported for desktop handling and RF transactions
For more information, see [Unloading Using RF \[page 84\]](#).
- Printing of shuttle freight documents
To maintain shuttle printers, choose the [Maintain Shuttle Printers](#) app in SAP Fiori.

Prerequisites for Shuttle Loading and Unloading

You've set up the following shuttle-specific Customizing activities and master data:

- [Shuttle-Related Settings in Extended Warehouse Management \[page 73\]](#)
For example, you've set up the storage control in the Customizing for Extended Warehouse Management, for example, you've defined storage types for staging area groups and routing.
- [Shuttle-Related Settings in Transportation Management \[page 74\]](#)
- [Shuttle Settings \[page 75\]](#)

You use packed stock (handling units) for all shuttle-relevant movements.

Shuttle-Specific Apps

You can maintain application data for the shuttle process using the following shuttle-specific tiles on the SAP Fiori launchpad (transaction code/UI2/FLP/):

- [Maintain Clarification Bins](#)
- [Maintain Shuttle LOSC](#)
- [Maintain Shuttle Printers](#)

For more information, see [Apps for Shuttle \[page 102\]](#).

EWM and TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under ► [Product Assistance](#) ► [Enterprise Business Applications](#) ► [Supply Chain](#) ► under the following:

- EWM
► [Warehousing](#) ► [Extended Warehouse Management \(EWM\)](#) ►
- TM
► [Delivery and Transportation](#) ► [Transportation Management \(TM\)](#) ►

3.1 Setting Up the Shuttle Process

Define settings for your warehouse structure and locations in Extended Warehouse Management and Transportation Management before proceeding to the shuttle-specific Customizing.

Prerequisites

Before you start with the Customizing activities in the system, make sure that the warehouse layout and warehouse structure are defined. We recommend to consider visualizing the warehouse structure in a warehouse map.

Overview

Your Customizing setup needs to reflect your individual scenario. For the basic setup of the shuttle process, focus on the creation of storage types, storage type groups, and warehouse process types. The result is a complete transportation chain reaching from storage bin via loading areas and doors into the shuttle - considering all loading points and shipping points. All objects of the shuttle transportation chain need to be maintained in the system. Start with the settings for Extended Warehouse Management and Transportation Management before proceeding to the shuttle-specific Customizing.

- You make the standard Extended Warehouse Management (EWM) settings, for example, by configuring the layout-oriented storage control (LOSC) for warehouse number internal movements.
- You perform Transportation Management (TM) Customizing activities, which include defining locations and a transportation zone hierarchy as well as specifying a shuttle-specific freight order type.
- You set up the shuttle-specific Customizing, for example, the LOSC for shuttle, which configures shuttle loading and unloading as well as the transport routing using public roads.

Note

The standard layout-oriented storage control (LOSC) **has a higher priority** than the shuttle-specific LOSC. Therefore, if an entry is determined in the standard LOSC, the system skips the shuttle-specific LOSC.

[Shuttle-Related Settings in Extended Warehouse Management \[page 73\]](#)

Gives an overview of the shuttle-related EWM Customizing activities for SAP S/4HANA for manufacturing logistics.

[Shuttle-Related Settings in Transportation Management \[page 74\]](#)

Gives an overview of the shuttle-related Transportation Management (TM) Customizing activities and master data setup for SAP S/4HANA for manufacturing logistics.

[Shuttle Settings \[page 75\]](#)

Summarizes the shuttle-specific Customizing activities and master data setup for SAP S/4HANA for manufacturing logistics.

3.1.1 Shuttle-Related Settings in Extended Warehouse Management

Gives an overview of the shuttle-related EWM Customizing activities for SAP S/4HANA for manufacturing logistics.

Create settings in the standard Extended Warehouse Management (EWM) Customizing.

Note

All Customizing settings are specific to your individual warehouse layout and some settings could be optional for your scenario or some additional settings could be required.

Extended Warehouse Management Customizing Settings

Make sure that you've performed the following activities in the Customizing:

- [Define Storage Types](#)
- [Define Storage Section](#)
- [Define Storage Type Groups](#)
- [Assign Storage Types to Storage Type Groups](#)
- [Define Staging Areas](#)
- [Define Warehouse Door](#)
- [Define Staging Area and Door Determination Groups](#)
- [Define Activity Area](#)
- [Assign Storage Bins to Activity Areas](#)
- [Define Sort Sequence for Activity Area](#)

Make the relevant settings for the [Goods Receipt Process](#):

- [Define HU Types for Each Storage Bin Type](#)
- [Define HU Types for Each Storage Type](#)
- [Assign Storage Bin Types to Storage Types](#)

Make the required **Cross-Process Settings**:

- [Define Layout-Oriented Storage Process Control](#)
- [Define Warehouse Process Type](#)
- [Resource Management](#) > [Define Queues](#) > [Define Queues](#) >
- [Resource Management](#) > [Define Queues](#) > [Define Queue Determination Criteria](#) >
- [Resource Management](#) > [Define Queues](#) > [Define Queue Access Sequence](#) >

3.1.2 Shuttle-Related Settings in Transportation Management

Gives an overview of the shuttle-related Transportation Management (TM) Customizing activities and master data setup for SAP S/4HANA for manufacturing logistics.

Create settings in the standard Transportation Management (TM) Customizing.

Note

All Customizing settings are specific to your individual warehouse layout and some settings could be optional for your scenario or some additional settings could be required.

Transportation Management Master Data and Customizing

Make sure that you've set up location and transportation zone master data and that you've configured a shuttle-specific freight order type in the Customizing:

Master Data

- Create Shipping Points and Loading Points
Maintain locations (transaction /SCMTMS/LOC3).
Maintain shipping points with location type 1003 and loading points with location type 1200.
- Define Transportation Zones
Define transportation zones (transaction /SCMTMS/ZONE) to link one or multiple loading points and transportation zones for warehouses, which represent the shipping point.
- Create Hierarchy
Set up the transportation zone hierarchy (transaction /SAPAPO/RELHSHW) in the following sequence: hierarchy root, shipping points, and assigned loading points at lowest level.

Define Freight Order Type and Consignment Order Type in Customizing

- Freight order type
Define an extra freight order type for the shuttle process in the Customizing for [Transportation Management](#) under ► [Freight Order Management](#) ► [Freight Order](#) ► [Define Freight Order Types](#) ► (for example, SHT1).
After you have created this shuttle-specific freight order type, you use it in the shuttle-specific Customizing activity [Define Warehouse Settings for Shuttle](#), where it is defined as the default freight order type for all freight orders created in the shuttle process.
- Consignment order type
Define an extra consignment order type for the shuttle process in the Customizing for [Transportation Management](#) under ► [Freight Order Management](#) ► [Freight Order](#) ► [Define Consignment Order Types](#) ► (for example, CNS1).

3.1.3 Shuttle Settings

Summarizes the shuttle-specific Customizing activities and master data setup for SAP S/4HANA for manufacturing logistics.

Use

To set up the shuttle process, execute the following activities in the Customizing for SAP S/4HANA for manufacturing logistics under ► [Extended Warehouse Management](#) ► [SAP S/4 HANA for Manufacturing Logistics](#) ► [Shuttle](#) ►.

Master Data Setup

Make sure that the relevant master data settings are available. For example, you need to be able to create storage bins (transactions /SCWM/LS01 or /SCWM/SBUP), to perform storage bin sorting (transaction /SCWM/SBST), to perform loading point to warehouse door assignment (transaction /SCWM/DOOR_SCU), and to create a queue sequence per resource group (transaction /SCWM/QSEQ).

Activities

Create the settings for the shuttle process in the Customizing for SAP S/4HANA for manufacturing logistics.

- [Define Warehouse Settings for Shuttle](#)
In this Customizing activity, you activate the shuttle process on warehouse level. Here, you define a single in-shuttle storage type for one warehouse. In addition, you set the hierarchy name, the freight order type, the template freight order type, and the freight unit type for a warehouse number.
- [Define Warehouse Process Types for Shuttle](#)
In this Customizing activity, you activate all shuttle-relevant warehouse process types.
- [Define Loading Storage Types](#) and [Define Unloading Storage Types](#)
In these Customizing activities, you define all relevant storage types for shuttle loading and for shuttle unloading per warehouse.
- [Define In-Shuttle Storage Types](#)
In this Customizing activity, you can define **multiple** in-shuttle storage types for one warehouse number. Making these settings enables you to separate stock in transit at storage type level. For example, you can differentiate between parts for the assembly, body shop, and press shop without booking them on the same storage type.
- [Configure Storage Type Groups](#)
In this Customizing activity, you assign storage type groups that are relevant for the shuttle process to a warehouse. You assign storage type groups on shipping point level, on loading point level, and you assign the storage type groups for in-shuttle.
- [Define Shuttle-Specific LOSC Customizing](#)

In this Customizing activity, you define intermediate locations to ensure that handling units relevant for the shuttle process are transported in the correct sequence from the source to the final destination.

- [Shuttle Customizing Consistency Checker](#)

In this Customizing activity, you check the Customizing consistency for the shuttle process.

3.2 Shuttle Documents

Freight orders and consignment orders are Transportation Management (TM) documents used in the shuttle process.

This section provides information about the following documents and their creation for use in the shuttle process:

- [Freight Order \[page 76\]](#)
- [Consignment Order \[page 78\]](#)

TM Product Assistance

For more information, see <http://help.sap.com/s4hana> under ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ►.

3.2.1 Freight Order

A freight order is a Transportation Management (TM) document that represents a shuttle in the shuttle process.

In the shuttle process, unlike in TM, freight orders have no transportation units and freight units are directly assigned to freight orders.

Customizing

You use the freight order type to define parameters that influence how the system processes the freight order. The freight order type is defined in Customizing for ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ► [Freight Order](#) ► [Freight Order Types](#) ►.

You specify the freight order type you use for the shuttle process in Customizing for ► [Extended Warehouse Management](#) ► [SAP S/4 HANA for Manufacturing Logistics](#) ► [Shuttle](#) ► [Define Warehouse Settings for Shuttle](#) ►. This determines the type of freight orders that are created in the shuttle RF transactions and displayed in the Warehouse Management Monitor.

RF

In the shuttle process, you can use shuttle RF transactions (based on the EWM RF framework) and RF handheld devices to do the following, for example, for freight orders:

- Create freight orders
For more information about creating freight orders in shuttle RF transactions, see [Creating New Freight Orders \[page 77\]](#).

- Load and unload shuttles by freight order
For more information, see [Loading Using RF \[page 81\]](#) and [Unloading Using RF \[page 84\]](#).

Warehouse Management Monitor

In the [Shuttle](#) node (or in any of its sub-nodes), you can access the full selection of freight order screen, tabs, and fields in TM by choosing the freight order number displayed for a selected freight order. The [Display Shuttle Freight Order Type \(Truck\)](#) screen is displayed in TM.

In the [Cargo Overview](#) sub-node, you can access the [Display Freight Unit for Shuttle Process](#) screen in TM by choosing the freight unit number displayed for a selected freight order.

For more information about the [Shuttle](#) node and sub-nodes, see [Shuttle Node Details \[page 88\]](#).

TM Product Assistance

For more information about freight orders in TM, see <http://help.sap.com/s4hana> under ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ► [Freight Order](#) ►.

3.2.1.1 Creating New Freight Orders

In the RF [Shuttle Loading](#) transaction, you can create new freight orders with predefined stops, without predefined stops, or based on templates.

Logging on to a loading point and shipping point is the first step for follow-on loading actions, for example, for creating new freight orders. In the RF [Shuttle Loading](#) transaction, scan either a loading bin or a handling unit (HU) that is on a loading bin. Once you are logged on to a loading point and a shipping point, you can create a new freight order as follows:

Freight Order Creation Options

Create a new freight order without predefined stops

1. Log on to the RF transaction for [Shuttle Loading](#) and Choose [F1 New](#)
2. Enter the carrier and if required, additional header data for the freight order, for example, the registration number.
3. Save your freight order.

Create a new freight order with predefined stops

1. Log on to the RF transaction for [Shuttle Loading](#) and Choose [F1 New](#)
2. Enter the carrier and if required, additional header data for the freight order, for example, the registration number.
3. Enter the loading points that must be visited by the shuttle.
4. Save your freight order.

Create a new freight order based on a template

Copy an existing freight order that you want to use as a template:

1. Log on to the RF transaction for [Shuttle Loading](#) and Choose [F1 NTempl](#)
2. Enter the freight order number.
3. Change the required data of the freight order, for example, the registration number.
4. Save your freight order.

When you load HUs from the shuttle loading bin into a shuttle, you can also use an existing freight order or cancel it.

Use an Existing Freight Order

You can use an existing freight order during loading by scanning the existing freight order number and verifying it. Remember that you are only allowed to use freight orders that can be loaded at your loading point right at the time of loading.

Cancel an Existing Freight Order

You can also cancel an existing freight order if the relevant Transportation Management action allows a cancellation, for example, if the freight order hasn't been started or is still unassigned. Otherwise, you can't cancel the freight order and an error message is displayed.

3.2.2 Consignment Order

A consignment order is a Transportation Management (TM) document that is used in the shuttle process. One or more consignment orders make up a freight order.

In the shuttle process, the creation of consignment orders is done automatically using the Consignment Builder function of TM. Freight units are assigned to a newly created consignment order depending on the Consignment Builder Profile you define in TM.

Customizing

You use the consignment order type to define parameters that influence how the system processes the consignment order. The consignment order type is defined in Customizing for ► [Transportation Management \(TM\)](#) ► [Freight Order Management](#) ► [Freight Order](#) ► [Consignment Order Types](#) .

To load a handling unit into a shuttle, you need to specify if and how new consignments can be added to the shuttle. Make this setting in Customizing for ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Shuttle](#) ► [Configure Storage Type Groups](#) , where you can choose from the following options per shipping point:

- Adding new consignments is allowed without confirmation.
- Adding new consignments is allowed after confirmation.
- Adding first consignment is allowed for loading point without confirmation.
- Adding more than one consignment by loading point isn't allowed.

If there already is at least one other consignment that picked up a handling unit from your loading point, an error message is displayed and you can't load the handling unit.

- Adding new consignments isn't allowed.
An error message is displayed and you can't load the handling unit.

RF

In the shuttle process, you can use shuttle RF transactions and RF handheld devices to do the following, for example, for consignment orders:

- Create consignment orders
For more information about creating consignment orders in shuttle RF transactions, see [Creating New Consignment Orders \[page 79\]](#).
- Unload shuttles by consignment order
For more information, see [Unloading by Consignment Using RF \[page 85\]](#).

Warehouse Management Monitor

In the [Consignments](#) sub-node of the [Shuttle](#) node, you can access the full selection of consignment order screen, tabs, and fields in TM by choosing the displayed consignment order number for a selected freight order. The [Display Consignment Order](#) screen is displayed in TM. For more information about the fields in the [Consignments](#) sub-node, see [Shuttle Node Details \[page 88\]](#).

TM Product Assistance

For more information about consignment orders in TM, see <http://help.sap.com/s4hana> under [► Transportation Management \(TM\) ► Freight Order Management ► Consignment Order ►](#).

For more information about consignment building in TM, see <http://help.sap.com/s4hana> under [► Transportation Management \(TM\) ► Freight Order Management ► Consignment Order ► Automatic Consignment Building ►](#).

3.2.2.1 Creating New Consignment Orders

In the shuttle process, consignment orders are created automatically using the Consignment Builder function of TM.

Context

New consignment orders can be created when HUs are loaded onto a shuttle. They are created automatically using the Consignment Builder function of TM. The creation of the first consignment order is always allowed so the first HUs are always loaded.

Freight units are assigned to a newly created consignment order depending on the Consignment Builder Profile you have defined in TM, for example, to specify which freight units should be put together in a single consignment order, to specify which consignment order type is used for new consignment orders, to set the loading point grouping rule.

Note

On the [Display Freight Unit for Shuttle Process](#) screen in TM, you can trigger consignment order building manually for a selected freight order by choosing [► Follow Up ► Build Local Consignment Orders ►](#). Choose

►► [Follow Up](#) ► [Create Consignment Orders](#) ► to convert the resulting local consignment to a consignment order document.

Prerequisites

For this example procedure, in Customizing for ►► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Shuttle](#) ► [Configure Storage Type Groups](#) ►, you have specified that *Adding new consignments is allowed after confirmation*.

Procedure

1. Open the RF shuttle transactions (transaction code `/SCWM/RFUI/`).
2. Choose ►► [Shuttle](#) ► [Shuttle Loading](#) ►.
3. Scan an HU to select the loading bin.
4. Choose [New](#), enter freight order data as appropriate, and choose [Save](#) to create a new freight order.
5. Scan an HU to load it.

The counter shows that one HU has been loaded.

6. Choose [Cons](#).

The consignment you've created is in the consignment list.

Note that the first consignment of a loading point is always created automatically and the first HU is always loaded.

Note that the consignment list can display either all consignments where the source warehouse stop is at your loading point (the default), or all consignments where the source stop is at your shipping point, or all consignments in the freight order. If you select a consignment in the list, the consignment order number, loading point, and unloading point are displayed.

In the SAP Fiori launchpad (transaction code `/UI2/FLP`) under ►► [Order Management](#) ► [Freight Order - Worklist](#) ►, on the [Overview](#) tab, you can see that the consignment has been created. The freight unit containing the HU is assigned to the freight order.

7. Scan an HU, which would require the creation of a second consignment, to load it.

As your setting in Customizing is *Adding new consignments is allowed after confirmation*, you are informed that a consignment will be created and you are asked if you want to proceed with loading.

8. Choose [Yes](#).

The counter shows that a second HU has been loaded.

9. Choose [Cons](#).

The consignment you've just created is the second consignment in the consignment list.

In the SAP Fiori launchpad (transaction code `/UI2/FLP`) under ►► [Order Management](#) ► [Freight Order - Worklist](#) ►, on the [Overview](#) tab, you can see that a second consignment has been created. The freight unit containing the HU is assigned to the freight order.

In the Warehouse Management Monitor (transaction code /SCWM/MON) under ► [Documents](#) ► [Warehouse Tasks](#) ►, in the [Source Bin](#) field, you can see that the HUs are in the shuttle.

3.3 Shuttle Loading

For loading, you create warehouse tasks (WTs) to move the handling units (HUs) out of the warehouse. During loading, you can create a freight order (shuttle) and load the cargo (HUs represented by freight units).

Use

Shuttle loading enables you to load cargo onto a Transportation Management (TM) freight order. You can create freight orders during loading and you can load packages onto an existing freight order via radio frequency (RF) transactions. During shuttle loading, depending on your settings in Customizing, consignment orders can be created automatically using the SAP Transportation Manager (SAP TM) consignment builder. During loading, complex in-house shuttle routing with different unloading points as well as dangerous goods checks are supported.

Features

You use this process to create shuttles for cargo transport between different buildings or sites of the same warehouse number using public roads. Such a shuttle truckload is technically defined by a **freight order**.

For shuttle loading, you create WTs to move the HUs out of the warehouse. Loading warehouse tasks are based on the layout-oriented storage control. For example, during loading you bring the goods from the inner warehouse packaging (source storage bin) to the staging area. The staging triggers the freight unit creation in TM.

3.3.1 Loading Using RF

The following is an example of loading a shuttle via the RF shuttle loading transaction.

Context

In this example, you want to load several HUs individually using an existing freight order whose number you have noted.

Procedure

1. Open the RF shuttle transactions (transaction code `/SCWM/RFUI`).
2. Choose ► *Shuttle* ► *Shuttle Loading* ►.
3. Scan the shuttle loading bin (the bin where the HUs you want to load are stored).
The *Loading Bin* field has the correct entry.
4. Enter the noted number of the relevant freight order manually in the *Freight Order* field and choose *ENTER*.
5. On the next screen, check the details for the freight order and choose *Next*.
6. On the next screen, scan each of the HUs you want to load in the *HU* field and confirm each HU by choosing *ENTER*. Alternatively, scan each HU using a scanner (no *ENTER* necessary). Repeat this step until all the relevant HUs are loaded.

The counter shows the total number of HUs that you have loaded and their total weight.

7. Choose *ToDep*.

Shuttle loading is completed and the shuttle status is set to Departed.

3.3.2 Batch Loading in RF

Batch loading is an optimized loading mode that allows you to load multiple freight units onto the freight order of a shuttle at one time. With this mode, you can group several handling units (HUs) for loading by scanning them one after another before assigning them to a shuttle. This process speeds up the scanning and loading of HUs by reducing the waiting time associated with processing single HUs.

Context

You can configure the batch size to suit your needs. You can customize batch sizes from one to eight HUs. By default, batches include four HUs.

Procedure

1. Open the RF shuttle transactions (transaction code `/SCWM/RFUI`).
2. Choose ► *Shuttle* ► *Shuttle Loading* ►.
3. Scan the shuttle loading bin (the bin where the HUs you want to load are stored).
The *Loading Bin* field has the correct entry. By default, the single loading mode is selected.
4. To switch to batch loading mode, choose ► *>* ► *Load Md* ►.
5. Enter the number of the relevant HU manually in the *HU* field and choose *Enter*.
You have now added the first HU for batch loading, and the batch loading HU counter changes accordingly.

6. Repeat step 4 for all HUs that you want to add.
 - To display a list of all HUs that you've added for batch loading, choose [BLis](#) (List of Handling Units). Here, you can also add additional HUs for batch loading.
 - If one or more HUs couldn't be loaded, you can display them by choosing [Fld.L](#) (Failed Handling Units).
 - If you add an HU for batch loading twice, you are prompted to unload the duplicate HU.
7. Choose [Bld.](#) to complete the batch loading process.

In the [Display Shuttle Freight Order Type](#) screen, on the [Items](#) tab, you can now see the updated freight order upon refresh.

Errors During Batch Loading

Batch loading has its own error handling that helps you manage faulty handling units (HUs). HUs that can't be loaded are shown in the [Failed Handling Units](#) list. The system guides you through error handling depending on the error situation. For example, in some situations, you can decide to continue batch loading and load HUs partially even if some handling units contain errors.

❖ Example

You added 5 HUs for batch loading with two different destination locations. HUs 1 to 3 go to unloading point A. HU 4 and 5 go to unloading point B. When you start batch loading by selecting [Bld.](#), the system prompts you to decide whether to add the unloading point of HU 4 and 5 to the freight order:

- If you choose [Yes](#), the unloading point is added. However, HU 2 and 4 can't be loaded because they contain incorrect data. They have no open warehouse tasks. As a result, HUs 1, 3, and 5 are loaded, but HU 2 and 4 are listed on the [Failed Handling Units](#) list.
- If you choose [No](#), no HUs are loaded at all.

3.4 Shuttle Unloading

At the destination, you check the seals and start unloading via radio frequency (RF) shuttle unloading transactions. Unloading of HUs results in a status change of the freight units.

Use

Shuttle unloading enables you to unload cargo for a Transportation Management (TM) freight order. You can unload by freight order, consignment, or handling unit via radio frequency (RF) transactions. For more information, see [Unloading Using RF \[page 84\]](#) and [Unloading by Consignment Using RF \[page 85\]](#).

Features

You use this process to unload your means of transportation (shuttle) represented by a freight order. The shuttle has moved from the source to a destination. At the destination, you check the seals and you start the

unloading via the radio frequency (RF) transactions. You can unload shuttles by unloading individual handling units or you can do a mass unloading for all handling units in one go. You can include/exclude HUs during mass unloading. You can trigger mass unloading by scanning a freight order. In addition, you can set exceptions and document differences.

During unloading by RF, you can move all the HUs remaining on the include list to a clarification bin, which you can use to analyze the situation and to decide what should happen to the HUs. You must have configured a clarification bin (use the transaction code `/ILOS/ASSIGN_CLRFBIN` or the [Maintain Clarification Bins](#) app on the SAP Fiori launchpad (transaction code `/UI2/FLP/`)).

For the unloading, you confirm the unloading warehouse tasks (WTs) and move the handling units (HUs) from the shuttle into your inbound staging area at the unloading point of the warehouse. Unloading WTs are based on the layout-oriented storage control. Unloading WTs are created after the loading of the HU. For example, during unloading you bring the goods from the shuttle to the warehouse deconsolidation (destination storage bin) in the warehouse.

3.4.1 Unloading Using RF

The following is an example of unloading a shuttle via the RF shuttle unloading transaction.

Context

In this example, you want to mass unload the handling units (HUs) of a freight order, for which you have the printed barcode.

Prerequisite: Activate Mass Unloading and Set it as Default

The unloading mode is controlled by a verification profile, which is a standard RF feature. To activate mass unloading, in Customizing for [SCM Extended Warehouse Management](#) under [Extended Warehouse Management](#) [Mobile Data Entry](#) [Verification Control](#) [Define Warehouse-Specific Verification](#), select the verification profile for the shuttle, choose [Warehouse-Specific Verification Object](#), activate the [Shuttle](#) (Shuttle) object, and [Save](#).

To set mass unloading as the default mode in RF shuttle unloading, in Customizing for [SCM Extended Warehouse Management](#) under [Extended Warehouse Management](#) [SAP S/4 HANA for Manufacturing Logistics](#) [Shuttle](#) [Configure Storage Type Groups](#), you can set the default setting for the unloading mode to [Mass Unloading](#) for the relevant shipping point of the storage type group. This means that you are only allowed to unload HUs by entering or scanning the freight order number or consignment order number. This action unloads all the HUs that are to be unloaded at the loading point where you are currently working.

Procedure

1. Open the RF shuttle transactions (transaction code `/SCWM/RFUI`).

2. Choose ► [Shuttle](#) ► [Shuttle Unloading](#) ►.
3. Scan the unloading bin.
4. Scan the freight order number from the printed barcode and choose [Enter](#).
5. On the next screen, check the details for the freight order and choose [Next](#).
On the next screen, there is a small verification field beside the [Freight Order](#) field. This indicates that mass unloading is active.
6. Scan the freight order you want to unload.
All the relevant HUs are unloaded in one go as you can verify using the [Unloaded HUs](#) counter.
7. Choose [Compl](#) (Completed).

3.4.2 Unloading by Consignment Using RF

The following is an example of unloading a shuttle by consignment via the RF shuttle unloading transaction.

Context

In this example, you want to mass unload several HUs from an existing consignment whose number you have noted.

For information about the prerequisites for mass unloading, see [Unloading Using RF \[page 84\]](#).

Procedure

1. Open the RF shuttle transactions (transaction code /SCWM/RFUI).
2. Choose ► [Shuttle](#) ► [Consignment Unloading](#) ►.
3. Scan the unloading bin.
4. Enter the noted number of the relevant consignment manually in the [Consignment Order](#) field and choose [ENTER](#).
5. On the [Shuttle Consignment Details](#) screen, check the details for the freight order and consignment, and choose [Next](#).

Note that if you choose [ListH](#), the HU list contains only HUs that belong to the consignment you have selected for unloading.

On the next screen, there is a small verification field beside the [Consignment](#) field. This indicates that mass unloading is active.

6. Enter the number of the consignment you want to unload.
All the relevant HUs are unloaded in one go as you can verify using the [Unloaded HUs](#) counter.

Note that you can only unload HUs of the consignment you selected and not any HUs in other consignments contained alongside the selected consignment in the FO.

7. A popup is displayed to ask if you want to unload other consignments in the freight order. Choose [No](#).
8. Choose [DepS](#).

3.5 Monitoring of Shuttles

The enhanced warehouse management monitor enables you to control and manage warehouse objects and processes related to the shuttle process. Alternatively, you can monitor shuttles using the freight document overview in SAP Fiori or in the Transportation Cockpit of Transportation Management (TM).

Use

The monitoring of shuttles enables you to be up to date about the current situation of warehouse-internal shuttle transportation, from an Extended Warehouse Management (EWM, in-house logistics) as well as from a Transportation Management (transport logistics) perspective.

Node Hierarchy Tree for Shuttles

The node hierarchy tree of the warehouse management monitor (transaction code `/SCWM/MON`) offers a [Shuttle](#) node under the [Manufacturing Logistics](#) node. The [Shuttle](#) node offers the following sub-nodes that you can use, for example, to select shuttles and display the corresponding freight orders, freight units, consignment orders, and stages:

- [Cargo Overview](#)
Contains, for example, details about freight orders, freight units, loading and unloading locations, and admin. data
- [Cargo Details](#)
Contains, for example, details about storage bins, HUs, and products
- [Open Warehouse Tasks](#)
Contains details about open documents used to execute goods movements
- [Stages](#)
Contains, for example, time-based and directional data such as source and destination locations plus admin. data
- [Warehouse Stops](#)
Gives an overview of a shuttle's location and status by displaying the status of a shuttle's warehouse stops (loading and unloading points)
- [Consignment Orders](#)
Contains, for example, details about consignments, local consignments, source and destination locations, and admin. data
- [Reference Documents](#)
Contains information about EWM reference documents, for example, purchase orders, related to the shuttle process

- [Seals](#)
Display only of, for example, sealing and unsealing dates and time. In the shuttle process, you can add, delete, seal, and unseal seals.

📘 Note

To add customer-defined fields to the selection screen of the [Shuttle](#) subnode, you can use the example implementation `/ILOS/EHI_SHUT_MON_CUST_SELECT`. For more information, see the documentation of the example implementation.

Freight Document Overview

You can use this SAP Fiori function (transaction code `/UI2/FLP/`) to display a location-based view of your resources and requirements (for example, freight units, transportation units (passive vehicle resource), and compartments). You can display:

- All transportation stops of a freight unit as well as their sequence.
- All activities performed at the transportation stop. For example, loading or unloading of freight units and containers or coupling and uncoupling of railcars and trailers.
- Time information, for example, the start of the loading and unloading, as well as of the transport.

You can change the displayed documents, for example, you can:

- Change the sequence of the transportation stops (not possible for freight orders that are based on a schedule).
- Add transportation stops (not possible for freight orders that are based on a schedule).
- Delete transportation stops (not possible for freight orders that are based on a schedule).
- Add freight units (stages) to a freight order.
- Delete freight units and transportation units (stages) from a freight order.
- Move freight units and container units from one compartment to another (within a freight order).
- Change assignment of freight units and transportation units to transportation stops

📘 Note

For all of these changes, the system performs a series of checks to detect dependencies between freight units as well as incompatibilities.

Freight Documents in Transportation Cockpit

Alternatively, you can display the freight document overview for single freight orders in the Transportation Cockpit in SAP NetWeaver Business Client (transaction code `NWBC`). Choose [► Planning ► Planning ► Transportation Cockpit ►](#).

For more information, see <http://help.sap.com/s4hana> under [► Transportation Management ► Planning ► Manual Planning ► Transportation Cockpit ►](#).

Related Information

[Shuttle Node Details \[page 88\]](#)

3.5.1 Shuttle Node Details

In the Warehouse Management Monitor, the *Shuttle* node has a number sub-nodes, each of which has numerous fields whose details are given below.

Examples of the fields per Sub-Node of the Shuttle Node in the Warehouse Management Monitor

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
Shuttle				<ul style="list-style-type: none">• Freight orders• Carriers• Means of transport and registration numbers• Planned and actual departure dates and times• Locations (source and destination)• Lifecycle status• Empty run checkbox and description• Main cargo items• End date and time of warehouse activities• Earliest loading dates and times• Number of visits• Number of consignments• Admin. data

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
	Cargo Overview			<ul style="list-style-type: none"> • Freight orders • Handling units and freight units plus freight unit item ID • Packaging materials • Loading and unloading locations and descriptions • Execution status • Loading and unloading points and descriptions • Latest requested delivery dates and times • Route and tour IDs • Planned loading start dates and times warehouse • Delivery priorities

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
		<i>Cargo Details</i>		<ul style="list-style-type: none"> • Freight orders • Storage bins • Logical positions • Resources • Transportation units (TU) and internal TU nos. • Carriers • Handling units • Products and description • Quantities • Base units of measure • Stock types and their descriptions • Batches and batches in restrictive use • Country/region of origin • Owners • Parties entitled to dispose • Usage • Types • Sales orders/projects and sales order items • Quality inspection, inspection ID types, and shelf life expiration dates • Goods receipt times and dates • Inventory active • Storage bin improvable • Certificate numbers • Higher-level and highest-level HUs • Packed quantities • Alternative units of measure

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> • Overall valuation quantities, valuation units, and valuation measured • Virtual stock indicator (VSI) • Consolidation groups • Stock identification • Documents and document categories • Item number • Loading weight/ volume and weight/volume units • Capacity consumption • Serial no. requirement • Production supply areas • Order item reduced

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
		<i>Open Warehouse Tasks</i>		<ul style="list-style-type: none"> • Freight order • Source and destination handling unit • Freight unit • Warehouse task (WT), WT item, and WT status • HU warehouse task • Warehouse process type • Warehouse process category and description • Activity • Storage process • External process step • Admin. data • Confirmed by, date, and time • Executing resource • Movement reason • Exception code • Start date and time • Product and its short description • Batch • Stock type and its description • Type • Sales order/project and item • Document category • Usage • Owner • Partner role • Party entitled to dispose • Source target quantity base UoM

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> Actual quantity base UoM Destination different quantity base UoM Base unit of measure Source target quantity alternative UoM Actual destination quantity alternative UoM Different quantity in alternative UoM Alternative UoM Actual quantity in VUM Valuation unit Valuation measured Difference quantity in VUM Exact different status in CW Combination group Handling unit type Hazard rating 1 and 2 Loading weight Weight unit Loading volume Volume unit Capacity consumption Planned proc. time WT Time unit Inventory on put-away planned Putaway PI performed Low stock check planned and performed

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> Shelf life expiration date Goods receipt date and processing time Country/Region of origin Hazardous substance relevant for storage Inspection ID type Quality inspection Target stock ID Source transportation unit (TU) and internal source TU Source storage type, storage section, storage bin, logical position of HU, resource, carrier, location type, HU Retention quantity Destination storage type, storage section, storage bin, logical position of HU, resource, carrier, location type, and transportation unit (TU) Internal destination TU Original destination bin Handling unit position Counter Removal of whole HU WT to subsystem Withdraw all stock from storage bin

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> • Document category document reference • Document and document item • Count request • Wave and wave item • WT type • Two-step picking • Document category determination • Stock reference • Stock reference item • Stock ID • Planned completion date and time • Canceled document • Activity area and WO activity area • Warehouse order creation rule • Sort sequence • Queue • HU type group • Wave category • Route • Consolidation group • Warehouse order • Sequence • Log number • Production supply area • Manufacturing order • Kanban ID • Relevance for JIT process • Certificate number • Tour ID • Route ID

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> • Combined ID of tour and route • Priority • Material document and its year and item • Posting date • Account assignment category, object, and sub-object • Preallocated stock relevance
		<i>Nested HUs</i>		<ul style="list-style-type: none"> • Handling Unit • Highest Level HU • Higher Level HU <p>Plus all other fields from the handling unit structure</p>
	<i>Stages</i>			<ul style="list-style-type: none"> • Freight orders • Related Stage Sequence Numbers • Source and destination locations (with addresses) • Source and destination execution statuses • Transportation dates and times

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
	<i>Warehouse Stops</i>			<ul style="list-style-type: none"> • Freight order • Related stage sequence numbers • Loading points and their descriptions • Activities (icons) and descriptions • Stop execution status and execution status • Loading and unloading started • Loading and unloading status descriptions • Warehouse door plus its status and description • Warehouse door status dates and times
	<i>Consignments</i>			<ul style="list-style-type: none"> • Freight orders • Consignments • Local consignments • Carriers • Means of transport and registration numbers • Planned and actual departure and arrival dates and times • Locations (source and destination) • Lifecycle status • Unload status • Main cargo items numbers • Admin. data
		<i>Reference Documents</i>		See below
		<i>Cargo Overview</i>		See above
			<i>Cargo Details</i>	See above
			<i>Open Warehouse Tasks</i>	See above

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
			Nested HUs	See above

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
	Reference Documents			<ul style="list-style-type: none"> • Freight orders • Handling units and freight units plus freight unit item ID • Blocked (overall) • Document • Item number • Item category and type and their descriptions • Generated manually • Sales order, purchase order, purchase order item • Return material authorization (RMA) number • Manufacturing order, plant maintenance order, and plant maintenance order operation • Reservation number • Recipient location • Goods recipient • Unloading point • Logistics execution delivery • Original ERP document • Freight document number • Merchandise distribution process plus the purchase order and purchase order item for it • Product • Quantity • Unit of measure

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> • Overall valuation quantity and valuation unit • Batch • Country/Region of origin • Party entitled to dispose • Owner of stock • Production supply area • Warehouse door • Loading point • Staging area and bay and staging area group • Association to wave pick and picking status • Goods issue status • Loading • Global trade services (GTS) check • Completed • Sold-to • Document category • Planned and actual goods issue, loading, and pick dates and times • Account assignment category and its name plus account assignment object and sub-object • Warehouse process type • Storage bin • Process code • Relevant for proof of delivery • ERP document item and original ERP item

Node	Sub-Node Title - First Level	Sub-Node Title - Second Level	Sub-Node Title - Third Level	Examples of Fields per Sub-Node
				<ul style="list-style-type: none"> • Customer product • Distribution status • Initial route ID and route ID • Tour ID • Route parameter group • Product short description • Loading sequence • Consolidation group • Type • Sales order/project and sales order item • Dangerous goods relevance • End dates and times of warehouse activities • Planned picking, loading, and departure dates and times for delivery item
	Seals (display only)			<ul style="list-style-type: none"> • Freight orders • Vehicle type and vehicle resource • Seal number • Sealing party role and its description • Sealing dates and times • Unsealing party role and its description • Unsealing dates and times

3.6 Apps for Shuttle

You can maintain application data for the shuttle process using 3 shuttle-specific apps on the SAP Fiori launchpad (transaction code `/UI2/FLP/`).

The 3 shuttle-specific apps are as follows:

- [Maintain Clarification Bins](#)
- [Maintain Shuttle LOSC](#)
- [Maintain Shuttle Printer](#)

Key Features

- [Maintain Clarification Bins](#) (transaction code `/ILOS/ASSIGN_CLRFBIN`)
This feature enables you to configure a clarification bin by navigating to the [Clarification Bins Configuration](#) view, where you can make an entry in the [Clarification Bin](#) field. In the RF shuttle unloading transaction, you can choose [AIICI](#) (All to Clarification) to move all HUs remaining on the include list to the clarification bin while a decision is awaited as to what to do with the HUs.
- [Maintain Shuttle LOSC](#) (transaction code `/ILOS/SHUTTLE_LOSC`)
This feature enables you to access the [Maintain Shuttle-Specific Settings for LOSC Customizing](#) view (`/ILOS/V_LOSC_A`) so that you can maintain the shuttle-specific LOSC application data.

Note

You use this view to overrule Customizing settings temporarily. This can be useful in urgent cases when you don't need to create a transport request.

- [Maintain Shuttle Printers](#) (transaction code `/ILOS/PRINT_DET`)
This feature enables you to access the [Shuttle-Specific Printer Determination](#) view (`/ILOS/T_PRINT_D`) so that you can maintain shuttle printers. You can, for example, maintain a printer for a loading point so every shuttle loaded there uses it by entering the loading point in the [Loading Point](#) field in [Shuttle-Specific Printer Determination](#).

4 Route Trains for Production Supply

Offers an end-to-end support for route train operations, introducing new business master data, route train loading, cross functions, and unloading features with built-in monitoring capabilities.

Integration

Route trains for production supply provide flexible and automated production supply processes with route trains as connecting link between the warehouse and production supply areas (PSA).

Business processes, which you trigger in other application components, lead to physical goods movements in your warehouse that can be physically performed by route trains. You organize, control, and monitor route train processes directly using Extended Warehouse Management with SAP S/4HANA for manufacturing logistics.

4.1 Master Data

Master data remains the same over a long period of time and is needed often and in the same form. It's essential for consistent use in SAP S/4HANA for manufacturing logistics, as it provides a stable foundation for operational processes. Using master data ensures efficiency and accuracy.

[Route \[page 104\]](#)

A route is a defined circuit of a route train in the warehouse. A route outlines several legs and route stops. A route can be used for one or more route trains, which provide the required materials to defined production supply areas (PSAs).

[Route Type \[page 108\]](#)

A route type is a grouping of control parameters for the creation of routes and tours. Make sure that you enter a meaningful description that provides information about the route type's main use case.

[Proposal Profile \[page 108\]](#)

A proposal profile is set of attributes that controls the generation of route versions and condition records for the route determination. It defines whether new route versions or condition records can be created for a route based on the route version proposal.

[Stop \[page 109\]](#)

A stop is a template for a location of a route, where the route train driver stops. A route stop is defined by the type of stop (production supply area, storage bin, or transfer point).

[Route Group \[page 111\]](#)

A route group is a set of several routes. You can assign a route to as many route groups as you choose. Route groups are assigned to users to define the routes that users are allowed to work with.

[Route Parameter Group \[page 111\]](#)

A route parameter group is a combination of parameter values that are valid for several routes. A route can only be assigned to one route parameter group.

[User \[page 112\]](#)

Users are defined for the radio frequency (RF) framework functionality with specific settings for RF processing.

[Resource Group \[page 112\]](#)

A resource group is a grouping of resources for queue assignment purposes. The resource group can be added as route version attribute to manage the towing vehicle selection. Then only towing vehicles with the assigned resource group can be used for this route version.

[Selection Variants \[page 113\]](#)

Selection variants represent stored selection criteria that define values of process-specific fields. Selection variants allow you to use pre-defined values in selection variant processes. These are configured background-enabled processes that read, validate, and modify information of business objects for manufacturing logistics and related EWM (Extended Warehouse Management) representations.

[Working Area \[page 114\]](#)

A working area represents a logical grouping to simplify warehouse workers' work steps in the RF environment. A working area is defined for a warehouse and combines logical RF transactions, an activity area, a task type, and optionally, a queue.

[Loading Lane \[page 116\]](#)

A loading lane is a storage bin where picked racks are placed before the route train is compiled.

[Route Determination Condition Records \[page 116\]](#)

Route determination condition records are data records with input and output values for determining routes.

4.1.1 Route

A route is a defined circuit of a route train in the warehouse. A route outlines several legs and route stops. A route can be used for one or more route trains, which provide the required materials to defined production supply areas (PSAs).

Route Definition

You define a route to create tours based on the route master data. A tour is a trip of a route train during which supply is transferred or unloaded at various stops. A tour includes all information of a specific route train journey.

You create or change routes and route versions in the [Manage Routes \[page 208\]](#) app.

A route is defined by:

- The route version with tour creation parameters as well as tour execution parameters
- The route version stops with the sequenced staging locations or transfer points of a version.
- Active route version
 - Only one route version is active for a defined time interval. The *Valid From* date of the version defines the validity of the version. An active version is the valid version for the tour creation until the next active route version valid from date starts.

- A tour determines the active version of its route when loading. This route version is used during the complete life cycle of the tour.
- [Warehouse](#) for which the route is used (mandatory)
- [Route type](#) (mandatory) providing tour creation strategy, tour assignment strategy, number ranges for route and generated tours, tour user status profile as well as lane determination strategy. The route type isn't changeable after the saving of the route.
- [Route description](#)
- [Route parameter group](#) (optional) for route grouping
The route parameter group determines additional parameters like the cycle selection parameter, which are valid for all scheduled routes related to this parameter group.
- [Start and end point](#) for the route train, each defined by the mandatory storage types and optionally by storage sections and storage bins
- [Proposal profile](#) (optional)
If you assign a proposal profile to a route, the usage of route version proposals is activated.

Route Versions

For the route, you define versions for a route with the following attributes:

- [Valid from date](#): The [Valid From](#) date of the version defines the validity of the version. An active version is the valid version for the tour creation as long as the next active route version valid from date starts.
- Version status of a route:
 - [New](#): Set after the initial creation of the version and before the first activation. This route version isn't yet fully defined and can be changed or deleted in the app.
 - [Active](#): The activation of a route version sets the status to [Active](#) and the route version can't be changed anymore.
Only an active route version can be used for the tour creation. Several route versions can be in status active. The tour creation is done for the active version considering the valid from date of each active version.
 - [Inactive](#): You can't delete an active route version because it could still be in use for tour processing. You can deactivate an active route version to set its status to inactive.
- [Blocked](#): An active version can be blocked temporarily to avoid the usage for new tours (field [Blocked](#) with values [Yes](#) or [No](#).
If you only want to deactivate a route version temporarily, you can block it. Then the active version isn't considered for the creation of new tours. Later you can unblock the active version to use it again for the tour creation.
- [General Data](#):
 - Number of HU to be used for one tour (optional)
 - Packaging material (optional) if only one can be used for the tours. For instance, if U-frames are used, the related packaging material is maintained for the route.
- [Loading Data](#): Specifies that the towing vehicle is mandatory before loading starts. Defines whether the position number is required. If this is the case, the allowed interval with start and end position number. This field also defines whether the start point confirmation is required. [Loading by Driver](#): Specifies that the tours of this route can be loaded and delivered by same warehouse worker. The warehouse worker must have the relevant authorization.

- **Unloading Data:** Specifies whether the towing vehicle is mandatory before unloading starts; route confirmation method, if on stop level no confirmation method is maintained. Specifies whether the stop sequence can be changed by the driver; preferred unloading direction used in tour visualization
- **Resource group:** Restricts the useable towing vehicle. If the resource group is defined, only towing vehicles with this assigned resource group can be used.
- **Time Data**
 - Information about **Time Stream ID** with optional **Calendar ID** for time calculations. For scheduled tours, the time stream ID must be provided.
 - **Average transport time of tours** (mandatory)
 - **Average loading time** (optional)
- Parameters used for utilization-oriented routes:
 - **Tour Creation Precondition:** Mandatory field. It controls which rule set is to be applied to trigger the tour creation. For the tour creation precondition, you can choose from the following values:
 - **Capacity:** Defines that the tour creation is only based on the capacity of a tour. If the maximum capacity of a tour is reached, a new tour is created with the validated HUs.

Note

The capacity check is executed with Business Add-In (BAI) /ILO/ BADI_CHECK_TOUR_CAPACITY. The fallback implementation only considers the value in the **Number of Handling Units** field of the route version.

- **Loading Start Time:** Defines that the planned loading start date and time of a HU is compared to the current time. If the current time is after the planned loading start date and time of a HU, a new tour is created with the validated HUs. Although the capacity doesn't trigger the tour creation, the allowed capacity is checked with BAI /ILO/ BADI_CHECK_TOUR_CAPACITY as well. Tours that don't exceed the maximum tour capacity can be created.
- **All:** Defines that the capacity and loading start time-related rule set are applied. The tour is created if at least one trigger is fulfilled. For scenario A (see [Utilization-Oriented Tour Creation \[page 122\]](#)), the capacity rule is only checked for HUs that meet the rule of the **Upper Time Limit** field.
- **Lower Time Limit:** Defines a time where the HU can't be delivered with standard process and needs to be handled with exceptional process. If the lower time limit is zero, there's no restriction defined and no additional rule is applied. If the lower time limit is above zero and the planned loading start date and time of a HU is before the time limit (current time of the execution of the logic – lower time limit), the HU can't be assigned to a tour and is handed over to the logistical re-evaluation process.
- **Upper Time Limit:** Defines the valid planned loading start date and time of the HUs, which can be grouped together in one tour. If the upper time limit is zero, there's no restriction defined and no additional rule is applied. If the upper time limit is above zero, only those HUs can be grouped together, which have a planned loading start date and time that is before or on the time limit (earliest of all considered planned loading start dates and times + upper time limit).
- **Schedule Data:** Calculation parameters used for scheduled routes in the tour creation report:
 - **Cycle time:** Defines the time between start and end of each tour. If the cycle time is lower than the average transport time, multiple route trains are needed for the tour.
 - **Start time buffer:** An offset time for the first tour of a day or a shift.
 - **End time buffer:** A safety buffer time for the last tour of a day or a shift. Shift end minus the end time buffer is the latest possible start time of the last tour of a day or a shift.

- **Departure time type** with values {fixed, rolling}. If rolling is selected, the last tour of the previous day must be finished before the first tour of the current day can be started, if the last tour of the previous day is parked with shift end.
- **Planning horizon**: Defines the duration to be planned. For example, if the planning horizon is defined as 3 days, then within tour creation run the tours for the next 3 days starting from given start calculation date are determined and saved.
- **Alternative Shift Cycles**: Up to five specific shift cycles times, which are used instead of the overall cycle time during calculation if maintained.

The available stops and the stop sequence of a version are defined on route version stop level based on the stop definition (see [Stop \[page 109\]](#)). The values of the stops are taken over and can be adjusted for a route version. In addition, the route version stops can be sequenced by using a sequence number. To create proposals for newly assigned stops, the sequence number pattern is taken from the route type (see [Route Type \[page 108\]](#) for details).

You can store attachments on route version level if you've enabled the attachment feature.

Note

To enable this feature, make sure to follow the steps described in the latest Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply, and check the prerequisites listed in section [Tour Attachments \[page 126\]](#).

You can deactivate a route version. Only an inactive route version can be deleted directly, if the route version isn't used in tours. A route can be deleted (logically) if it contains no versions or only inactive versions. Then the life-cycle status of the route is set to deleted and it can't be displayed in the [Manage Routes](#) app.

The deletion from the database is a separate step managed via the destruction object `/ILO/ROUTE_DESTRUCTION` in the back end. In addition to the default deletion mode based on SAP Information Lifecycle Management (ILM), you can set up a direct deletion mode on the warehouse level. With this direct deletion mode, the routes can be deleted directly from the database instead of using the SAP ILM-based destruction object. Please note that the route can only be deleted if the route isn't used in one of the following objects:

- Tours
- Route groups
- Route version proposals
- Loading lane determination records

For more information, see the section about data destruction in the *Administration Guide* for SAP S/4HANA for manufacturing logistics.

Related Information

[Manage Routes \[page 208\]](#)

4.1.2 Route Type

A route type is a grouping of control parameters for the creation of routes and tours. Make sure that you enter a meaningful description that provides information about the route type's main use case.

Use

Each route must be classified by a route type, which determines the following data:

- Method how tours can be generated for the route (tour creation strategy)
- Number range from which the route number is derived
- Number range from which the corresponding tour numbers are derived
- Tour user status profile that is used for the tours
- Loading lane strategy, which determines which storage bin is used for loading
- Tour assignment strategy, which defines the point in time a *Warehouse Request Item* or a *Handling Unit* is assigned to a tour
- Sequence number pattern of a route version stop

Every route is assigned to one route type. You can't change this assignment after the first draft has been activated in the *Manage Routes* app. When you activate the first draft and enter the first route version with status *Active*, the route can be used for the tour creation and further functions that are controlled by route type settings and route attributes.

Note

The route type settings are described in the document **Guide for Route Type Settings**, which is available in Customizing under ► *SCM Extended Warehouse Management* ► *Extended Warehouse Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Master Data* ►.

4.1.3 Proposal Profile

A proposal profile is set of attributes that controls the generation of route versions and condition records for the route determination. It defines whether new route versions or condition records can be created for a route based on the route version proposal.

You create proposal profiles in Customizing for *SAP S/4 HANA for manufacturing logistics* under ► *Extended Warehouse Management* ► *SAP S/4 HANA for Manufacturing Logistics* ► *Master Data* ► *Create Proposal Profiles for the Route Determination*. ►

The access sequence of a condition type defines the allowed fields and condition tables. You assign a proposal profile to a route in the *Manage Routes* app.

4.1.4 Stop

A stop is a template for a location of a route, where the route train driver stops. A route stop is defined by the type of stop (production supply area, storage bin, or transfer point).

Stop Types

The following stop types are supported by route trains:

Stop Types	More Information
Production supply areas (PSAs)	<p>At a PSA, production supply is unloaded. PSAs are already available from the backend master data and can't be created in the Manage Stops app.</p> <p>With the SAP Fiori apps Manage Stops or Manage Routes, you can add master data attributes to the PSA master data, for example unloading direction or confirmation control.</p> <p>For a PSA, you define the following attributes:</p> <ul style="list-style-type: none">• Unloading direction: control parameter for RF, either left or right. <div><p>Note</p><p>This information is displayed in the radio frequency (RF) UI for unloading.</p></div> <ul style="list-style-type: none">• Confirmation control: control parameter for RF defining what needs to be scanned to confirm the unloading.• Handover point: Can serve as a storage bin passing place. A handover point is only used if the storage bin for the PSA can't be served directly. <p>You can't define a storage bin for a PSA, since the determination of storage bins is done dynamically in the backend.</p>

Stop Types

More Information

Transfer points

At a transfer point, the route train is parked, and the driver disembarks. Then another driver takes over the route train to continue the route to the PSAs. Transfer points are master data objects which can **only be created** by using the [Manage Stops](#) app.

For a transfer point, you define the following attribute:

- Storage bin where the route train is parked and the HUs are temporarily stored.

❖ Example

You can use transfer points when external logistics service providers handle picking, packing, and loading of the route train in the warehouse, while internal staff delivers the production supply.

Other use cases for transfer points include handing over dangerous goods, exchanging towing vehicles, or switching building levels using an elevator.

Storage bins

For a storage bin, you define the following attributes:

- Unloading direction: control parameter for RF, either left or right.
- Confirmation control: control parameter for RF defining what needs to be scanned to confirm the unloading.
- Handover point: Can serve as a storage bin passing place. A handover point is only used if the storage bin for the PSA can't be served directly.

Stop group

A stop group is a set of stops. You can either create a stop group of bins or a stop group of PSAs in the [Manage Stops](#) app. You can use stop groups to reduce efforts for maintaining route version definitions and condition records for the route determination.

Related Information

[Manage Stops \[page 219\]](#)

4.1.5 Route Group

A route group is a set of several routes. You can assign a route to as many route groups as you choose. Route groups are assigned to users to define the routes that users are allowed to work with.

The route group is assigned to the warehouse worker and used to check, if within the RF framework a warehouse worker can maintain handling units, warehouse tasks, and warehouse orders assigned to a specific route. Warehouse workers can only work with routes, which belong to the assigned route group.

Route Group Assignment

You create route groups and assign routes with the [Manage Route Groups \[page 223\]](#) app.

Note

You can assign warehouse workers to the route groups in the [Manage Users](#) app.

Related Information

[Manage Route Groups \[page 223\]](#)

[Manage Users \[page 205\]](#)

4.1.6 Route Parameter Group

A route parameter group is a combination of parameter values that are valid for several routes. A route can only be assigned to one route parameter group.

You can use the [Manage Route Parameter Groups \[page 216\]](#) SAP Fiori app to create route parameter groups to which you can assign routes. Using this app, you can create, change, and delete route parameter groups.

Alternatively, you can also create route parameter groups in the [Maintain Route Parameter Groups](#) app by defining a [Cycle Selection Parameter](#). The [Cycle Selection Parameter](#) specifies an offset value that is used to determine the next tour: It defines the number of tours that should be subtracted from the calculated tour: If you use a cycle selection parameter, the system determines which tour **before** the calculated tour starts as the next tour.

Example

The system calculates the next tour so that it can deliver the required handling units (HUs) on time. TourX is calculated using the selection parameters [Route](#) and [Date](#). If you then enter a cycle selection parameter of **3**, the system identifies the third tour before the calculated tour as the next tour (**X-3**).

Note

The *Cycle Selection Parameter* is only used for scheduled routes (tour creation strategy *Schedule-Based (01)*).

Related Information

[Manage Route Parameter Groups \[page 216\]](#)

[Maintain Route Parameter Groups \[page 251\]](#)

4.1.7 User

Users are defined for the radio frequency (RF) framework functionality with specific settings for RF processing.

Two additional user settings are available for the RF user master data:

- User Activity Profile
Defines the set of task types that a warehouse worker can carry out.
- Route Group
Defines the set of routes to which a user can be assigned as the driver.

You define a user with all relevant attributes via the [Manage Users \[page 205\]](#) app.

The user maintenance in the app can be alternatively used for the user maintenance backend transaction /SCWM/USER ( [Extended Warehouse Management](#)  [Master Data](#)  [Resource Management](#)  [Maintain Users](#) ).

Related Information

[Manage Users \[page 205\]](#)

4.1.8 Resource Group

A resource group is a grouping of resources for queue assignment purposes. The resource group can be added as route version attribute to manage the towing vehicle selection. Then only towing vehicles with the assigned resource group can be used for this route version.

The resource group has two towing vehicle parameters:

- Towing vehicle control type: Displays how the vehicle is operated, for example manually, automatic, or autonomously.

- **Towing vehicle location type:** Displays if the vehicle is operated within a warehouse, outside of a warehouse, or both.

You define a resource group with all relevant attributes via the [Manage Resource Groups \[page 207\]](#) app.

The resource group maintenance in the app can be alternatively used for the backend transaction [Maintain Resource Group](#) (► [Extended Warehouse Management](#) ► [Master Data](#) ► [Resource Management](#) ► [Maintain Resource Group](#) ► /SCWM/RGRP).

Related Information

[Manage Resource Groups \[page 207\]](#)

4.1.9 Selection Variants

Selection variants represent stored selection criteria that define values of process-specific fields. Selection variants allow you to use pre-defined values in selection variant processes. These are configured background-enabled processes that read, validate, and modify information of business objects for manufacturing logistics and related EWM (Extended Warehouse Management) representations.

Selection variants are part of an execution process runtime, along with the configuration objects [Selection Variant Result](#), [Selection Variant Type](#), and [Selection Variant Consumer](#)

Selection variants, along with the selection variant type, are used to implement the selection of business objects as part of the selection variant-based execution process.

- **Selection variant type:** Defines the allowed selection and control fields, the return table structure, and the selection execution handler class.
- **Selection variant:** Defines the field values to be used for the selection. The object **Selection Variant** is defined with header data containing ID and [Selection Variant Type](#), language-dependent descriptions, and a selection expression containing the selected options for the allowed fields. The selection can be checked after the activation of the selection variant with execution of the selection variant type handler class and storing the result as a snapshot (only the last snapshot is stored).

You can review, change, create, and delete selection variants in the [Manage Selection Variants \[page 242\]](#) app.

Selection Variant Configuration

The configuration objects are described in detail in Customizing for [SCM Extended Warehouse Management](#) under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Selection Variants and Consumers](#) ►.

Related Information

[Manage Selection Variants \[page 242\]](#)

[Schedule Selection Variant Consumer Process \[page 247\]](#)

4.1.10 Working Area

A working area represents a logical grouping to simplify warehouse workers' work steps in the RF environment. A working area is defined for a warehouse and combines logical RF transactions, an activity area, a task type, and optionally, a queue.

Use

Scanning of the working area allows the user to carry out all tasks that are in the scope of the working area and defined in the user's activity profile. The working area is used in RF environment to:

- call a logical transaction without having to navigate through the menus
- force the user to perform only one activity
- check, if the user can perform a task type (via the assigned user activity profile)
- filter warehouse orders and warehouse tasks for an activity area and optionally for a queue

You define the working areas in the Customizing for *Extended Warehouse Management* under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Resource Management](#) ► [Define Working Areas](#) ►.

The working area is warehouse-dependent and includes the following fields:

- Unique working area ID
- Language-dependent description
- Activity area (optional)
The activity area is used in RF to filter the warehouse orders and warehouse tasks that are executable in this working area.
- Task type (mandatory)
The task type defines the activity to be executed and the RF logical transactions, which can be assigned to the working area.
- RF logical transaction for navigation (mandatory)
- Queue (optional)
Only the warehouse orders and warehouse tasks related to this queue are executable in this working area.

The activity areas together with the queue define which warehouse orders can be executed. The task type in combination with the activity area determines which activity can be executed.

If a user activity profile is assigned to the user of the warehouse worker, then one of the task types needs to be included in the working area. Therefore, a task type needs to be assigned to the working area and the user activity profile of the user. If no user activity profile is assigned, there's no activity restriction for the user.

Validation Steps

A warehouse worker scans the working area. If the warehouse worker's user has the task type assigned, then the logical transaction can be executed. For example, for system-guided unloading, the next warehouse order that the warehouse worker can execute is determined via the assigned activity area (and queue).

4.1.10.1 Task Type

A task type combines activities (logical transactions) that can be executed in the RF environment and is a mandatory attribute for the working area.

You define a task type for a warehouse with a unique ID and a description. You can assign several logical transactions to one task type to combine warehouse worker activities.

You assign task types to working areas and to user activity profiles.

You define task types in the Customizing for Extended *Warehouse Management* under ► *SAP S/4HANA for Manufacturing Logistics* ► *Resource Management* ► *Define Task Types for RF Transactions* ►.

4.1.10.2 Working Area Usage

The working area usage defines if working areas are used for a warehouse. Working area usage in combination with user activity profiling simplifies the RF framework utilization for the warehouse workers.

The mandatory or optional usage of working areas is activated on warehouse level. If you select the option not to use working areas for a warehouse, you can't set up the simplified access to warehouse workers' work steps.

📘 Note

If the working area isn't used for a warehouse, the field for scanning isn't available and the checks aren't executed.

You set the working area usage in the Customizing for *Extended Warehouse Management* under ► *SAP S/4HANA for Manufacturing Logistics* ► *Master Data* ► *Define Warehouse Settings* ►.

4.1.10.3 User Activity Profile

A user activity profile defines a set of task types that a user who is assigned to the profile can carry out, for example, loading or picking. You create a warehouse-specific user activity profile with a description and then you assign several task types to the profile.

You assign the user activity profile to the user of the warehouse worker. Users who are assigned to an activity profile can only carry out the task types that are defined in the profile.

If a warehouse worker is assigned to a user activity profile and scans a working area, then the warehouse worker can only carry out the tasks if the task type from the working area is also assigned to the user activity profile.

You define user activity profiles in the Customizing for *Extended Warehouse Management* under ► *SAP S/4HANA for Manufacturing Logistics* ► *Resource Management* ► *Define User Activity Profiles* ►.

In the SAP Fiori launchpad, start the *Manage Users* SAP Fiori app, create a new entry for the user or select a user, and add the user activity profile to the user master data.

4.1.11 Loading Lane

A loading lane is a storage bin where picked racks are placed before the route train is compiled.

Loading lanes are used during the loading lane determination, which identifies a storage bin to be used as destination bin for a picking warehouse task.

Related Information

[Loading Lane Determination \[page 160\]](#)

[Manage Loading Lanes \[page 218\]](#)

[Maintain Loading Lanes \[page 250\]](#)

4.1.12 Route Determination Condition Records

Route determination condition records are data records with input and output values for determining routes.

You can use the [Maintain Condition for Route Determination \[page 251\]](#) app on the SAP Fiori launchpad to do the following:

- Search for existing condition records
- Create new condition records
-
- Change existing condition records
- Delete existing condition records

You can maintain the standard condition types 0IR1 to 0IR5.

You can maintain the condition records in the underlying condition technique.

As an alternative to the app, you can also use the transaction /ILO/RTGCM, which you can find in the SAP menu under ► *Logistics* ► *SCM Extended Warehouse Management* ► *Extended Warehouse Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Master Data* ► *Define Conditions for Determining Routes* ►.

Related Information

[Maintain Condition for Route Determination \[page 251\]](#)

[Manage Route Version Proposals \[page 212\]](#)

4.2 Tour

A tour is an entity of a route version. The tour is the trip of a route train during which goods are collected from or delivered to different locations.

Tours are transactional data and are created during warehouse operations.

4.2.1 Tour Creation

There are different methods for creating a tour, called tour creation strategies, which are defined on route type level.

For the creation of tours, timing and preconditions are important: When tours are created, they run through a scheduling routine that calculates the time for basic events in the life of a tour.

❖ Example

A tour receives a planned loading start time. This start time can be important for other times: For example, by subtracting the assumed picking time, you can determine the time when your picking wave should start at the latest.

The following predefined tour creation strategies are available:

Tour Creation Strategy	About the Strategy	How to Start the Tour Creation
<i>Schedule-Based (01)</i>	<p>Scheduled routes are defined with this tour creation strategy.</p> <p>The tours are created by a background-enabled function. The schedule to be used is generated based on time streams together with additional route version parameters. For example, the average transport time, cycle time, and planning horizon.</p> <div> <p>Note</p> <p>The administrative data of time streams are defined in the TTSTR (<i>Time stream: Administration table</i>) table. This table contains different data, such as, the time period generation function module and the related generation table, which includes further references for shift sequence determination.</p> </div>	For scheduled routes, you can create tours directly or in the background by using the Create Tour of Scheduled Routes (/ILO/TOUR_CREATION) report.
<i>Manual (02)</i>	<p>The tour creation is triggered by a user request.</p> <p>This tour creation strategy is based on the API /ILO/IF_API_TOUR.</p>	Loading employees can create tours manually when they start to access a staged handling unit (HU): The system checks during RF (radio frequency) loading whether a suitable tour exists. If yes, the loaded HU is added to that tour. If no suitable tour can be determined, a new tour is created by using RF.
<i>External / Third Party (03)</i>	<p>The creation of tours is triggered by a customer-specific implementation.</p> <p>This tour creation strategy is also based on the API /ILO/IF_API_TOUR.</p>	The creation of tours must be triggered by a customer-specific implementation. There is no specific standard functionality provided.

Tour Creation Strategy	About the Strategy	How to Start the Tour Creation
Utilization-Oriented (04)	<p>Tours that are based on this tour creation strategy are created based on capacity and time constraints.</p> <p>This tour creation strategy considers handling units (HUs) in predefined loading areas or lanes.</p> <div> <p>Note</p> <p>Before using this tour creation strategy, make sure that the planned loading start date has been determined for the relevant HUs: Based on the planned loading start date and other control and limit parameters, which are defined on route version level, the HUs are grouped. For each group, a tour is created, and the HU is assigned to it.</p> <p>Depending on the tour creation strategy, grouping is done during two different process steps:</p> <ul style="list-style-type: none"> For routes with this tour creation strategy, tour assignment during picking confirmation, and a route-based loading lane strategy, grouping is done during loading lane determination. For routes with background-enabled function, grouping is done by the <code>/ILO/SELVAR_CONSUMER_PROCESS</code> report. </div>	<p>Tours can be created with the <code>/ILO/SELVAR_CONSUMER_PROCESS</code> (Execute Selection Variants for Consumers) report. Please note that the consumer and selection variant must be related to selection variant result TCS4.</p> <p>The creation of utilization-oriented tours can also be triggered during the loading lane determination.</p> <div> <p>Note</p> <p>However, in this case, the analysis is only done for one particular loading lane.</p> </div>

4.2.1.1 Scheduled Tours

You can use the [Create Tour of Scheduled Routes](#) report (`/ILO/TOUR_CREATION`) to create new tours directly or by using background jobs.

For most business scenarios, you create tours in the background to have a schedule for running route trains. If the daily work routine changes, you can execute this report directly. For example, if an important employee meeting is announced at short notice, the daily work routine changes and the previously scheduled tour plan

must be changed as well. In this case, you create a new tour, which enables you to see the results directly and react to the current situation.

The report creates tours based on defined route parameters.

To access this report, in the *SAP Menu* under *Logistics*, choose ► *SCM Extended Warehouse Management* ► *Extended Warehouse Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Tour* ► *Create Tour of Scheduled Routes* ► (transaction /ILO/TOUR01). For more information about the report, see the report documentation in the system.

4.2.1.1.1 Rolling Tours

A rolling tour is a scheduled tour that calculates its departure time based on the remaining time from the previous tour and the defined tour breaks. Rolling tours optimize logistics and ensure timely departures in the warehouse.

A rolling tour uses the route version parameter *Departure Time Type* of value *Rolling*. It's created before it's loaded with handling units (HUs) that are planned to be available at the loading lane at a specific time. The schedule for rolling tours is based on time streams.

You create rolling tours with the *Create Tour of Scheduled Routes* report (transaction /ILO/TOUR_CREATION).

❖ Example

Tours with Departure Time Type *Rolling*

In the Manage Routes app, you've defined a cycle time and a transport time of one hour.

According to the work schedule, the first shift of the day starts at 6 am and finishes at 2 pm with a break between 9.30 and 10 am. The schedule for rolling tours is then as follows:

1. Tour: 6-7 am
2. Tour: 7-8 am
3. Tour: 8-9 am
4. Tour: Starts at 9 am. Due to the break from 9:30 to 10 am, this tour finishes at 10:30 am.
5. Tour: Due to the offset time (from the previous tour), this tour starts at 10:30 am and finishes at 11:30 am.

If the last tour of the day isn't completed by the end of the last shift, it finishes at the start of the next day. Therefore, the first tour of the next day begins with the offset time from the last tour of the previous day (shift 6 am + offset time).

Prerequisites

You've generated time streams for the time data definition of route versions with the *Generate Time Streams for Warehouse* app. This time stream generation is based on OP4A (order plan for aggregation) or Extended Warehouse Management (EWM) shifts and shift sequences.

Related Information

[Generate Time Streams for Warehouse \[page 251\]](#)

4.2.1.2 Manual Tour Creation with the Warehouse Management Monitor

Users of the control station can create a tour manually in the enhanced warehouse management monitor.

Prerequisites

To be able to create tours manually, make sure that you've selected the [Enable Manual Tour Creation](#) in Customizing for [Extended Warehouse Management](#) under ► [SAP S/4HANA Manufacturing Logistics](#) ► [Master Data](#) ► [Define Route Types](#) ►.

Feature

In the ► [Manufacturing Logistics](#) ► [Tour](#) ► node, choose the [Create Tour](#) monitor method and enter the required data.

❗ Note

You can create tours with all tour creation strategies.

4.2.1.3 Manual Tour Creation During Loading

Using the radio frequency (RF) transactions for loading, you can create new tours for tour creation strategy 02 ([manual](#)). Using the special RF transaction for prioritized loading, you can also create new tours for scheduled routes (tour creation strategy 01, [schedule-based](#)).

The system checks during RF (radio frequency) loading whether a suitable tour exists. If yes, the loaded HU is added to that tour. If no suitable tour can be determined, a new tour is created. The following RF transaction for loading can result in the **creation of a new tour**:

- RF loading by handling unit (HU)
- RF loading by HU (without route scanning)
- RF background loading

The RF transaction for **prioritized loading** is always creating a new tour.

For more information about the RF transactions for manual route train loading, see [Manual Loading \[page 179\]](#).

4.2.1.4 Utilization-Oriented Tour Creation

The creation of utilization-oriented tours is based on specific conditions and loadable handling units (HUs).

About Trigger Rules

The conditions for the utilization-oriented tour creation, also called trigger rules, determine whether a tour should be created. For the utilization-oriented tour creation, the rules check the tour capacity and planned loading start time of HUs: If the capacity of one tour is reached or if the planned loading time of at least one loadable HU has already passed, a new tour is created.

📘 Note

For the creation of utilization-oriented tours, the complete rule set to be used is defined in the [Manage Routes](#) app on route version level.

Supported Scenarios

The utilization-oriented tour creation supports the following scenarios:

- Scenario A: Loadable HUs for one route are collected from different loading bins. The system analyzes all currently staged HUs and creates new tours for routes determined from the selected HUs.
- Scenario B: Loadable HUs are collected from one loading lane and only those HUs that are related to the same route can be stored on the relevant storage bin. The analysis of the currently staged HUs is triggered during the loading lane determination (LLD). In this case, the system checks whether a new tour should be created for a storage bin and route ID.

4.2.2 Tour Status Management

Status Management controls business transactions by assigning one or several statuses to a tour document.

A status can allow or prohibit a business transaction or it can have no influence at all. Tour statuses cannot be set manually but only via business transactions.

Tours support a user status management by assigning a custom status profile to the route type. Custom statuses can be set via business transactions, via EWM warehouse monitor method, or via API call, see [Custom Tour Status Management \[page 125\]](#).

Integration

Tour status management is integrated into the status management using status objects. Custom status profiles can be maintained using transaction **BS02**.

Features

Statuses exist on tour header and stop level of a tour. But only the header statuses are controlled by the business transactions of the status management. Statuses on stop level are controlled by the execution of a tour.

A status in tour processing consists of the following parameters:

- Status type
- Status value

The status type describes a partial aspect or partial process in the lifetime of a tour (for example loading started, cancelled, unloading completed, completed).

Status types are linked to the general business object of the tour. The tour assignment strategy of the underlying route of a tour defines whether the status *warehouse request assigned* is relevant. You cannot change the status management of a tour via configuration.

The status value defines the tour document status for each status type (for example *Not relevant*, *Not Started*, *Completed*). It changes along with the business transactions. A status value can disallow a business transaction. On the other hand, a business transaction can set a new status.

The following conditions must be fulfilled before tour processing can perform a business transaction:

- At least one status value must allow the transaction.
- No status value can disallow the transaction.

You can increase the number of available status types by adding your own user statuses. As opposed to the status types predefined by SAP, the user statuses can only have two values (*Active/Inactive*).

The user statuses are grouped via the user status profile in the general status management (transaction *Change Status Profile* **BS02**). The user status profile in the general status management is linked to the system profile for tour processing via the route type of the tour. The user status profile in the general status management can be assigned to several route types.

Tour statuses are created on document creation and are changed by business transactions along the lifecycle of a tour.

4.2.2.1 Tour Status Types

Lists predefined tour status types, which are displayed in the *Warehouse Management Monitor*.

The tour status types are displayed in the *Warehouse Management Monitor* as a drill-down on tour level. The monitor shows the last changed date and the corresponding user. The monitor also shows the timestamp when a status value is set to *completed*.

The following status types are predefined:

Status Type	Status Type Description
ITR00	Initial tour status
ITR01	Tour canceled
ITR02	Unpacked warehouse requests assigned
ITR05	HU assigned
ITR15	Towing vehicle assigned
ITR16	Loading employee assigned
ITR17	Driver assigned
ITR22	Loading started
ITR23	Loading in progress
ITR24	Loading interrupted
ITR25	Loading completed
ITR50	Delivery started
ITR55	Tour at transfer point
ITR60	Unloading started
ITR70	Driver change
ITR75	Tour break
ITR80	Unloading completed
ITR99	Tour completed

4.2.2.2 Tour Execution Status

The tour execution status is a single status value that is calculated according to the most recent status that is relevant for the determination of the tour execution status.

The tour execution status is stored in the tour header.

4.2.2.3 Tour Life-Cycle Status

The life-cycle status is displayed in the tour header. It is updated on creation, when the tour is cancelled or completed, and when the tour is processed for the first time.

The life-cycle status is displayed in two-digit field in the tour header. These are the possible statuses:

Value	Status description
00	Initial
01	Cancelled
02	Active
04	Completed

The tour is created with the life-cycle status of **00**. In case the tour is cancelled, the life-cycle status is set to **01** and further processing isn't possible anymore. The next activity for tours with the life-cycle status **01** is only archiving or destruction.

When a tour is processed for the first time after its creation, the life-cycle status is updated to **02**, indicating an active tour.

When the driver confirms the completion of the round trip, the tour life-cycle status is updated to **03** (completed), which is also a status that allows archiving and destruction.

4.2.2.4 Custom Tour Status Management

The custom status schema for the route type allows the customer-specific setting of a custom status for tours.

Tours are created based on a route. The route itself is based on a route type, which allows the assignment of a custom status schema. The custom status schema allows (contrary to the standard schema of the tour that can't be changed by the customer) the customer-specific setting of a custom status, either by combining a status change with a status update of the standard schema or via tour API method `/ILO/IF_API_TOUR~SET_EXTERNAL_STATUS`.

4.2.3 Check Monitor for Tours

SAP S/4HANA for manufacturing logistics provides a check monitor enhancement for checking and correcting the status of tours of which the warehouse order for unloading has already been confirmed.

Tours and warehouse orders for delivery are interlinked and are updated with the tour as a starting point. SAP S/4HANA for manufacturing logistics, however, does not prohibit to process the warehouse order in RF. In this case the tour is not updated and remains in a status which does not allow the archiving of this tour. You can use this check monitor enhancement to check and correct the status of tours of which the warehouse order for unloading has already been confirmed.

You can find the check monitor node under ► *Manufacturing Logistics* ► *Tour* ► *Complete Tours with Confirmed WO for Unloading* ►. You must provide the warehouse number and can add additional selection criteria, such as the route ID, the tour ID, and the planned departure date for the selection.

After the selection of tours where the unloading warehouse order has already been completed, you can select the relevant tours by clicking on the details icon of the messages. You can select multiple tours, and by right-clicking and choosing *Correct* in the context menu, you can complete the tours so that they can be archived.

For more information about the check monitor, see [SAP Extended Warehouse Management 9.5 Operations Guide](#).

4.2.4 Tour Attachments

You can store attachments on tour level. Typically, you add photos from racks to visually document the physical status of the racks of a tour.

Prerequisites

- You've set up the attachment functionality of SAP S/4HANA (Extended Warehouse Management).

Note

For more information, go to help.sap.com/s4hana and choose the relevant SAP S/4HANA release. On the *See all* tab, under *Product Assistance*, navigate to Extended Warehouse Management (EWM) and search for **Enabling Attachments**.

- You've made the required settings for tour attachments as described in the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Scenarios

You can add attachments to tours in the following scenarios:

- Tour attachment scenario
In this scenario, a scheduled tour (tour creation strategy *Schedule-Based (01)*) already exists. You can add attachments to the tour during loading completion.
- HU-based scenario
If tours aren't schedule-based, they are created manually during loading or they're created automatically when the loading lane is confirmed.
In this scenario, a tour isn't created yet. Therefore, in a first step, you add attachments to a handling unit (HU). Then, the attachments are transferred to the corresponding tour after loading completion.

4.2.4.1 Adding Attachments to a Tour During Loading Completion

You can attach files or URLs to a tour during loading completion. You store the files, for example, photos from the picked racks, directly on a tour that has been created with tour creation strategy [Schedule-Based \(01\)](#).

Process

1. In the warehouse management monitor, select a tour and choose ► [Logistics](#) ► [Tour](#) ► [Tour Attachments](#) ► and choose the relevant method:
2.
 - If you choose method [Upload Attachment](#), in the displayed dialog box, select one or more files that you want to attach to the tour.
 - If you choose method [Add URL as Attachment](#), enter the address and a description and choose [Continue](#).
3. The system stores the attachment on the tour. The [Number of Attachments](#), enter the address and a description and choose field in tour header displays the number of attachments of a tour., enter the address and a description and choose
4. Optional: If you click on the attachment description, you start the application directly, which is linked to the attachment MIME type (for example, JPEG or GIF). You can also delete attachments from a tour or download them.

ⓘ Note

For security reasons, we strongly recommend that you install an appropriate **virus scanner** in your SAP Fiori system landscape and define sufficiently restrictive **scan profiles** to prevent the upload of malicious content.

For more information on virus scanning and scan profiles for apps, see section [Virus Scanning](#) in the [SAP S/4HANA Security Guide](#).

4.2.4.2 Transferring HU Attachments to a Tour After Loading Completion

If a tour isn't schedule-based or you want to reuse a rack handling unit (HU) and add attachments, you use the HU-based scenario: You add attachments to a HU first. Then, HU attachments are transferred to the corresponding tour after loading completion.

Business Scenario

You want to reuse a rack HU and add attachments. However, if HU attachments already exist, they aren't deleted automatically. If you delete them manually, you can't reproduce the look of a HU.

In this case, you use the HU-based scenario. Since HUs are stored on tour level, you can use specific attachments for every reuse of a rack.

Process

1. Create a delivery item, which is automatically assigned to a route, and use picking by warehouse order. As a result, your picked handling unit (HU) is ready for loading or still in the staging process step for the loading lane.
2. Store the file you want to attach. For example, you take a photo of the HU and store it locally.
3. Select the relevant local file and attach it to the HU using the standard warehouse management monitor options:
 - ► [Outbound Documents](#) ► [Outbound Delivery Order](#) ► [Handling Unit](#) ►
 - ► [Documents](#) ► [Handling Unit](#) ►
 - ► [Stock and Bin](#) ► [Handling Unit](#) ►The system then stores the attachment on the top HU.
4. Load the top HU on a new tour.
The attachment remains assigned to the HU until loading is completed.
5. Optional: You can monitor the HU attachment in the enhanced warehouse management monitor by choosing ► [Manufacturing Logistics](#) ► [Tour](#) ►.
6. Complete loading the tour and confirm loading completion using the radio frequency (RF) UI or in the warehouse management monitor.
7. The system checks whether the loaded HU has an attachment.
8. If an attachment exists, the system determines whether the top HU is a rack as defined in transaction /SCWM/RACKTYPE.
9. If the top HU is a rack, the system transfers the attachment from the HU to the tour and deletes it from the HU. The former HU attachment is stored on tour level and remains a tour attachment.

Note

For lower-level HUs, which aren't maintained in transaction /SCWM/RACKTYPE, the attachments aren't transferred to the tour. If you add attachments on lower-level HU level, they remain on lower-level HU position.

Now, the tour can be processed.

More Information

The Business Add-In (BAdI) /ILO/BADI_CONTROL_HU_ATTACH is used to control the transfer of HU attachments to tours. It uses the provided example implementation, which is based on the packaging material of the top HU.

4.2.4.3 Adding Attachments to a Tour After Loading Completion

If a tour is already completely loaded, but you want to add additional handling units (HUs) to the tour using mobile devices, you can store files directly on the tour.

Business Scenario

The loading employee wants to add additional HUs to the tour after it has been completely loaded. For example, this can be the case if there's still some space available on the tour or if the HUs are urgent (demand time in the past) and must be transported to the corresponding production supply area (PSA) immediately.

Process

1. Load a HU with an attachment to the tour.
2. Confirm loading using the [AddHU](#) button on the radio frequency (RF) UI.
3. If the additional HU is a rack, the HU-based scenario is used and the HU attachment is transferred to the tour. HU attachments are transferred for each additional HU.

4.2.5 Analytics - CDS Views for Tours

The following CDS views are available for reuse by customers and partners for tours.

[Tour Execution - Cube \(Deprecated\) \[page 129\]](#)

[Tour Execution - Query \(Deprecated\) \[page 140\]](#)

4.2.5.1 Tour Execution - Cube (Deprecated)

CDS View Name	I_IL0_TourExecutionCube_2
Represented Objects	This view represents the following SAP object type: <ul style="list-style-type: none">• IntralogisticsOperationsTour (business object)
Analytical Data Category	Cube

📘 Note

This CDS view is deprecated.

We recommend that you switch to the following successor CDS view:

- **I_ILO_TourExecAnalyticalCube:** (Tour Analytics Cube View)

The new CDS view involves the technical migration to a new generation of analytical Core Data Services (CDS) views. From a functional perspective, there are no changes to existing business processes or data access.

SAP plans to decommission the old CDS view: It won't be available for use after the transition. You can't create new content based on deprecated CDS views (for example, creating a new custom analytical query based on a deprecated SAP cube view). However, you can still modify existing content based on deprecated CDS views. **Example:** You can add deprecated fields from a released SAP view to an existing custom CDS view or add more fields from a deprecated SAP view to an existing custom CDS view.

As a key user, you'll see tasks in the key user extensibility apps for prominent occurrences of deprecated CDS views. These tasks prompt you to rework your content where necessary.

Purpose

This CDS view retrieves information about tours and their current usage in the route train process. The tour is the trip of a route train during which goods are collected from or delivered to different locations.

This CDS view provides the data to answer the following business questions:

- How many tours have been created for the whole warehouse?
- How many tours have been canceled, completed, or are currently in progress?
- How many racks, sub-HUs, priority HUs, empty HUs are on my tours?
- How many open or completed warehouse tasks exist for my tours?
- What is the total weight or volume of the HUs on my tours?
- What is the average picking, loading, or unloading duration for my tours?
- How many items were delivered by my tours?

To help you decide which CDS view to use for your purposes, SAP has introduced the annotation `ObjectModel.supportedCapabilities` that indicates the most appropriate use cases for each CDS view. To find out what use cases are best supported by this CDS view, access the entry of the CDS view in the [View Browser](#) app and find the values for this annotation under the [Annotation](#) tab. For more information, open the product assistance for the relevant SAP S/4HANA release on SAP Help Portal at <https://help.sap.com/s4hana> and search for **Supported Capabilities for CDS Views**.

Prerequisites

Authorizations

Users who want to use this CDS view must have the following authorization objects assigned:

- `/ILO/TOUR`
- `/SCWM/LGNU`

- /ILO/TCSTR

Structure

Parameters

The parameters of the CDS view are as follows:

- **P_Language:** This parameter is used to specify the system language. The default value is the logon language.

Fields Used for Filtering

The main filters are as follows:

- **EWMWarehouse:** This field is used to filter by the warehouse.
- **IntralogisticsOperationsTour:** This field is used to filter by the tour ID.
- **IntralogisticsOperationsRoute:** This field is used to filter by the route.
- **IntrLogsOpRouteType:** This field is used to filter by the route type.
- **IntrLogsOpRouteParamGroup** : This field is used to filter by the route parameter group.
- **IntrLogsOpRouteGroup:** This field is used to filter by the route group.
- **IntrLogsOpTourLifecycleStatus:** This field is used to filter by the lifecycle status of the tour.
- **TourIsRelevantForManualLoading:** This field is used to filter by the tours that are relevant for manual loading.
- **IntrLogsOpTourExecutionStatus:** This field is used to filter by the tour execution status.
- **StartPointStorageType:** This field is used to filter by the storage type of the start point of the tour.
- **EndPointStorageType:** This field is used to filter by the storage type of the end point of the tour.
- **ILOTourResource:** This field is used to filter by the resource assigned to the tour.
- **HandlingUnitNumber:** This field is used to filter by the HU number of the loading plan of the tour.
- **PackagingMaterial:** This field is used to filter by the packing material of the handling unit.
- **DeliveryPriority:** This field is used to filter by the delivery priority.
- **HandlingUnitType:** This field is used to filter by the type of the HU.
- **DeliveryCategory:** This field is used to filter by the delivery category of the loading plan item of the tour.
- **ReferenceDocumentNumber:** This field is used to filter by the reference document number of the loading plan item of the tour.
- **ReferenceDocumentItemNumber:** This field is used to filter by the number from the reference document item of the loading plan item of the tour.
- **JITControlCycle:** This field is used to filter by the JIT control cycle.
- **Wave:** This field is used to filter by the wave.
- **ProductName:** This field is used to filter by the product name.
- **IntralogisticsOperationsStop:** This field is used to filter by the tour stop.
- **CreationWhseTmznDateTime:** This field is used to filter by the creation date and time of the tour.
- **ILOTourCrtnWhseTmznYear:** This field is used to filter by the creation year of the tour.
- **ILOTourCrtnWhseTmznMonth:** This field is used to filter by the creation month of the tour.
- **ILOCatDateTourCrtnWhseTmznDate:** This field is used to filter by the date when the tour was created.

- **ILOTourCrtnWhseTmznHour**: This field is used to filter by the hour when the tour was created.
- **ILOTourCrtnWhseTmznTime**: This field is used to filter by the time when the tour was created.
- **LastChangeWhseTmznDateTime**: This field is used to filter by the date and time when the tour was last changed.
- **ILOTourChngWhseTmznYear**: This field is used to filter by the year when the tour was last changed.
- **ILOTourChngWhseTmznMonth**: This field is used to filter by the month when the tour was last changed.
- **ILOCalDateTourChngWhseTmznDate**: This field is used to filter by the date when the tour was last changed.
- **ILOTourChngWhseTmznHour**: This field is used to filter by the hour when the tour was last changed.
- **ILOTourChngWhseTmznTime**: This field is used to filter by the time when the tour was last changed.
- **PlannedDepartureUTCDateTime**: This field is used to filter by the planned departure date and time of the tour.
- **ILOPlannedDepartureUTCYear**: This field is used to filter by the planned departure year of the tour.
- **ILOPlannedDepartureUTCMonth**: This field is used to filter by the planned departure month of the tour.
- **ILOCalDatePlanDepartUTCDate**: This field is used to filter by the planned departure date of the tour.
- **ILOPlannedDepartureUTCHour**: This field is used to filter by the planned departure hour of the tour.
- **ILOPlannedDepartureUTCTime**: This field is used to filter by the planned departure time of the tour.
- **ActualDepartureUTCDateTime**: This field is used to filter by the actual departure date and time of the tour.
- **ILOActualDepartureUTCYear**: This field is used to filter by the actual departure year of the tour.
- **ILOActualDepartureUTCMonth**: This field is used to filter by the actual departure month of the tour.
- **ILOCalDateActualDepartUTCDate**: This field is used to filter by the actual departure date of the tour.
- **ILOActualDepartureUTCHour**: This field is used to filter by the actual departure hour of the tour.
- **ILOActualDepartureUTCTime**: This field is used to filter by the actual departure time of the tour.
- **PlannedArrivalUTCDateTime**: This field is used to filter by the planned arrival date and time of the tour.
- **ILOPlannedArrivalUTCYear**: This field is used to filter by the planned arrival year of the tour.
- **ILOPlannedArrivalUTCMonth**: This field is used to filter by the planned arrival month of the tour.
- **ILOCalDatePlanArrivalUTCDate**: This field is used to filter by the planned arrival date of the tour.
- **ILOPlannedArrivalUTCHour**: This field is used to filter by the planned arrival hour of the tour.
- **ILOPlannedArrivalUTCTime**: This field is used to filter by the planned arrival time of the tour.
- **ActualArrivalUTCDateTime**: This field is used to filter by the actual arrival date and time of the tour.
- **ILOActualArrivalUTCYear**: This field is used to filter by the actual arrival year of the tour.
- **ILOActualArrivalUTCMonth**: This field is used to filter by the actual arrival month of the tour.
- **ILOCalDateActualArrivalUTCDate**: This field is used to filter by the actual arrival date of the tour.
- **ILOActualArrivalUTCHour**: This field is used to filter by the actual arrival hour of the tour.
- **ILOActualArrivalUTCTime**: This field is used to filter by the actual arrival time of the tour.
- **PlannedLoadingUTCDateTime**: This field is used to filter by the planned loading date and time of the tour.
- **ILOPlannedLoadingUTCYear**: This field is used to filter by the planned loading year of the tour.
- **ILOPlannedLoadingUTCMonth**: This field is used to filter by the planned loading month of the tour.
- **ILOCalDatePlanLoadUTCDate**: This field is used to filter by the planned loading date of the tour.
- **ILOPlannedLoadingUTCHour**: This field is used to filter by the planned loading hour of the tour.
- **ILOPlannedLoadingUTCTime**: This field is used to filter by the planned loading time of the tour.

Important Fields

Field Name	Description	Measure of Attribute	Comment
Warehouse	Warehouse Number	Attribute	
IntralogsOperationsTour	Tour ID	Attribute	
IntrLogsOpRouteUUID	UUID serving as key (parent key, root key)	Attribute	
IntralogsOperations-Route	Route ID	Attribute	
IntraLogOpsRouteText	Route Description	Attribute	
IntrLogsOpRouteGroup	Route Group ID	Attribute	
IntrLogsOpRouteType	Route Type	Attribute	
IntraLogOpsRouteTypeText	Route Type Text	Attribute	
IntrLogsOpRouteParamGroup	Route Parameter Group	Attribute	
ILOTourResource	Towing Vehicle of Tour	Attribute	
StartPointStorageType	Storage Type of Tour Start Point	Attribute	
EndPointStorageType	Storage Type of Tour End Point	Attribute	
IntrLogsOpTourLifecycleStatus	Tour Life Cycle Status	Attribute	
IntrLogsOpTourExecutionStatus	Tour Execution Status	Attribute	
ILOTourExecutionStatusText	Tour Execution Status Description	Attribute	
TourIsRelevantForManualLoading	Relevant for Manual Loading	Attribute	
LifeCycleStatusDateTime	Life Cycle Time Stamp	Attribute	
IntrLogsOpWhseTimeUnit	Time Unit	Attribute	
CreationWhseTmznDateTime	Creation Date and Time of Tour	Attribute	
ILOTourCrtnWhseTmznYear	Creation Date (Year) of Tour	Attribute	

Field Name	Description	Measure of Attribute	Comment
ILOTourCrtnWhseTmzn-Month	Creation Date (Month) of Tour	Attribute	
ILOCalDateTourCrtnWhseTmznDate	Creation Date of Tour	Attribute	
ILOTourCrtnWhseTmznHour	Creation Time (Hour) of Tour	Attribute	
ILOTourCrtnWhseTmznTime	Creation Time of Tour	Attribute	
LastChangeWhseTmznDate-Time	Last Change Date Time of Tour	Attribute	
ILOTourChngWhseTmznYear	Last Change Date (Year) of Tour	Attribute	
ILOTourChngWhseTmzn-Month	Last Change Date (Month) of Tour	Attribute	
ILOCalDateTourChngWhseTmznDate	Last Change Date of Tour	Attribute	
ILOTourChngWhseTmznHour	Last Change Time (Hour) of Tour	Attribute	
ILOTourChngWhseTmznTime	Last Change Time of Tour	Attribute	
PlannedDepartureUTCDate-Time	Planned Departure Date and Time (UTC)	Attribute	
ILOPlannedDepartureUTC-Year	Planned Departure Date (Year) (UTC)	Attribute	
ILOPlannedDepartureUTC-Month	Planned Departure Date (Month) (UTC)	Attribute	
ILOCalDatePlanDepartUTC-Date	Planned Departure Date (UTC)	Attribute	
ILOPlannedDepartureUTC-Hour	Planned Departure Time (Hour) (UTC)	Attribute	
ILOPlannedDepartureUTC-Time	Planned Departure Time (UTC)	Attribute	
ActualDepartureUTCDate-Time	Actual Departure Date and Time (UTC)	Attribute	
ILOActualDepartureUTCYear	Actual Departure Date (Year) (UTC)	Attribute	

Field Name	Description	Measure of Attribute	Comment
ILOActualDepartureUTC-Month	Actual Departure Date (Month) (UTC)	Attribute	
ILOCalDateActualDepartUTCDate	Actual Departure Date (UTC)	Attribute	
ILOActualDepartureUTCHour	Actual Departure Time (Hour) (UTC)	Attribute	
ILOActualDepartureUTCTime	Actual Departure Time (UTC)	Attribute	
PlannedArrivalUTCDateTime	Planned Arrival Date and Time (UTC)	Attribute	
ILOPlannedArrivalUTCYear	Planned Arrival Date (Year) (UTC)	Attribute	
ILOPlannedArrivalUTCMonth	Planned Arrival Date (Month) (UTC)	Attribute	
ILOCalDatePlanArrivalUTC-Date	Planned Arrival Date (UTC)	Attribute	
ILOPlannedArrivalUTCHour	Planned Arrival Time (Hour) (UTC)	Attribute	
ILOPlannedArrivalUTCTime	Planned Arrival Time (UTC)	Attribute	
ActualArrivalUTCDateTime	Actual Arrival Date and Time (UTC)	Attribute	
ILOActualArrivalUTCYear	Actual Arrival Date (Year) (UTC)	Attribute	
ILOActualArrivalUTCMonth	Actual Arrival Date (Month) (UTC)	Attribute	
ILOCalDateActualArrivalUTCDate	Actual Arrival Date (UTC)	Attribute	
ILOActualArrivalUTCHour	Actual Arrival Time (Hour) (UTC)	Attribute	
ILOActualArrivalUTCTime	Actual Arrival Time (UTC)	Attribute	
PlannedLoadingUTCDate-Time	Planned Loading Date and Time (UTC)	Attribute	
ILOPlannedLoadingUTCYear	Planned Loading Date (Year) (UTC)	Attribute	

Field Name	Description	Measure of Attribute	Comment
ILOPlannedLoadingUTC-Month	Planned Loading Date (Month) (UTC)	Attribute	
ILOCalDatePlanLoadUTC-Date	Planned Loading Date (UTC)	Attribute	
ILOPlannedLoadingUTCHour	Planned Loading Time (Hour) (UTC)	Attribute	
ILOPlannedLoadingUTCTime	Planned Loading Time (UTC)	Attribute	
HandlingUnitNumber	Handling Unit	Attribute	
PackagingMaterial	Packaging Material	Attribute	
DeliveryPriority	Delivery Priority	Attribute	
DeliveryCategory	Document Category	Attribute	
ReferenceDocumentNumber	Document Number	Attribute	
ReferenceDocumentItem-Number	Item Number	Attribute	
HandlingUnitType	Handling Unit Type	Attribute	
IntralogisticsOperationsStop	Stop ID	Attribute	
Wave	Wave	Attribute	
JITControlCycle	Control Cycle	Attribute	
ProductName	Product	Attribute	
ILONumberOfOpenTours	Number of Open Tours	Measure	Counts all tours with tour life-cycle status <i>Active</i>
ILONumberOfCancelled-Tours	Number of Cancelled Tours	Measure	Counts all tours with tour life-cycle status <i>Canceled</i>
ILONumberOfCompleted-Tours	Number of Completed Tours	Measure	Counts all tours with tour life-cycle status <i>Completed</i>
ILONumberOfNewTours	Number of New Tours	Measure	Counts all tours with tour status <i>Initial</i>
ILONumberOfInTimeTours	Number of In Time Tours	Measure	Counts all completed tours with a planned arrival date and time that is after the actual arrival date and time

Field Name	Description	Measure of Attribute	Comment
ILONumberOfDelayedTours	Number of Delayed Tours	Measure	Counts all completed tours with a planned arrival date and time that is before the actual arrival date and time
ILOTourBreakTime	Tour Break Time (Average)	Measure	Calculates the average break duration of the tour
ILOTourTransferPointTime	Tour Transfer Point Time (Average)	Measure	Calculates the average time of the tour at the transfer point
ILOTourActualExecutionDuration	Tour Actual Execution Duration (Average)	Measure	Calculates the average execution time
ILOTourCompletionDuration	Tour Completion Duration (Average)	Measure	Calculates the average completion time of the tour (duration between the statuses <i>Unloading Started</i> and <i>Tour Completed</i>)
ILOTourDurationUnloading	Tour Unloading Duration (Average)	Measure	Calculates the average unloading time of the tour (duration between the statuses <i>Unloading Started</i> and <i>Unloading Completed</i>)
ILOTourUnloadingPrepDuration	Tour Unload. Preparation Duration (Avg)	Measure	Calculates the average unloading preparation time of the tour (duration between the statuses <i>Loading Started</i> and <i>Unloading Completed</i>)
ILOTourDeliveryDelay	Tour Delivery Delay (Average)	Measure	Calculates the average delivery delay (duration between the statuses <i>Loading Completed</i> and <i>Delivery Started</i>)
ILOCycleTimePlannedvsIs	Actual Execution Time of Tour (Delta)	Measure	Calculates the average actual execution time
ILOAvgSupplyDelay	Average Supply Delay	Measure	Calculates the average supply delay (difference between the time of the warehouse task confirmation and the related start date and time of the delivery item)

Field Name	Description	Measure of Attribute	Comment
ILOTourLoadingDelay	Tour Loading Delay (Average)	Measure	Calculates the average loading delay (difference between the creation date and time of the loading plan item and the planned loading date and time)
ILOMaxUnloadingDelay	Max. Unloading Delay	Measure	Calculates the maximum unloading delay (difference between the time of the warehouse task (WT) confirmation and the related start date and time of the delivery item)
ILOTourAddedHU	Number of Added HUs	Measure	Number of HUs that have been added to the tour after loading completion
ILONumberOfRacks	Number of Racks	Measure	Number of top HUs
ILONumberOfSubHU	Number of SubHUs	Measure	Number of sub HUs
ILOTourNumberOfEmptyHU	Number of Empty HUs	Measure	Number of empty HUs
ILONumberOfPriorityHU	Number of Priority HUs	Measure	Number of HUs with delivery priority
ILOTourFillRatio	Tour Fill Ratio (Average)	Measure	Calculates the average fill ratio of the tour
ILORackFillRatio	Rack Fill Ratio (Average)	Measure	Calculates the average fill ratio of the rack
ILOPickingDuration	Tour Picking Duration (Average)	Measure	Calculates the average picking duration (difference between the earliest and latest date and time of the WT confirmation)
ILOTourNetWeight	Sum of Tour Net Weight	Measure	Counts the total net weight of the tour
ILOTourGrossWeight	Sum of Tour Gross Weight	Measure	Counts the total gross weight of the tour
ILOTourNetVolume	Sum of Tour Net Volume	Measure	Counts the total net volume of the tour

Field Name	Description	Measure of Attribute	Comment
ILOTourGrossVolume	Sum of Tour Gross Volume	Measure	Counts the total net volume of the tour
ILOTourTareWeight	Sum of Tour Tare Weight	Measure	Counts the total tare weight of the tour
ILOTourTareVolume	Sum of Tour Tare Volume	Measure	Counts the total tare volume of the tour
ILONumberOfOpenUnloadingTasks	Number of Open Unloading Tasks	Measure	Counts all unloading warehouse tasks with status <i>Open</i>
ILONumberOfComplUnloadingTasks	Number of Completed Unloading Tasks	Measure	Counts all unloading warehouse tasks with status <i>Completed</i>
ILONumberOfOpenLoadingTasks	Number of Open Loading Tasks	Measure	Counts all loading warehouse tasks with status <i>Open</i>
ILONumberOfComplLoadingTasks	Number of Completed Loading Tasks	Measure	Counts all loading warehouse tasks with status <i>Completed</i>
ILONumberOfOnTimeItems	Number of On Time Items	Measure	Counts all tour items that were delivered before the related start date and time
ILONumberOfOutTimeItems	Number of Out of Time Items	Measure	Counts all tour items that were delivered after the related start date and time
ILONumberOfStopsOnTime-Supply	Number of On Time Stops	Measure	Counts all tour stops that were completed before the related start date and time
ILONumberOfStopsOutTime-Supply	Number of Out of Time Stops	Measure	Counts all tour stops that were completed after the related start date and time
ILONumberOfToursOnTime-Supply	Number of On Time Tours	Measure	Counts all tours that were completed before the related start date and time
ILONumberOfToursOutTime-Supply	Number of Out of Time Tours	Measure	Counts all tours that were completed after the related start date and time

Data Extraction

Data Extraction Type

This CDS view is enabled for data extraction in full mode. Physical deletion is possible in source tables.

Corresponding DataSource

2CCILOTOUREXECQ

4.2.5.2 Tour Execution - Query (Deprecated)

CDS View Name	C_ILO_TourExecutionQuery
Represented Objects	This view represents the following SAP object type: <ul style="list-style-type: none">• IntralogisticsOperationsTour (business object)
Analytical Data Category	Query

Note

This CDS view is deprecated.

We recommend that you switch to the following successor CDS view:

- **C_ILO_TourExecAnlytlQuery**: (MFG LOG: Tour Analytics Query View)

The new CDS view involves the technical migration to a new generation of analytical Core Data Services (CDS) views. From a functional perspective, there are no changes to existing business processes or data access.

SAP plans to decommission the old CDS view: It won't be available for use after the transition. You can't create new content based on deprecated CDS views (for example, creating a new custom analytical query based on a deprecated SAP cube view). However, you can still modify existing content based on deprecated CDS views. **Example:** You can add deprecated fields from a released SAP view to an existing custom CDS view or add more fields from a deprecated SAP view to an existing custom CDS view.

As a key user, you'll see tasks in the key user extensibility apps for prominent occurrences of deprecated CDS views. These tasks prompt you to rework your content where necessary.

Purpose

This CDS view retrieves information about tours and their current usage in the route train process. The tour is the trip of a route train during which goods are collected from or delivered to different locations.

This CDS view provides the data to answer the following business questions:

- How many tours have been cancelled, completed, or are currently in progress?
- How many racks of a given packaging material have been used for each route?
- How many open or completed warehouse tasks exist for my tours?
- What is the total weight or volume of HUs of my tours?
- What is the average picking, loading, or unloading duration of my tours?
- How many HUs have been loaded after loading has been completed, but before the unloading process has started?
- How often have your resources (towing vehicles) been used to process tours in the last week, month, or year?
- Which route has the highest tour fill ratio?

To help you decide which CDS view to use for your purposes, SAP has introduced the annotation `ObjectModel.supportedCapabilities` that indicates the most appropriate use cases for each CDS view. To find out what use cases are best supported by this CDS view, access the entry of the CDS view in the [View Browser](#) app and find the values for this annotation under the [Annotation](#) tab. For more information, open the product assistance for the relevant SAP S/4HANA release on SAP Help Portal at <https://help.sap.com/s4hana> and search for **Supported Capabilities for CDS Views**.

Prerequisites

Authorizations

Users who want to use this CDS view must have the following authorization objects assigned:

- `/ILO/TOUR`
- `/SCWM/LGNU`
- `/ILO/TCSTR`

Structure

Parameters

The parameters of the CDS view are as follows:

- `P_Language`: This parameter is used to specify the system language. The default value is the logon language.

Fields Used for Filtering

The main filters are as follows:

- `EWMWarehouse`: This field is used to filter by the warehouse.
- `IntraLogisticsOperationsTour`: This field is used to filter by the tour ID.
- `IntraLogisticsOperationsRoute`: This field is used to filter by the route.
- `IntrLogsOpRouteType`: This field is used to filter by the route type.

- **IntrLogsOpRouteParamGroup** : This field is used to filter by the route parameter group.
- **IntrLogsOpRouteGroup**: This field is used to filter by the route group.
- **IntrLogsOpTourLifecycleStatus**: This field is used to filter by the lifecycle status of the tour.
- **TourIsRelevantForManualLoading**: This field is used to filter by the tours that are relevant for manual loading.
- **IntrLogsOpTourExecutionStatus**: This field is used to filter by the tour execution status.
- **StartPointStorageType**: This field is used to filter by the storage type of the start point of the tour.
- **EndPointStorageType**: This field is used to filter by the storage type of the end point of the tour.
- **ILOTourResource**: This field is used to filter by the resource assigned to the tour.
- **HandlingUnitNumber**: This field is used to filter by the HU number of the loading plan of the tour.
- **PackagingMaterial**: This field is used to filter by the packing material of the handling unit.
- **DeliveryPriority**: This field is used to filter by the delivery priority.
- **HandlingUnitType**: This field is used to filter by the type of the HU.
- **DeliveryCategory**: This field is used to filter by the delivery category of the loading plan item of the tour.
- **ReferenceDocumentNumber**: This field is used to filter by the reference document number of the loading plan item of the tour.
- **ReferenceDocumentItemNumber**: This field is used to filter by the number from the reference document item of the loading plan item of the tour.
- **JITControlCycle**: This field is used to filter by the JIT control cycle.
- **Wave**: This field is used to filter by the wave.
- **ProductName**: This field is used to filter by the product name.
- **IntraLogisticsOperationsStop**: This field is used to filter by the tour stop.
- **CreationWhseTmznDateTime**: This field is used to filter by the creation date and time of the tour.
- **ILOTourCrtnWhseTmznYear**: This field is used to filter by the creation year of the tour.
- **ILOTourCrtnWhseTmznMonth**: This field is used to filter by the creation month of the tour.
- **ILOCalDateTourCrtnWhseTmznDate**: This field is used to filter by the date when the tour was created.
- **ILOTourCrtnWhseTmznHour**: This field is used to filter by the hour when the tour was created.
- **ILOTourCrtnWhseTmznTime**: This field is used to filter by the time when the tour was created.
- **LastChangeWhseTmznDateTime**: This field is used to filter by the date and time when the tour was last changed.
- **ILOTourChngWhseTmznYear**: This field is used to filter by the year when the tour was last changed.
- **ILOTourChngWhseTmznMonth**: This field is used to filter by the month when the tour was last changed.
- **ILOCalDateTourChngWhseTmznDate**: This field is used to filter by the date when the tour was last changed.
- **ILOTourChngWhseTmznHour**: This field is used to filter by the hour when the tour was last changed.
- **ILOTourChngWhseTmznTime**: This field is used to filter by the time when the tour was last changed.
- **PlannedDepartureUTCDateTime**: This field is used to filter by the planned departure date and time of the tour.
- **ILOPlannedDepartureUTCYear**: This field is used to filter by the planned departure year of the tour.
- **ILOPlannedDepartureUTCMonth**: This field is used to filter by the planned departure month of the tour.
- **ILOCalDatePlanDepartUTCDate**: This field is used to filter by the planned departure date of the tour.
- **ILOPlannedDepartureUTCHour**: This field is used to filter by the planned departure hour of the tour.
- **ILOPlannedDepartureUTCTime**: This field is used to filter by the planned departure time of the tour.

- **ActualDepartureUTCDateTime:** This field is used to filter by the actual departure date and time of the tour.
- **ILOActualDepartureUTCYear:** This field is used to filter by the actual departure year of the tour.
- **ILOActualDepartureUTCMonth:** This field is used to filter by the actual departure month of the tour.
- **ILOCalDateActualDepartUTCDate:** This field is used to filter by the actual departure date of the tour.
- **ILOActualDepartureUTCHour:** This field is used to filter by the actual departure hour of the tour.
- **ILOActualDepartureUTCTime:** This field is used to filter by the actual departure time of the tour.
- **PlannedArrivalUTCDateTime:** This field is used to filter by the planned arrival date and time of the tour.
- **ILOPlannedArrivalUTCYear:** This field is used to filter by the planned arrival year of the tour.
- **ILOPlannedArrivalUTCMonth:** This field is used to filter by the planned arrival month of the tour.
- **ILOCalDatePlanArrivalUTCDate:** This field is used to filter by the planned arrival date of the tour.
- **ILOPlannedArrivalUTCHour:** This field is used to filter by the planned arrival hour of the tour.
- **ILOPlannedArrivalUTCTime:** This field is used to filter by the planned arrival time of the tour.
- **ActualArrivalUTCDateTime:** This field is used to filter by the actual arrival date and time of the tour.
- **ILOActualArrivalUTCYear:** This field is used to filter by the actual arrival year of the tour.
- **ILOActualArrivalUTCMonth:** This field is used to filter by the actual arrival month of the tour.
- **ILOCalDateActualArrivalUTCDate:** This field is used to filter by the actual arrival date of the tour.
- **ILOActualArrivalUTCHour:** This field is used to filter by the actual arrival hour of the tour.
- **ILOActualArrivalUTCTime:** This field is used to filter by the actual arrival time of the tour.
- **PlannedLoadingUTCDateTime:** This field is used to filter by the planned loading date and time of the tour.
- **ILOPlannedLoadingUTCYear:** This field is used to filter by the planned loading year of the tour.
- **ILOPlannedLoadingUTCMonth:** This field is used to filter by the planned loading month of the tour.
- **ILOCalDatePlanLoadUTCDate:** This field is used to filter by the planned loading date of the tour.
- **ILOPlannedLoadingUTCHour:** This field is used to filter by the planned loading hour of the tour.
- **ILOPlannedLoadingUTCTime:** This field is used to filter by the planned loading time of the tour.

Important Fields

Field Name	Description	Measure of Attribute	Comment
Warehouse	Warehouse Number	Attribute	
IntralogsOperationsTour	Tour ID	Attribute	
IntrLogsOpRouteUUID	UUID serving as key (parent key, root key)	Attribute	
IntralogsOperations-Route	Route ID	Attribute	
IntraLogOpsRouteText	Route Description	Attribute	
IntrLogsOpRouteGroup	Route Group ID	Attribute	

Field Name	Description	Measure of Attribute	Comment
IntrLogsOpRouteType	Route Type	Attribute	
IntraLogOpsRouteTypeText	Route Type Text	Attribute	
IntrLogsOpRouteParamGroup	Route Parameter Group	Attribute	
ILOTourResource	Towing Vehicle of Tour	Attribute	
StartPointStorageType	Storage Type of Tour Start Point	Attribute	
EndPointStorageType	Storage Type of Tour End Point	Attribute	
IntrLogsOpTourLifecycleStatus	Tour Life Cycle Status	Attribute	
IntrLogsOpTourExecutionStatus	Tour Execution Status	Attribute	
ILOTourExecutionStatusText	Tour Execution Status Description	Attribute	
TourIsRelevantForManualLoading	Relevant for Manual Loading	Attribute	
LifeCycleStatusDateTime	Life Cycle Time Stamp	Attribute	
IntrLogsOpWhseTimeUnit	Time Unit	Attribute	
CreationWhseTmznDateTime	Creation Date and Time of Tour	Attribute	
ILOTourCrtnWhseTmznYear	Creation Date (Year) of Tour	Attribute	
ILOTourCrtnWhseTmznMonth	Creation Date (Month) of Tour	Attribute	
ILOCalDateTourCrtnWhseTmznDate	Creation Date of Tour	Attribute	
ILOTourCrtnWhseTmznHour	Creation Time (Hour) of Tour	Attribute	
ILOTourCrtnWhseTmznTime	Creation Time of Tour	Attribute	
LastChangeWhseTmznDate-Time	Last Change Date Time of Tour	Attribute	

Field Name	Description	Measure of Attribute	Comment
ILOTourChngWhseTmznYear	Last Change Date (Year) of Tour	Attribute	
ILOTourChngWhseTmzn-Month	Last Change Date (Month) of Tour	Attribute	
ILOCalDateTourChngWhseTmznDate	Last Change Date of Tour	Attribute	
ILOTourChngWhseTmznHour	Last Change Time (Hour) of Tour	Attribute	
ILOTourChngWhseTmznTime	Last Change Time of Tour	Attribute	
PlannedDepartureUTCDate-Time	Planned Departure Date and Time (UTC)	Attribute	
ILOPlannedDepartureUTC-Year	Planned Departure Date (Year) (UTC)	Attribute	
ILOPlannedDepartureUTC-Month	Planned Departure Date (Month) (UTC)	Attribute	
ILOCalDatePlanDepartUTC-Date	Planned Departure Date (UTC)	Attribute	
ILOPlannedDepartureUTC-Hour	Planned Departure Time (Hour) (UTC)	Attribute	
ILOPlannedDepartureUTC-Time	Planned Departure Time (UTC)	Attribute	
ActualDepartureUTCDate-Time	Actual Departure Date and Time (UTC)	Attribute	
ILOActualDepartureUTCYear	Actual Departure Date (Year) (UTC)	Attribute	
ILOActualDepartureUTC-Month	Actual Departure Date (Month) (UTC)	Attribute	
ILOCalDateActualDepartUTCDate	Actual Departure Date (UTC)	Attribute	
ILOActualDepartureUTCHour	Actual Departure Time (Hour) (UTC)	Attribute	
ILOActualDepartureUTCTime	Actual Departure Time (UTC)	Attribute	

Field Name	Description	Measure of Attribute	Comment
	Planned Arrival Date and Time (UTC)	Attribute	
ILOPlannedArrivalUTCYear	Planned Arrival Date (Year) (UTC)	Attribute	
ILOPlannedArrivalUTCMonth	Planned Arrival Date (Month) (UTC)	Attribute	
ILOCaIDatePlanArrivalUTC-Date	Planned Arrival Date (UTC)	Attribute	
ILOPlannedArrivalUTCHour	Planned Arrival Time (Hour) (UTC)	Attribute	
ILOPlannedArrivalUTCTime	Planned Arrival Time (UTC)	Attribute	
ActualArrivalUTCDateTime	Actual Arrival Date and Time (UTC)	Attribute	
ILOActualArrivalUTCYear	Actual Arrival Date (Year) (UTC)	Attribute	
ILOActualArrivalUTCMonth	Actual Arrival Date (Month) (UTC)	Attribute	
ILOCaIDateActualArriva-IUTCDate	Actual Arrival Date (UTC)	Attribute	
ILOActualArrivalUTCHour	Actual Arrival Time (Hour) (UTC)	Attribute	
ILOActualArrivalUTCTime	Actual Arrival Time (UTC)	Attribute	
PlannedLoadingUTCDate-Time	Planned Loading Date and Time (UTC)	Attribute	
ILOPlannedLoadingUTCYear	Planned Loading Date (Year) (UTC)	Attribute	
ILOPlannedLoadingUTC-Month	Planned Loading Date (Month) (UTC)	Attribute	
ILOCaIDatePlanLoadUTC-Date	Planned Loading Date (UTC)	Attribute	
ILOPlannedLoadingUTCHour	Planned Loading Time (Hour) (UTC)	Attribute	
ILOPlannedLoadingUTCTime	Planned Loading Time (UTC)	Attribute	

Field Name	Description	Measure of Attribute	Comment
HandlingUnitNumber	Handling Unit	Attribute	
PackagingMaterial	Packaging Material	Attribute	
DeliveryPriority	Delivery Priority	Attribute	
DeliveryCategory	Document Category	Attribute	
ReferenceDocumentNumber	Document Number	Attribute	
ReferenceDocumentItem- Number	Item Number	Attribute	
HandlingUnitType	Handling Unit Type	Attribute	
IntralogisticsOperationsStop	Stop ID	Attribute	
IntrLogsOpStopType	StopType	Attribute	
Wave	Wave	Attribute	
JITControlCycle	Control Cycle	Attribute	
ProductName	Product	Attribute	
ILONumberOfOpenTours	Number of Open Tours	Measure	Counts all tours with tour life-cycle status <i>Active</i>
ILONumberOfCancelled- Tours	Number of Cancelled Tours	Measure	Counts all tours with tour life-cycle status <i>Canceled</i>
ILONumberOfCompleted- Tours	Number of Completed Tours	Measure	Counts all tours with tour life-cycle status <i>Completed</i>
ILONumberOfNewTours	Number of New Tours	Measure	Counts all tours with tour status <i>Initial</i>
ILONumberOfInTimeTours	Number of In Time Tours	Measure	Counts all completed tours with a planned arrival date and time that is after the actual arrival date and time
ILONumberOfDelayedTours	Number of Delayed Tours	Measure	Counts all completed tours with a planned arrival date and time that is before the actual arrival date and time
ILOTourBreakTime	Tour Break Time (Average)	Measure	Calculates the average break duration of the tour

Field Name	Description	Measure of Attribute	Comment
ILOTourTransferPointTime	Tour Transfer Point Time (Average)	Measure	Calculates the average time of the tour at the transfer point
ILOTourActualExecutionDuration	Tour Actual Execution Duration (Average)	Measure	Calculates the average execution time
ILOTourCompletionDuration	Tour Completion Duration (Average)	Measure	Calculates the average completion time of the tour (duration between the statuses <i>Unloading Started</i> and <i>Tour Completed</i>)
ILOTourDurationUnloading	Tour Unloading Duration (Average)	Measure	Calculates the average unloading time of the tour (duration between the statuses <i>Unloading Started</i> and <i>Unloading Completed</i>)
ILOTourUnloadingPrepDuration	Tour Unload. Preparation Duration (Avg)	Measure	Calculates the average unloading preparation time of the tour (duration between the statuses <i>Loading Started</i> and <i>Unloading Completed</i>)
ILOTourDeliveryDelay	Tour Delivery Delay (Average)	Measure	Calculates the average delivery delay (duration between the statuses <i>Loading Completed</i> and <i>Delivery Started</i>)
ILOCycleTimePlannedvsIs	Actual Execution Time of Tour (Delta)	Measure	Calculates the average actual execution time
ILOAvgSupplyDelay	Average Supply Delay	Measure	Calculates the average supply delay (difference between the time of the warehouse task (WT) confirmation and the related start date and time of the delivery item)
ILOTourLoadingDelay	Tour Loading Delay (Average)	Measure	Calculates the average loading delay (difference between the creation date and time of the loading plan item and the planned loading date and time)

Field Name	Description	Measure of Attribute	Comment
ILOMaxUnloadingDelay	Max. Unloading Delay	Measure	Calculates the maximum unloading delay (difference between the time of the WT confirmation and the related start date and time of the delivery item)
ILOTourAddedHU	Number of Added HUs	Measure	Number of HUs that have been added to the tour after loading completion
ILONumberOfRacks	Number of Racks	Measure	Number of top HUs
ILONumberOfSubHU	Number of SubHUs	Measure	Number of sub HUs
ILOTourNumberOfEmptyHU	Number of Empty HUs	Measure	Number of empty HUs
ILONumberOfPriorityHU	Number of Priority HUs	Measure	Number of HUs with delivery priority
ILOTourFillRatio	Tour Fill Ratio (Average)	Measure	Calculates the average fill ratio of the tour
ILORackFillRatio	Rack Fill Ratio (Average)	Measure	Calculates the average fill ratio of the rack
ILOPickingDuration	Tour Picking Duration (Average)	Measure	Calculates the average picking duration (difference between the earliest and latest date and time of the WT confirmation)
ILOTourNetWeight	Sum of Tour Net Weight	Measure	Counts the total net weight of the tour
ILOTourGrossWeight	Sum of Tour Gross Weight	Measure	Counts the total gross weight of the tour
ILOTourNetVolume	Sum of Tour Net Volume	Measure	Counts the total net volume of the tour
ILOTourGrossVolume	Sum of Tour Gross Volume	Measure	Counts the total net volume of the tour
ILOTourTareWeight	Sum of Tour Tare Weight	Measure	Counts the total tare weight of the tour
ILOTourTareVolume	Sum of Tour Tare Volume	Measure	Counts the total tare volume of the tour

Field Name	Description	Measure of Attribute	Comment
ILONumberOfOpenUnloadingTasks	Number of Open Unloading Tasks	Measure	Counts all unloading warehouse tasks with status <i>Open</i>
ILONumberOfComplUnloadingTasks	Number of Completed Unloading Tasks	Measure	Counts all unloading warehouse tasks with status <i>Completed</i>
ILONumberOfOpenLoadingTasks	Number of Open Loading Tasks	Measure	Counts all loading warehouse tasks with status <i>Open</i>
ILONumberOfComplLoadingTasks	Number of Completed Loading Tasks	Measure	Counts all loading warehouse tasks with status <i>Completed</i>
ILONumberOfOnTimeItems	Number of On Time Items	Measure	Counts all tour items that were delivered before the related start date and time
ILONumberOfOutTimeItems	Number of Out of Time Items	Measure	Counts all tour items that were delivered after the related start date and time
ILONumberOfStopsOnTime-Supply	Number of On Time Stops	Measure	Counts all tour stops that were completed before the related start date and time
ILONumberOfStopsOutTime-Supply	Number of Out of Time Stops	Measure	Counts all tour stops that were completed after the related start date and time
ILONumberOfToursOnTime-Supply	Number of On Time Tours	Measure	Counts all tours that were completed before the related start date and time
ILONumberOfToursOutTime-Supply	Number of Out of Time Tours	Measure	Counts all tours that were completed after the related start date and time

Data Extraction

Data Extraction Type

This CDS view is enabled for data extraction in full mode. Physical deletion is possible in source tables.

Corresponding DataSource

2CCILOTOUREXECQ

4.2.6 Recommendations

We recommend that you only change tours, the assigned warehouse orders, and warehouse tasks using the API methods provided:

- [Application Programming Interfaces \[page 252\]](#)
- [Route Train Operations \(A2X\)](#)

Please note that the provided radio frequency (RF) functionalities for loading and unloading tours also use these APIs.

Caution

If you confirm or cancel warehouse orders or warehouse tasks without updating the tour object, the tour can be set to an inconsistent status. SAP S/4HANA for manufacturing logistics can't prevent the confirmation or cancellation of warehouse orders and warehouse tasks using the standard mechanism for warehouse orders and warehouse tasks.

4.3 Process Components

Adaptable components provide flexibility in configuring route train processes for production supply. Utilizing these components can enhance operational efficiency and meet specific logistical needs.

[Route Determination \[page 152\]](#)

You determine the routes for warehouse requests.

[Wave Preparation \[page 156\]](#)

You can use the wave preparation process to create waves for route train picking.

[Tour Assignment \[page 159\]](#)

Warehouse requests or handling units (HUs) with a route relation to a tour are assigned to a tour of a route. There are different methods for assigning a tour, called tour assignment strategies. They're defined on route type level.

[Loading Lane Determination \[page 160\]](#)

The loading lane determination (LLD) is a route-based or tour-based process that identifies a storage bin that is to be used as destination bin for a picking warehouse task.

[Logistical Re-Evaluation \[page 168\]](#)

The logistical re-evaluation (LRE) is a process that re-evaluates replicated warehouse request items or handling units: It determines the route, dates and times and, if applicable, a tour when a warehouse request item is created in EWM.

[Remote RF Log-On \[page 171\]](#)

Remote logon to the radio frequency (RF) environment allows working with RF in another system.

[Selection Variant Processes \[page 172\]](#)

A selection variant process is a configured background-enabled process, that reads, validates, and modifies information of the business objects for route trains and related EWM (Extended Warehouse Management) representations.

[Staging for Kanban Using Warehouse Requests with Route Train \[page 173\]](#)

In this process, Kanban triggers replenishment requests in your warehouse by creating warehouse requests. You pick and load your picked Kanban container to a tour and unload it to the PSA.

4.3.1 Route Determination

You determine the routes for warehouse requests.

The determination of a route for a warehouse request is a precondition for processing warehouse requests that use route trains. If no route is determined for a warehouse request, the warehouse request can't be processed with route trains (only with Extended Warehouse Management distribution equipment).

The route determination is warehouse-dependent. Therefore, you can set up your warehouses differently and can determine different routes for the same process based on different control parameters.

Route Determination in Logistical Re-Evaluation

Since the route determination is integrated as a building block in the logistical re-evaluation, the route determination method can't be called independently. The logistical re-evaluation is triggered when the warehouse request is created or updated. You can also trigger it manually in the EWM warehouse management monitor from the warehouse request nodes or with the wave preparation process.

If no route is determined, the system tries to:

- Increase the priority of the warehouse request (but not the priority of the production material request) during the wave creation (if switched on for the warehouse process type of the warehouse request)
- Find another warehouse process type (using the standard warehouse process type determination procedure) and a route.

For more information, see [Logistical Re-Evaluation \[page 168\]](#).

Viewing Log Messages

The route determination writes an application log with the object /SCWM/WME and the subobject /ILO/ROUTE. The log can be switched on and off using the transaction [Activate Application Log](#) (transaction code /SCWM/ACTLOG).

Configuration

The route determination is based on condition technique. You can customize the route determination by extending the field catalog, the condition tables, access sequence, condition types, and determination procedures for the route determination.

Field Catalog

The following fields are part of the field catalog for the route determination in SAP S/4HANA for manufacturing logistics (application ILO):

- ILO_ITEMTYPE Item Type
- ILO_LGTYP Storage Type
- ILO_LGBER Storage Section
- ILO_LGPLA Storage Bin
- ILO_PROCTY Whse Process Type
- ILO_PSA Production Supply Area
- ILO_PRIORITY Delivery Priority CN
- ILO_LGNUM Warehouse Number
- ILO_DOCCAT Document Category
- ILO_DOCTYPE Document Type
- ILO_ENTITLED Party Entitled to Dispose
- ILO_ITEM_CAT Item Category
- ILO_SLGTYP Source Storage Type
- ILO_SLGPLA Source Storage Bin
- ILO_PRODUCT Product Number
- ILO_STOP_GROUP Stop Group ID
- ILO_ROUTE Route ID

Note

The route ID represents the result of the route determination.

- ILO_SLGBER Source Storage Section
- ILO_SEQUENCE Sequence Number

Note

This field isn't used in the condition tables for route determination. However, it's integrated in the [Manage Route Version Proposals](#) app and you can use it in customer-specific condition tables.

Note

You can enhance the field catalog for the route determination.

Condition Tables

SAP delivers the following condition tables for the route determination:

Condition Tables for Route Determination

Condition Table	Description
SAPIL000	Intralogistics Operations: Route Det. PSA- goodMovBin
SAPIL005	Intralogistics Operations: JIT route determination
SAPIL010	Intralogistics Op.: Route Det. Rough bin -PSA Proctype
SAPIL020	Intralogistics Op.: Route Det. Rough bin -PSA Procty Entit
SAPIL025	Intralogistics Op.: Route Det. Inbound Div. without PSA
SAPIL030	Intralogistics Op.: Route Det. Final Bin PSA WPT Stop Gr.
SAPIL035	Intralogistics Operations: JIT with Stop Groups

The condition tables cover a variety of use cases. You can create specific determinations based on, for example, warehouse process types, delivery priority, destination storage bin, entitled to dispose, and destination production supply area (PSA). However, you can also configure general determinations based on, for example, the warehouse, the warehouse process type, and the destination PSA.

→ Tip

Depending on your implementation, the determination is based on the warehouse process type, which can be set up depending on the delivery priority of a warehouse request, the PSA, and the source storage type of the picking process, which is derived from the rough bin determination.

📘 Note

You can enhance the condition tables of the route determination.

Access Sequence

SAP delivers the following access sequences:

- **0IR1:** relevant for non-JIT warehouse request
0IR1 uses all condition tables apart from SAPIL005 (Intralogistics Operations: JIT route determination)
- **0IR2:** relevant for JIT warehouse request
0IR2 only uses the condition table SAPIL005 (Intralogistics Operations: JIT route determination)
- **0IR3:** relevant for JIT warehouse request
0IR3 uses condition table SAPIL025 (Intralogistics Operations: JIT route determination)
- **0IR4:** relevant for JIT warehouse request
0IR4 only uses the condition table SAPIL030 (Intralogistics Operations: JIT route determination)
- **0IR5:** relevant for JIT warehouse request
0IR5 only uses the condition table SAPIL035 (Intralogistics Operations: JIT route determination)

The sequences don't stop the determination after a successful access, but continue for all access levels.

📘 Note

You can enhance the access sequence of the route determination.

Condition Types

SAP delivers the following condition types:

- 01R1: Route determination
- 01R2: Route determination for internal stock transfer (WMR) /JIT
- 01R3: Route determination for inbound deliveries
- 01R4: Route determination for warehouse process tasks
- 01R5: Route determination for outbound deliveries

The condition types use the access sequence with same key.

Note

You can enhance the condition types for the route determination.

Determination Procedures

SAP delivers the following route determination procedures:

- 01LR01: Generic procedure, for example, for production material requests (PMR), outbound delivery orders (ODO), posting changes (SPC)
- 01LR02: Procedure for internal stock transfers (WMR) and Kanban deliveries
- 01LR03: Procedure for route determination for inbound deliveries
- 01LR04: Procedure for route determination warehouse process tasks
- 01LR05: Procedure for route determination for outbound deliveries

You must maintain the determination procedure in the Customizing for the [Extended Warehouse Management](#) under [SAP S/4 HANA for Manufacturing Logistics > Warehouse Request > Tour > Assign Route Determination Procedure to Document Type](#).

Note

You can enhance the determination procedure of the route determination.

Related Information

[Business Add-Ins for Route Determination \[page 155\]](#)

[Route Determination Condition Records \[page 116\]](#)

4.3.1.1 Business Add-Ins for Route Determination

The route determination can be enhanced by implementing the BAdIs in the enhancement spot /ILO/ES_ROUTE_REF_DOC.

The enhancement spot /ILO/ES_ROUTE_REF_DOC provides the following BAdI definitions:

- BAdI: Customer-Specific Fields for Route Determination (/ILO/BADI_ROUTE_DET_FIELDS)
- BAdI: Check Route Determination Fields (/ILO/BADI_ROUTE_DET_FLD)
- BAdI: Validation of Determined Routes (/ILO/BADI_ROUTE_DET_VALIDATE)
- BAdI: Suppression of Route Determination After Increase of Delivery Item Priority (/ILO/BADI_ROUTE_PREVENT_DET)
- BAdI: BAdI before and after Condition Determination (/ILO/BADI_ROUTE_REF_DOC_DET)

The enhancement spot /ILO/ES_LOGISTICAL_RE_EVAL provides the following BAdI definition:

- BAdI: Suppression of Route Determination After Log. Re-Ev. Priority Increase (/ILO/BADI_ROUTE_DET_TRIGGER)

4.3.2 Wave Preparation

You can use the wave preparation process to create waves for route train picking.

The wave preparation process creates waves for provision dates considering the specific fields for the tour and the route from SAP S/4HANA for manufacturing logistics.

You can use selection variants to select suitable warehouse request items that are not blocked (status type DBV) or locked for the wave preparation process. The wave preparation groups warehouse request items and puts these warehouse request item groups into the wave creation process.

The wave preparation can perform a logistical reevaluation before the warehouse requests are assigned to a wave. With this logistical reevaluation, the system ensures that the warehouse request items are up to date and have the relevant route and date information that is required for the route train process of SAP S/4HANA for manufacturing logistics.

Note

This wave preparation process cannot be combined with any of the following standard wave creation processes:

- Standard wave creation using PPF actions
- Manual wave creation using transaction [Maintain Waves](#) (transaction code /SCWM/WAVE)
- Manual wave creation using the EWM warehouse management monitor method
- Wave creation using the report /SCWM/R_WAVE_PLAN

Make sure that **AUTOWAVE** is **not** activated in the Customizing of the warehouse process type for warehouse request items that are relevant for the wave preparation!

Note

Wave preparation is only available for the following document categories:

- PDO - Outbound Delivery Order
- WMR - Internal Stock Transfer
- SPC - Posting Change

Prerequisites

- You have set up the [wave template determination](#) [page 158].
To use the wave preparation, you have to set up the wave template determination because wave preparation is based on wave templates and [wave options](#) [page 158].
- A route has been determined for the warehouse request items
Wave preparation is relevant only for warehouse request items which have successfully determined a route on warehouse request item level.
- You have determined the planned pick start date and time for the warehouse request items.
Wave preparation determines, if a warehouse request item can be assigned to a wave based on the planned pick start date and time. The planned pick start date and time must be determined for each item either during the item creation or based on a logistical reevaluation latest during the wave preparation. Items without planned pick start date and time are not relevant for wave preparation.
- You have assigned the document type to a wave template determination procedure.
To run the wave preparation for a warehouse request item, the document type must have a wave template determination procedure assigned in the Customizing for [Extended Warehouse Management](#) under ► [Goods Issue Process](#) ► [Wave Management](#) ► [Wave Template Determination](#) ► [Assign Procedure to Document Type](#) ►.
- You have activated the warehouse process type for the logistical reevaluation.
The logistical reevaluation during wave preparation is an optional step.
To run the logistical reevaluation with the wave preparation, the warehouse process type must be activated in the Customizing for [Extended Warehouse Management](#) under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ► [Define Warehouse Process Types](#) ► for this process.
- You have marked the warehouse process type as relevant for wave preparation.
You have to activate the wave preparation for the warehouse process type in the Customizing for [Extended Warehouse Management](#) under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ► [Define Warehouse Process Types](#) ►.

Procedure

To start the wave preparation process, use the transaction [Execute Wave Preparation](#) (transaction code /ILO/WAVE_PREP01) either in foreground or as a batch job. You can start the wave preparation program either in the test mode or in the production mode. You can run wave preparation using selection variants or you can run it without selection variants.

Selection Variant for the Wave Preparation

You can use selection variants of the type `WAVE_PREPARATION` for the wave preparation. This selection variant allows the selection of additional fields, such as the route, the warehouse process type or the provision date. For more information, see [Selection Variants](#) [page 113].

Wave Release

When you have created waves with the wave preparation, the waves are released using the standard configuration based on the wave template. The wave release creates the warehouse tasks for picking and groups them together in warehouse orders.

You can split the warehouse orders for picking by route using the [Warehouse Order Limits](#) field to limit the warehouse order size with the value `/ILO/ROUTETOUR`.

Wave Re-Release

The release of a wave can result in an error status, for example, if not enough stock is available for the warehouse task creation. The standard SAP Extended Warehouse management allows an automatic re-release by time based on the wave template.

In addition, you can re-release your error waves by using a selection variant of type `WAVE_RELEASE`. You can start this re-release using the generic selection variant transaction `/ILO/SELVAR01`.

Viewing Log Messages

The application log of the wave preparation is stored under the log object `/SCWM/WME` and the sub-object `/ILO/WAVE`. Logs for the route determination are stored in the log object `/SCWM/WME` and the sub-object `/ILO/ROUTE`. Logs of the logistical reevaluation are stored under the log object `/SCWM/WME` and the sub-object `/ILO/REDETERMINATION`.

4.3.2.1 Wave Template Determination

The wave preparation process uses the standard wave template determination, which is extended by two additional fields for the route and the route parameter group in the field catalog.

SAP S/4HANA for manufacturing logistics uses the determination procedure `0ILOW1` with the condition type `0ILO` for wave templates. The condition type uses the access sequence `0ILO` to access the condition table `SAPILOW0` using warehouse, warehouse process type and route and route parameter group.

You can customize the wave template determination.

You can maintain wave template condition records using the transaction [Maintain Conditions for Determining Wave Templates](#) (transaction code `/SCWM/WDGCM`).

4.3.2.2 Wave Option Determination

The wave preparation uses the determined wave template to find a suitable wave option.

Wave options are mandatory for using the [wave preparation \[page 156\]](#).

The standard wave management determines the wave options based on the planned end date and time of the warehouse activity, such as `EWDAT` or `TOURYARD`, so that the determined wave completion time is before the relevant time stamp of the warehouse request item. In the route train process, the determined wave completion time corresponds to the planned loading start date and time of the warehouse request item: At this point in time, the warehouse picking and staging activities must be finished so that the loading and delivery can start.

You can maintain the date type of the warehouse request item that is relevant for the wave template determination in the Customizing for *Extended Warehouse Management* under ► *SAP S/4HANA for Manufacturing Logistics* ► *Warehouse Request - Tour* ► *Define Logistical Re-Evaluation and Wave Preparation per Item Type* ►.

You must maintain the value `TSTFR_/ILO/LOAD_PLAN_I`, which represents the logical field for the planned loading start date and time, for each item type of picking preparation that is relevant for the wave preparation process.

You can also maintain the corresponding wave option time field that is mapped to the determined logical field of the warehouse request item.

The waves are created based on the determined wave option.

4.3.3 Tour Assignment

Warehouse requests or handling units (HUs) with a route relation to a tour are assigned to a tour of a route. There are different methods for assigning a tour, called tour assignment strategies. They're defined on route type level.

About Tour Assignment Strategies

A tour assignment strategy is used to define the point of time when a warehouse request or a HU with a route relation should be assigned to a tour.

If an automated tour assignment is requested, the system runs the tour determination logic at the requested point of time. If the logic is run successfully, the identified tour is assigned to the warehouse request or HU.

Note

The tour assignment depends on the selected tour creation strategy.

The following predefined strategies are available:

Tour Assignment Strategy	Information About this Strategy	Important Dependency on Tour Creation Strategy
<i>Manual or Process-Driven</i>	Tour assignment is done manually or with specific functionalities before loading.	Manual loading can be used to create tours related to tour creation strategy <i>Manual (02)</i> or to assign handling units to existing tours with other tour creation strategies.

Tour Assignment Strategy	Information About this Strategy	Important Dependency on Tour Creation Strategy
Upon Creation of Warehouse Request Items (A)	Warehouse request items are assigned to a tour if the item is created or updated, and a route can be determined. The tour is determined by using the Business Add-In (BAdI) /ILO/ BADI_DETERMINE_TOUR.	Only a determination logic for scheduled routes (tour creation strategy Schedule-Based (01)) is implemented in the fallback class of the BAdI.
Upon Confirm. of Picking Task for Determined Loading Lane (B)	This tour assignment strategy is based on the usage of the loading lane during picking confirmation. This tour assignment strategy uses BAdI /ILO/ BADI_DETERMINE_TOUR.	For the tour creation strategy Utilization-Oriented (04) , the loading lane determination provides a specific functionality to apply the utilization-oriented rules to determine the storage bin and to trigger the tour creation.

📘 Note

You can find a detailed description of the dependencies between tour assignment strategy and tour creation strategy in the document **Guide for Route Type Settings**, which is available in Customizing under ► [SCM Extended Warehouse Management](#) ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ►.

Related Information

[Tour Creation \[page 117\]](#)

4.3.4 Loading Lane Determination

The loading lane determination (LLD) is a route-based or tour-based process that identifies a storage bin that is to be used as destination bin for a picking warehouse task.

The loading lane determination is run at the following points in time within the route train process:

- During the creation of warehouse tasks when the process-oriented storage control is applied based on the destination storage type
- When users confirm warehouse tasks of handling units (HUs) at the picking destination bin by using the RF picking transactions for route trains.

Prerequisites

Make sure that you make the following settings:

- Define the loading lane determination for more information, see [Defining the Loading Lane Determination \[page 162\]](#).
- Activate the loading lane determination for the warehouse and the storage process for the warehouse task creation in the Customizing activity [Activate Storage Process for Loading Lane Determination](#) under ► [SCM Extended Warehouse Management](#) ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ►.
- Activate the loading lane determination for the related route type and make the required setting in the [Loading Lane Strategy](#) field in the Customizing activity [Define Route Types](#).
- Define the clarification storage bin for all combinations of warehouse, activity, and activity area in the [SAP Menu](#) under ► [Logistics](#) ► [SCM Extended Warehouse Management](#) ► [Extended Warehouse Management](#) ► [Master Data](#) ► [Storage Bin](#) ► [Assign Start/End Storage Bin for Activity Area](#) ► (transaction /SCWM/SEBA).
- If you want to save the logs for the loading lane determination, you must activate the application login transaction /SCWM/ACTLOG with an entry for the warehouse and the subobject /ILO/LOADLANEETERM.

Note

You can only use the LLD for warehouse tasks that have the internal storage process step [DDST Distribution Equipment: Staging](#).

Overview of Basic Background Process Steps

The LLD includes the following steps.

1. The LLD excludes all bins that are blocked for putaway.
2. The LLD identifies those bins in which a handling unit (HU) with the same route (tour) is located. These bins are preferred later in the process when the remaining suitable bins are sorted. Bins in which only HUs with a different route (tour) or no route (tour) are located are excluded.
3. In the next step, the LLD selects those bins from the remaining ones for which a warehouse task has been created beforehand with the same route (tour). Bins with a different route (tour) or no route (tour) are excluded.
4. Then, the tour capacity of the remaining bins where HUs for the same route (tour) are already located is checked. The capacity is checked when the warehouse task is confirmed.
If the tour assignment is done during the loading lane determination, warehouse tasks without a tour are considered in the check for open warehouse tasks.
5. If one bin remains after all checks, this bin is the LLD result.
If more than one bin remains, they're sorted according to the following criteria:
 1. Bins with an HU or open warehouse task with the same route (tour)
 2. Planned loading date and time of the HU with the same route (tour) in the bin
 3. Sequence number from the master data
 4. Bin name

Note

If no bin is identified after all checks, the bin found during the warehouse task creation using Extended Warehouse Management settings is used. During the warehouse task confirmation, a clarification bin is determined instead.

However, if no clarification bin is found, the bin in the warehouse task before executing the LLD is used.

→ Tip

SAP Note [3033645](#)  [Loading Lane Determination - Data Processing During Warehouse Task Confirmation](#) provides additional information about background processes during the warehouse task confirmation.

4.3.4.1 Defining the Loading Lane Determination

To be able to use the loading lane determination, you must assign bins.

Procedure

1. On the SAP Fiori launchpad, open the [Maintain Loading Lanes \[page 250\]](#) app.
As an alternative to the app, you can also use the transaction the *SAP Menu*: Under *Logistics*, choose ► *SCM Extended Warehouse Management* ► *Extended Warehouse Management* ► *SAP S/4HANA for Manufacturing Logistics* ► *Tour* ► *Defining Loading Lane Determination* ► (transaction/ILO/LOADING_LANE_DT).
2. Assign one or more storage bins for a combination of warehouse, route, delivery priority, and storage type for which the loading lane determination is executed.
3. Optional: Enter a sequence number. If the system identifies more than one bin during the loading lane determination, the first entry for the combination of warehouse number, route ID, and storage type is used sorting by sequence and bin name.

Related Information

[Loading Lane \[page 116\]](#)

[Manage Loading Lanes \[page 218\]](#)

[Maintain Loading Lanes \[page 250\]](#)

4.3.4.2 Analytics - CDS Views for Loading Lane Determination

The following CDS views are available for reuse by customers and partners for the loading lane determination.

[Loading Lane - Cube \(Deprecated\) \[page 163\]](#)

[Loading Lane - Query \(Deprecated\) \[page 165\]](#)

4.3.4.2.1 Loading Lane - Cube (Deprecated)

CDS View Name	I_ILO>LoadingLaneCube
Represented Objects	This view relates to the following SAP objects: <ul style="list-style-type: none">• WarehouseStorageBin (business object)
Analytical Data Category	Cube

ⓘ Note

This CDS view is deprecated.

We recommend that you switch to the following successor CDS view:

- **I_ILO>LoadingLaneCube_2**: (Loading Lane - Cube 2)

The new CDS view involves the technical migration to a new generation of analytical Core Data Services (CDS) views. From a functional perspective, there are no changes to existing business processes or data access.

SAP plans to decommission the old CDS view: It won't be available for use after the transition. You can't create new content based on deprecated CDS views (for example, creating a new custom analytical query based on a deprecated SAP cube view). However, you can still modify existing content based on deprecated CDS views. **Example:** You can add deprecated fields from a released SAP view to an existing custom CDS view or add more fields from a deprecated SAP view to an existing custom CDS view.

As a key user, you'll see tasks in the key user extensibility apps for prominent occurrences of deprecated CDS views. These tasks prompt you to rework your content where necessary.

Purpose

This CDS view retrieves information about loading lanes and their current usage in the route train process. Loading lanes are bins in the warehouse, which are configured in the Manage Loading Lanes and Maintain Loading Lanes apps.

This CDS view provides data to answer the following business questions from a master data perspective:

- How many loading lanes have been defined for a given route or for the whole warehouse?
- How many loading lanes are empty and how many loading lanes are occupied?

The CDS view also provides data to answer the following business questions from a transactional perspective:

- How many loadable top HUs and racks are on my loading lanes?
- How many unused loading lanes exist?

To help you decide which CDS view to use for your purposes, SAP has introduced the annotation `ObjectModel.supportedCapabilities` that indicates the most appropriate use cases for each CDS view. To find out what use cases are best supported by this CDS view, access the entry of the CDS view in the [View Browser](#) app and find the values for this annotation under the [Annotation](#) tab. For more information, open the product assistance for the relevant release of SAP S/4HANA on SAP Help Portal at <https://help.sap.com/s4hana> and search for **Supported Capabilities for CDS Views**.

Prerequisites

Authorizations

Users who want to use this CDS view must have the following authorization objects assigned:

- `/SCWM/LG` ([EWM Storage Bin](#))
- `/SCWM/LGNU` ([EWM Warehouse number](#))

Users can only access records for those warehouses and bins for which they have display authorization.

Structure

Parameters

The parameters of the CDS view are as follows:

- `P_Language`: This parameter is used to specify the system language.

Fields Used for Filtering

The main filters are as follows:

- `Warehouse`: This field is used to filter by warehouse.
- `IntralogisticOperationsRoute`: This field is used to filter by route.
- `ILODeliveryPriority`: This field is used to filter by the delivery priority of the delivery item.
- `EWMStorageType`: This field is used to filter by the storage type of the loading lane.
- `EWMStorageSection`: This field is used to filter by the storage section of the loading lane.
- `EWMStorageBin`: This field is used to filter by the storage bin of the loading lane.

These filters aren't mandatory.

Important Fields

Important fields in this view include the following:

Field Name	Description	Measure or Attribute	Comment
Warehouse	EWM Warehouse	Attribute	
IntraLogisticsOperationsRoute	Route ID	Attribute	
ILODeliveryPriority	Delivery Priority	Attribute	
EWMStorageType	Storage Type	Attribute	
EWMStorageSection	Storage Section	Attribute	
EWMStorageBin	Storage Bin	Attribute	
ILONumberOfAllLoadingLanes	Number of all loading lanes	Measure	Counts all bins that are defined as loading lanes
ILONumberOfFreeLoadingLanes	Number of free loading lanes	Measure	Counts all empty loading lanes.
ILONumberOfOccupiedLoadingLane	Number of occupied loading lanes	Measure	Counts all loading lanes that aren't empty.
ILONumberOfLoadableTopHU	Number of handling units (HUs) on the bin with an open <i>loading</i> warehouse task	Measure	Considers HUs with an open warehouse task that has the internal process <i>DDL D</i> .
ILONumberOfLoadableRacks	Number of racks on the bin with an open <i>loading</i> warehouse task	Measure	Considers racks that are defined in transaction /SCWM/RACKTYPE.
ILONumberOfUnusedLoadingLanes	Number of loading lanes with an open warehouse request	Measure	Considers the number of loading lanes for which all delivery item statuses are <i>Completed</i> .

4.3.4.2.2 Loading Lane - Query (Deprecated)

CDS View Name	C_ILO_LoadingLaneQuery
Represented Objects	<p>This view relates to the following SAP objects:</p> <ul style="list-style-type: none"> WarehouseStorageBin (business object)
Analytical Data Category	Query

📌 Note

This CDS view is deprecated.

We recommend that you switch to the following successor CDS view:

- **C_ILO>LoadingLaneQuery_2:** (Loading Lane - Query)

The new CDS view involves the technical migration to a new generation of analytical Core Data Services (CDS) views. From a functional perspective, there are no changes to existing business processes or data access.

SAP plans to decommission the old CDS view: It won't be available for use after the transition. You can't create new content based on deprecated CDS views (for example, creating a new custom analytical query based on a deprecated SAP cube view). However, you can still modify existing content based on deprecated CDS views. **Example:** You can add deprecated fields from a released SAP view to an existing custom CDS view or add more fields from a deprecated SAP view to an existing custom CDS view.

As a key user, you'll see tasks in the key user extensibility apps for prominent occurrences of deprecated CDS views. These tasks prompt you to rework your content where necessary.

Purpose

This CDS view retrieves information about loading lanes and their current usage in the route train process. Loading lanes are bins in the warehouse, which are configured in the Manage Loading Lanes and Maintain Loading Lanes apps.

This CDS view provides data to answer the following business questions from a master data perspective:

- How many loading lanes have been defined for a given route or for the whole warehouse?
- How many loading lanes are empty and how many loading lanes are occupied?
- How many loading lanes are used for priority HUs?

The CDS view also provides data to answer the following business questions from a transactional perspective:

- How many loadable top HUs and racks are on my loading lanes?
- How many unused loading lanes exist?

To help you decide which CDS view to use for your purposes, SAP has introduced the annotation `ObjectModel.supportedCapabilities` that indicates the most appropriate use cases for each CDS view. To find out what use cases are best supported by this CDS view, access the entry of the CDS view in the [View Browser](#) app and find the values for this annotation under the [Annotation](#) tab. For more information, open the product assistance for the relevant release of SAP S/4HANA on SAP Help Portal at <https://help.sap.com/s4hana> and search for **Supported Capabilities for CDS Views**.

Prerequisites

Authorizations

Users who want to use this CDS view must have the following authorization objects assigned:

- `/SCWM/LG` (*EWM Storage Bin*)
- `/SCWM/LGNU` (*EWM Warehouse number*)

Users can only access records for those warehouses and bins for which they have display authorization.

Structure

Parameters

The parameters of the CDS view are as follows:

- **P_Language:** This parameter is used to specify the system language.

Fields Used for Filtering

The main filters are as follows:

- **Warehouse:** This field is used to filter by warehouse.
- **IntraLogisticOperationsRoute:** This field is used to filter by route.
- **ILODeliveryPriority:** This field is used to filter by the delivery priority of the delivery item.
- **EWMStorageType:** This field is used to filter by the storage type of the loading lane.
- **EWMStorageSection:** This field is used to filter by the storage section of the loading lane.
- **EWMStorageBin:** This field is used to filter by the storage bin of the loading lane.

These filters aren't mandatory.

Important Fields

Important fields in this view include the following:

Field Name	Description	Measure or Attribute	Comment
Warehouse	EWM Warehouse	Attribute	
IntraLogisticsOperationsRoute	Route ID	Attribute	
ILODeliveryPriority	Delivery Priority	Attribute	
EWMStorageType	Storage Type	Attribute	
EWMStorageSection	Storage Section	Attribute	
EWMStorageBin	Storage Bin	Attribute	
ILONumberOfAllLoadingLanes	Number of all loading lanes	Measure	Counts all bins that are defined as loading lanes
ILONumberOfFreeLoadingLanes	Number of free loading lanes	Measure	Counts all empty loading lanes.
ILONumberOfOccupiedLoadingLane	Number of occupied loading lanes	Measure	Counts all loading lanes that aren't empty.
ILONumberOfLoadableTopHU	Number of handling units (HUs) on the bin with an open <i>loading</i> warehouse task	Measure	Considers HUs with an open warehouse task that has the internal process <i>DDL D</i> .

Field Name	Description	Measure or Attribute	Comment
ILONumberOfLoadableRacks	Number of racks on the bin with an open loading warehouse task	Measure	Considers racks that are defined in transaction /SCWM/RACKTYPE.
ILONumberOfUnusedLoadingLanes	Number of loading lanes with an open warehouse request	Measure	Considers the number of loading lanes for which all delivery item statuses are Completed .

Data Extraction

Data Extraction Type

- Full (physical deletions are possible in source tables)

Corresponding DataSource (Extractor)

- 2CIILOLOADINGLANEC

4.3.5 Logistical Re-Evaluation

The logistical re-evaluation (LRE) is a process that re-evaluates replicated warehouse request items or handling units: It determines the route, dates and times and, if applicable, a tour when a warehouse request item is created in EWM.

The LRE can include the following steps:

- A delivery priority increase can be done if a tour is expected but couldn't be found.
- After a delivery priority increase, the warehouse process type can be determined.
- Anytime, after warehouse request items are evaluated, the LRE can be called again for warehouse request items or handling units (HU)

Background Process Steps Including an LRE

Generally, the LRE is started in the background based on the system settings and data. You can, however, also start the LRE manually in the warehouse management monitor.

The first step of the LRE depends on the corresponding process step.

Background Process Steps Including an LRE

Process Step	More Information
1. Warehouse request item creation	<ol style="list-style-type: none"> 1. The creation of warehouse request items starts with a route determination. 2. Then, the system determines the dates and times and the tour assignment if an early tour assignment is configured and possible. 3. If the tour assignment is configured but no tour is determined, the priority can be increased and the process restarts with the route determination including the warehouse process type redetermination.
2. Update of warehouse request item creation	<ol style="list-style-type: none"> 1. The update of warehouse request items starts with a route determination. 2. Then, the system determines the dates and times and the tour assignment if an early tour assignment is configured and possible. 3. If the tour assignment is configured but no tour is determined, the priority can be increased, the warehouse process type is determined, and the process restarts with the route determination.
3. Wave preparation	<ul style="list-style-type: none"> • During the wave preparation, the first LRE starts with a route determination. • If the LRE is called a second time during wave preparation, it starts with verifying whether the planned loading start date and time or the provision date and time has passed. If one of the dates has passed, the priority is increased, the warehouse process type is determined, and the process restarts with the route determination.
4. Loading completion	<ol style="list-style-type: none"> 1. The LRE selects all HUs and items that are assigned to the tour and aren't loaded. 2. Then, suitable tours are determined for the HUs and items. <ul style="list-style-type: none"> • If a tour is found, it's used as the new tour for the HU or item. • If no tour can be found, the priority is increased, the warehouse process type is determined, and the process restarts with the route determination.
5. Warehouse management monitor for a warehouse request item or for an HU	If a user starts an LRE manually from the warehouse management monitor, the process always starts with a route determination.

Prerequisites

Make sure that you make the following settings:

- Customizing for SCM Extended Warehouse Management under ► [Extended Warehouse Management](#) ► [Cross-Process Settings](#) ► [Delivery - Warehouse Request](#) ► [Dates/Times](#) ►: [Define Date Types](#) for those date types that are used in [Define Date Types for Logistical Re-Evaluation](#). [Define Date Profiles](#): Here you need to assign the date types to date profiles.
- Customizing for SCM Extended Warehouse Management under ► [Extended Warehouse Management](#) ► [Cross-Process Settings](#) ► [Delivery - Warehouse Request](#) ► [Dates/Times](#) ►: [Date Types](#) should be defined if they need to be calculated and added to the warehouse request item:
 - /ILO/DEPA: Route Train Departure Date Time
 - /ILO/LOAD: Route Train Loading Start Date Time
 - /ILO/PICK: Route Train Pick Start Date Time
- Customizing for SCM Extended Warehouse Management under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ► [Define Delivery Priority Sequence](#) ►: If no sequence is maintained for the warehouse, no priority increase is executed.
- Customizing for SCM Extended Warehouse Management under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ► [Define Date Types for Logistical Re-Evaluation](#) ►: You can define the source of the provision date.
- Customizing for SCM Extended Warehouse Management under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Define Warehouse Settings](#) ►: If you've selected the [Call JIT](#) checkbox, the supply date from the JIT call is used instead of the end of warehouse activities from the warehouse request item with a JIT call reference.
- Define the picking duration with the [Manage Pick Duration \[page 250\]](#) app. You access this app from the SAP Fiori launchpad. The default picking duration is 0. You can use the [Manage Pick Duration](#) app to set picking durations for your warehouse and combinations of storage type, storage section, and storage bin. (You can also use the transaction in the SAP menu under ► [Logistics](#) ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Define Default Picking Duration](#) ►).
- The definition of clarification for all occurring combinations of warehouse, activity, and activity area can be found, in the SAP Menu under ► [Logistics](#) ► [SCWM Extended Warehouse Management](#) ► [Extended Warehouse Management](#) ► [Master Data Storage Bin](#) ► [Assign Start/End Storage Bin for Activity Area](#) ► (transaction /SCWM/SEBA).
- The priority handling for delivery items is based on the document type. Activate the priority control for your relevant document types in Customizing for [SCM Extended Warehouse Management](#) under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Warehouse Request - Tour](#) ► [Priority Control](#) ► [Activate Priority Control for Documents](#) ►. By default, all document types only increase the priority if it's activated in Customizing.

Note

The production material request (PMR) doesn't support the priority increase process due to the repetitive delivery process for a PMR document.

Updating LRE Data

If the LRE has determined changed data, the following updates are done:

- Items for which picking hasn't started yet are updated, their picking warehouse tasks are canceled, and their assignment to waves is removed.
- For items or HUs that are currently in the picking process but without a suggested destination bin, the system executes the following actions: A record with the current HU or item is stored in the database that contains the new data. This data is picked up during loading lane determination. The loading lane determination is executed based on the data from that table. After the user has confirmed the destination bin, the HU is also updated. The loading warehouse task contains the updated data.
- When the HU destination bin is displayed to the user during radio frequent (RF) picking, the system executes the following actions: A record with the current HU or item is stored in the database that contains the new data. This data is checked during the creation of the loading warehouse task and the LRE is called for the HU that now has an open loading warehouse task.
- For HUs that have an open loading warehouse task, a simulation of the loading lane determination is processed: If the item would go to a different bin than its current location, the open warehouse task is canceled, the process-oriented storage control step is reset and a warehouse task is created, which needs to be confirmed by a user. Once it's confirmed, a new loading warehouse task is created.

Related Information

[Tour Assignment \[page 159\]](#)

[Manage Pick Duration \[page 250\]](#)

4.3.6 Remote RF Log-On

Remote logon to the radio frequency (RF) environment allows working with RF in another system.

Prerequisites

- The remote target system is set up for SAP S/4HANA for manufacturing logistics (software component ILO).
- You have created a user with a corresponding profile in the remote target system.

- You have set up the connection to the remote target system in the Customizing under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Mobile Data Entry](#) ► [Define Remote System](#) ►.

Use

The [Log On to RF Environment](#) transaction allows you to continue working with radio frequency (RF) while switching from one system to another system. The remote RF log on transaction runs the RF transaction on the target system and the warehouse worker can continue working with RF in the target system.

The RF transactions or RF menus, which a user is allowed to execute are configured on the target system via presentation and personalization profiles.

4.3.7 Selection Variant Processes

A selection variant process is a configured background-enabled process, that reads, validates, and modifies information of the business objects for route trains and related EWM (Extended Warehouse Management) representations.

Prerequisites

To use selection variant processes, you must configure types and consumers in Customizing for [SCM Extended Warehouse Management](#) under ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Selection Variants and Consumers](#) ►.

Background Information: Selection Variants

A selection variant is a stored selection criteria that defines values of process-specific fields. Selection variants enable you to use pre-defined values in selection variant processes. To define selection variants, you use the [Manage Selection Variants](#) SAP Fiori app.

About Selection Variant Processes

Every selection variant process can include the following steps:

- SELECTION
- PREPARATION

- SAVE

The PREPARATION and SAVE steps are optional and only necessary if the result of the SELECTION step should be reworked and used for business object updates.

The result of the SELECTION step is configured and used as input for the PREPARATION step. The result of the PREPARATION step, which can be different to the input, is used by and can be changed by the SAVE step for business object updates.

More Information

For more information about the framework for selection variant processes, see the How-to document in SAP Note [3291443](#) .

Related Information

[Manage Selection Variants \[page 242\]](#)

4.3.8 Staging for Kanban Using Warehouse Requests with Route Train

In this process, Kanban triggers replenishment requests in your warehouse by creating warehouse requests. You pick and load your picked Kanban container to a tour and unload it to the PSA.

Restriction

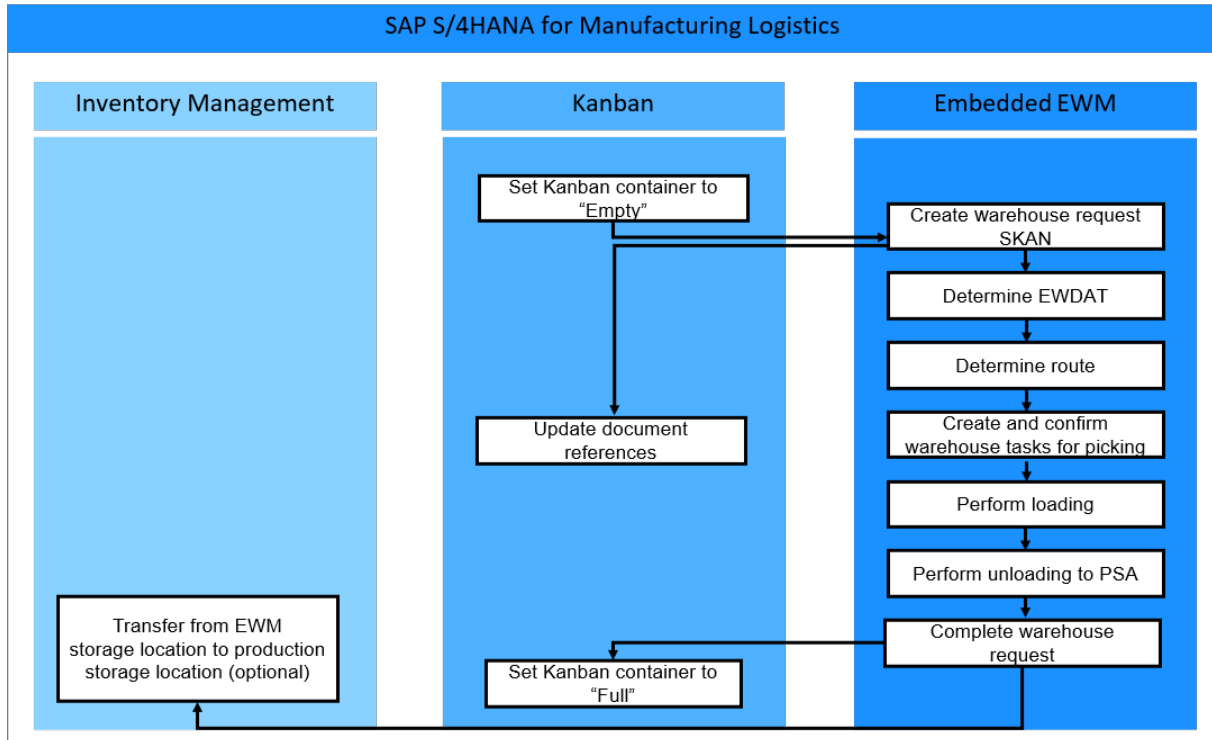
This process with route trains is only supported for embedded EWM.

Prerequisites

- You've set up the EWM Kanban replenishment process. For more information, open the Extended Warehouse Management (EWM) product assistance of the latest SAP S/4HANA release on SAP Help Portal at <https://help.sap.com/s4hana> and search for **Staging for Kanban Using Warehouse Requests**.
- You've set up the warehouse process type in the control cycle so that the warehouse task and warehouse order determine a process that is route train-relevant. For more information, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Replenishment Process

The following graphic shows the replenishment process for embedded EWM:



1. You set the status of a Kanban to *Empty* in one of the following apps:
 - *Kanban Board*
 - *Set Kanban Container Status*
 - *Display Kanbans: Demand View* (transaction PK13N)
2. The system creates a warehouse request for replenishment and the Kanban status is set to *Empty*.
3. The system automatically determines a route for the warehouse request item.
4. Optional: You assign the warehouse request to a wave and release the wave.
5. The warehouse tasks for picking are created and are assigned to a warehouse order for picking.
6. You pick and stage the pick-handling units (pick HUs) for loading onto a route train.
7. You load the HU onto a new or existing tour.
8. You unload the HU to the PSA using the route train radio frequency (RF) transaction for unloading.
9. You confirm unloading the warehouse task to a storage type that is final. The system sets the Kanban status to *Full*.
10. Optional: If you've assigned a handover bin to your PSA, unloading the warehouse task to the handover bin completes the warehouse request and also sets the Kanban container status to *Full*. However, the HU must still be transported from the handover bin to the PSA. For this purpose, the system has automatically created a corresponding warehouse task.
11. You complete the tour.

Determination of Warehouse Activities End Date

The [Warehouse Activities End Date](#) in the warehouse request is only set if you use event-driven Kanban. However, the route train component requires a date and time, which is used for the date and time calculation for the replenishment process.

If not specified otherwise, the Business Add-IN (BAI) /SCWM/EX_KAN_WHR_CR (enhancement implementation /ILO/EHI_EX_KAN_WHR_CR) provides the current date and time for the [Warehouse Activities End Date](#).

In addition, the implementation also considers the replenishment lead time in days, hours, and minutes from the control cycle and adds it to the [Warehouse Activities End Date](#).

Note

You can deactivate the BAI implementation and replace it by your own logic for providing the [Warehouse Activities End Date](#).

4.4 Goods Distribution with Route Trains

Goods distribution with route trains includes several steps.

- Logging on to a working area
- Picking
- Loading
- Delivery and Unloading
- Packing

4.4.1 Working Area

Using a frequency (RF) presentation device, you optionally log on to a certain working area, which enables you to perform only dedicated tasks (RF transactions) according to the corresponding working area definition.

Use

In a first step, you call up a special RF screen and assign yourself to a predefined working area by scanning the working area ID.

Optionally, when a user activity profile is assigned to your user, the system calls subsequent RF transactions automatically, for example, picking and loading. For more information, see [User Activity Profile \[page 115\]](#).

❖ Example

If you're allowed to execute a picking task only in a specific activity area, you only need to scan the appropriate working area (for example, via barcode). Based on the working area definition, the system automatically starts the assigned RF transaction, for example, loading.

You remain logged on to the working area until you perform one of the following actions:

- User enters another working area in the working area RF transaction. From this point in time, the user is logged on to the other working area.
- User logs off from the working area (button) in the RF working area transaction.
- User logs off from the RF transaction.

Prerequisites

Make sure that you've made the following settings:

- You've defined a working area in the Customizing activity [Define Working Areas](#) in Customizing for [Extended Warehouse Management](#) under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ►.
- You're logged on in the RF environment.

Related Information

[Working Area \[page 114\]](#)

[User Activity Profile \[page 115\]](#)

4.4.2 Picking

Using a radio frequency (RF) presentation device, you pick products into handling units (HUs) to load onto a route train.

Route train picking offers the following functionality:

- If you use working area and user activity profiles, then the relevant **working area** and **user activity profile** are validated automatically, when you start picking:
You can only use the picking RF transaction (transaction code/SCWM/RFUI) if it's defined in the relevant working area and user activity profile that's assigned to you.
- The system automatically calls the **loading lane determination** before the staging HU warehouse task is displayed. If the loading lane determination specifies a loading lane, then the HU warehouse task is updated in the background without any user interaction.
- If you use working areas and user activity profiles, the system automatically calls **subsequent RF transactions**, for example loading, background loading, and delivery.

Note

The subsequent transaction is selected by the assigned working area and user activity profile. These assignments are defined in the Customizing under ► [SCM Extended Warehouse Management](#) ► [Extended Warehouse Management](#) ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Resource Management](#) ►.

Apart from the initial working area validations and the loading lane determination call, the RF picking transactions work in the same way as the standard EWM RF picking transactions:

- RF picking system-guided
- RF picking system-guided by Queue
- RF picking by WR
- RF picking by WO
- RF picking by HU

Related Information

[Loading Lane Determination \[page 160\]](#)

4.4.3 Loading

Using a radio frequency (RF) presentation device, you load either handling units (HUs) containing HU positions that have been picked upfront or complete HUs of a route onto a route train representing a tour. You can also enter a value for the position of the HU in the route train.

Use

After confirming that the pick HUs have been moved to the loading lane, the system creates loading warehouse tasks. Using RF (transaction code `/SCWM/RFUI`), the warehouse worker scans HUs for a tour and loads the route train.

Prerequisites

Make sure that you've made the following settings:

- You've made the prerequisite settings for the Extended Warehouse Management (EWM) distribution equipment.
- You've made the required Customizing and master data settings for route trains.

- You've defined routes with active route versions and corresponding stops in the SAP Fiori app [Manage Routes](#).
- You're logged on in the RF environment.
- Warehouse tasks for loading individual HUs containing HU positions or full pallets exist. HUs with a route assignment exist.

Features

- If you've defined a working area or user activity profile: When you start picking, the system validates the relevant working area and user activity profile. You can only use the picking RF transaction if it's defined in the relevant working area and/or user activity profile that's assigned to you.
- In the RF menu, you find **manual** and **system-guided** transactions to execute RF loading. These functions are either manual or system-guided:
 - How the route is selected.
 - How the HUs are identified that are to be loaded for the tour.
- Only one warehouse worker at a time can load the route train.
- Before you start loading, you must scan the HU to be loaded. Note that the system only accepts HUs that are assigned to a route.
- After the scan of the HU to be loaded, the destination position is either displayed or you enter the destination position (depending on position assignment settings) in the route train. If manual position assignment is defined in route version, you must enter a position in the route train within the position range that's defined in the route version.
- When you load the first HU without tour assignment, the system creates a new tour or determines an existing tour based on the settings of the route that's assigned to the corresponding HU (tour creation strategy).
- When loading the first HU and the tour creation is completed, the system only accepts HUs that are assigned to the same route.
- You must explicitly finish loading of a route train (tour) by choosing [End](#). Depending on the route version setting, the route start point must either be confirmed or entered. When loading is completed, the unloading warehouse order including warehouse tasks for unloading the route train is created.

Note

If you leave the RF transaction using [F7](#), you're prompted to decide whether you want to continue with that task later. If you choose [Yes](#), you'll continue loading the same route train the next time you enter the RF transaction. If you choose [No](#), you'll start loading a different route train the next time you enter the RF transaction.

- If a towing vehicle is required according to the route version settings, you must assign a towing vehicle.
- If you log on with a resource using a resource type with resource category [Towing Vehicle](#), this logon resource is assigned automatically as towing vehicle of the route train. If the towing vehicle is already assigned to another route train, this logon resource isn't automatically assigned. In that case, you must unassign the towing vehicle from the route train or log on with another resource.
- You can use the RF transaction at any time during loading to display a list of the HUs that have been loaded so far. In addition, you can also display the corresponding final destinations in the production supply areas (PSAs). You can also see any hazardous materials and their position on the route train.

- You can view loading warehouse order details, for example, the number of loaded top HUs and the status of the warehouse order.
- The system automatically calls the subsequent delivery RF transaction if loading by driver is defined in the route version and the delivery RF transaction is defined in the working area or user activity profile.
- Loading handles certain exceptional situations:
 - **Loading Break and Resume Loading**
The loading employee interrupts the loading and declares that the task is continued later. Loading is automatically resumed when the loading employee starts the RF dialog again after the break by scanning any HU from the route train.
 - **Unload HU (Reverse Loading)**
The loading employee is prompted to enter a bin where to put the HU, which is usually the one that it came from. The HU tour assignment is revoked (for manual loading) or set back to the original tour assignment.

More Information

- For more information about the configuration of the Extended Warehouse Management (EWM) distribution equipment, see the product assistance for SAP S/4HANA on SAP Help Portal at <https://help.sap.com/s4hana>. Open the product page for your SAP S/4HANA release and search for *Goods Distribution with Distribution Equipment*.
- For more information about route train master data, see section [Master Data \[page 103\]](#).

4.4.3.1 Manual Loading

With the RF transactions for manual loading, the loading employee defines the workload by scanning a route ID or an HU that is ready for loading (HU that is on an open loading warehouse order).

Use

After confirming that the picking warehouse tasks have been moved to the loading lane, the system creates loading warehouse tasks. Using RF, you decide which HUs containing HU positions (for example, mobile racks) or entire HUs (for example, europallets) assigned to the same route are combined on a route train represented by a new tour.

Manual loading is used when no system-guided loading is intended.

You can use the following RF transactions for manual route train loading (transaction code/SCWM/RFUI):

- **RF loading by HU**
You start with the scanning of the route ID before you scan the first handling unit (HU).
- **RF loading by HU (w/o route scanning)**
You start with the scanning of any loadable HU. The route ID is retrieved automatically from the first scanned HU. For the first scanned HU, the system:

- either determines a qualified existing tour (depending on tour creation strategy).
- or (if no suitable tour is available) generates a new tour and accepts any matching loadable HUs until reaching the maximum number of HUs for the tour.
- **RF prioritized loading by HU**
You start with the scanning of the HU and any existing tour assignment is ignored so you can trigger RF delivery independently from the route settings (ignoring loading by driver and start point confirmation). The system ignores any previous tour assignment. It enables the warehouse worker to load a new tour with any HU's ready for loading (with open loading warehouse order) for the same route. Existing HU to tour assignments are replaced automatically by the new tour.

For the RF transactions **RF loading by HU** and **RF loading by HU (w/o route scanning)**, the first scanned HU defines the further load processing for the tour:

- **With tour assignment:** Only HU's with this tour can be loaded. The system displays a list of all HU's with this tour assigned for loading. After loading of all HU's from the list, the system proposes loading completion.
- **Without tour assignment:** Only HU's without tour assignment can be loaded. The loading employee triggers the completion of loading when choosing *End* (F1).

4.4.3.2 System-Guided Loading

RF system-guided loading is used for scheduled routes (tour creation strategy 01) with already created tours.

RF system-guided loading (transaction code/SCWM/RFUI) selects a suitable tour for the loading employee. This assignment is determined based on settings such as:

- Resource group
- Route group
- Working Area

In addition to these settings, the system considers the current logon user as the loading employee.

From all possible tours, the system proposes the tours based on the latest starting date and selects the oldest planned loading start date: It displays the tour with all HUs to be loaded with their current location (loading lanes). The loading employee can only scan objects from this list.

The loading process for system-guided loading is the same as for manual RF loading by HU.

After loading completion, the system automatically proposes the next tour to be loaded by the warehouse worker.

📌 Note

The tour determination logic is encapsulated in an implementation of BAdI /ILO/
BADI_QUERY_TOUR4LOADING. Customer-specific implementations support the adjustment of the determination logic to your specific scenario.

4.4.4 Delivery and Unloading

Delivery and unloading by route trains is a manual or a system-guided activity accomplished by radio frequency (RF) transactions.

Use

Using a radio frequency (RF) presentation device, you unload full pallets, handling units (HUs) containing HU positions, or lower-level HUs from the route train into the specified production supply area (PSA) or destination bin, for example. Two RF transactions are provided to execute route train delivery (transaction code/SCWM/RFUI):

1. RF Delivery by HU
The warehouse worker manually selects the next tour to be delivered.
2. RF Delivery System-Guided
The system determines the next tour to be delivered.

Prerequisites

Make sure that you've made the following settings:

- You've made the prerequisite settings for the Extended Warehoused Management (EWM) distribution equipment.
- You're logged on in the RF environment.
- Tour and warehouse tasks for unloading full pallets, HUs containing HU positions, or nested HUs exist.
- The status of the tour is *Loading completed*.
- The status of the unloading warehouse order is *Open*.

Route Version Settings

The **route version** defines the way how the delivery and unloading of tours is done:

- Stop sequence and if the driver is allowed to change the stop sequence.
- Unloading confirmation method, for example, complete tour, complete stop, or stop ID and HUs.

Features

Loading Completed

At loading completion, the system creates unloading warehouse tasks on the correct HU hierarchy level. Note that it creates as few warehouse tasks as required but as many as needed.

❖ Example

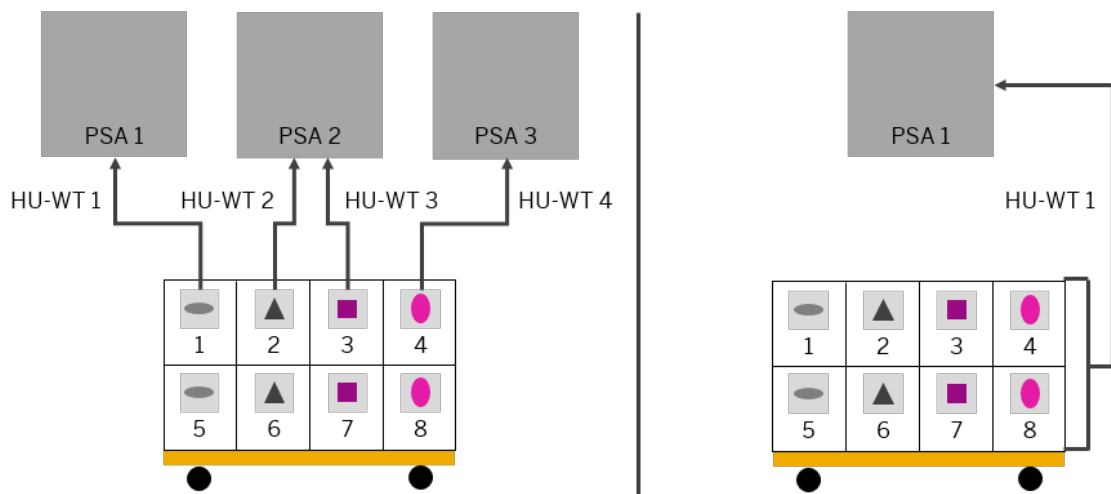
If the entire content of a mobile rack must be unloaded into the same production supply area (PSA), the whole rack is moved in one warehouse task. If the lower-level HUs in the mobile rack are intended for different PSAs, the system creates individual warehouse tasks for each lower-level HU, as shown in the following figure:

Delivery

- When you start the delivery, the system validates the working area and user activity profile: In case working area and user activity profile are used, you can only use the delivery RF transaction if it's defined in the relevant working area and user activity profile that's assigned to you.
 - You can view tour details, for example, the tour ID, the route ID, and the number of stops.
 - You must explicitly start the delivery process by choosing [Start](#).
If the tour delivery has already been started before (for example, by using the recovery functionality, or due to a handover at the transfer point or tour break), you must confirm that you want to continue unloading by choosing [Continue](#).
- After the start of delivery and before reaching the first stop (transfer point or PSA) confirmation, the loading of additional HUs is supported via the tour overview screen:
 - The user can scan an HU with open loading warehouse order.
 - The tour or route of the HU isn't validated, but the final destination (PSA) of the scanned HU has to be covered by the actual route.
In addition, the loading position can be entered (not validated).
 - After successful validation of the scanned HU, the HU is loaded to the tour. Existing tour or route assignments are replaced by the actual tour and route.
- Depending on the stop type and confirmation method, the system processes one of the following steps:
 - If you only have to confirm the completion of the tour according to the definition in the route version (no confirmation of individual HU unloading), the system displays the tour ID and you must confirm by choosing [CfrmAll](#) that you've unloaded the complete tour.
 - If the next stop is a **transfer point**, the system displays the stop ID and you must confirm that the route train is available at the transfer point by scanning the transfer point ID. All HUs on the route train are posted to the transfer point and all open unloading warehouse tasks are split into a new unloading warehouse order that's assigned to the same tour. As a next step, another driver can continue with the tour delivery.
For stop type **PSA**, the warehouse task displays the HU position of the HU from which you must unload the goods (if it was entered during picking or loading).
 - Depending on the confirmation method, you must also verify the stop ID and HU, for example.
 - HU positions can be concatenated based on their HU hierarchy. With lower-level HUs, for example, a box inside a HU position of a rack, the HU position is concatenated.

❖ Example

If the concatenation is 01/03, 01 the position of the rack and 03 is the position of the box inside the rack. In this case, you must only enter the position of the HU that you're unloading. In this example, the position of the HU is 03.



Unloading Example

- When **unloading is completed** and the unloading warehouse order is confirmed, you must confirm that you've arrived at the end point of the route.
- When you arrive at the **end point of the route**, empty highest-level HUs are moved to their starting point using automatically confirmed warehouse tasks, for example, the staging area for loading.
- If one of the following **exceptions** occurs during unloading, you must specify a bin manually:
 - You can't confirm the unloading warehouse task because the HU is physically not available. If so, indicate that the HU is missing.
 - The destination bin isn't reachable, or you can't use the HU for some reason. In this case, proceed as follows:
 - The warehouse task is confirmed to the clarification zone with the exception *Change Destination Bin* and you need to carry out a manual follow-up action. You must use the exception *Change Destination Bin* to be able to specify the clarification zone as the destination bin.
 - If the destination bin/stop is only temporarily unavailable, you can skip the current stop and continue with the next available stop. You can also skip the unloading of one HU, or you can change the stop by skipping several stops. You can return to the skipped stop later.

Note

This feature is only available if the route version allows the change of the unloading sequence.

- You must abandon the tour delivery, for example, due to a shift end.
If you don't use a towing vehicle, you must enter a parking storage bin. All HUs on your resource are posted to this storage bin. All open warehouse tasks are split into a new unloading warehouse order with same towing vehicle if it's used. As a next step, another driver can continue with the tour delivery.
- If you **must stop the delivery**, for example, due to an interruption, you can leave the RF transaction. In this case, you're still the assigned driver of the tour or warehouse order. You can continue the delivery later.
- Optional: You can assign or unassign a towing vehicle to the route train. Note that you can assign only one towing vehicle to one route train at a time.
- If a towing vehicle is required according to the route version settings, the system automatically determines the towing vehicle. It determines the towing vehicle of the previous tour on the same route for the same user on the same day. If the system can't determine a towing vehicle, you must enter it manually when you start the delivery.
If you log on with a resource using a resource type with resource category *Towing Vehicle*, this logon resource is assigned automatically as towing vehicle of the route train. If the towing vehicle is already

assigned to another route train, this logon resource isn't automatically assigned. In that case, you must unassign the towing vehicle from the route train or log on with another resource.

4.4.4.1 Delivery by HU

The delivery by HU starts by identifying the tour with the scanning of any handling (HU) loaded for the tour.

Use

After loading completion of the tour, the system creates unloading warehouse tasks. You process the unloading warehouse order with unloading warehouse tasks for all HUs using RF transaction (transaction code/**SCWM/RFUI**). You can, for example, find out into which production supply area (PSA) or destination bin you must unload the goods.

📘 Note

About Unexpected Warehouse Task Disruptions

In some cases, you may encounter unexpected changes to existing warehouse tasks during unloading: For example, open unloading warehouse tasks may be confirmed or cancelled by other users. You can manage such disruptions and continue unloading smoothly.

Context

You've started the unloading process. Handling units (HUs) with status **Loaded** have been planned for delivery at designated stops, and the system has generated the corresponding open unloading warehouse tasks for these HUs.

Process

1. After you've started the unloading process, another user might interfere by either cancelling or confirming one or more of the existing open warehouse tasks. This could happen due to various reasons, such as changes in delivery schedules or by mistake.
2. If such interference occurs, the system automatically completes the stop and displays a warning message to inform you about this automatic completion.
3. If you confirm the warning message, you acknowledge the automatic completion and skip the current stop.
4. You can then continue the unloading process at the next stop.

More Information

- For more information about the configuration of the Extended Warehouse Management (EWM) distribution equipment, see the product assistance for SAP S/4HANA on SAP Help Portal at <https://help.sap.com/s4hana>. Open the product page for your SAP S/4HANA release and search for **Goods Distribution with Distribution Equipment**.

- For more information about route train master data, see section [Master Data \[page 103\]](#).

4.4.4.2 System-Guided Delivery

In the system-guided delivery and unloading, the tour is determined by the system.

Use

This RF transaction for system-guided delivery (transaction code `/SCWM/RFUI`) works like the manual delivery RF transaction. The main difference is that the warehouse worker can't identify a tour by scanning any HU of the corresponding tour. Instead, the system determines a tour that must be delivered next.

Features

The system determines the tour that must be delivered next. You must only confirm the tour by scanning any HU of the tour.

To determine the next tour for delivery, the system checks the available tours for the following criteria:

- Tour status is *Loading Completed*.
- Tour driver is either not assigned or it is the current user.
- Towing vehicle is the current resource or initial (if the current resource is the towing vehicle)
- Towing vehicle is any unused towing vehicle or initial (if the current resource isn't the towing vehicle)

The selected tour is validated for a consistent unloading warehouse order (WO) assignment regarding user, resource, or queue (which is executable by current resource). If the user is assigned to a working area, this queue is used for the unloading WO selection as well.

The system determines a list of tours that is sorted by driver, resource, and the latest start date of the tour departure. The first tour from that list is displayed to the warehouse worker for unloading.

Note

Tour determination logic is encapsulated in a BADI `/ILO/BADI_QUERY_TOUR4UNLOADING` implementation. Customer-specific implementations support the adjustment of the determination logic to customer need.

4.4.4.3 Loading During Unloading

You can use route trains to load handling units (HUs) onto route trains after you've already started the unloading process.

After you start unloading and scan an HU to identify the tour, you can load HUs instead of confirming the next unloading warehouse task.

Prerequisites

- You've made the prerequisite settings for loading during unloading. For detailed information about all mandatory settings, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).
- You can load handling units (HUs) only if they don't have reference documents. If HUs have reference documents, you can load them only if there's an open loading warehouse task.
- The stops of the HUs must all have the same activity area.

Features

You can load:

- Empty HUs
- Non-empty HUs
- HUs based on loading warehouse tasks
- HUs without warehouse tasks

The destination of newly loaded HUs can either be another stop of the current tour, the end point of the tour, or a destination bin in the warehouse after the HU has been unloaded at the endpoint of the tour.

Note

As soon as all unloading warehouse tasks of a tour are confirmed, you can no longer load HUs.

Example Process

The following example process describes how an empty HU is moved from one stop to the end point of the tour. The tour has status [Unloading Started](#):

1. A warehouse worker unloads the first HU at the first stop of the tour using a mobile device.
2. The first stop is completed, and the second stop is displayed.
3. Then, the warehouse worker unloads the second HU at the second stop of the tour.
4. The second stop is completed and the third stop is displayed.

5. Now, the warehouse worker picks up an empty HU by scanning it using a mobile device.
6. For this HU, the system creates a confirmed loading warehouse tasks and an unloading warehouse task with the end point of the tour.
7. Then, a warehouse worker unloads all relevant HUs at their relevant stops and confirms the relevant warehouse tasks for unloading. The system completes the stops. The tour has status *Unloading Completed* now.
8. At the end point of the route, the warehouse worker unloads the empty HU and confirms the end point of the tour.

Result

The tour is set to *Completed* and the empty HU at the end point of the tour can now be further processed, for example, it can be used for other tours.

4.4.4.4 Visual Support for Unloading

The *My Tours* SAP Fiori app provides visual guidance for the unloading process of a single tour.

Use

You can display the tour stops and the handling units (HUs) that are to be unloaded at each stop of type production supply area or its assigned handover point (as defined in the *Manage Routes* app). The *My Tours* app also displays stops of type transfer point and storage bin. The app is a read-only application, which allows users to display all relevant information about their assigned and not yet completed tours and the handling units (HUs) to be unloaded.

Related Information

[My Tours \[page 230\]](#)

[Working with the My Tours App \[page 234\]](#)

4.4.5 Packing

Using packing for manufacturing logistics lets you add a customer-specific packing step. This process enhances the standard work center process. It allows you to handle picked products at a packing work center. The pick-handling unit (HU) contains route information. Optionally, it can also include the tour and priority. You create new HUs at the outbound section of your work center.

Prerequisites

- You have configured the process-oriented storage control with your own process that includes a packing step. For more information, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Note

Please note that the determined warehouse process type for picking is relevant for this packing scenario.

- Optional: If you use delivery priority of handling units, make sure that you have configured the delivery priority sequence in Customizing for [SCM Extended Warehouse Management](#) under [Extended Warehouse Management](#) > [SAP S/4HANA for Manufacturing Logistics](#) > [Warehouse Request - Tour](#) > [Define Delivery Priority Sequence](#).

Process

1. Pack a pick-HU with a route and tour (or its content) into a HU at the work center. The tour, priority, and route are transferred from the pick-HU to the HU at the work center.

Note

- You can only add pick-HUs with the same route and tour into a HU at the work center. The enhancement for manufacturing logistics in transaction /SCWM/PACK of standard work center processing prevents mixed packing of different routes and tours in a rack-HU.
- You can add HUs that have a higher priority than the current HU priority defined to the HU at the outbound section of the packing workcenter.
- You can pack HUs with different planned loading start times into one HU at the outbound section of the packing workcenter: The planned loading start time is defined by the earliest loading start date and time of all packed pick-HUs. When you pack a pick-HU into a HU at the outbound section of the packing work center, the planned loading start time of the pick-HU is deleted.
- You can pack stock into a HU. In this case, you must create a new pick-HU at the inbound section of the workcenter before unpacking packed stock back to the workcenter: The new pick-HU is required to store the route, tour, priority, and planned loading start date and time.

2. Unpack pick-HUs from the HU: The route and tour from the HU is added to the pick-HU. During the unpacking process, the priority from the HU at the outbound section of the workcenter is added to the unpacked HU even if the unpacked HU didn't have a priority before. In addition, the planned loading start date and time from the HU at the outbound section of the workcenter is also added to the unpacked HU.
3. When you unpack the last HU from the HU at the outbound section of the work center, the values in the manufacturing logistics fields for route, tour, and priority are emptied.
4. When you finish the packing process, you must complete the process step for the HU at the outbound section of the workcenter.
5. Save your changes so that the next warehouse task, for example, to the staging area or the loading lane is created automatically by the system.

⚠ Caution

We **don't recommend** that you use the EWM work center determination in goods issue based on routes, because the route object referred to is different than the manufacturing logistics route: It refers to the external route. Using this route can be confusing for end users.

For more information about the EWM work center determination in goods issue, go to <https://help.sap.com>, select the relevant SAP S/4HANA release, and open the product assistance. Navigate to the *Extended Warehouse Management (EWM)* section and search for **Work Center Determination in Goods Issue**. Open the search result.

Technical Background

Checks for the manufacturing logistics packing process are implemented in the enhancement implementation `/ILO/EHI_WRKC_PACK` of Business Add-In (BAI) `/SCWM/EX_WRKC_PACK`.

Verifying Customer-Specific Implementations

- You must check your own implementation of the BAI because the implementation for manufacturing logistics also calls the fallback implementation `/SCWM/CL_EI_WRKC_REPACK`.
- If you have implemented your own checks for repacking and call the fallback implementation, make sure that you don't activate the enhancement implementation `/ILO/EHI_WRKC_PACK`. Instead, create a new implementation of BAI `/SCWM/EX_WRKC_PACK` that calls the methods of class `/ILO/CL_WRKC_PACK`.
- If you haven't implemented BAI `/SCWM/EX_WRKC_PACK`, you must activate the enhancement implementation `/ILO/EHI_WRKC_PACK`, which is delivered as inactive implementation.

4.5 Inbound Delivery with Route Trains

Inbound delivery with route trains allows deliveries based on predecessor documents or JIT (Just-in-Time) calls, storing destination bin information at different levels.

For inbound deliveries based on predecessor documents, for example, a purchase order, the destination bin information is stored on delivery item level.

For inbound deliveries based on JIT calls, the destination bin is stored on HU level. This enables you to handle also inbound delivery items packed into multiple handling units (HUs) that are going to different production supply areas (PSAs).

Integration

Inbound delivery with route trains is integrated with Extended Warehouse Management (EWM) and Transportation Management (TM). The inbound delivery scenario based on JIT calls is also integrated with Inbound Cargo Registration (ICR).

You can also use the inbound delivery with route trains process without ICR integration.

4.5.1 Inbound Deliveries Based on JIT Calls

You can use route trains to process inbound deliveries based on JIT (Just-in-Time) calls. This process enables you to use route trains to stage, transport, and deliver handling units (HUs) to production supply areas (PSAs) based on JIT calls.

Context

You use the radio frequency (RF) environment for route trains to process inbound deliveries based on JIT calls. Before the inbound delivery process for route trains is started, the inbound delivery has status *Blocked (Transportation Plan)* and the relevant HUs have no routes assigned yet.

→ Tip

You can display the inbound delivery document with its position and the relevant HUs in the enhanced warehouse management monitor under ► *Inbound* ► *Documents* ► *Inbound Delivery* ►.

Prerequisites

Mandatory settings:

1. In the Customizing activity *Assign Route Determination Procedure to Document Type*, a route determination procedure is configured for the *Inbound Delivery* document type.
2. You have configured the corresponding condition records for inbound delivery.

For more information about the required settings, see the latest *Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply*.

Predecessor steps in Transportation Management (TM), Extended Warehouse Management (EWM) and Inbound Cargo Registration (ICR):

1. In ERP, multiple JIT (Just-in-Time) calls for multiple destination PSAs have been sent to the supplier.
2. An advanced shipping notification (ASN) has been sent to the warehouse.
3. In TM, a freight order and a consignment have been created. And in ERP, an inbound delivery document has been created.

4. The supplier has packed the goods into HUs and has physically sent them to the warehouse.
5. An inbound delivery document has been created and set to [Set to Ready for Warehouse Processing](#).
6. In EWM, the inbound delivery status [Blocked \(Transportation Plan\)](#) is released and the route determination is started.
7. The inbound delivery using route trains is started.

Example Process

In the following inbound delivery process, products are received from a vendor using ICR. It describes an example process for a route train with HUs. The inbound delivery items are packed into multiple HUs that are going to different PSAs. The HUs are part of a rack and the corresponding sub-HUs must be delivered to the destination PSAs.

1. The inbound delivery process runs the logistical re-evaluation (LRE): The route determination identifies the route for each sub-HU using LRE on header level:
 - If the sub-HUs have the same route, the top-HU also receives this route.
 - If the sub-HUs have different routes, you must repack the HUs manually at the work center so that all top-HUs have the same routes as the relevant sub-HUs:
 1. To do that, create a new HU.
 2. Move the sub-HUs into the new rack-HU so that all sub-HUs have the same route.
 3. As a result, the sub-HU passes its route to the newly created top-HU.
2. A business user posts the goods receipt.
3. The system creates warehouse orders and warehouse tasks for staging (with warehouse process type for staging inbound deliveries based on JIT calls) for the loading employee to transport the HUs from the goods receipt to the relevant loading lanes.
4. Optional: If a staging step is configured for the delivery item, the warehouse worker confirms the warehouse tasks for staging. The system creates the relevant warehouse tasks for loading the HUs.
5. The loading employee loads the HUs onto a route train using a mobile device. A tour is created.
6. After the warehouse tasks for loading are confirmed and loading is completed, warehouse tasks for unloading are created for all relevant sub-HUs.
7. The driver starts the tour and transports the sub-HUs to their destination PSA or handover point:
 - HUs for racks are now empty, and the system sets their status to [Empty](#).
 - For sub-HUs that are moved to a handover point, the system creates warehouse tasks for transporting them to the final destination bin.
8. The driver transports empty racks to the end point of the route and confirms the end point of the tour. By confirming the end point, the warehouse tasks for unloading are automatically confirmed. The HUs for empty racks are set to status [Unloaded](#). These empty HUs can now be reused in other routes. The warehouse worker transports the sub-HUs from the handover point to the destination point of the route and confirms the relevant warehouse tasks.

Result

All warehouse orders and warehouse tasks are confirmed. The status of the inbound delivery is set as follows:

- Goods receipt: [Completed](#)
- Putaway: [Completed](#)

Related Information

[Route Determination Condition Records \[page 116\]](#)

4.5.2 Inbound Deliveries Based on Goods Receipt from Production

You can use route trains to process handling units (HUs) that are based on goods receipt from production. This process enables you to bring finished goods after production back to the warehouse for putaway to the final destination bin with route trains.

Prerequisites

Mandatory Settings:

- In the Manage Stops app, you have defined the required destination bins as stops of type [Storage Bin](#).
- You have configured the corresponding condition records for inbound delivery.
- You have configured the Post Processing Framework action (PPF action) `/ILO/PDI_01_HU_UPDATE` for the inbound delivery by HU receipt for route trains.
You have scheduled this PPF action to be started upon creation of an inbound delivery based on a manufacturing order. Make sure that the PPF action synchronizes the route ID of the HU and of the inbound delivery item.
For more information about the required settings, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Predecessor Steps in Extended Warehouse Management (EWM):

1. An inbound delivery based on a manufacturing order is created (which has no reference to an advanced shipping notification (ASN)).
2. The system assigns an HU to the inbound delivery.
3. The warehouse worker receives a handling unit (HU) from production.
4. Goods receipt for the inbound delivery is posted.

Example Process

Once an inbound delivery document is created, a route is determined and warehouse tasks are created for the HU loading. The route is determined based on condition records.

1. The loading employee loads the relevant HUs onto a route train using a mobile device.
2. After the warehouse tasks for loading are confirmed and loading is completed, warehouse tasks for unloading are created.
3. The driver starts the tour and transports the HUs to their final destination bins that are defined as stops of type [Storage Bin](#).

4. Finished goods from production is transported to final destination bin. After all HUs are unloaded, the driver confirms the relevant warehouse tasks and the tour.

Result

All warehouse orders and warehouse tasks are confirmed. The status of the goods receipt, putaway, and the inbound delivery is set to *Completed*.

Related Information

[Route Determination Condition Records \[page 116\]](#)

4.6 Tours for HU Warehouse Tasks with Route Trains

You can run tours with route trains that have no delivery reference, but are based on handling unit (HU) warehouse tasks. In this case, a route train process is started when an initial HU warehouse task is created using an appropriate warehouse process type. No warehouse request is required.

Integration

Route train processes based on HU warehouse tasks are integrated with Extended Warehouse Management (EWM) and also integrate with the shuttle, thus, also integrating into Transportation Management (TM).

⚠ Restriction

Staging for Kanban using warehouse tasks can't be supported with route trains because the warehouse tasks for Kanban don't support process-oriented storage control.

4.6.1 Basic Tours for HU Warehouse Tasks

You can move handling units (HUs) within a warehouse from a storage bin to a destination bin using route trains. In this scenario, the tour is based on the creation of internal HU warehouse tasks without warehouse requests.

Prerequisites

In Customizing for Extended Warehouse Management, you have:

- Configured a warehouse order creation rule and process-oriented storage control to enable the creation of warehouse tasks for moving handling units (HUs) to a loading area in the Customizing activity [Define Process-Oriented Storage Control](#) under ► [Cross-Process Settings](#) ► [Warehouse Task](#). ►

In Customizing for SAP S/4HANA for Manufacturing Logistics, you have:

- Enabled storage bin types as stops in the Customizing activity [Enable Special Features for Storage Bin Types](#) under [Master Data](#).
- Assigned a route determination procedure for warehouse tasks to the relevant warehouse in the Customizing activity [Define Warehouse Settings](#) under [Master Data](#).
- Activated a warehouse process type that is relevant for the route determination in the Customizing activity [Define Warehouse Process Types](#) under [Warehouse Request — Tour](#).
- In the [Manage Stops](#) app, you have:
 - Configured a production supply area (PSA) as a stop for the route train.
 - or
 - Defined the required destination bin as stop of type [Storage Bin](#).

For more information about all mandatory settings, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Example Process

In the following example process, a route train transports multiple HUs from a storage bin to a destination bin. In this process, destination data are provided and warehouse tasks are created without a warehouse request. The HUs are part of a rack and include lower-level HUs:

1. A warehouse worker adds a destination bin for the lower-level HUs using the warehouse management monitor.
Optional: The business user can also add a destination PSA for the lower-level HUs.
2. The warehouse worker creates warehouse tasks for each lower-level HU and enters the defined warehouse process type.
3. The system creates the relevant warehouse task for staging the (rack) HU from the source storage bin to the destination storage bin.
4. The warehouse worker confirms the warehouse task for staging.
5. After staging is completed, the system creates the relevant warehouse task for loading the (rack) HU.
6. The loading employee loads the (rack) HU onto a route train using a mobile device.
7. After the warehouse task for loading is confirmed and loading is completed, the system determines or assigns a tour.
8. The system creates warehouse tasks for unloading the lower-level HUs.
9. The tour driver starts the tour and unloads the lower-level HUs in the defined storage bins using a mobile device and confirms the unloading warehouse tasks of the lower-level HUs.
10. After unloading is completed, the tour driver confirms the end point of the tour.

Result

All warehouse tasks are completed, the lower-level HUs are unloaded, and the tour is completed. The (rack) HU has reached the endpoint of the tour.

4.6.1.1 Return of Unused Component Products to Source Warehouse

You can use route trains to return component products that haven't been used in production from the production supply area (PSA) to their source warehouse. Using this process, enables you to clear PSAs and efficiently handle unused products in the warehouse.

Note

To be able to use this process, the resource and the towing vehicle must not be assigned to any warehouse order that is in process.

Example Process

The following example process describes how to return components to storage that have been provided for a production process but haven't been used.

1. A warehouse worker creates a warehouse task for staging manually and selects a handling unit (HU) that is at the PSA.
2. The warehouse worker confirms the staging warehouse task. The HU is moved from the PSA to a loading area so that it can be loaded onto the route train.
3. After staging is completed, the system creates the relevant warehouse task to load the selected HU.
4. The warehouse worker loads the HU onto the route train using a mobile device.
5. After the warehouse task for loading is confirmed and loading is completed, the system creates a tour and warehouse task for unloading the HU.
6. The warehouse worker starts the tour, unloads the HU to the final destination bin, and then, confirms the unloading warehouse task.
7. After unloading is completed, the tour warehouse worker scans the storage bin and confirms the end point of the tour. The storage process ends here.
8. Then, the warehouse worker manually creates an ad hoc warehouse task for final putaway.
9. The system uses the search strategy to find the destination storage bin.
10. The warehouse worker verifies the storage bin and confirms the warehouse task for final putaway.

Result

All warehouse tasks are completed, the tour is completed, the PSA is cleared, and the HU is returned to the determined destination in the source warehouse. The HU can now be used for production supply again.

4.6.2 Tours for HU Warehouse Tasks with Shuttle Integration

You can run tours with route trains to process handling units (HUs) that have been moved from an external warehouse to the central warehouse using a shuttle. In this scenario, the route train process is started after the HUs have been unloaded from a shuttle: In the central warehouse, a warehouse worker moves the HUs to defined storage bins or the production supply areas (PSAs).

Prerequisites

In Customizing for Extended Warehouse Management, you have:

- Configured a warehouse order creation rule and process-oriented storage control to enable the creation of warehouse tasks for moving handling units (HUs) to a loading area in the Customizing activity [Define Process-Oriented Storage Control](#) under ► [Cross-Process Settings](#) ► [Warehouse Task](#). ►

In Customizing for SAP S/4HANA for Manufacturing Logistics, you have:

- Defined a warehouse process type that considers the shuttle-specific layout-oriented storage control in the Customizing activity [Define Warehouse Process Types](#) for Shuttle under [Shuttle](#).
- Enabled storage bin types as stops in the Customizing activity [Enable Special Features for Storage Bin Types](#) under [Master Data](#).
- Assigned a route determination procedure for warehouse tasks to the relevant warehouse in the Customizing activity [Define Warehouse Settings](#) under [Master Data](#).
- Activated a warehouse process type that is relevant for the route determination in the Customizing activity [Define Warehouse Process Types](#) under [Priority Control](#).

In the [Manage Stops](#) app, you have:

- Defined the required destination bin as stop of type [Storage Bin](#).

For more information about all mandatory settings, see the latest [Configuration Guide for SAP S/4HANA for Manufacturing Logistics - Route Trains for Production Supply](#).

Example Process

The following example process for route trains is started when a warehouse worker creates an initial HU warehouse task from the external warehouse to a destination bin in the central warehouse:

1. A warehouse worker adds a destination bin for the relevant HU and enters the defined warehouse process type using the warehouse management monitor.
2. The system creates the relevant warehouse tasks for picking.
3. The warehouse worker confirms the warehouse tasks for picking to move the relevant HU to the shuttle loading bin.
4. After picking is completed, the HU is ready for loading onto the shuttle.
5. A warehouse worker processes shuttle loading and unloading using the radio frequency (RF) shuttle loading and unloading transactions.
When shuttle loading and unloading is completed, the HU is unloaded to the destination bin of the shuttle. The system determines a route and a loading lane for the route train process.
6. The warehouse worker confirms the staging warehouse task to the loading lane, and the system creates the loading warehouse task.
7. Now, a loading employee loads the HU onto a route train using the RF environment for route trains.
8. After the relevant warehouse tasks for loading are confirmed and loading with the route train is completed, the system creates warehouse tasks for unloading to move the HU to the defined destination bin.
9. The tour driver starts the tour and unloads the HU at the defined destination bin using a mobile device and confirms the unloading warehouse tasks.

10. After unloading is completed, the tour driver confirms the end of the tour.

Result

All warehouse tasks are confirmed, the HU has been unloaded to the destination bin and the tour is completed.

4.7 Outbound Delivery with Route Trains

You can use route trains to handle outbound delivery orders for sales orders. You can, for example, use this process when you serve multiple customers from the same staging area, where goods are loaded. While you process the sales orders for customers in the warehouse, you supply goods to the staging area using route trains. The destination of the route train is the staging area of the outbound delivery.

Prerequisites

- You have assigned a route determination procedure to the relevant document type **OUTB**.
- You have assigned a date type to the relevant item types.
- You have determined a relevant warehouse process type, for example, **POUT**, which starts a process-oriented storage control that includes the picking, loading, and unloading step for route trains.
- You have created stops and assigned them to a route version.
- You have created condition records.

4.7.1 Outbound Deliveries for Plant Maintenance Orders

You can use route trains to process outbound deliveries that reference a plant maintenance order. This process enables you to supply components of a plant maintenance order (created in ERP) to the recipient location. In this process, the destination of the route train is the staging area of the outbound delivery, which is determined using the recipient location from the plant maintenance order.

Example Process

A maintenance technician is assigned to a maintenance order, which contains the recipient location where the relevant components must be staged to.

1. The recipient location is transferred to the plant maintenance order for the components.
2. Based on the plant maintenance order, the system creates an LE delivery, which contains the recipient location, and transfers the recipient location to the outbound delivery order.
3. When the outbound delivery order is created, the staging area determination uses the recipient location to determine the relevant staging area.

4. Now, regular EWM (Extended Warehouse Management) activities, such as picking or packing can be performed.
5. The maintenance order and the reservation number in the outbound delivery order provide an overview about the warehouse processing status of the components from specific maintenance orders/reservations.

4.8 Monitoring of Tour-Related Warehouse Objects and Processes

The enhanced warehouse management monitor enables you to control and manage warehouse objects and processes related to tours.

Node Hierarchy Tree for Manufacturing Logistics

The node hierarchy tree of the warehouse management monitor (transaction code /SCWM/MON) offers a *Manufacturing Logistics* node. This node offers a *Tour* subnode with the following subnodes. You use it to select and display tours including tour-related objects, for example, tour stops.

- *Tour Handling Units*
 - Packed Tour Items
 - HU Attachments
- *Tour Stops*
- *Tour Status*
- *Unloading Tasks*
- *Tour Attachments*

Note

To add customer-defined fields to the selection screen of the *Tour* subnode, you can use the example implementation /ILO/EHI_TOUR_MON_CUST_SELECT. For more information, see the documentation of the example implementation.

Monitoring Route Train Processes Using Tour Data

The following hierarchy nodes are enhanced by the *Manufacturing Logistics - Tour Data* section, which provides tour-related fields, such as *Route ID* and *Tour ID*.

-  *Outbound*  *Documents*  *Stock Transfer for JIT Call* 
-  *Outbound*  *Documents*  *Outbound Delivery Order*  including its subnodes
-  *Inbound*  *Documents*  *Inbound Delivery*  including its subnodes

Note

The tour-related fields are implemented by the Business Add-In (BAI) implementation /ILO/BAIM_MON_CUSTOM_SELECT. For more information about all enhanced nodes, see the BAI documentation.

→ Remember

If you use *Manufacturing Logistics - Tour Data* selection criteria provided in one of the subnodes of *Outbound Delivery Order* and *Inbound Delivery*, remember that you drill down from the inbound delivery or outbound delivery.

Example:

If you enter a specific route ID under *Inbound Delivery* > *Warehouse Order*, the system first selects **all** warehouse orders that relate to the relevant inbound delivery. These warehouse orders may or may not have a route ID. In addition, it selects all warehouse orders that match your entered route ID. As a result, the displayed list of warehouse orders may show entries with your entered route ID and entries without any route ID.

- *Documents* > *Stock Transfer*
- *Posting Changes*

Tour Methods

When tour information is displayed, you can call methods to perform actions related to tour processes: From the toolbar, choose *More Methods*.

Note

You can create selection variants for tour-related fields. However, the *Planned Picking Date*, *Planned Loading Date*, and *Planned Departure Date* fields don't support the dynamic date calculation using selection variables.

4.8.1 Enhanced Monitor Methods

Enhanced warehouse management monitor methods enable you to manage and control warehouse objects and processes related to tours.

Object Classes and Methods

The following methods are available. You can access them from the toolbar under [More Methods](#):

Object Class	Object Class	Method		
Name	Description	Method Name	Description	Remark
IL0TOU	Tour	/ILO/ MON_MET_ASSIGN_DR IVER	Assign Driver	Assign a driver to one or more tours.
<div><div> Note</div><div>You can only assign users that are either defined in the Maintain Users backend transaction /SCWM/ USER or in the Manage Users app.</div></div>				
		/ILO/ MON_MET_ASSIGN_HU	Assign HU	Assign a handling unit (HU) to a tour.
		/ILO/ MON_MET_ASSIGN_LO ADER	Assign Loading Employee	Assign a loading employee to one or more tours.
<div><div> Note</div><div>You can only assign users that are either defined in the Maintain Users backend transaction /SCWM/ USER or in the Manage Users app.</div></div>				

Object Class	Object Class	Method	
Name	Description	Method Name	Description
		/ILO/ MON_MET_ASSIGN_MH E	Assign Resource
			<p>Assign a resource to one or more tours.</p> <p>If the tour is already linked to an unloading warehouse order with HUs, the warehouse order and HUs are also be updated.</p> <div> <p>Note</p> <p>The resource must be of resource type category Towing Vehicle, which is defined in Customizing for Extended Warehouse Management under Cross-Process Settings > Resource Management > Define Resource Types.</p> </div>
		/ILO/ MON_MET_DATE_CHAN GE	Change Planned Date and Time
			<p>Change the planned date and time of a tour.</p> <p>If the tour delivery has already started, you can only change the arrival date and time.</p> <div> <p>Note</p> <p>The date and time must be in the future and the arrival date and time must be after the departure date and time.</p> </div>

Object Class	Object Class	Method	
Name	Description	Method Name	Description
		/ILO/ MON_MET_STATUS_CH ANGE	<i>Change User Status</i> Change the user status for one or more tours.
		/ILO/ MON_MET_RSRC_SEND	<i>Send Msg. to Driver/ Tow.Veh.</i> For active tours, this method sends a message to the resources of any warehouse order linked to the tour as well as to a resource of resource type category <i>Towing Vehicle</i> assigned to the tour. Messages can be sent to the <i>My Tours</i> app.
		/ILO/ MON_MET_TOUR_CANCEL	<i>Cancel Tour</i> Cancel one or more tours.
		/ILO/ MON_MET_UNASSIGN_DRIVER	<i>Unassign Driver</i> Unassign drivers from one or more tours.
		/ILO/ MON_MET_UNASSIGN_LOADER	<i>Unassign Loading Employee</i> Unassign loading employees from one or more tours.
		/ILO/ MON_MET_UNASSIGN_MHE	<i>Unassign Resource</i> Unassign a resource from one or more tours. If the tour is already linked to an unloading warehouse order with HUs, the warehouse order and HUs are also updated.
		/ILO/ MON_MET_TOUR_CREATE	<i>Create Tour</i> Create one tour.
		/ILO/ MON_MET_LOAD_HU	<i>Load HU</i> Load one or more HUs to a tour.
		/ILO/ MON_MET_TOUR_CREATE_LOAD	<i>Create Tour/Load HU</i> Create a tour and load one or more HU to it.

Object Class	Object Class	Method		
Name	Description	Method Name	Description	Remark
		/ILO/ MON_MET_LOAD_COMPLETE	Complete Loading	Complete loading for a tour.
		/ILO/ MON_MET_TOUR_COMPLETE	Complete Tour	Complete a tour.
		/ILO/ MON_MET_ATT_UPLOAD	Upload Attachments	Add one or more files, for example, photos from picked racks, to a tour during loading completion.
		/ILO/ MON_MET_ATT_ATTACHMENT_URL	Add URL as Attachment	Add a URL to a tour during loading completion.
ILOWTS		/ILO/ MON_MET_UNLOAD_TOUR_COMP	Unload HU/ Adjust Tour Status	<p>Execute a warehouse task confirmation in background for all selected warehouse tasks.</p> <p>If at least one warehouse task can be confirmed, the business transaction Start Unloading is performed for the linked tours. If all HUs have arrived at their corresponding PSAs for a tour, the business transaction Finish Unloading is performed. If all HUs are unlinked from the tour, the business transaction Finish Tour: Back to Station is performed.</p>
ILOWHR	Unpacked Warehouse Request Items	/ILO/ MON_MET_UNASSIGN_WR	Unassign Unpacked WR Item	Unassign warehouse request items that aren't packed yet from a tour.
ILOATT	Tour attachment	/ILO/ ATT_TOUR_DELETE	Delete Attachments from Tour	Delete attachments from an existing tour.

Object Class Name	Object Class Description	Method Name	Method Description	Remark
		/ILO/ ATT_TOUR_DOWNLOAD	Download Attachments	Download attachments from an existing tour.
ILOHUA	Tour HUs: Attachments	/ILO/ ATT_TOUR_DELETE	Delete Attachments	Delete attachments from a handling unit.
		/ILO/ ATT_TOUR_DOWNLOAD	Download Attachments	Download attachments from a handling unit.
ILOHUS	Handling unit	/ILO/ MON_MET_UNASSIGN_HU	Unassign Handling Unit	Unassign a handling unit from a tour.

📘 Note

Object class methods and their presentation are defined in Customizing for [Extended Warehouse Management](#) under ► [Monitoring](#) ► [Warehouse Management Monitor](#) ► [Define Object Class Methods](#) ►.

4.9 SAP Fiori Apps for Route Trains for Production Supply

This section describes the SAP Fiori apps that are available with SAP S/4HANA for manufacturing logistics.

Support for Default Parameter Handling

📘 Note

All SAP Fiori apps for SAP S/4HANA for manufacturing logistics support the default parameters for the warehouse number for the selection of list reports. You can maintain your user-specific default parameters in the personalization of the SAP Fiori launchpad under ► [Settings](#) ► [Default Values](#) ►.

Dynamic App Launcher Tiles for SAP Fiori Apps

You can configure that the tiles of the SAP Fiori apps display dynamic information that is pulled from the back-end system, such as the number of routes, tours.

In the SAP Fiori launchpad settings, users can specify a default warehouse, for which the numbers are displayed on the tiles.

If a user doesn't specify a default value for the warehouse in the SAP Fiori launchpad settings, the counters on the tiles display the sum of the numbers for all warehouses in the system.

The SAP Fiori launchpad supports dynamic tiles for the following apps:

- [Manage Users](#)
- [Manage Routes](#)
- [Manage Resource Groups](#)
- [Manage Route Groups](#)
- [Manage Route Version Proposals](#)
- [Manage Route Parameter Groups](#)
- [Manage Selection Variants](#)

The SAP Fiori launchpad supports dynamic tiles with autorefresh after 60 seconds for the following apps:

- [Manage Stops](#)
- [Manage Tours](#)
- [Manage Route Parameter Groups](#)

Prerequisites

- You've configured the service `DYNAMIC_TILE_SRV` to be able to see the dynamic tile counters.
- You've assigned the role `SAP_BR_AML_WHS_CLERK` to users to enable them to see the dynamic counters.

Configuring a Default Warehouse as a User

To configure a default warehouse for which the numbers are displayed on the tiles, in the user actions menu of the SAP Fiori launchpad, choose ► [Settings](#) ► [Default Values](#) ► and select a warehouse as the default warehouse.

4.9.1 Manage Users

This transactional app enables you to define user master data for the radio-frequency (RF) framework functionality.

App ID: F4244

You can use the [Manage Users](#) app to define user master data including the activity profile and route group for the radio frequency (RF) framework. Using this app, you can make all settings that are relevant for RF processing.

In addition to the back-end transaction [Maintain Users](#) (/SCWM/USER), you can define these settings:

- User Activity Profile
- Route Group

Key Features

You can use this app to:

- Add user activity profile to already existing user settings.
- Add route group setting to already existing user settings.
- Create new user settings for RF processing.

Managing User Data

You can review, change, copy, create, and delete user master data.

You open the [Manage Users](#) app directly from the SAP Fiori launchpad. A list of all system users with RF settings is displayed. The standard list of users displays the following information in the columns:

- System user
- Warehouse
- Data entry method
- Personalization profile
- Resource
- Auto logon setting
- User activity profile
- Route group
- Created on
- Created by
- Changed on
- Changed by

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed users by entering selection criteria like warehouse, data entry method, resource, user activity profile, or route group. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific user data via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*). The search uses the user name, the warehouse description, and the data entry type.

Select one line in the table of users to display the detailed data for that user.

You can edit, copy, or delete the user data. You can create new user data entries.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F4244>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

4.9.2 Manage Resource Groups

This transactional app enables you to define resource groups with towing vehicle attributes per warehouse.

App ID: F4243

You can use the [Manage Resource Groups](#) app to define resource groups per warehouse. The resource groups include the additional towing vehicle attributes control type and location type per warehouse. Using this app, you can get an overview of the assigned resources of a resource group and make all settings that are relevant for radio frequency (RF) processing.

Key Features

You can use this app to

- Define resource groups with the additional towing vehicle attributes control type and location type.
- Get an overview of the assigned resources of a resource group.

Use

With this transactional app, you can enter settings relevant for RF processing. In addition to the backend [Maintain Resource Groups](#) transaction (/SCWM/RGRP), you can define two additional towing vehicle settings:

- Towing vehicle control type:
Displays how the vehicle is operated, for example manually, automatic, or autonomously.
- Towing vehicle location type:
Displays if the vehicle is operated within a warehouse, outside of a warehouse, or both.

In the detail screen of the [Manage Resource Groups](#) app, you can display the assigned resources for each resource group.

Managing Resource Groups

You can review, change, create, and delete resource group master data.

You open the [Manage Resource Groups](#) app directly from the SAP Fiori launchpad. A list of all resource groups is displayed. The standard list of resource groups displays information about the warehouse, the resource group, the towing vehicle control type, and the location type, for example.

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed resource groups by entering selection criteria like resource group, warehouse, towing vehicle control type, or location type. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific resource groups via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*). The search utilizes the resource group and the resource group description.

Select one line in the table of resource groups to display the detailed data for that resource group.

You can edit or delete the resource group data. You can create new resource group data entries.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F4243>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <http://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

4.9.3 Manage Routes

This transactional app enables you to define routes with route versions and route version stops for the creation of tours.

App ID: F4390

You can use the [Manage Routes](#) app to define routes to create tours. You can create routes of a specific type with a start and end point and define route versions with several route version stops.

Prerequisites

- You've defined route types in Customizing for [Extended Warehouse Management](#) under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Define Route Types](#). ►

- You've created proposal profiles in Customizing for *Extended Warehouse Management* under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Create Proposal Profiles for the Route Determination](#). ►
- You've defined stops of type production supply area (PSA) in the back-end transactions of SAP Extended Warehouse Management and stops of type transfer point, storage bin, and stop group in the SAP Fiori app [Manage Stops](#).

Key Features

With this transactional app, you create a route of a specific type with a start and end point. For this route, you define route versions with several route version stops.

You can use this app to

- Create new routes with route versions and stops.
- Copy routes.
- Copy route versions.
- Change certain route parameters (route header), for example, route parameter group, start point, or end point.
- Change version parameters for a route version in status [New](#).
- Use stops of stop type storage bin and stop groups to create route version stops.
- Display stop group IDs in the list of route stops and route version stops.
- Delete items of a stop group from a route version.
- Change settings for version-specific stops for a route version in status [New](#).
- Create new versions for an existing route with a different set of route version stops.
- Activate route versions to make them available for the tour creation processing.
- Block or deactivate an active route version.
- Delete inactive route versions, which aren't assigned to tours.
- Add attachments (maps or images) to the route version to be used for display in the [My Tours](#) app.

Managing Routes

You can review, change, create, and delete route master data.

You open the [Manage Routes](#) app directly from the SAP Fiori launchpad. A list of all routes is displayed. The standard list of routes is displayed with additional information, for example, route type, life-cycle status, route parameter group.

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed routes by entering selection criteria like route ID, warehouse, route type, life-cycle status, start storage type, or route parameter group. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific routes via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F4390>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

The app has been enhanced as follows:

New/Enhanced Key Features	<p>New key features:</p> <ul style="list-style-type: none">• Usage of stop groups for creation of route version stops You can use stop groups to create route version stops. If you choose the Assign Multiple Stops button in the list of route stops, you can also assign all stop group items of a selected stop group to the stops of the route version.• Display of stop group ID In the list of route stops and route version stops, the Stop Group ID column is available. It allows you to navigate to the Manage Stops app.• New button for deletion of stop group item To delete items of a stop group from a route version, select an item of a stop group ID and choose the Delete Group Items button. As a result, all items of the stop group ID are deleted.• Usage of stops of stop type Storage Bin for creation of route version stops
New/Enhanced Extensibility Options	No changes

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- Usage of proposal profile
To control the generation of route versions or condition records for the route determination based on a route version proposal, you can assign a proposal profile.
- Creation of route version proposals
To create route version proposals, the [Create Proposal](#) button is available. It allows you to navigate to the [Manage Route Version Proposals](#) app.

Enhanced key features

- Display of additional control data.
The assignment strategy, loading lane strategy, number of LLD items of the assigned route type and the proposal profile has been made available.
- Display of changes
Details about changed fields is provided. For example, the language key is displayed for all fields to show in which language a field has been changed.

New/Enhanced Extensibility Options

No changes

4.9.4 Manage Route Version Proposals

This transactional app enables you to generate route versions and condition records for the route determination.

App ID: F6022

You can use the [Manage Route Version Proposals](#) app to create master data based on the route version proposals.

Prerequisites

- You've assigned a proposal profile to the route at header level.

Key Features

With this transactional app, you create route version proposals with reference to an existing route for a specific date and time. You can use this app to:

- Create new route version proposals.
- Check existing route version proposals.
- Block and unblock existing route version proposals.
- Accept route version proposals.
- Delete existing route version proposals.
- Export route version proposals to spreadsheets.
- Assign new stops.
- Update or delete existing stops.
- Upload and download route version proposals using Microsoft Excel files.
- Download a Microsoft Excel template that you can use to create and upload route version proposals.

Managing Route Version Proposals

You open the [Manage Route Version Proposals](#) app directly from the SAP Fiori launchpad. A list of all defined route version proposals is displayed. The standard list of route version proposals displays the following information in the columns:

- Route Version Proposal ID
- Warehouse number
- Route ID
- Valid-from date
- Lifecycle status
- Proposal ID is blocked

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed route version proposals by entering selection criteria like the route ID or lifecycle status. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific route version proposals via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select one line in the table of route version proposals to display the general information for the selected route version proposal and the list of assigned route version proposal stops.

You can edit or delete data of route version proposals.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F6022>

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

The app has been enhanced as follows:

New/Enhanced Key Features	<p>New key features:</p> <ul style="list-style-type: none">• Usage of stop groups to create stops of route version proposals You can use stop groups to create stops of route version proposals. If you choose the Assign Multiple Stops button in the stop list of a route version proposal, you can also assign all stop group items of a selected stop group to the stops of the route version proposal.• Display stop group ID In the stop list of a route version proposal, the Stop Group ID column is available. It allows you to navigate to the Manage Stops app.• New button for deletion of stop group items To delete all items of a stop group from a route version proposal, select an item of a stop group ID and choose the Delete Group Items button. As a result, all items of the stop group ID are deleted.• Support of stop groups in Microsoft Excel Integration Microsoft Excel Integration supports the use of stop groups: You can manually enter stop groups in the Stop ID field.• Usage of stops of stop type Storage Bin for creation of route version proposal stops
New/Enhanced Extensibility Options	No changes

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- Download of Microsoft Excel template
You can download a Microsoft Excel template for route version proposals. The template is available in four languages (EN, DE, ES, HU)
- Download of route version proposals
You can download selected route version proposals into a Microsoft Excel file that contains data of route version proposals. In this file, each row represents the stop of a route version proposal.
- Upload of route version proposals
You can upload route version proposals from a Microsoft Excel file to the Manage Route Version Proposals app. Please note that this file must have the same structure as the Microsoft Excel template.

ⓘ Note

If you want the file to be scanned for viruses during the download or upload, you can also set up a virus scan profile (/ILO/INTEGRATION/RVP_DOWNLOAD, /ILO/INTEGRATION/RVP_UPLOAD).

New/Enhanced Extensibility Options

No changes

4.9.5 Manage Route Parameter Groups

This transactional app enables you to define and group specific parameters that are valid for several routes.

App ID: F5958

You can use the [Manage Route Parameter Groups](#) app to create route parameter groups to which you can assign routes. Using this app, you can create, change, and delete route parameter groups.

ⓘ Note

A route can only be assigned to one route parameter group.

Key Features

With this transactional app, you define and group specific route parameter values by changing, creating, and deleting route parameter groups.

You can use this app to:

- Create new route parameter groups.
- Copy route parameter groups.
- Maintain language-dependent descriptions for a route parameter group.
- Change route parameter group data.
- Display the change documents of a route parameter group.
- Delete route parameter groups that aren't assigned to a route.
- Navigate to a selected route in the [Manage Routes](#) app.
- Export route parameter groups to spreadsheets.

Note

You can't save your changes to an existing route parameter group if it's edited in parallel by another user with transaction [Define Route Parameter Groups \(/ILO/ROUTE_PRM_GRP\)](#).

Managing Route Parameter Groups

You open the [Manage Route Parameter Groups](#) app directly from the SAP Fiori launchpad. A list of all route parameter groups is displayed. The standard list of routes is displayed with additional information, for example, cycle selection parameter, route parameter group description.

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed route parameter groups by entering selection criteria. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific route parameter groups via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select one line in the table of route parameter groups to display the assigned routes and the general information for the selected route parameter group.

You can create, edit, copy, or delete route parameter group data and show changes.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F5958>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

4.9.6 Manage Loading Lanes

This transactional app enables you to assign loading lanes, which are specific storage bins, to a route by defining the sequence number.

You can use the *Manage Loading Lanes* app to define loading lanes that are to be used during the loading lane determination.

App ID: F6681

Key Features

You can use this app to

- Create new loading lanes of a route
- Display loading lanes
- Copy and edit loading lanes
- Delete loading lanes
- Display header data of the relevant route
- Display the change documents of the loading lanes of a route
- Display storage bin details

Managing Loading Lane Data

You open the *Manage Loading Lanes* app directly from the SAP Fiori launchpad. The standard list of routes is displayed with additional information, for example, route type, lifecycle status, route parameter group.

You can add additional columns to the table and save your personal view settings. Select the icon for *Settings*, select additional fields, and then save the selection with a new view name in the *My Views* menu.

You can filter the list of displayed routes and its loading lanes by entering selection criteria like route type, lifecycle status, start storage type, or loading lane strategy. You can add additional filters by choosing the *Adapt Filters* option. You can save your personal filter selection when you save your view.

You can search for specific routes via the *Search* field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F6681>

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

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Related Information

[Loading Lane Determination \[page 160\]](#)

[Loading Lane \[page 116\]](#)

4.9.7 Manage Stops

This transactional app enables you to define stops that can be used as templates to create route version stops.

App ID: F4532

You can use the *Manage Stops* app to define stops that can be assigned to route versions. Using this app, you can create, copy, or delete transfer points, storage bins, and stop groups. You can also change stop attributes for transfer points, storage bins, stop groups, and production supply areas.

Prerequisites

You've created stops of type production supply area (PSA) in the backend transactions of SAP Extended Warehouse Management.

Key Features

With this transactional app, you create stops, copy or delete transfer points, and you change stop attributes. You can use this app to

- Create new stops of type [Transfer Point](#), [Storage Bin](#), or [Stop Group](#).

→ Remember

PSAs can only be created via the backend transactions of SAP Extended Warehouse Management.

- Display and change stops of all stop types.
- Check in which routes and route versions a stop or stop group is used ([Where-Used List in Routes](#)).
- For single stops (of type [Storage Bin](#) or [PSA](#)): Check in which stop group a stop is used ([Where-Used List in Groups](#)).
- For stop groups: Check all assigned stops ([List of Stop Items](#)).
- Navigate from the stop data to the route or route version, in which the stop is used.
- Navigate to the stop group, in which the stop is used.
- Choose [Route ID](#) to navigate to the route header data.
- Choose [Route Version](#) to navigate to the route version.
- You can edit or delete stop data. You can copy existing stops or create new stop master data.

Managing Stops

You can review, change, create, and delete stop master data. You open the [Manage Stops](#) app directly from the SAP Fiori launchpad. A list of all stops is displayed. The standard list of stops displays the following information in the columns:

- Stop ID
- Warehouse
- Description
- Stop type
- Handover point
- Unloading direction
- Confirmation method
- Storage bin

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed stops by entering selection criteria like warehouse, stop type, handover point, or storage bin. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific stops via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select one line in the table of stops to display the general data for that stop. From the *Where-Used List in Routes* section of the stop, you can navigate to the route or route version information for that stop by selecting either the route ID or the route version number.

For single stops, you can navigate from the *Where-Used List in Groups* section to the stop group information for that stop by selecting the stop ID of the stop group.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F4532>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- New stop types for stop creation
To create stops, you can use storage bins and stop groups in addition to production supply areas (PSAs) and transfer points.
- New buttons for stop creation
To create new stops, the following new buttons are available:
 - [New Transfer Point](#)
 - [New Storage Bin Stop](#)
 - [New Storage Bin Group](#)
 - [New PSA Group](#)
- Use of stop groups
You can use stop groups, which either consist of production supply areas (PSAs) or storage bins. To add multiple stops to a stop group, you can choose the [Assign Multiple Stops](#) button.
- For stop groups, two lists are available:
 - [Stop Item List](#): Displays the assigned stops of a stop group
 - [Where-Used List in Routes](#): Displays in which route and route version a stop group is used
- For stop groups, the [Stop Group Data Used](#) field is available:
It's used for the route version assignment of stops groups. With this feature, you can define which attributes are used for the stop group items:
 - If you select this checkbox, the stop group settings are used as default values for the stop group items.
 - If you leave this checkbox empty, the original stop settings are used.
- Change of sequence number
For stop items of a stop group, you can change the sequence number of all stop items or for selected stop items:
Select a stop item and choose [Renumber Sequence](#).
The sequence number of all subsequent stop items is updated.
For stop items that are listed above your selected stop item, the sequence number remains unchanged.

Enhanced key features:

- Display of where-used lists:
For single stops (of type *PSA* or *Storage Bin*), two lists are available:
 - *Where-Used List in Routes*: Displays in which route and route version a stop is used
 - *Where-Used List in Groups*: Displays in which stop group a stop is used

Note

For stops of type *Transfer Point*, only the *Where-Used List in Routes* section is displayed.

New/Enhanced Extensibility Options

No changes

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

Enhanced key features:

Display of changes

Details about changed fields is provided. For example, the language key is displayed for all fields to show in which language a field has been changed.

New/Enhanced Extensibility Options

No changes

4.9.8 Manage Route Groups

This transactional app enables you to create groups of routes for a warehouse. A route group is assigned to users to define the routes that the users can execute.

App ID: F4533

You can use the *Manage Route Groups* app to create groups of routes for a warehouse. Using this app, you can create new route groups including IDs and (language-dependent) descriptions and assign routes to or remove routes from a route group.

Key Features

You can use this app to

- Create new route groups with an ID and description.

- Maintain language-dependent descriptions for the route groups.
- Assign routes to route groups.
- Remove routes from a route group.
- Get an overview of the assigned users of a route group.

Managing Route Groups

You can review, change, create, and delete route groups.

You open the [Manage Route Groups](#) app directly from the SAP Fiori launchpad. A list of all defined route groups is displayed. The standard list of route groups displays the following information in the columns:

- Route group ID
- Warehouse number
- Route group description
- Created on
- Created by
- Changed on
- Changed by

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed route groups by entering selection criteria like route group ID, warehouse, and route ID. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific route group data via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select one line in the table of route groups to display the assigned routes, the assigned users, and the general information for that route group.

You can edit or delete the route group data. You can create new route groups.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F4533>.

For additional implementation information, see also the [Administration Guide](#) on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features	Enhanced key features:
	Display of changes
	Details about changed fields is provided. For example, the language key is displayed for all fields to show in which language a field has been changed.
New/Enhanced Extensibility Options	No changes

4.9.9 Manage Tours

This transactional app enables you to create tours, edit or manage active tours, and display detailed information about all created tours.

App ID: F4600

You can use the [Manage Tours](#) app to display all relevant information about tours. Using this app, you can view all created tours. A wide range of filter options allow a flexible tour selection.

Key Features

You can use this app to:

- Create tours.
- Edit and manage [active](#) tours by using the specific actions, such as assigning a loading employee to a tour or completing a tour.

- Display the existing tours.
- Display the detailed tour data.
- Display the tour status types.
- Display the loading plan details.
- Display, upload, and download attached files and URLs.
- Display rack data as micro charts: Handling unit (HU) statistics are available in the tour list and on the object page.
- Display the number of empty HUs in the micro chart of the overview page.
- Display the number of empty HUs in the micro chart of the object page.
- Display empty top HUs in the section for empties.
- Display stops and stop types instead of PSAs.

Displaying Tour Data

You can review existing tour data.

You open the [Manage Tours](#) app directly from the SAP Fiori launchpad. A list of all tours is displayed. The standard list of tours displays the following information in the columns:

- Tour ID
- Warehouse
- Tour external ID
- Route
- Planned departure time
- Planned arrival time
- Resource
- Driver
- Total Number HU
- Loading employee
- No. of Assigned HUs
- No. of Loaded HUs
- No. of Unloaded HUs
- No. of Empty HU

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed tours by entering selection criteria like tour ID, tour execution status, warehouse, route, or loading employee. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

To select tours, you can also enter specific date and time attributes. For example, the planned loading start date and time, the planned and actual departure date and time, and the planned and actual arrival date and time. For these attributes, you can use relative date and time filters, for example, [Today](#), [Tomorrow](#), [Now -X/+Y hours](#).

Note

The system uses the current time of the front end to determine the filter values for the date and time functions.

You can search for specific tour data via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select 1 line in the table of tours to display the detailed data for that tour.

You can activate the automatic refresh function to periodically refresh the list and object page according to the selection criteria that you set for the filters. The app displays the remaining time until the next automatic refresh as a countdown.

Tip

When you use the automatic refresh function, use relative date and time filters and an appropriate tour execution status. In this way, you restrict the list of displayed tours so that it doesn't exceed 1 page.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery (latest wave), see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F4600>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <http://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

The app has been enhanced as follows:

New/Enhanced Key Features

Enhanced key features:

You can now also complete tours by using the new action [Complete Tour](#).

The data display on the [Tour Data](#) tab has been optimized:

- The [Resource](#), [Driver](#), and [Loading Employee](#) fields were removed from the [Delivery Data](#) and are now displayed under the new section [Processor Data](#).
- The [Warehouse](#), [Route](#), [Route Version](#), and [Creation Route Version](#) fields were removed from the [General Data](#) and are now displayed under the new section [Route Data](#).

You can now display the following data:

- The number of empty HUs in the micro chart of the overview page
- The number of empty HUs in the micro chart of the object page
- Empty top HUs in the section for empties
- Stops and stop types instead of PSAs

New/Enhanced Extensibility Options

No changes

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- Display, upload, and download of attached files and URLs
You can navigate to attached URLs and open attached files.
 - Display of rack data as micro charts: Handling unit (HU) statistics available in the tour list and on the object page
 - New actions available for active tours:
To edit or manage active tours, the following actions are available. These actions are also available when you open the app and the list of tours is displayed.
 - Assign a loading employee to one or more tours
 - Unassign a loading employee
 - Assign a driver to one or more tours
 - Unassign a driver
 - Assign a towing vehicle
 - Unassign a towing vehicle
 - Cancel a tour
 - Load a handling unit (HU)
 - Assign an HU
 - Unassign an HU
 - Change the planned departure and arrival date and time of a tour
 - Complete loading
After you've executed one of these actions, the tour statuses and status type data are updated.
 - Create tour
 - Delete tour
 - Show change documents
 - Send a message to the resources of any warehouse order linked to a specific tour. You can also send a message to a resource of resource type category [Towing Vehicle](#) assigned to the tour.
Please note that when you use the [Show change documents](#) and [Send a message](#) actions, the tour statuses and status type data aren't updated.
 - Display of tour data: If you select a single tour, the following tour information grouped as follows:
 - Tour data:
 - General data
 - Delivery data
 - Rack data
-

- Tour stops:
 - List of tour stops with their statuses
- Tour attachments
- Display of Handling Units

In the tour data display, the list of related handling units (HUs) is available. From this list, you can select the HUs to be loaded if they're assigned to the tour but not yet loaded.
- Additional tour status information

The status duration in time unit and time unit is displayed.
- Automatic refresh function

You can activate the automatic refresh function to periodically refresh the list and object page. The app displays the remaining time until the next automatic refresh as a countdown.
- Additional time filter options to select tours

You can filter tours based on additional time period options for the planned departure and arrival time and actual departure and arrival time.
- Route version ID during tour creation to filter tours

The route version ID that's used during the tour creation provides additional information for the actual route version that's determined during loading. This information enables you to filter tours. This data available for the following tour creation strategies:

 - Schedule-Based (01)
 - Manual (02)
 - Utilization-Oriented (04)

New/Enhanced Extensibility Options

No changes

4.9.10 My Tours

This transactional app offers visual guidance for the unloading process of a single tour.

App ID: F4553

You can use the [My Tours](#) app to get a visual overview and step-by-step guidance for unloading a single tour. This read-only application gives you detailed information about assigned tours that aren't yet completed and the handling units (HUs). You can see which handling units (HUs) need to be unloaded. The app shows a visual map of the route, an overview of loaded items, and details about unloading HUs at each stop. This app is designed for use on a screen mounted on a route train. It gives you comprehensive support throughout the unloading process.

Key Features

You can use this app to:

Get an operational overview

- Display a graphical display of the route train.
- Get an overview of all tour stops.
- Display an overview of all HUs that are on the route train and need to be unloaded for this tour or that are already unloaded.
- Get an overview of the prioritized HUs, which are ready for loading.

Display handling units and related information

- Display a list of HUs.
- Display the number of unloading HUs per stop.
- Display HUs that are planned to be unloaded at a stop of a tour (blue).
- Display HUs that have been picked up during a tour (can be empty, filled, an HU, or a rack).
- Display newly added HUs as a rack or as a lower-level HU.
- Display urgent HUs, which can be added to the current tour.
- Display HUs without a structure.
- Identify and display HUs that are planned to be unloaded at the end point of the tour (yellow).
- Display HUs that must be returned to the end point of the route.
- Distinguish between picked up HUs that are empty and that aren't empty.
- Display racks with or without lower-level HUs.
- Display racks with a sub-rack containing lower-level HUs, ignoring all lower levels and showing only the highest and second level of HUs.

Display and monitor further tour unloading information

- Display the unloading direction of each stop (if defined in route master data).
- Monitor the tour loading process for additionally loaded HUs.
- Monitor the unloading progress of a container.
- Display information messages from the warehouse management monitor during the tour, for example, information related to a stop type of the production supply area.

Working with the My Tours App

You open the [My Tours](#) app directly from the SAP Fiori launchpad. For the warehouse set in your user default parameters, you select a resource and a tour.

The following information is displayed:

- **Tour header** data like route number, towing vehicle, and tour stops.
- The [Unloading Progress](#) bar of a container.
- [Route Train Information](#) with a graphical display of the route train showing all stops of the tour as well as the racks and HUs to be unloaded.

- An overview of the **prioritized HUs**, which are ready for loading.
- An overview of all *Handling Units* that are on the route train and need to be unloaded for this tour or that are already unloaded.
- *Attachments* like maps or images if available.

For more information about working with the *My Tours* app, see [Working with the My Tours App \[page 234\]](#).

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F4553>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

The app has been enhanced as follows:

New/Enhanced Key Features

Enhanced key features:

- Option to monitor the tour loading process for additionally loaded HUs:
 - A new progress indicator enables you to identify the number of HUs that must be unloaded at the end point.
 - Newly added HUs are displayed as a rack or as a sub-HU.
 - Colored HU display based on the destination:
Yellow: HUs that are planned to be unloaded at the end point of the tour.
Blue: HUs that are planned to be unloaded at a stop of a tour.
- You can distinguish between picked up HUs that are empty and that aren't empty.
- The *Supply Area* column is renamed to *Stop ID* to accommodate the different stop types.
- *Handling Units – To be Unloaded* tab page shows HUs that must be transported to the end point of the tour.
- New column *Stop Type* is added.

New/Enhanced Extensibility Options

No changes

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- In the tour header, uploaded attachments are displayed. Please note that uploaded URLs aren't displayed.
- New authorization concept for data display
A new authorization object `/ILO/TOURV` controls which data a user is allowed to display. The access authorization is based on the route ID:
You can only display the data of those routes for which you're authorized.
Please note that if you are the actual loading employee or driver of a tour, you can also display the data of routes for which you have no authorization.
- Adding HUs for which the packaging material is not maintained as racks:
After the loading is completed, you can add HUs using the RF transaction [RF Delivery by HU](#). You can register the HUs based on their HU structure template. If the packaging material isn't maintained as HU structure template, you can load these HUs as if they were racks. This kind of HU is then represented as a rack in the [My Tours](#) app (and not as box in the towing vehicle).

Enhanced key features:

- Display of additional tour data
The planned departure and planned arrival date and time is displayed.
- Display of additional route data
The route ID, route description, and route version, which enables you to navigate to the corresponding route version, are displayed.

Removed key features:

- Display of the warehouse number as a separate information

New/Enhanced Extensibility Options

No changes

4.9.10.1 Working with the My Tours App

You open the My Tours app directly from the SAP Fiori launchpad. For the warehouse set in your user default parameters, you select a resource and a tour. Only tours that have been completely loaded but **not** completed can be selected. Usually one tour per towing vehicle is available.

The [Container Unloading](#) progress bar is updated with every confirmed warehouse task.

If you are disconnected, you can use the refresh button on the top right to fetch new data from the backend.

Route Train Information

Select this tab to display detailed information. This tab supports the driver who gets off the towing vehicle to unload HUs. A graphical display of the route train with towing vehicle and attached trailers shows the following information:

- **All stops** of the tour. Each stop is shown as a circle with the stop ID displayed beneath it. Inside the circle, you'll find the number of HUs to be unloaded at that stop. Arrows within the circle indicate the unloading direction: left (<<), or right (>>), or none if the unloading direction isn't defined in the route master data. The sequence of circles represent the sequence of stops. If a handover point is assigned to a stop, the handover point is displayed instead of the stop ID.
- **Racks and HUs** to be unloaded: The graphical display of the route train includes boxes for the cabin and trailers. The cabin refers to the driver's compartment. Racks are depicted as boxes, highlighting the HUs to be unloaded at each stop. When you select a handling unit, the HU numbers and loading position appear. Confirming the unloading warehouse using the radio frequency (RF) device task updates the graphical display.

Color Schema for Unloading Handling Units

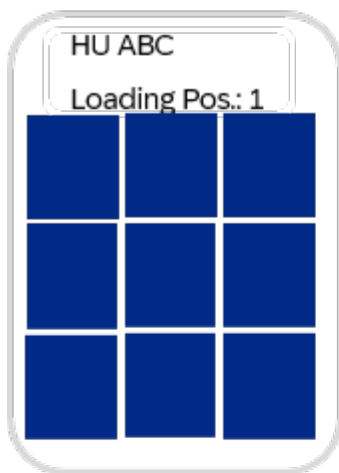
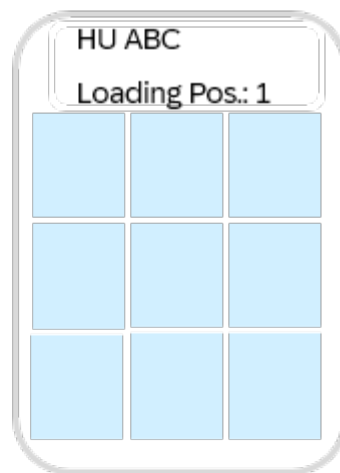
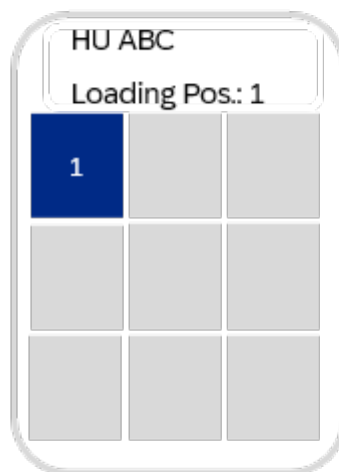
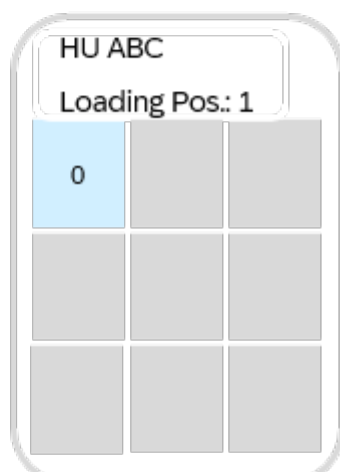
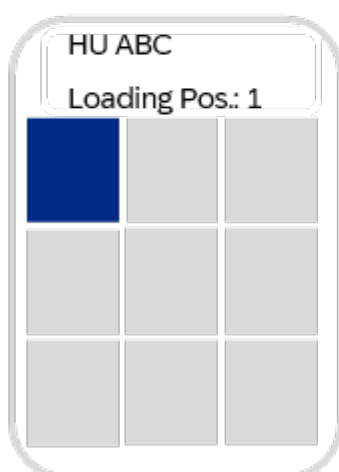
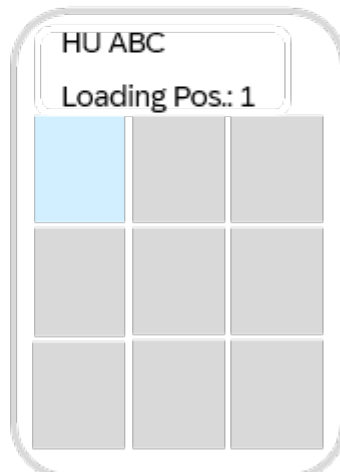
The color schema on the [Route Train Information](#) tab helps to identify the next actions required for unloading handling units (HUs) easily. This feature enhances navigation efficiency and improves the user experience in the app. Colors categorize HUs by their priority and destination:

- **Blue**: Indicates HUs with a normal priority that are planned to be unloaded at a tour stop (PSA or storage bin).
- **Red**: Indicates HUs with a high priority that are planned to be unloaded at a tour stop (PSA or storage bin).
- **Yellow**: Indicates empty HUs that are planned to be unloaded at the end point of the tour.

Dark colors represent pending unloading HU actions. Light colors indicate that unloading is completed. For more information, see the following example screens:

HUs Without Delivery Priority

The example screens allow you to explore the color schema. They are interactive and displayed in pairs. Hover over each one to see more information.

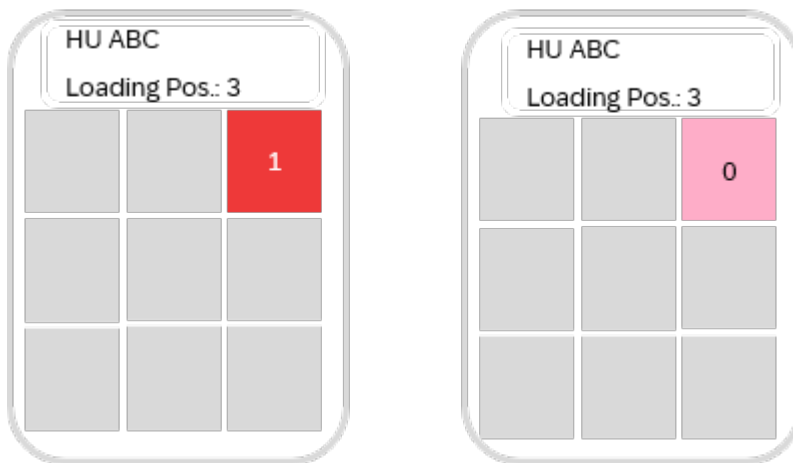


- 1. There is a rack that is either empty or contains empty lower-level HUs. They are planned to be unloaded at the stop with normal priority. [page 234]

- 2. The empty rack or empty sub-HUs have been unloaded at the designated stop. As a result, the color changes to light blue. [page 234]
- 1. There is one HU that is planned to be unloaded at the stop with normal priority. [page 234]
- 2. The normal-priority HU has been unloaded at the designated stop. The color changes to light blue and the HU number is now zero. [page 234]
- 1. There is an empty HU that is planned to be unloaded at the stop with normal priority. [page 234]
- 2. The empty HU has been unloaded at the designated stop. As a result, the color changes to light blue. [page 234]

HUs with Delivery Priority

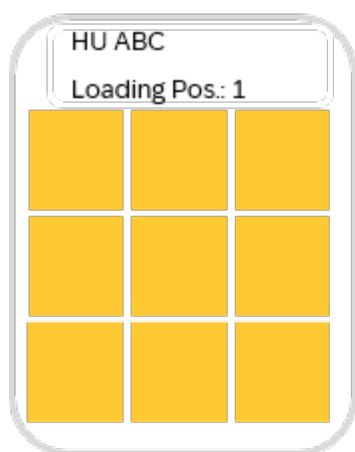
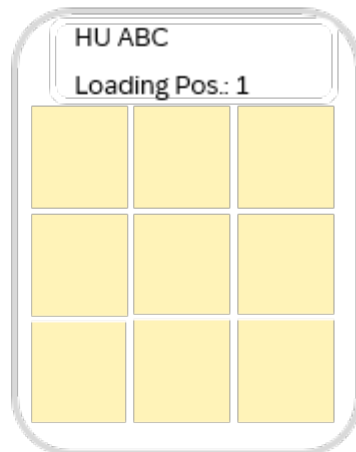
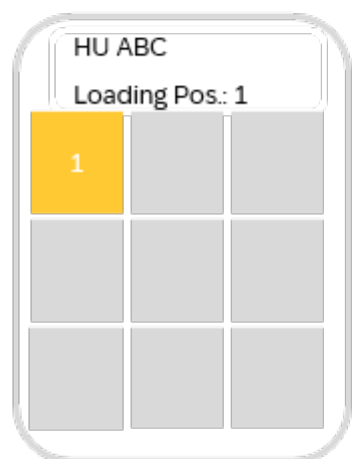
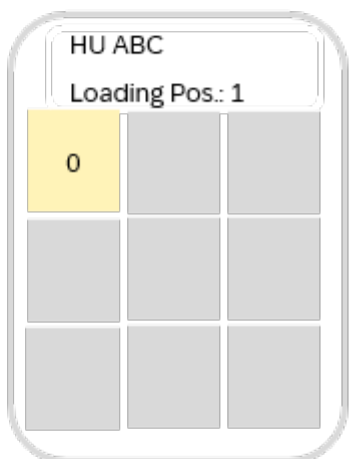
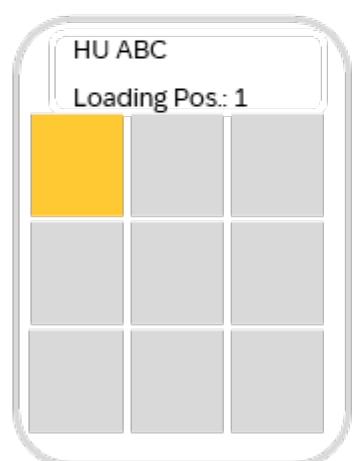
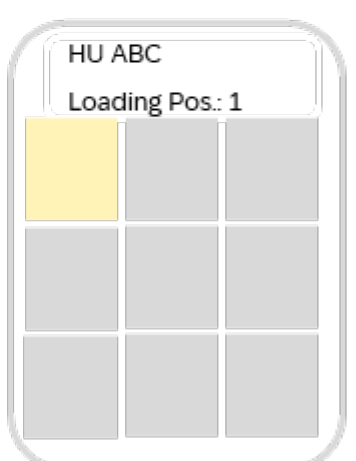
The example screens are interactive and displayed in pairs. Hover over each screen to see a description.



- 1. There is one HU that is planned to be unloaded at the stop with high priority. [page 234]
- 2. The high-priority HU has been unloaded at the designated stop. As a result, the color changes to light red and the HU number is now zero. [page 234]

HUs to be Delivered to End Point

The example screens are interactive and displayed in pairs. Hover over each screen to see a description.



- 1. There is a rack that is either empty or contains empty lower-level HUs. They are planned to be unloaded at the end point of the tour. Example: You may see this screen when a rack has become empty during unloading. [page 234]

- 2. The empty rack or empty lower-level HUs have been unloaded at the end point of the tour. As a result, the color changes to light yellow. [page 234]
- 1. There is one HU that has been loaded onto an empty rack as a lower-level HU. This lower-level HU is planned to be unloaded at the end point of the tour. Example: You may see this screen when an HU has been loaded after the unloading process has started. [page 234]
- 2. The HU has been unloaded from the rack at the endpoint of the tour. As a result, the color changes to light yellow and the HU number is now zero. [page 234]
- 1. There is an empty HU that is planned to be unloaded at the end point of the tour. [page 234]
- 2. The empty HU has been unloaded at the end point of the tour. As a result, the color changes to light yellow. [page 234]

Priority

Select this tab to display an overview of the prioritized HUs, which are ready for loading. The prioritized HUs can be brought to their final destination using the current tour even if the route of the prioritized HUs isn't the same as the route of the current tour. The number on top of the *Priority* tab text indicates the number of prioritized HUs that could be loaded for the current tour.

Note

These HUs can be added to the tour using the radio frequency (RF) function **Add HU** in the RF delivery process. When adding prioritized HUs to a tour, you can maintain the loading position as optional information after HU scanning.

Note

You can add prioritized HUs as long as the tour status is no further than *Loading Completed*.

The My Tours app supports the following patterns for the loading position for HUs and racks:

Loading Position Pattern

HU Type	Entered Position	Position on UI
Rack	Empty	Rack is added behind existing racks.
Rack	Not empty	Rack is added to provided position in the tour even if the position is already occupied. In this case, the new HU is added behind the existing rack.
HU	Empty	In the cabin
HU	i-j	HU is displayed In the i-th rack on the j-th position. If this j-th position is outside of the rack dimension, the HU is displayed in the last position of the rack.

HU Type	Entered Position	Position on UI
HU	i-j-k	HU is displayed in the i-th rack on the j-th level in the k-th column. If this k-th position is outside of the rack dimension, the HU is displayed in the last HU position of the rack.

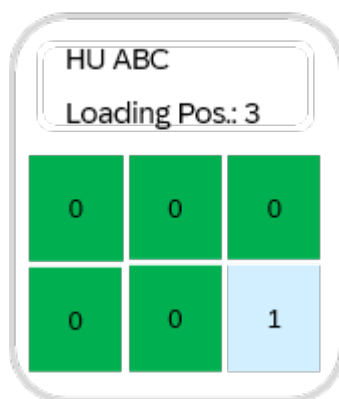
If the system doesn't recognize the loading position pattern, the HU is displayed in the cabin of the route train driver. The My Tours app supports the following separators for loading patterns:

- Space ()
- Comma (,)
- Minus sign (-)
- Plus sign (+)
- Division sign (/)
- Multiplication sign (*)

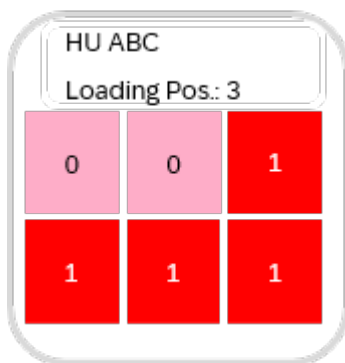
For prioritized HUs with a priority configuration in Customizing for [SAP S/4HANA for Manufacturing Logistics](#) under ► [Warehouse Request - Tour](#) ► [Priority Control](#) ► [Define Delivery Priority Sequence](#) ►, the HU display is color-coded.

Route Train Capacity

This screen area visualizes the complete physical route train with its loaded HUs (displayed in blue) and empty places (displayed in green) independent of the stops. If an HU or rack with normal priority is loaded via the RF transaction, the HU is displayed in blue, because it is not prioritized. This color pattern is applied to HUs and racks. See the following example:



If prioritized HUs are loaded via the RF transaction, they are displayed in dark red. After unloading, they are displayed in light red. This color pattern is applied to HUs and racks. See the following example:



Priority

This list displays detailed information about the prioritized HUs that ready for loading and eligible for delivery using the current tour's route assignment.

Note

The production supply areas (PSAs) don't need to be part of the current tour yet and the HUs can even have been planned to be transported on a different route.

The list includes details about the HU, the pickup bin for loading, the original route, the reference document, the supply date and time, and the planned loading start time. In addition, it can display the stop ID, the product, the handover point, and the final bin.

Handling Units

Select this tab to get an overview of the HUs that are loaded onto or were unloaded from the route train for this tour. You can display a list of handling units, with additional information like product, rack, PSA, positions, and destination storage type. You can select one of the following options to display a subset of route train HUs:

- [All](#)
Displays a list of all handling units.
- [To Unload](#)
Displays the not yet unloaded handling units.
- [Unloaded](#)
Displays only the unloaded HUs.

Attachments

Select this tab to display attachments (maps or images) if available. Attachments are added to the route version using the [Manage Routes](#) app.

To add attachments to the tour, you can use the [Manage Tours](#) app or the [Tour Attachments](#) node in the warehouse management monitor.

4.9.11 Manage Selection Variants

This transactional app enables you to define selection variants to be used in configured selection variant processes.

App ID: F5143

You can use the [Manage Selection Variants](#) app to define selection variants. Selection variants are used together with the selection variant type to implement the selection of business objects as part of the selection variant-based execution process.

Prerequisites

You have maintained the configuration for selection variants execution in Customizing for Extended Warehouse Management under ► [SAP S/4HANA for Manufacturing Logistics](#) ► [Master Data](#) ► [Selection Variants and Consumers](#) ►.

Key Features

With this transactional app, you can create, copy, activate, deactivate, or delete selection variants, and you can change selection variants attributes.

You can use this app to:

- Create new selection variants with an ID based on a selection variant type.
- Maintain language-dependent descriptions for the selection variant.
- Activate selection variants to use them in process execution.
- Deactivate selection variants to block the usage in process execution.
- Display the change documents of a selection variant.

Managing Selection Variants

You can review, change, create, and delete selection variants.

You open the [Manage Selection Variants](#) app directly from the SAP Fiori launchpad. A list of all defined selection variants is displayed. The standard list of selection variants displays the following information in the columns:

- Name
- Type
- Status
- Snapshot time stamp

Create or update the snapshot to verify your maintained selection expression. Maintain the selection expression of a selection variant based on the field definition of the assigned selection variant type.

You can add additional columns to the table and save your personal view settings. Select the icon for [Settings](#), select additional fields, and then save the selection with a new view name in the [My Views](#) menu.

You can filter the list of displayed selection variants by entering selection criteria like editing status, name, status, and type. You can add additional filters by choosing the [Adapt Filters](#) option. You can save your personal filter selection when you save your view.

You can search for specific selection variants data via the [Search](#) field. Enter characters or numbers. You can use truncation by entering an asterisk (*).

Select one line in the table of selection variants to display the selection expression, the snapshot, and the general information for that selection variant.

You can edit or delete the selection variant data. You can create new selection variants.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appId=F5143>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM - EWM - FIO - ILO

App History

Note

After the initial delivery date, this document only lists SAP Fiori product versions in which the app has been enhanced or changed. If the app wasn't changed in a particular SAP Fiori product version or support package stack, then this version or support package stack isn't mentioned in this document.

SAP Fiori Front-End Server 2023 for SAP S/4HANA (Delivery Date 10/2024)

New/Enhanced Key Features

Enhanced key features:

- Additional selection variant type available
A new selection variant type for the stop cleanup is available, which defines the scope of the synchronization of stop data in EWM tables and manufacturing logistics-specific tables.

SAP Fiori Front-End Server 2021 for SAP S/4HANA (Delivery Date 10/2021)

The app has been enhanced as follows:

New/Enhanced Key Features

New key features:

- Addition data in selection expression
A new selection variant type for the logistical re-evaluation is available, for which you can specify time ranges or the date function.
- Display of changes
Details about changed fields is provided. For example, the language key is displayed for all fields to show in which language a field has been changed.

New/Enhanced Extensibility Options

No changes

4.9.12 Application Logs for Manufacturing Logistics

This transactional app enables you to display the application log entries for SAP S/4HANA for manufacturing logistics.

App ID: F5189

You can use the [Application Logs for Manufacturing Logistics](#) app to view application log details and messages.

Key Features

You can use this app to:

- View application log details for SAP S/4HANA for manufacturing logistics processes
- Sort and filter messages according to severity, from, to, category, subcategory, and external reference.
- Search for message texts.
- Navigate to the message details.

For general information about working with the application logs tool, go to the SAP Help Portal (<https://help.sap.com>) and search for **Administrating the ABAP platform**. Choose ► [Administration Concepts and Tools](#) ► [Application Logs](#) ►.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library.

For the latest delivery, see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F5189>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

4.9.13 Scheduling Apps

With these apps, you can schedule and monitor jobs for SAP S/4HANA for manufacturing logistics.

Context

To process larger volumes of data for the tour creation, wave preparation, and the selection variant consumer process, you can use the background scheduling functionality. These apps and their selection screens are based on the job catalog entries for SAP S/4HANA for manufacturing logistics (*Application Job Repository*, transaction SAPJ):

- *Execute Selection Variant Consumers* (/ILO/SELVAR_CONSUMER_PROCESS)
- *Create Tour of Scheduled Routes* (/ILO/TOUR_CREATION_SCHED_ROUTE)
- *Wave Preparation* (/ILO/WAVE_PREPARATION)

Procedure

To schedule the background job, proceed as follows:

1. From the SAP Fiori Launchpad, open the app.
2. To define a new job, choose *Create*. Alternatively, choose an existing job to review it. You can also copy an existing job by choosing *Copy*.
3. Check that the correct job template is selected and enter a unique name for the job. Then choose the next step (*Step 2*).
4. As *Scheduling Options*, select a start time and define the frequency at which the job must be run (*Define Recurrence Pattern*). Then choose the next step (*Step 3*).
5. Enter the selection parameters and the control parameters.

Note

For test purposes, you can schedule jobs in *Test Mode*.

6. Choose *Schedule*.

Note

Optionally, you can choose [Check](#) to verify if your entered criteria are valid.

You can choose [Template](#) to save your entered criteria as a template for future use.

[Schedule Tour Creation \[page 246\]](#)

This transactional app enables you to schedule and monitor jobs based on the [Create Tour of Scheduled Routes](#) job template.

[Schedule Selection Variant Consumer Process \[page 247\]](#)

This transactional app enables you to schedule and monitor jobs based on the [Execute Selection Variant Consumer](#) job template.

[Schedule Wave Preparation \[page 248\]](#)

This transactional app enables you to schedule and monitor [Wave Preparation](#) jobs.

Related Information

[Background Job Monitoring](#)

4.9.13.1 Schedule Tour Creation

This transactional app enables you to schedule and monitor jobs based on the [Create Tour of Scheduled Routes](#) job template.

App ID: F5166

You can use the [Schedule Tour Creation](#) app to schedule background jobs for tour creation. You can start the jobs immediately or schedule them for a certain time. You can also monitor and cancel jobs.

Key Features

You can use this app to:

- Schedule jobs based on job template [Create Tour of Scheduled Routes](#):
 - Define a job name, start date, start time, and recurrence of the job.
 - Enter job-specific selection criteria and parameters.
- Monitor jobs.
 - Display the following information: [Status](#), [Log](#), [Description](#), [Planned Start](#), [Start](#), [End](#), [Duration](#), [Created By](#)
- Cancel a job.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery (latest wave), see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F5166>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

4.9.13.2 Schedule Selection Variant Consumer Process

This transactional app enables you to schedule and monitor jobs based on the *Execute Selection Variant Consumer* job template.

App ID: F5361

You can use the *Schedule Selection Variant Consumer Process* app to schedule background jobs for the consumer process. You can start them immediately or schedule them for a certain time. You can also monitor and cancel jobs.

Key Features

You can use this app to:

- Schedule jobs based on job template *Execute Selection Variant Consumer*:
 - Define the job name, start date, start time, and the recurrence of the job.
 - Enter job-specific selection criteria and parameters.
- Monitor jobs.
 - Display the following information: *Status*, *Log*, *Description*, *Planned Start*, *Start*, *End*, *Duration*, *Created By*
- Cancel a job.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery (latest wave), see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F5361>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

Related Information

[Selection Variant Processes \[page 172\]](#)

4.9.13.3 Schedule Wave Preparation

This transactional app enables you to schedule and monitor *Wave Preparation* jobs.

App ID: F5355

You can use the *Schedule Wave Preparation* app to schedule background jobs for wave preparation. You can start them immediately or schedule them for a certain time. You can also monitor and cancel jobs.

Key Features

You can use this app to:

- Schedule jobs based on job template *Wave Preparation Template*:
 - Define the job name, start date, start time, and the recurrence of the job.
 - Enter job-specific selection criteria and parameters.
- Monitor jobs.
 - Display the following information: *Status*, *Log*, *Description*, *Planned Start*, *Start*, *End*, *Duration*, *Created By*
- Cancel a job.

Implementation

You can find detailed information about implementing the app in the SAP Fiori apps reference library. For the latest delivery (latest wave), see: <https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/index.html?appld=F5355>.

For additional implementation information, see also the *Administration Guide* on SAP Help Portal at <https://help.sap.com/s4ml>.

Component for Customer Incidents

SCM-EWM-FIO-ILO

Related Information

[Wave Preparation \[page 156\]](#)

4.10 Other Apps for Route Trains for Production Supply

This section lists the tiles on the SAP Fiori launchpad that provide an easy access to back-end transactions for route trains for production supply.

Dynamic App Launcher Tiles

You can configure that the tiles of the apps display dynamic information that is pulled from the back-end system, such as the number of routes, tours.

In the SAP Fiori launchpad settings, users can specify a default warehouse, for which the numbers are displayed on the tiles.

If a user doesn't specify a default value for the warehouse in the SAP Fiori launchpad settings, the counters on the tiles display the sum of the numbers for all warehouses in the system.

The SAP Fiori launchpad supports dynamic tiles with autorefresh after 60 seconds for the following apps:

- [Maintain Loading Lanes](#)
- [Manage Pick Duration](#)
- [Maintain Route Parameter Groups](#)

Prerequisites

- You've configured the service `DYNAMIC_TILE_SRV` to be able to see the dynamic tile counters.
- You've assigned the role `SAP_BR_AML_WHS_CLERK` to users to enable them to see the dynamic counters.

Configuring a Default Warehouse as a User

To configure a default warehouse for which the numbers are displayed on the tiles, in the user actions menu of the SAP Fiori launchpad, choose ► [Settings](#) ► [Default Values](#) ► and select a warehouse as the default warehouse.

Related Information

[Route \[page 104\]](#)

4.10.1 Maintain Loading Lanes

With this app, you can define loading lanes by assigning one or more bins for a combination of warehouse, route, delivery priority, and the storage type for which the loading lane determination is executed.

Related Information

[Defining the Loading Lane Determination \[page 162\]](#)

[Loading Lane \[page 116\]](#)

[Loading Lane Determination \[page 160\]](#)

[Manage Loading Lanes \[page 218\]](#)

4.10.2 Manage Pick Duration

With this app, you can define the picking duration, which is then used for the logistical re-evaluation.

The default picking duration is 0. You can use the app to set the picking durations for combinations of warehouse, storage type, storage section, and storage bin.

Related Information

[Logistical Re-Evaluation \[page 168\]](#)

4.10.3 Maintain Condition for Route Determination

With this app, you can maintain condition records for the route determination.

For more information, see [Route Determination Condition Records \[page 116\]](#).

4.10.4 Maintain Route Parameter Groups

With this app, you can create route parameter groups by defining a *Cycle Selection Parameter*. The *Cycle Selection Parameter* specifies an offset value, which is used for the determination of the next tour.

Related Information

[Manage Route Parameter Groups \[page 216\]](#)

[Route Parameter Group \[page 111\]](#)

4.10.5 Maintain Resource Description

With this app, you can enter language-dependent descriptions for a resource, which represents a user or equipment, who or which can execute work in the warehouse.

More information

For more information about resources in Extended Warehouse Management (EWM), see the product assistance for EWM in SAP S/4HANA on SAP Help Portal at <https://help.sap.com/s4hana>. Open the product page for your SAP S/4HANArelease and search for **Resource**.

4.10.6 Generate Time Streams for Warehouse

With this app, you can generate time streams for warehouse. You can use these time streams during the time data definition of route versions.

The time stream generation is based on OP4A (order plan for aggregation) or Extended Warehouse Management (EWM) shifts and shift sequences.

Related Information

[Route \[page 104\]](#)

4.10.7 Execute Warehouse Processes for Consumers

With this app, you can run warehouse-related selection variant processes for consumers.

You can use the *Execute Warehouse Processes for Consumers* app to run warehouse-related selection variant processes for consumers. You can start them immediately or schedule them for a certain time.

Prerequisites

You have configured selection variants and consumers in Customizing for *Extended Warehouse Management* under ► *SAP S/4HANA for Manufacturing Logistics* ► *Master Data* ► *Selection Variants and Consumers* ►.

Key Features

You can use this app to:

- Run or schedule jobs for default warehouse processes based on selection variant results.
- Run or schedule jobs for specific consumers

Related Information

[Selection Variants \[page 113\]](#)

[Selection Variant Processes \[page 172\]](#)

4.11 Application Programming Interfaces

This section lists the application programming interfaces (API) that are available for the route train process.

Master Data

Technical Name	Description
/ILO/IF_API_ROUTE	API for the route maintenance

Technical Name	Description
/ILO/IF_API_ROUTEGROUP	API for the route group maintenance
/ILO/IF_API_RTE_VERS_PROPOSAL	API for the route version proposal maintenance
/ILO/IF_API_SELECTION_VARIANT	API for the selection variant maintenance
/ILO/IF_API_STOP	API for the stop maintenance

Tour Management

Technical Name	Description
/ILO/IF_API TOUR	API for the tour processing

Tour Processing

Technical Name	Description
/ILO/IF_API_LLD	API for the loading lane determination

Delivery and HU Processing

Technical Name	Description
/ILO/IF_API_LOGISTICAL_RE_EVAL	API for the logistical re-evaluation

Route Determination

Technical Name	Description
/ILO/IF_API_CONDITION_READ	API for the determination of routes based on condition records

Selection Variant Processing

Technical Name	Description
/ILO/IF_API_SELVAR_EXECUTION	API for the selection variant process execution

For more information, see the interface and method documentation in transaction SE24.

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