

Reading Sample

This sample chapter covers SAP Advanced Track and Trace for Pharmaceuticals, an advanced system used for tracing serial numbers for pharmaceutical products. This chapter includes an overview of SAP Advanced Track and Trace for Pharmaceuticals and its integration with SAP Extended Warehouse Management (SAP EWM), as well as the deployment options provided by SAP for integrating SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM. This chapter also includes a detailed explanation of both the inbound and outbound processes used for SAP Advanced Track and Trace for Pharmaceuticals.



“SAP Advanced Track and Trace for Pharmaceuticals”



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Chapter 10

SAP Advanced Track and Trace for Pharmaceuticals

SAP Advanced Track and Trace for Pharmaceuticals offers invaluable assistance to pharmaceutical companies in fulfilling their specific legal obligations regarding the serialization, tracking, and tracing of products as well as in diligently reporting compliance with pharmaceutical product regulations from the relevant regulatory bodies. Moreover, this solution facilitates seamless data exchanges with packaging lines and enhances collaboration with supply chain partners, such as warehouse operations, third-party logistics (3PL), and contract manufacturing organizations (CMOs). SAP Advanced Track and Trace for Pharmaceuticals seamlessly integrates with diverse business processes, enterprise resource planning (ERP) systems, transactions, warehouse management, and supply chain management, thereby streamlining operations comprehensively. By placing paramount emphasis on patient safety, SAP Advanced Track and Trace for Pharmaceuticals helps protect company reputations. Furthermore, the meticulous management of serial numbers presents a formidable challenge for counterfeiters attempting to replicate legitimate codes, thereby serving as a deterrent against fraud. The primary aim of this chapter is to provide comprehensive information regarding SAP Advanced Track and Trace for Pharmaceuticals.

SAP Extended Warehouse Management (SAP EWM) and SAP Advanced Track and Trace for Pharmaceuticals can be seamlessly integrated to deliver complete end-to-end visibility and control over the storage and movement of pharmaceutical products within warehouses and distribution centers.

In typical business scenarios, whenever a serialized item is moved in or out of a warehouse, it is imperative to update both the stock management and the serialization repository accordingly. However, updating these two separate systems separately poses a significant risk of data inconsistency. The Warehouse integration feature addresses this issue by enabling the integration of warehouse stock with the serialization repository, ensuring data consistency and minimizing the risk of errors. This integration feature facilitates the synchronization of data between the SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals systems, enabling real-time updates of

stock movements and serialization data. This ensures that all information related to the pharmaceutical products is captured and maintained accurately, enabling efficient tracking and tracing of the product at every stage of the supply chain. Overall, the integration of SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals is a powerful solution that enables seamless data synchronization and data consistency, providing complete visibility and control over pharmaceutical products within a warehouse or distribution center.

The introductory section of this chapter is an overview of SAP Advanced Track and Trace for Pharmaceuticals and highlights how the solution can facilitate growth. The chapter then focuses on the diverse options available for Inbound goods receipt process and Outbound goods issue with business process, configuration, master data and end to end demonstration of process.

The chapter will particularly emphasize the SAP Advanced Track and Trace for Pharmaceuticals solution, an SAP system specifically designed for the efficient management of serial numbers and repositories. The central focus of this chapter will revolve around the integration of SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM for handling the inbound goods receipt process. Finally, we'll focus on the integration of SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM, a powerful warehouse management system (WMS) offered by SAP. This integration plays a pivotal role in facilitating the smooth and efficient handling of the inbound goods receipt process.

By the end of this chapter, you'll possess a comprehensive understanding of SAP Advanced Track and Trace for Pharmaceuticals, its integration with SAP Advanced Track and Trace for Pharmaceuticals solution, and its seamless incorporation with SAP EWM for inbound and outbound process. This knowledge will equip you with valuable insights into the advanced technologies employed in the pharmaceutical industry, ensuring you're well-informed and prepared to tackle related challenges effectively.

10.1 Overview of SAP Advanced Track and Trace for Pharmaceuticals

SAP Advanced Track and Trace for Pharmaceuticals is an advanced solution for serial number management, designed specifically for pharmaceutical companies. It offers serialization and serial number control capabilities, including drug serialization, data querying, reporting, and labeling. SAP Advanced Track and Trace for Pharmaceuticals helps reduce the cost of subsequent reporting to government and institutional databases and enhances the security of the supply chain.

The SAP Advanced Track and Trace for Pharmaceuticals solution assists pharmaceutical firms in fulfilling specific country-based legal obligations related to serialization, tracking, and tracing, as well as reporting compliance with regulatory bodies regarding pharmaceutical products. This solution can also help streamline data exchange with packaging lines, warehouse operations, 3PL, and CMOs. SAP Advanced Track and Trace for Pharmaceuticals is integrated with various business processes, enterprise resource

planning (ERP) systems, transactions, warehouse management, and supply chain management. By prioritizing patient safety, SAP Advanced Track and Trace for Pharmaceuticals can positively influence your brand's reputation. Managing serial numbers also makes it challenging for counterfeiters to replicate valid codes, thus preventing fraud.

Governments worldwide are increasingly passing legislation to combat drug counterfeiting, which requires efficient serialization and reporting of drugs to both government and institutional databases. Moreover, a secure data flow must exist between supply chain partners to comply with these complex systems.

To achieve compliance with regulations and legislation, pharmaceutical companies require a well-managed serialization repository that can handle high volumes of data, integrate with master data and business transactions, and provide internationally compliant reporting. To meet these requirements, SAP has developed a digital solution called SAP Advanced Track and Trace for Pharmaceuticals.

As a component of SAP Digital Supply Chain, SAP Advanced Track and Trace for Pharmaceuticals ensures the security of data flow, thereby affording pharmaceutical manufacturers comprehensive data protection. The system is specifically engineered to facilitate legal measures against illicit trade and counterfeiting.

Pharmaceutical manufacturers must adhere to regulations that involve thorough product validation, pharmaceutical serialization for pre-marketing drug verification, serialization data transfer to partners, creation of drug serialization reports that meet the different standards and requirements of various countries, and serialization management. To maintain compliance with these regulations, SAP Advanced Track and Trace for Pharmaceuticals can not only impact the packaging line but can also reinforce the overall business strategy by considering cross-organizational implications through extensive planning.

Some traits of advanced tracking and tracing systems include the following:

- Enable compliance with international legislation by reporting serial number events to authorities and business partners
- Integrate with ERP, WMSs, and packaging lines for seamless data exchange
- Capture serial numbers from packaging lines and warehouse systems and store serial number events centrally for easy tracking
- Track and trace the serial numbers of medicinal sales units and their aggregations to ensure their authenticity and ownership
- Track batches and their relation to serial numbers for effective inventory management
- Ensure reliable verification by comparing a given serial number to known ranges or rules for the appropriate manufacturer or distributor
- Demonstrate both authenticity and ownership of medications to prevent counterfeit products from entering the supply chain

- Manage number ranges and randomized or sequential serial number lists globally for better visibility and control
- Browse and generate internal reports on the usage and distribution of serial numbers globally
- Enable flexible serialization management for all serialization and regulatory data with partners, customers, and regulatory authorities to ensure consumer safety
- Ensure visibility in the supply chain by capturing and tracking all necessary information about the cargo, maximizing shipping accuracy and expenditure control within one cloud-based platform
- Authenticate batches and serialized trade items to prevent fraud and ensure product quality
- Adjust to every country's tracking and tracing laws for regulatory compliance reporting and report data to the responsible government agency or other supply chain partners once a drug or serial number is downloaded to the system

Integrating SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals provides end-to-end visibility and control over the movement and storage of pharmaceutical products within a warehouse or distribution center.

In a typical business scenario, when a serialized item moves in or out of a warehouse, both the stock management system and serialization repository must be updated. Updating them separately increases the risk of data inconsistency. The warehouse integration enables integration of warehouse stock with the serialization repository, thus ensuring data consistency.

SAP Advanced Track and Trace for Pharmaceuticals provides open interfaces for integration with any warehouse, as well as an even more convenient warehouse toolbox for SAP EWM as part of the SAP ERP add-on. Warehouse environments are typically highly modified applications beyond the SAP standard. Therefore, the warehouse integration activity follows a toolbox approach, with numerous backend functions that can be used as needed and integrated with custom warehouse processes and screen sequences.

The fundamental paradigm of the warehouse integration capability is that the warehouse process leads, and the repository system is invoked if necessary. This approach ensures that serialized and non-serialized items can be handled together.

Now, let's consider the deployment options available for the integration of SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM:

■ Deployment option 1: SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals as separate systems

As shown in Figure 10.1, in this deployment option, SAP Advanced Track and Trace for Pharmaceuticals can be connected to SAP ERP in order to integrate master data and transactional data. SAP Advanced Track and Trace for Pharmaceuticals is con-

nected with SAP EWM for warehouse processing through SAP Advanced Track and Trace for Pharmaceuticals functions.

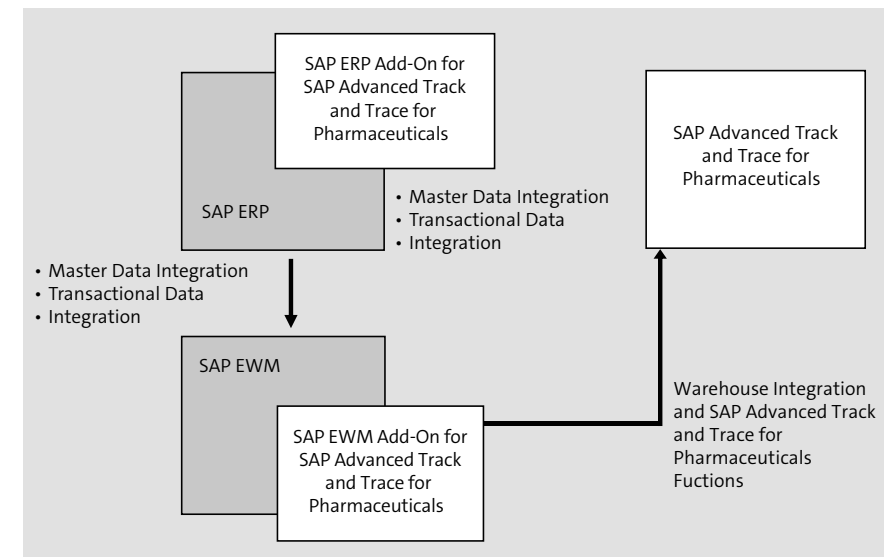


Figure 10.1 SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals as Separate Systems

■ Deployment option 2: SAP S/4HANA 1809 embedded Extended Warehouse Management in SAP S/4HANA (embedded EWM) and SAP Advanced Track and Trace for Pharmaceuticals as a decentralized system

As shown in Figure 10.2, in this deployment option, SAP Advanced Track and Trace for Pharmaceuticals can be connected with SAP S/4HANA in order to integrate master data and transactional data and to integrate with warehouse processing through SAP Advanced Track and Trace for Pharmaceuticals functions.

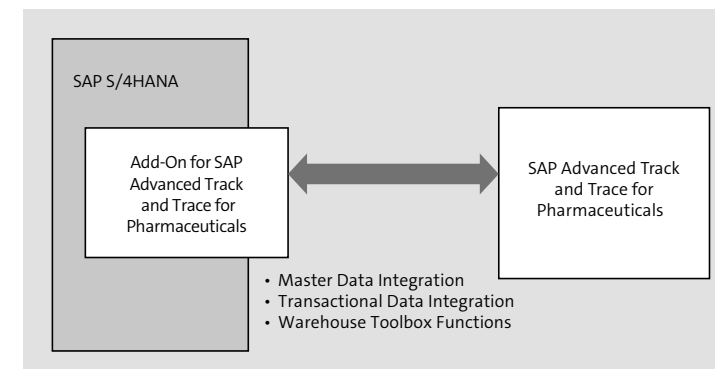


Figure 10.2 Embedded EWM and SAP Advanced Track and Trace for Pharmaceuticals as a Decentralized System

As shown in Figure 10.3, SAP offers different solutions to efficiently manage warehouse operations along with serialized products for SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals integration. Let's us understand how this integration works:

- SAP ERP or SAP S/4HANA, as the central system, maintains master data and transactional data and is integrated with SAP Advanced Track and Trace for Pharmaceuticals and SAP EWM. SAP ERP or SAP S/4HANA systems use different integration techniques, such as the Core Interface (CIF), application link enabling (ALE)/IDoc, and the data replication framework (DRF) for SAP EWM. Different integration transactions are used in SAP ERP or SAP S/4HANA for SAP Advanced Track and Trace for Pharmaceuticals.
- Pharmaceutical packaging lines is used to pack the finished products, which have been produced on production lines. These packaging lines are integrated with SAP Advanced Track and Trace for Pharmaceuticals via web service connections and communicate to the solution for commissioning and packing (aggregation) serial numbers batches of product as defined by the process order.
- SAP EWM can efficiently manage serialized as well as non-serialized inventory in the warehouse and when processing goods movements. It enables control over inbound and outbound warehouse processes and the movement of goods in the warehouse. With integration, SAP EWM sends notifications related to goods receipts, putaway, picking, and shipping to SAP Advanced Track and Trace for Pharmaceuticals, which then updates serial numbers events related to pharmaceutical serial numbers in pallets.

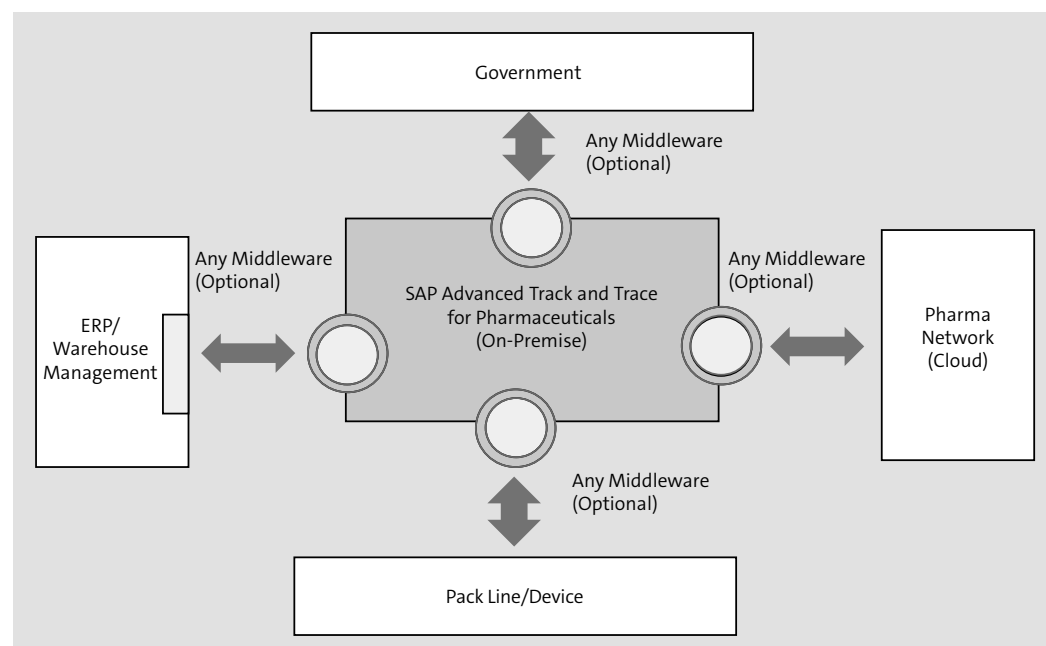


Figure 10.3 SAP Solution Offering for SAP Advanced Track and Trace for Pharmaceuticals and SAP EWM

- SAP Advanced Track and Trace for Pharmaceuticals can be used as a serialization repository and management solution for regulatory reporting by supporting compliance with country-based legislation to combat fake medicine.

10.2 Using SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM and SAP S/4HANA

In this section, we'll show you how to use SAP Advanced Track and Trace for Pharmaceuticals for goods issues and goods receipts. We'll begin with the outbound process and then cover the inbound process as well. For both scenarios, we'll walk you through the prerequisites, business processes, configurations, and master data setup needed and then provide a process demonstration.

10.2.1 Inbound Process

In this section, we'll thoroughly explore the inbound goods receipt process by utilizing SAP S/4HANA, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals, as well as their interfaces. This section is divided into five parts: prerequisites, inbound goods receipt business process, configuration needed for the process, master data, and step-by-step process flow.

Prerequisites

Before we delve into the inbound goods receipt process, certain system configurations must be maintained as prerequisites, such as the following:

- **SAP ERP or SAP S/4HANA system**
 - You have completed the basic configuration for integrating SAP ERP or SAP S/4HANA with SAP EWM and with SAP Advanced Track and Trace for Pharmaceuticals.
 - You have integrated plants, storage locations, materials, and business partners (customers and vendors) from SAP ERP or SAP S/4HANA to SAP Advanced Track and Trace for Pharmaceuticals.
 - You have integrated plants, storage locations, materials, business partners (customers and vendors), batches, classes, and characteristics from SAP ERP to SAP EWM.
 - You have set up logical systems and business systems and remote function call (RFC) connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.
- **SAP EWM system**
 - You have successfully completed the basic system configuration.

- You have integrated master data (including business partner, material master, batch, class, and characteristics) from SAP ERP to SAP EWM.
 - You have set up logical systems and business systems and RFC connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.
- **SAP Advanced Track and Trace for Pharmaceuticals system**
- You have successfully completed the basic system configuration.
 - You have integrated master data (including business partner and material master) from SAP ERP to SAP Advanced Track and Trace for Pharmaceuticals has been successfully accomplished.
 - You have set up logical systems and business systems and RFC connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.
- **Packaging lines**
- You have correctly set up web service connections between packaging lines and SAP Advanced Track and Trace for Pharmaceuticals.

Business Process

As shown in Figure 10.4, the inbound business process involves the following steps:

1. A process order is created and released in the SAP ERP or SAP S/4HANA system and is integrated into both the SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals systems.
2. Based on the finished components, materials, batches, quantities, specified in the process order, production lines manufactured the material and packaging lines packed into cartons, cases, and pallets (As per customer business process and packaging line hierarchy) in a systematic manner. The packing line generates serial numbers for each saleable unit and aggregation (repack) information, which is sent to the SAP Advanced Track and Trace for Pharmaceuticals system.
3. The warehouse operations team receives the handling unit (HU) physically in the warehouse and uses a radio frequency (RF) handheld device or desktop graphical user interface (GUI) transaction to perform the goods receipt and Putaway processed in SAP EWM system.
4. The information regarding the goods receipt is sent to the SAP Advanced Track and Trace for Pharmaceuticals system, which is updated with the pallet serial numbers for the process order.

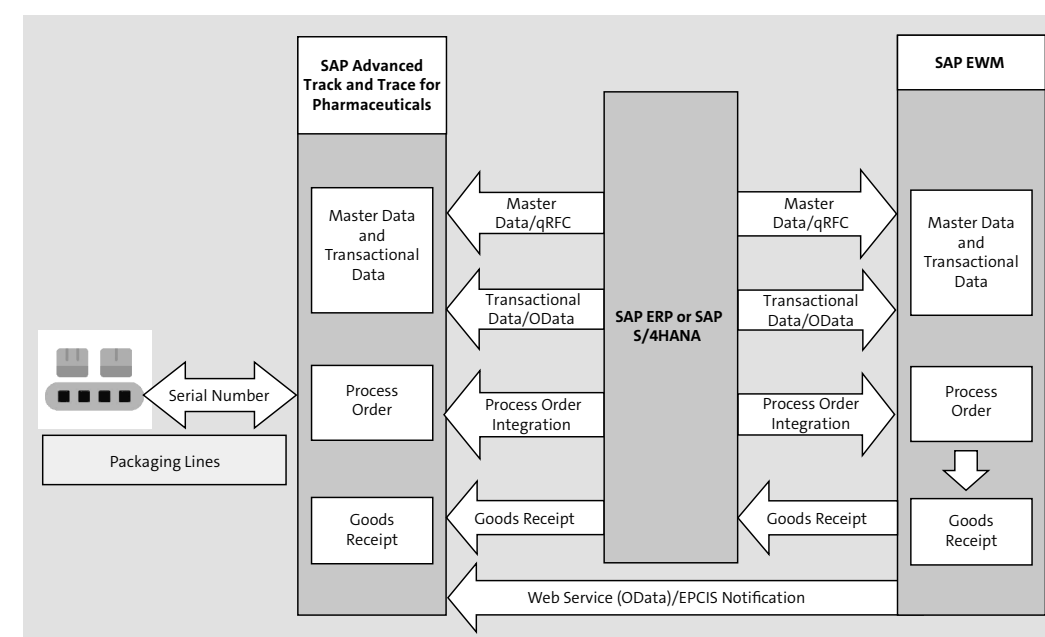


Figure 10.4 Overview of the Inbound Business Process

Configuration

In order to execute this process, several essential customization settings must be configured, such as the following:

1. Define logical system groups in SAP Advanced Track and Trace for Pharmaceuticals

In this configuration setting, logical system groups will be defined. A logical system group is used in the integration of master data. Follow the IMG menu path **SAP Advanced Track and Trace • System Customizing • Define Logical System Groups**. Click **New Entries** and create a logical system group or verify the existing configuration meets your business requirements, as shown in Figure 10.5. Click **Save**.

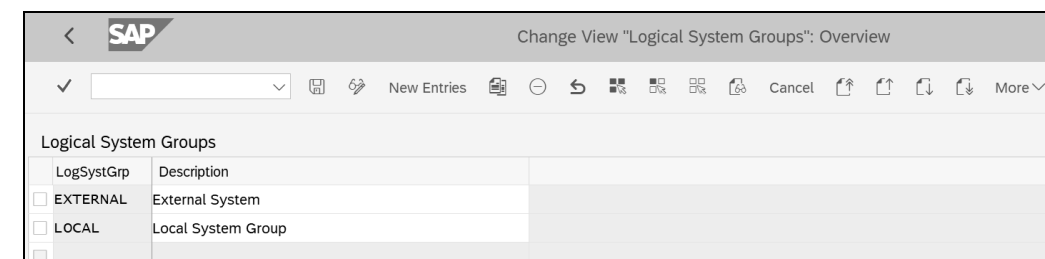


Figure 10.5 Define Logical System Groups

2. Define logical system group mappings in SAP Advanced Track and Trace for Pharmaceuticals

In this configuration setting, a logical system group mapping will be created. A logical system group will be mapped to a logical system. Follow the IMG menu path **SAP Advanced Track and Trace • System Customizing • Define Logical System Groups**. Click **New Entries** and define the logical system group mapping or verify the existing configuration meets your business requirements, as shown in Figure 10.6. Click **Save**.

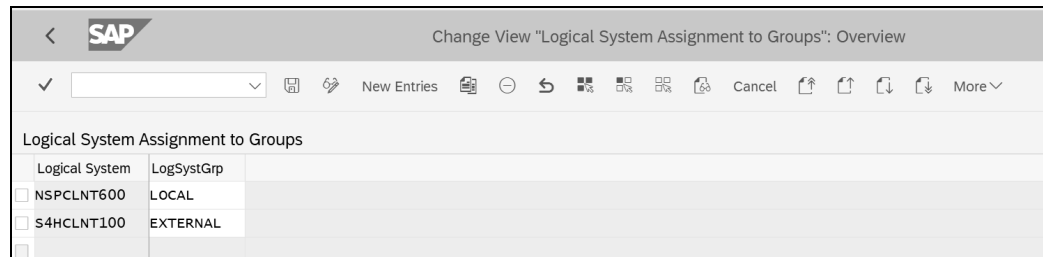


Figure 10.6 Define Logical System Groups Mapping

3. Define general customizing parameters in SAP Advanced Track and Trace for Pharmaceuticals

This customizing activity is the central place to configure the basic behavior of your SAP Advanced Track and Trace for Pharmaceuticals solution. Follow the IMG menu path **SAP Advanced Track and Trace • General Customizing**. To define general customizing parameters in SAP Advanced Track and Trace for Pharmaceuticals, on this screen, click **Customization settings** and then **Execute**. On the next screen, maintain customization parameters (i.e., **Comp.**, **Parameter Key**, and **Parameter Option**) according to your business process, as shown in Figure 10.7. Click **Save**.

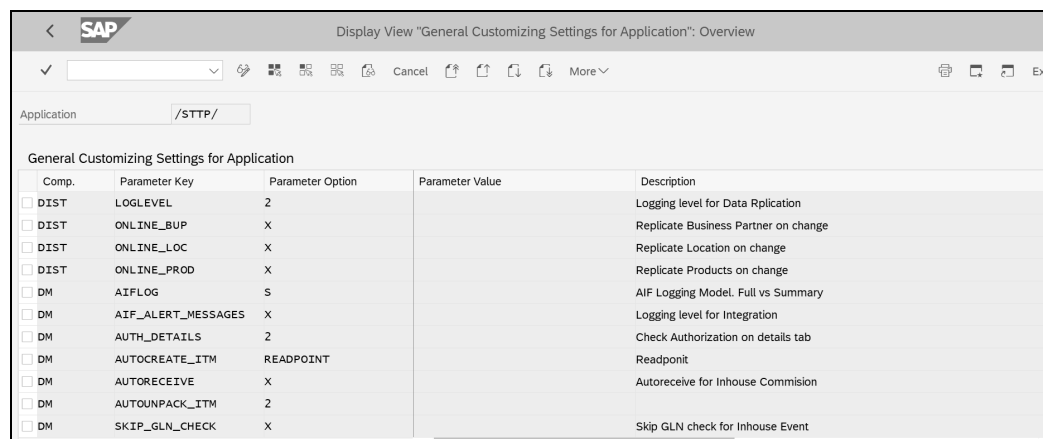


Figure 10.7 Define General Customizing Parameters

4. Define general customizing parameters in SAP ERP or SAP S/4HANA

This customizing activity is the central place to configure the basic behavior of your

SAP Advanced Track and Trace for Pharmaceuticals solution. Follow the SAP Easy Access menu path **Logistics • Central Functions • Advanced Track and Trace • Customizing • General Customizing**. To define general customization parameters, on the initial screen, click **Customization settings** and then **execute**. On the next screen, maintain customization parameter (i.e., **Comp.**, **Parameter Key**, and **Parameter Value**) according to your business process, as shown in Figure 10.8. Click **Save**.

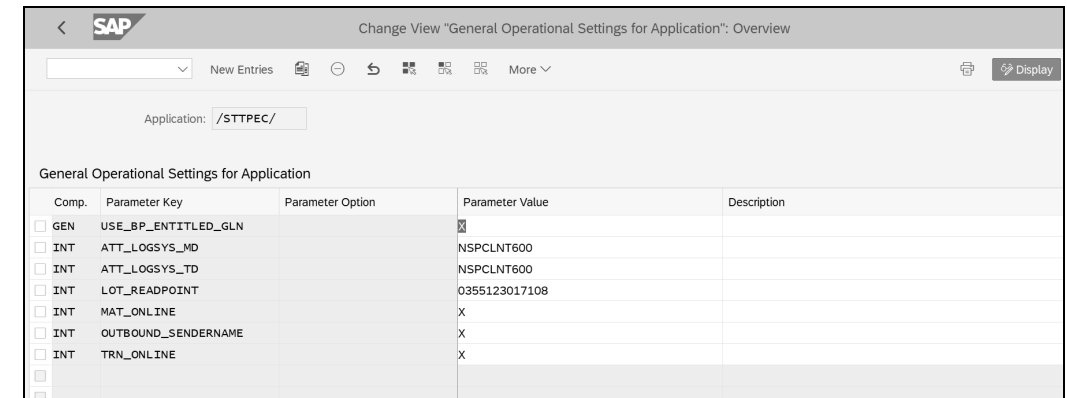


Figure 10.8 Define General Customizing Parameters in ERP or SAP S/4HANA

Master Data Setup

In this section, we'll cover the primary master data settings needed for this process:

1. Display material master in SAP ERP or SAP S/4HANA

In this master data setup, a material master will be maintained. Follow the SAP Easy Access menu path **Logistics • Material Management • Material Master • Material • Create (General)** or Transaction **MM03**. Enter a material number, material type, and industry section on the initial screen. Then, on the next screen, select the **Basic data 1** tab and click **Execute**.

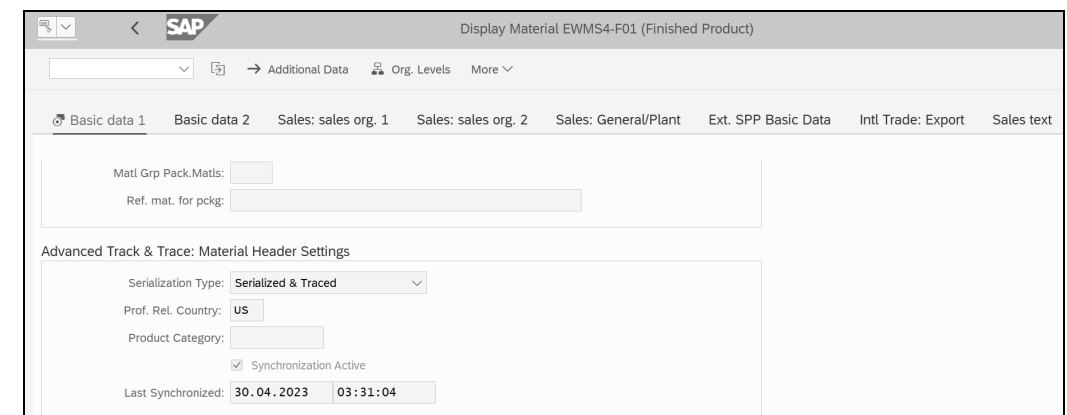


Figure 10.9 Display Material Master

As shown in Figure 10.9, check the **Serialization Type** field under **Advanced Track & Trace: Material Header Settings**, as shown in Figure 10.9. Click **Save**.

2. Display the material master (trade item) in SAP Advanced Track and Trace for Pharmaceuticals

In this master data setup, a material master for the trade item will be displayed. Follow the SAP Easy Access menu path **Advanced Track and Trace • Repository Data Management • Advanced Track and Trace Data Cockpit** or use Transaction **/STTP/COCKPIT**. Follow the path **Master Data • Trade Item**. Double-click **Trade Item** and enter a material number in the trade item field, as shown in Figure 10.10.

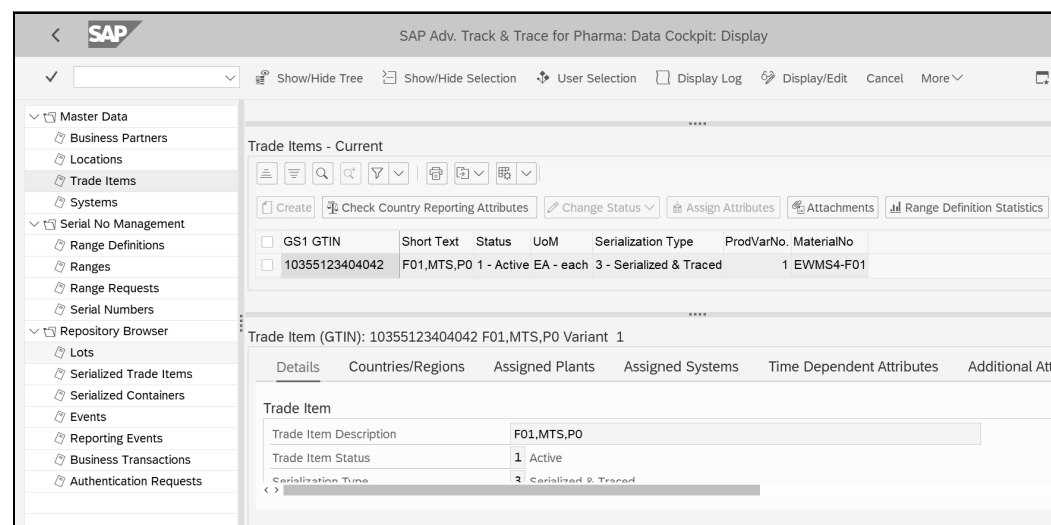


Figure 10.10 Display Material Master (Trade item)

3. Display the product master in SAP EWM

In this master data setup, a product master will be displayed in SAP EWM. Follow the SAP Easy Access menu path **Logistics • SCM Extended Warehouse Management • Extended Warehouse Management • Master Data • Product • Maintain Warehouse Product** or use Transaction **/SCWM/MAT1**. Maintain the **Putaway Control** field, as shown in Figure 10.11.

4. Display the plant (location master) in SAP Advanced Track and Trace for Pharmaceuticals

In this master data setup, a location master for the plant will be displayed in SAP Advanced Track and Trace for Pharmaceuticals. Follow the SAP Easy Access menu path **Advanced Track and Trace • Repository Data Management • Advanced Track and Trace Data Cockpit** or use Transaction **/STTP/COCKPIT**. To display a trade item in SAP Advanced Track and Trace for Pharmaceuticals, follow the path **Master data • Location**. Double-click **Location** and enter a location number in the location field, as shown in Figure 10.12.

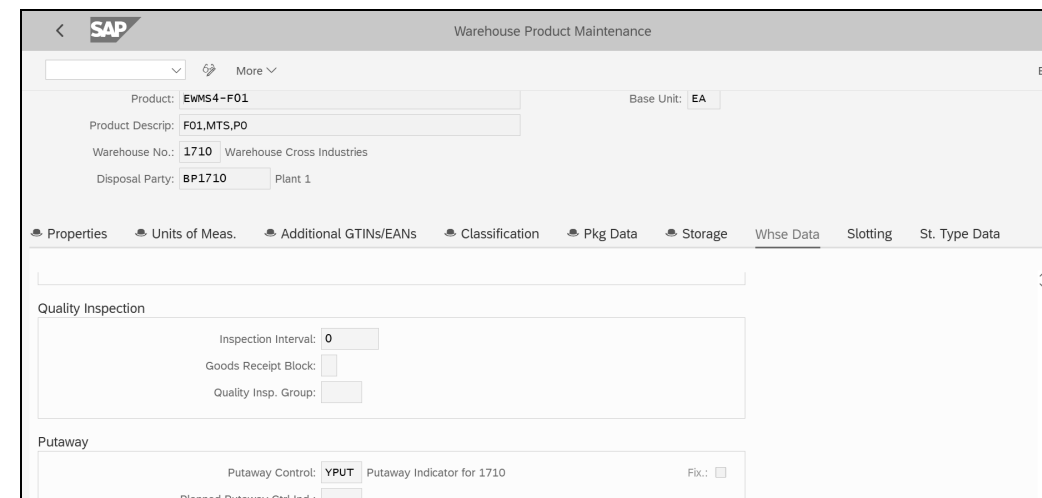


Figure 10.11 Display Product Master

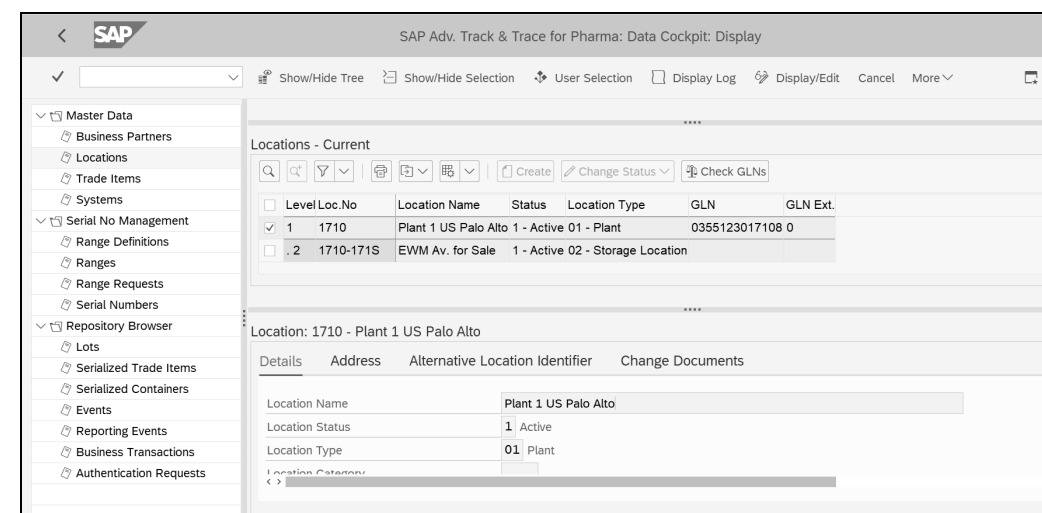


Figure 10.12 Display Plant (Location Master)

Process Demo

Let's go through the process demo for the inbound goods receipt process step by step:

1. Create a process order in SAP ERP or SAP S/4HANA

To create a process order in SAP ERP or SAP S/4HANA, execute Transaction **COR1**, Enter details such as material number, production plant and process order type and click **Continue**. Enter all the details for process order such as material, storage location and batch details, as shown in Figure 10.13 and click **Save**. The process order is created. Note the process order number, which you'll need for the next step.

Process Order: 1001700 Type: YQ01
 Material: EWMS4-F01 Plant: 1710
 System Status: REL BASC BCRQ MACM SETC

General Data Assignment Goods Receipt Control Dates/Qties Master Data Administr. Items

Receipt
 Stor. Loc.: 171S Batch: 0000000078
 Distribution: Stk Seg.

Inbound Delivery

Figure 10.13 Create Process Order

2. Display the process order in SAP ERP or SAP S/4HANA

To display the process order, execute Transaction COR3. Enter the process order number in the **Process Order** field and click **Continue**. The process order will be displayed, as shown in Figure 10.14.

Process Order: 1001700 Type: YQ01
 Material: EWMS4-F01 Plant: 1710
 System Status: REL PRC CSER BASC BCRQ MACM SETC

General Data Assignment Goods Receipt Control Dates/Qties Master Data Administr. Items

Underdelivery: 0,0 %
 Overdelivery: 0,0 % Unlimited Overdelivery:

Receipt
 Stor. Loc.: 171S Batch: 0000000078
 Distribution: Stk Seg.

Figure 10.14 Display Process Order

3. Display the process order in SAP EWM

To display the process order, execute Transaction /SCWM/MON. Follow the path **Inbound • Processes • Production Overview**. Double-click **Production Overview** and enter the process order in the **Manuf. Order** (manufacturing order) field. The process order will be displayed as shown in Figure 10.15.

Manuf. Order	Product	Product Descr.	ProdInd Description	GM Bin Batch	RU Disposal	BUPlan Qty	Rec Qty G
1001700	EWMS4-F01	F01,MTS,PO	1 Main Product	0000000078	BP1710 EA	100	0

Figure 10.15 Display Process Order

4. Display the process order in SAP Advanced Track and Trace for Pharmaceuticals

In this step, you'll create and release a process order in SAP ERP or SAP S/4HANA. The process order is automatically integrated to SAP Advanced Track and Trace for Pharmaceuticals. To display a process order in SAP Advanced Track and Trace for Pharmaceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Business Transaction**. Enter the process order in the **Document Number** field and click **Execute**, as shown in Figure 10.16.

Transaction Code	Business Transaction Type	Document S	Doc. Number	Document Type	GLN	LogS
urn:epcglobal:cbv:bt:0355123017108:10017002023	prodorder - Production Order	1	Created	10017002023	01 - Productio	0355123017

Figure 10.16 Display Process Order

5. Display the serialized shipping container code (SSCC) HU in SAP Advanced Track and Trace for Pharmaceuticals

Packaging lines send HU information (like SSCC serial numbers and serial numbers for child components) to SAP Advanced Track and Trace for Pharmaceuticals once the HU is packed. To display an SSCC HU in SAP Advanced Track and Trace for Phar-

maceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Serialized Container**, as shown in Figure 10.17.

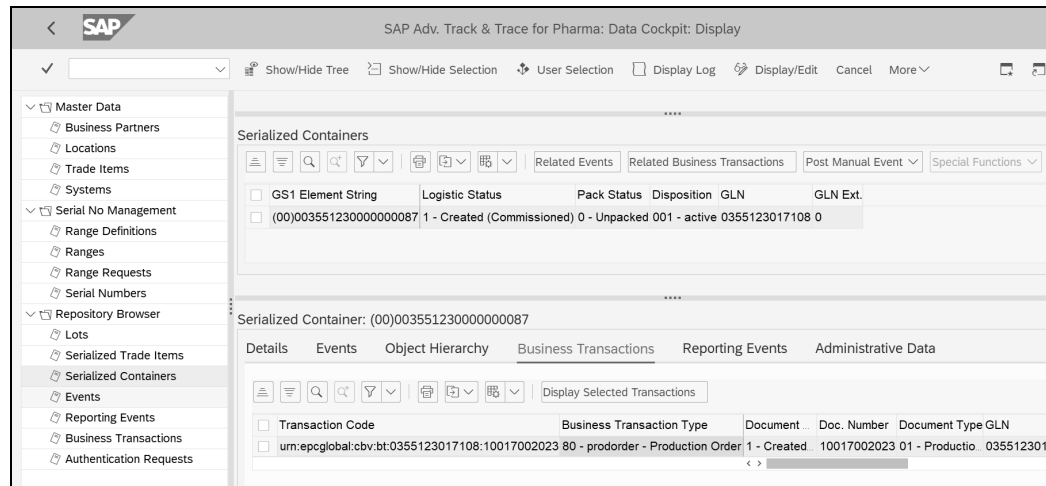


Figure 10.17 Display SSCC HU

Note

The serial numbers generated in this chapter for this process demo were created in a simulation tool and not from an actual packaging line interface.

6. Perform goods receipt using handheld device in SAP EWM

To perform goods receipt in SAP EWM, execute Transaction /SCWM/RFUI. Follow the menu path **Inbound Process • Receiving of Handling Units • Rec HU by Manufacturing Order • Rec. HU by Order** and follow the goods receipt process, as shown in Figure 10.18. To perform the goods receipt, first scan/enter work center details on the first screen and then press **[Enter]**. On the next screen, scan/enter the manufacturing order number and press **[Enter]**. On the third screen, enter a product number and press **[Enter]**. On the final screen, enter HU details and press **[Enter]**. Once all operations are complete in the background, the system creates an inbound delivery and performs the goods receipt automatically in SAP EWM.

7. Display an inbound delivery with reference to a process order in SAP EWM

To display an inbound delivery, execute Transaction /SCWM/MON. Follow the path **Inbound • Processes • Production Overview**. Double-click **Production Overview** and enter the process order number in the **Manuf. Order** field and click **Execute**. On the next screen, select the line item and click **Inbound Delivery**. The inbound delivery will be displayed in the **Doc. No** field, as shown in Figure 10.19.



Figure 10.18 Perform Goods Receipt

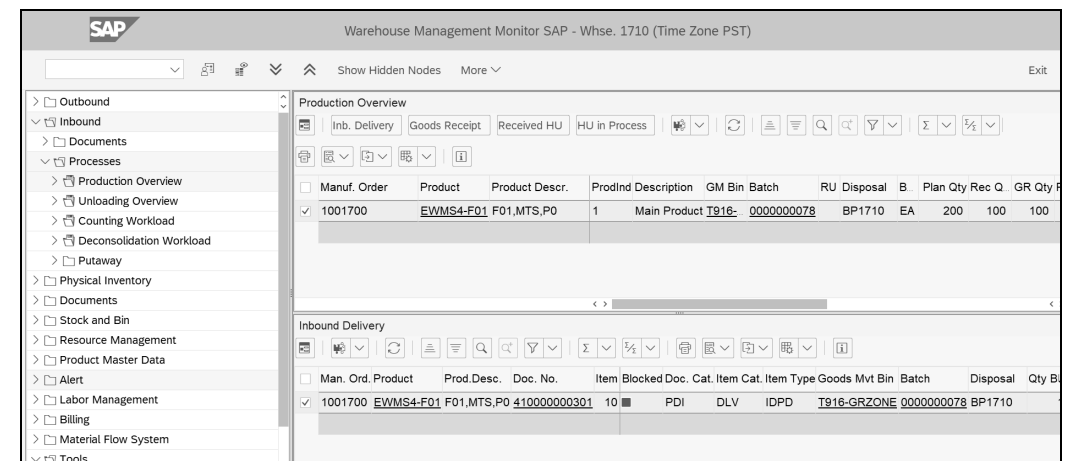


Figure 10.19 Display Inbound Delivery

8. Display goods receipt status in SAP EWM

To display HU information and goods receipt status in SAP EWM, execute Transaction /SCWM/PRDI. Input the inbound delivery number in the **Inbound Delivery** field from and click **Execute**. On the same screen, select the line item and, on the item level, click the **HU** tab. Verify the handling unit number (in the **Handling Unit** field) and verify that the value of the **Goods Rcpt** field was set to **Completed**, as shown in Figure 10.20.

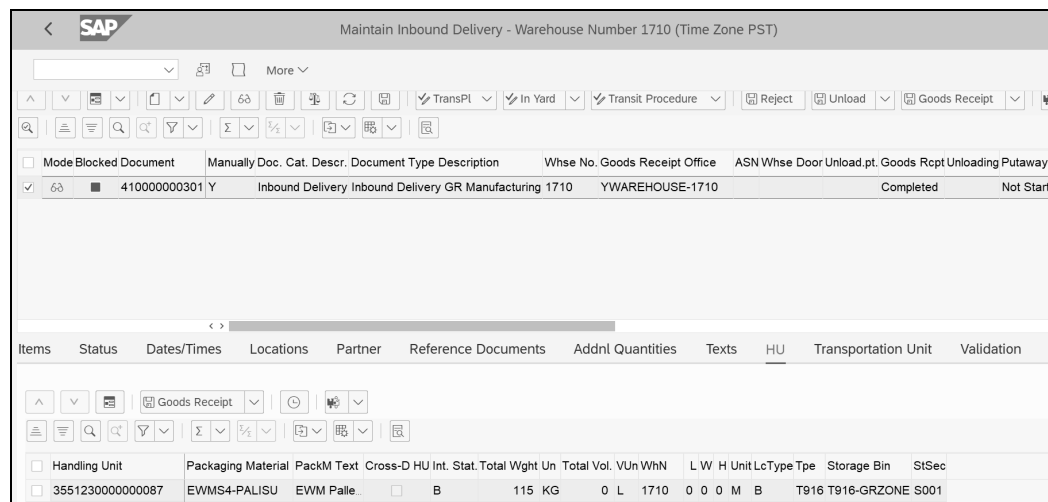


Figure 10.20 Goods Receipt Status

9. Display HU information for an inbound delivery with reference to a process order in SAP Advanced Track and Trace for Pharmaceuticals

To display HU information for a process order in SAP Advanced Track and Trace for Pharmaceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Business Transaction**. Input the process order in the **Document Number** field and click **Execute**, as shown in Figure 10.21. Verify the HU details at the item level by selecting the **Objects** tab.

10. Display HU status for an inbound delivery with reference to a process order in SAP Advanced Track and Trace for Pharmaceuticals

To display the HU receiving status for a process order in SAP Advanced Track and Trace for Pharmaceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Business Transaction**. Input the process order in the **Document Number** field and execute the transaction, as shown in Figure 10.22. Verify the HU status at the item level is **011 - receiving** under the **Events** tab.

11. Display the goods movement status for process order in SAP ERP or SAP S/4HANA

To the display goods movement status in SAP ERP or SAP S/4HANA, execute Transaction COR3, input process order details from earlier in the **Process Order** field and click **Execute**. On the next screen, follow the path **More • Go to • List • Document Goods Movements**. The goods receipt posting for the process order will be displayed, as shown in Figure 10.23.

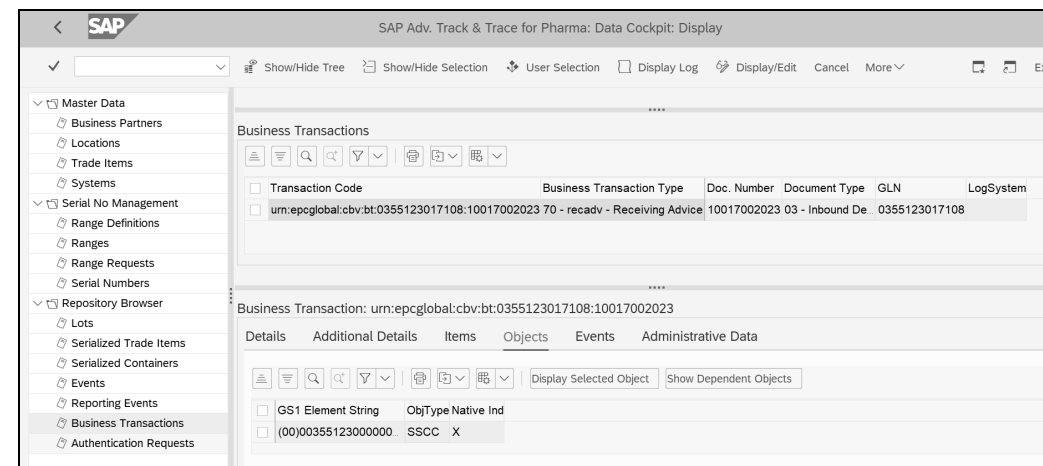


Figure 10.21 Display HU for Inbound Delivery

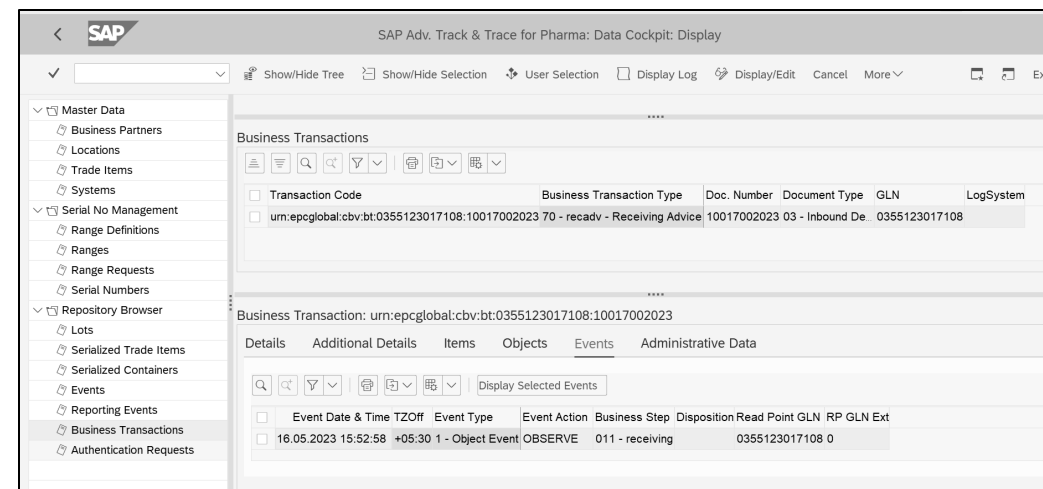


Figure 10.22 Display HU

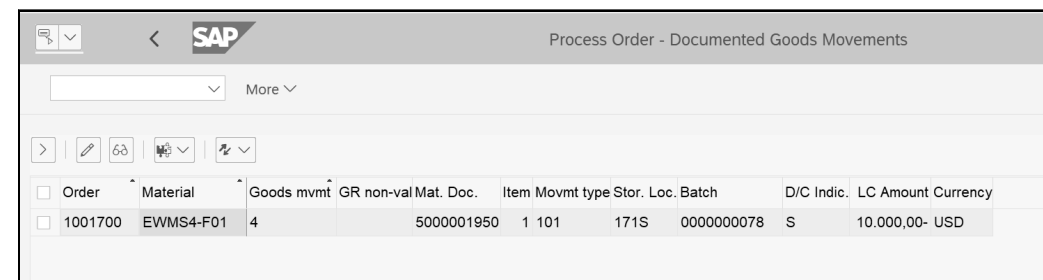


Figure 10.23 Display Goods Movement Status

Note

The inbound goods receipt process using SAP EWM, SAP Advanced Track and Trace for Pharmaceuticals, and SAP ERP or SAP S/4HANA is now complete.

10.2.2 Outbound Process

In this section, we'll thoroughly explore the outbound goods issue process by utilizing the SAP S/4HANA, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals systems, as well as their interfaces. This section is divided into three parts: prerequisites, outbound goods issues business process, and step-by-step process flow.

Prerequisites

Before we delve into the outbound goods receipt process, certain system configurations must be maintained as prerequisites, such as the following:

- **SAP ERP or SAP S/4HANA system**

- You have completed the basic configuration for integrating SAP ERP or SAP S/4HANA with SAP EWM and with SAP Advanced Track and Trace for Pharmaceuticals.
- You have integrated plants, storage locations, materials, and business partners (customers and vendors) from SAP ERP or SAP S/4HANA to SAP Advanced Track and Trace for Pharmaceuticals.
- You have integrated plants, storage locations, materials, business partners (customers and vendors), batches, classes, and characteristics from SAP ERP to SAP EWM.
- You have set up logical systems and business systems and RFC connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.

- **SAP EWM system**

- You have successfully completed the basic system configuration.
- You have integrated master data (including business partner, material master, batch, class, and characteristics) from SAP ERP to SAP EWM.
- You have set up logical systems and business systems and RFC connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.

- **SAP Advanced Track and Trace for Pharmaceuticals system**

- You have successfully completed the basic system configuration.
- You have integrated master data (including business partner and material master) from SAP ERP to SAP Advanced Track and Trace for Pharmaceuticals has been successfully accomplished.

- You have set up logical systems and business systems and RFC connections for the seamless integration among SAP ERP, SAP EWM, and SAP Advanced Track and Trace for Pharmaceuticals.

- **Packaging lines**

- You have correctly set up web service connections between packaging lines and SAP Advanced Track and Trace for Pharmaceuticals.

Business Process

As shown in Figure 10.24, the outbound business process involves the following steps:

1. An outbound delivery is created in the SAP ERP or SAP S/4HANA system with reference to a sales order. This delivery is then integrated into both the SAP EWM and SAP Advanced Track and Trace for Pharmaceuticals systems as an outbound delivery order and an outbound delivery, respectively

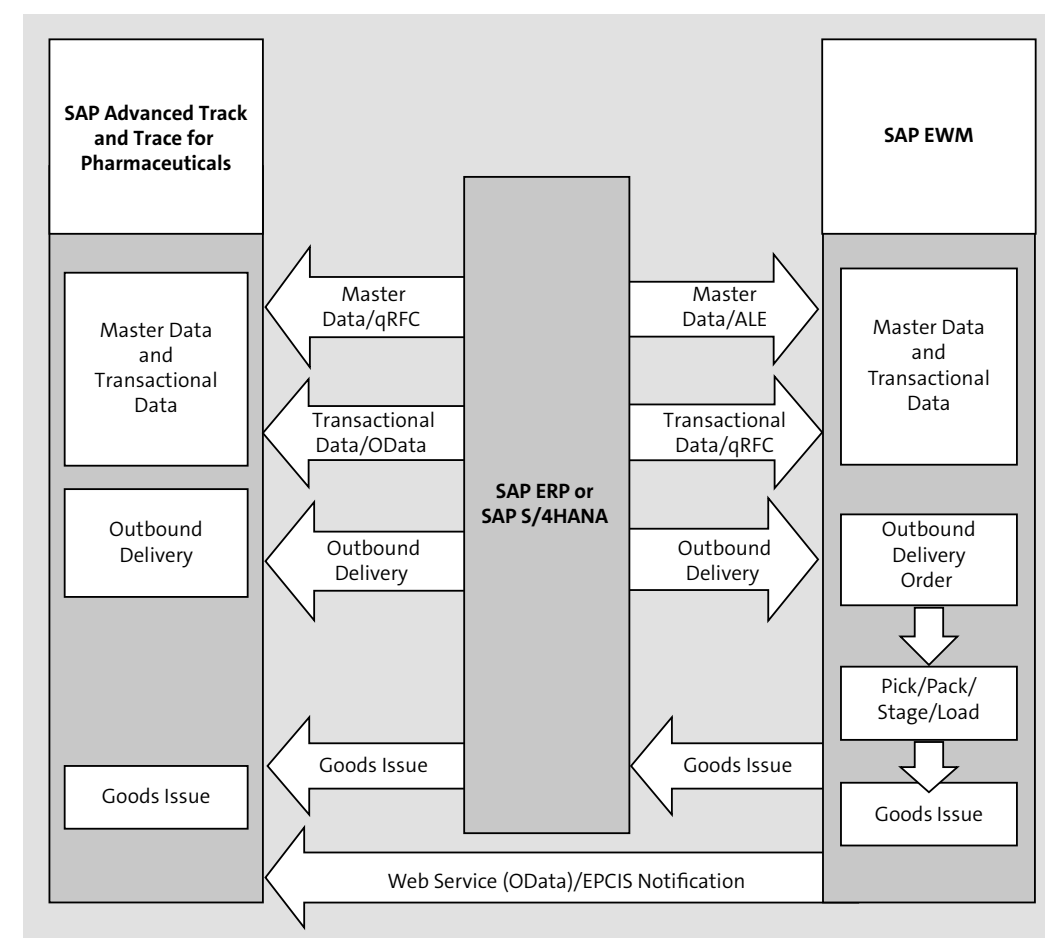


Figure 10.24 Overview of the Outbound Business Process

- In the SAP EWM system, the warehouse operations team is responsible for picking and packing the pallet HUs for the outbound delivery order. Once the truck arrives, the pallets are loaded one by one using either an RF transaction or a desktop GUI transaction. When the pallet HU is successfully loaded, an EPCIS notification is sent to the SAP Advanced Track and Trace for Pharmaceuticals system to inform it of the loading event, and the SAP Advanced Track and Trace for Pharmaceuticals system is updated with the loading event for the HU.
- The warehouse operations team then proceeds to perform the goods issue for the outbound delivery order. Successful completion of the goods issue updates the inventory data and material document in the SAP ERP or SAP S/4HANA system. At the same time, the SAP Advanced Track and Trace for Pharmaceuticals system receives an EPCIS notification indicating the shipment. In the SAP Advanced Track and Trace for Pharmaceuticals system, the pallet HU is updated with the shipping event, and the outbound delivery order status is changed to closed.

Process Demo

Let's go through the process demo for the outbound goods receipt process using SAP Advanced Track and Trace for Pharmaceuticals, SAP EWM, and SAP ERP or SAP S/4HANA step by step:

1. Create a sales order in SAP ERP or SAP S/4HANA

To initiate a sales order, execute Transaction VAO1. Maintain the fields in the **Order Type** and **Sales Area** sections of the **Organizational Data** tab. Press **Enter**. On the next screen, enter all the required details for sales order creation, such as maintain the **Material** and **Plant** fields, as shown in Figure 10.25. Note the sales order number, which you'll need for the next step.

Item	Material	Customer Material Number	ItCa	HL Item	D. First Date	Plnt	Batch	CnTy	Amount	Crcy	Net Price
	EWMS4-F01				D 15.06.2023	1710	0000000078			13USD	
					D 15.06.2023						
					D 15.06.2023						
					D 15.06.2023						

Figure 10.25 Create Sales Order

- Create an outbound delivery (with reference to a sales order) in SAP ERP or SAP S/4HANA**
To create an outbound delivery, execute Transaction VLO1N. Enter details such as shipping point and sales order and click **Continue**. Maintain the **Material**, **Deliv. Qty**, and **Plnt** fields and add all other details required to create outbound delivery depending on your business requirements, as shown in Figure 10.26. Click **Save**. Note the outbound delivery number, which you'll need for the next step.

Item	Material	Plnt	SLoc	Req. Segment	Deliv. Qty	Un	Picked Q...	Un	Batch
10	EWMS4-F01	1710	171S		1	EA		EA	0000000078

Figure 10.26 Create Outbound Delivery

3. The outbound delivery is distributed to SAP EWM. Verify the successful distribution of the outbound delivery order in SAP EWM

To verify outbound delivery order details in SAP EWM, execute Transaction /SCWM/PRDO. Enter the outbound delivery order from the previous step in the **Outbound Delivery Order** field and click **Execute**. The outbound delivery order will be displayed, as shown in Figure 10.27.

Mode Blocked Document	Manually Doc. Cat. Descr.	Doc. Type Desc.	Whse No.	Shipping Office	Whse Door Loading Pt Picking	PackStat	Loading	Goods Iss.	Incr
80004051	Outbound Delivery Order	Outbound Delivery Order 1710	YWAREHOUSE-1710		Not Started	Not Started	Not Started	Not Started	DD

Mode Blocked	Item	Manually Level Del. Group	Item Cat. Descr.	Item Type Description	Doc. No.	Product	Ext. Product	Prod. Entd	Description	Batch	S. Cus
10			Standard Delivery Item	Standard Item - Outbound Delivery	EWMS4-F01	EWMS4-F01	EWMS4-F01	F01.MTS.P0	0000000078		

Figure 10.27 Display Outbound Delivery Order

4. The outbound delivery is distributed to SAP Advanced Track and Trace for Pharmaceuticals. Verify successful distribution.

To display the outbound delivery in SAP Advanced Track and Trace for Pharmaceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Business Transaction**. Enter the outbound delivery in the **Document Number** field and click **Execute**, as shown in Figure 10.28. The outbound delivery can be viewed at the item level in document number field with **Document Status 1 - Created**.

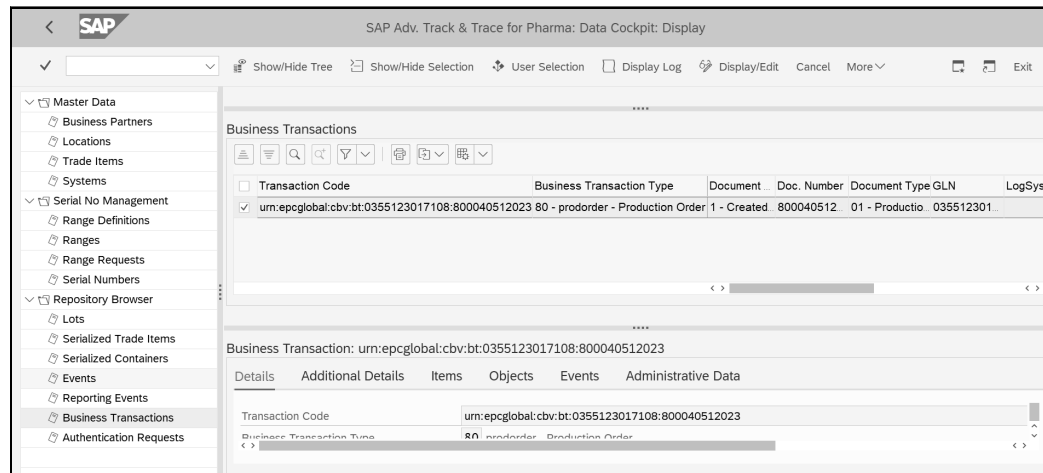


Figure 10.28 Display Outbound Delivery

5. Create a pick warehouse task for the outbound delivery order in SAP EWM

To create a pick warehouse task, execute Transaction /SCWM/MON. Follow the path **Document • Wave** and then double-click on the screen.

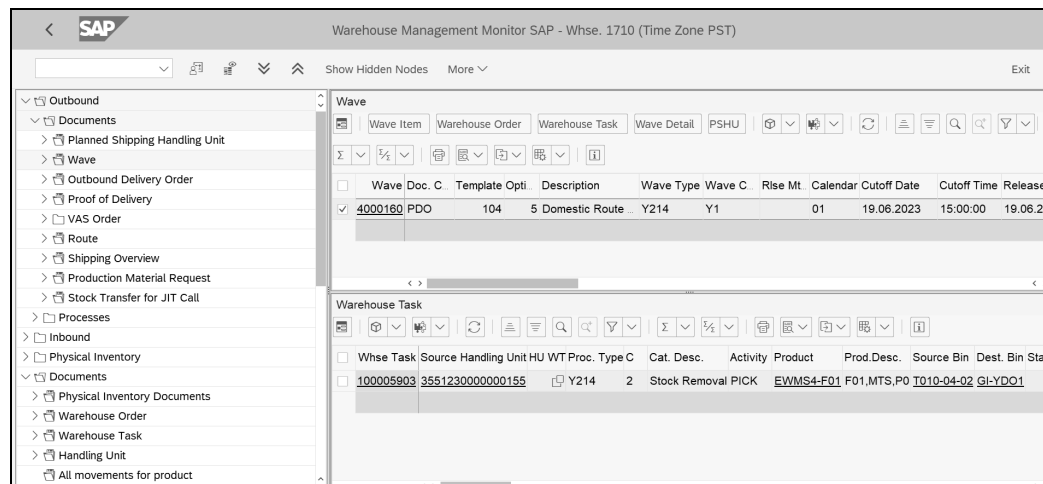


Figure 10.29 Create Pick Warehouse Task

Then, input the warehouse task on the screen that opens. Click **Execute**. On the next screen, select the line item and select **More • Release Wave**. Clicking **Release Wave** will create the warehouse task automatically, as shown in Figure 10.29.

6. Confirm the pick warehouse task in SAP EWM

To confirm the pick warehouse task, execute Transaction /SCWM/MON. Follow the path **Document • Warehouse Task**. Input the warehouse task. Select the line item and click **Confirm WT in Background**. The warehouse task will be confirmed, as shown in Figure 10.30, with the warehouse task confirmation status as **C - Confirmed**.

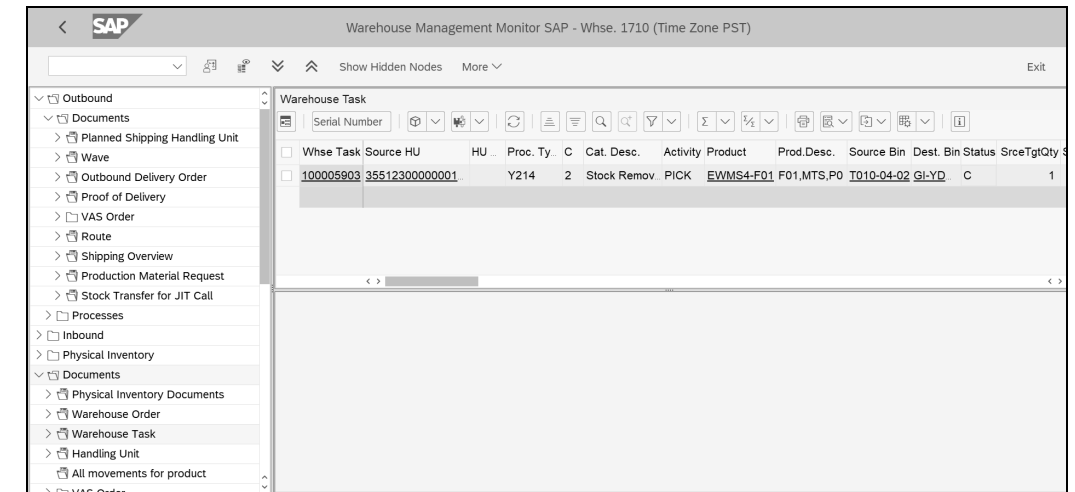


Figure 10.30 Confirm Pick Warehouse Task

7. Loading of pallet HU in SAP EWM

To load the pallet HU, execute Transaction /SCWM/RFUI. Then, follow the path **Outbound Processes • Loading • Loading by Delivery** and input the delivery in the delivery field. Press **[Enter]**. On the next screen, scan/enter the HU, as shown in Figure 10.31, and press **[Enter]**. At this point, the loading process for the pallet HU is now complete.

Note

In a real-world business scenario, to load pallet HUs with serial numbers, warehouse operations can use the warehouse toolbox functionality, which is a special out-of-the-box feature provided by SAP or custom RF transaction.

8. Verify the loading status for the outbound delivery order in SAP EWM

To verify the loading status for the outbound delivery order in SAP EWM, execute Transaction /SCWM/PRDO. Enter the outbound delivery order from the previous step into the outbound delivery order field and click **Execute**. The outbound delivery order will be displayed, with the loading status **Completed**, as shown in Figure 10.32.



Figure 10.31 Loading of Pallet HU

9. Verify the loading status for the pallet HU in SAP Advanced Track and Trace for Pharmaceuticals

To verify the loading status in SAP Advanced Track and Trace for Pharmaceuticals, execute Transaction /STTP/COCKPIT and follow the path **Repository Browser • Serialized Container**. Enter the pallet HU and click **Execute**, as shown in Figure 10.33. Verify that the **Business Step** column has the value **012 - loading** under the **Events** tab.

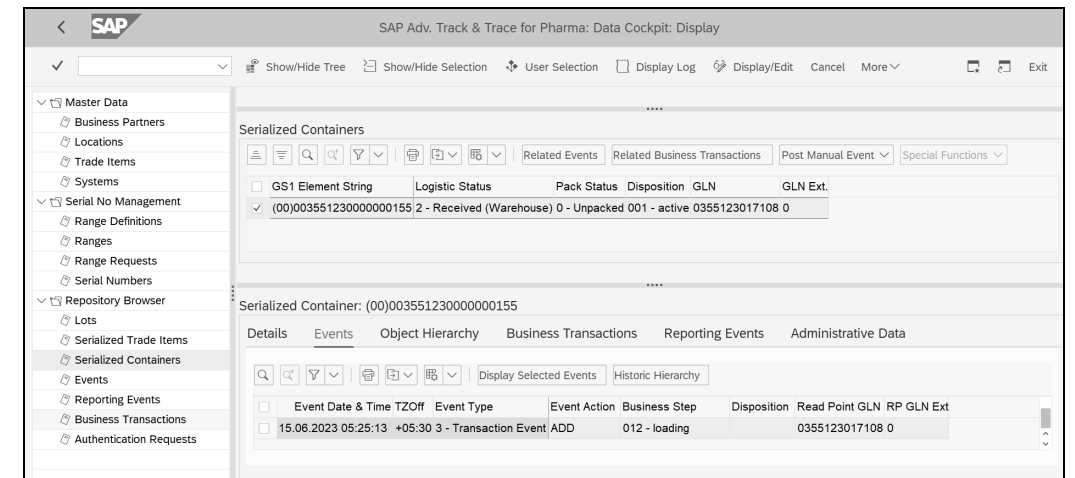


Figure 10.33 Verify Loading Status for Pallet HU

10. Perform the goods issue for the outbound delivery order in SAP EWM

To perform goods issue for outbound delivery order in SAP EWM, execute Transaction /SCWM/PRDO. Enter the outbound delivery order from the previous step and click **Execute**.

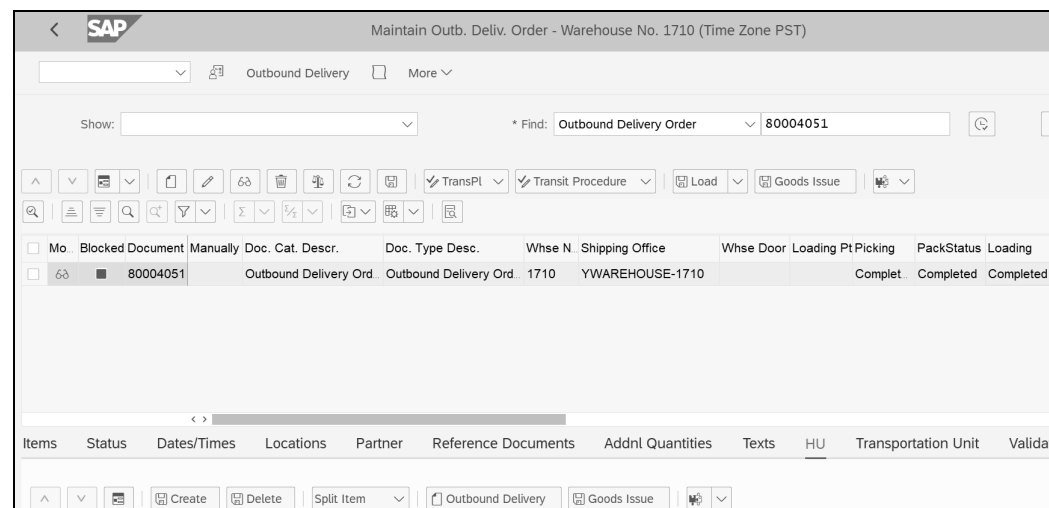


Figure 10.32 Verify Loading Status for Outbound Delivery Order

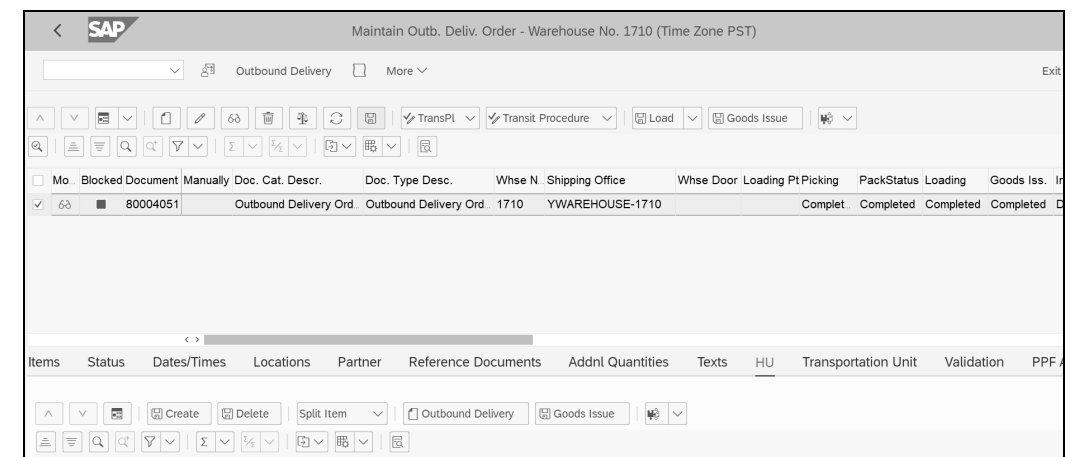


Figure 10.34 Perform Goods Issue for Outbound Delivery Order

The outbound delivery order will be displayed. Select the line item and click **Goods Issue**. The outbound delivery order goods issue will be completed, as shown in Figure 10.34. Verify that the **Goods Issue Status** was set to **Completed**.

Note

The successful goods issue for an outbound delivery order in SAP EWM updates inventory data and the material document in SAP ERP or SAP S/4HANA and updates the outbound delivery in SAP Advanced Track and Trace for Pharmaceuticals, which is now closed with shipping event 013 - shipping.

The outbound goods receipt process using SAP EWM, SAP Advanced Track and Trace for Pharmaceuticals, and SAP ERP or SAP S/4HANA is now complete.

10.3 Summary

That's it! You're now prepared to begin working on serializing your pharmaceutical production lines. In this chapter, you provided an overview of SAP Advanced Track and Trace for Pharmaceuticals. We discussed the advantages of implementing SAP Advanced Track and Trace for Pharmaceuticals and explored its integration with SAP EWM. Additionally, we delved into the deployment options for integrating SAP Advanced Track and Trace for Pharmaceuticals with SAP EWM and SAP ERP or SAP S/4HANA. Furthermore, we explored the inbound goods receipt process as well as outbound goods issue process using the integration of SAP EWM, SAP Advanced Track and Trace for Pharmaceuticals, and either SAP ERP or SAP S/4HANA.

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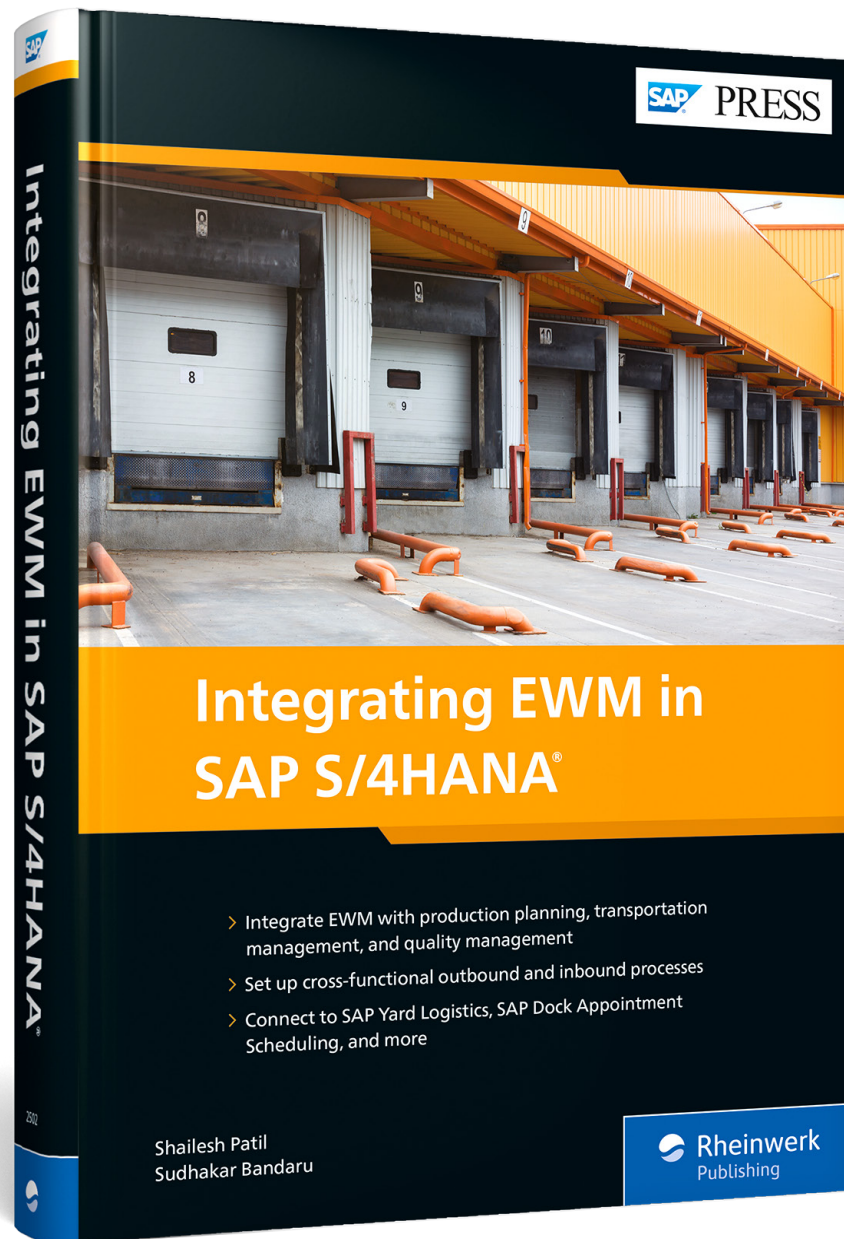
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