



# Infor LN User Guide for the Kanban Supply System

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## About this Guide

### Objectives

The objective of this book is to describe the use of tracking goods and inventory in transit.

### Intended Audience

This book is intended for those who want to view goods and inventory in transit when handling goods receipts.

### Assumed Knowledge

Familiarity with the business processes involved in receipt handling based on ASNs and transfer orders will help you understand this book. In addition, Warehousing training courses are available to give you a head start.

### References

Use this guide as the primary reference for the kanban supply system. Use the current editions of these documents for information that is not covered in this guide:

- *User Guide for the Inbound Goods Flow (U9788 US)*
- *User Guide for the Outbound and Shipments Goods Flows (U9794 US)*

### How to read this document

This document is assembled from online Help topics.

Text in italics followed by a page number represents a hyperlink to another section in this document.

Underlined terms indicate a link to a glossary definition. If you view this document online, clicking the underlined term takes you to the glossary definition at the end of this document.

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# Chapter 1: Introduction

## Kanban

The *kanban* supply system is typically used to supply low-cost and high-volume component items. You can also use the kanban system to supply *floor stock* items.

These items are used to manufacture products or assemble larger component items or subassemblies into end items.

The component items or shop floor items are supplied from a business partner, work center, or warehouse to a shop floor warehouse through kanban supply orders.

### Kanban orders

A kanban order is a request for the supply of a warehouse. The setup determines whether the item is supplied from a warehouse, a business partner, or a work center.

Usually the creation of kanban supply orders is bar code driven and executed using a scanner. If LN is integrated with Infor Factory Track, a kanban order is generated when the bar code of the kanban label is scanned.

Users can also manually or automatically create kanban orders in LN.

### Kanban order-advice

Optionally, the creation of kanban orders is preceded by *kanban order-advice* to allow for approval before the actual orders are created. Supply requests from multiple kanban signals for the same item can be grouped into a single advice. Kanban order-advice must be confirmed before they can be converted to kanban orders.

### Kanban signals

A *kanban signal* is used to trigger the creation of a kanban supply order. A kanban signal includes a label code and a supply quantity, and is linked to a warehouse and item combination.

Typically, a kanban signal represents a kanban bin. When the user scans the label code on the empty bin, LN generates a supply order for the item quantity defined for the signal.

A signal can also represent more than one bin. For example, a label is attached to every second bin. When both bins are empty, the user scans the label of the second empty bin to generate a supply order for both empty bins.

In LN, users can generate kanban orders based on kanban signals in these sessions:

- **Generate Orders (Kanban) (whinh2200m000)**

- **Kanban Signals (whwmd2111m000)**
- **Item Data by Warehouse (whwmd210s000)**

### **Kanban loop**

Kanban signals are defined for a warehouse and item combination in the **Item Data by Warehouse (whwmd2110s000)** session. You can link multiple kanban signals to a warehouse and item combination. The signals defined for an item and warehouse represent the kanban loop.

Depending on the demand for the item, you can increase or decrease the number of signals for the kanban loop.

You can either calculate or manually specify the number of signals for the loop. If calculated, the number of signals is determined by the average daily demand for a particular period.

### **Reusable or unique kanban signals**

Kanban signals are reusable or non-reusable.

If reusable, a signal can be used continually to trigger supply orders in the kanban loop. If the demand for the item decreases and fewer signals are required, you can temporally deactivate the signals and reactivate them when the demand increases.

If non-reusable, a signal is linked to only one supply order. When the supply order is received in the shop floor warehouse, the signal is permanently closed and a new signal is generated.

### **Predefined or mask-based kanban signals**

Kanban signal IDs can be based on a *mask* or predefined. If the use of predefined kanban signals is implemented, kanban signal IDs are specified manually.

### **Kanban setup**

The kanban supply system setup includes:

- Optionally, defining *shop floor warehouses* and *floor stock* items
- Optionally, kanban-order advice settings
- Item and supply settings
- Signal settings
- Loop settings

## Chapter 2: Kanban Orders

### Kanban orders

A kanban order is a request for the supply of a warehouse. The setup determines whether the item is supplied from a warehouse, a business partner, or a work center.

Usually the creation of kanban supply orders is bar code driven and executed using a scanner. If LN is integrated with Infor Factory Track, a kanban order is generated when the bar code of the kanban label is scanned.

#### Creating kanban orders in LN

Users can also create kanban orders in LN.

Kanban orders are created when a user specifies a *kanban signal* and clicks **Generate** in the **Generate Orders (Kanban) (whinh2200m000)** session.

If the **Generate Kanban Orders/Advice Automatically** check box is selected in the **Item Data by Warehouse (whwmd2110s000)** session, a kanban order is generated in these cases:

- If you add or activate a kanban signal in the **Kanban Signals (whwmd2111m000)** session.
- If you increase the number of signals in the **Number of Signals** field and click **Signals** in the **Item Data by Warehouse (whwmd2110s000)** session. For each of the added kanban signals, an order or an advice is generated.

**Note:** Instead of kanban orders, kanban order advice is generated if the **Generate Order Advice** check box is selected in the **Item Data by Warehouse (whwmd2110s000)** session.

If you create a kanban order in the **Generate Orders (Kanban) (whinh2200m000)** session, the default order data is automatically inserted if you specify the **Kanban Signal ID**. The order is generated when you click **Generate**. You can change the default order data before you click **Generate**.

#### Processing transfer orders

Use the **Process Warehousing Transfer Orders** check box to specify whether the newly created order must be processed directly. If this check box is selected, LN immediately executes the activities of the outbound and inbound procedures that are set to automatic and are linked to the *warehousing-order type*.

To enable LN to carry out the procedure automatically, you must define a warehousing-order type for which the outbound procedure only contains the **Generate Outbound Advice (whinh4201m000)** session. The automatic print steps in the shipment procedure can also be included, because these steps do not hinder direct processing of the order.



## Types of Kanban orders

These types of kanban orders can be generated:

- *Warehousing orders* of type **Transfer**, if the item is supplied from a warehouse. You can view the generated warehousing orders in the **Warehousing Orders (whinh2100m000)** session.
- *Purchase orders*, if the item is supplied by a business partner. You can view the generated purchase orders in the **Purchase Orders - Overview (tdpur4500m500)** session.
- *Purchase schedule lines*, if the item is supplied by a business partner. You can view the generated purchase schedule lines in the **Purchase Schedule Lines (tdpur3111m000)** session.
- *Production orders (Job Shop Control)*, if the item is supplied from a work center. You can view these generated production orders in the **Production Orders (tisfc0501m000)** session.

## Kanban order-advice

*Kanban order-advice* is a preliminary kanban order. To supply a warehouse, the advice must be confirmed and then converted to a kanban order. This enables you to check and approve the kanban supply request before the actual order is created.

Kanban order advice is an optional intermediate step of the kanban supply procedure.

The type of kanban-order advice that is created depends on whether the item is supplied from a warehouse, a business partner or a work center.

Item supplied from	Type of advice	Session
Warehouse	Warehouse-order advice	<b>Warehouse Order Advice (whina3120m000)</b>
Work center	Production-order advice	<b>Production Order Advice (whina3100m000)</b>
Business partner	Purchase-order advice	<b>Purchase Order Advice (whina3110m000)</b>

Whether an item is supplied by a warehouse, a work center, or a business partner depends on the item and supply settings. You can implement the use of order advice for each warehouse and item combination. See Kanban setup.

Session	Kanban signals displayed in:
<b>Warehouse Order Advice (whina3120m000)</b>	<b>Warehouse Order Advice Kanban Signals (whina3128m000)</b>
<b>Production Order Advice (whina3100m000)</b>	<b>Production Order Advice Kanban Signals (whina3108m000)</b>
<b>Purchase Order Advice (whina3110m000)</b>	<b>Purchase Order Advice Kanban Signals (whina3118m000)</b>

### **Kanban-order advice grouping**

Kanban-order advice can be created for each individual kanban signal, or multiple kanban signals for the same item and supply source can be grouped into a single order advice. Supply requests based on new kanban signals can be added to existing order advice if the existing order advice is not confirmed.

## Chapter 3: Setup

### Kanban setup

The kanban supply system setup includes attributes and settings for these parts of the kanban functionality:

- Optionally, defining *shop floor warehouses* and *floor stock* items
- Optionally, *kanban-order advice* settings
- Kanban production-order release defaults
- Outbound advice run number settings
- Item and supply settings
- Signal settings
- Loop settings

#### Shop floor warehouse and items

The shop floor warehouses that are supplied using the **Kanban** supply system can be defined as normal or shop floor warehouses. To define a warehouse as a shop floor warehouse, select **Shop Floor** in the **Warehouse Type** field of the **Warehouses (whwmd2500m000)** session.

Typically, the items are defined as **Manufactured**, **Purchased**, or **Product** items, but the kanban system also allows the use of *floor stock* items. To define an item as a floor stock item, select the Floor Stock check box in the **Item - Warehousing (whwmd4600m000)** session.

#### Kanban-order advice settings

For each item and warehouse combination you can specify that order advice is to be created by selecting the **Generate Order Advice** check box in the **Item Data by Warehouse (whwmd2110s000)** session. Kanban order advice is automatically confirmed if the **Automatically Confirm Order Advice** check box is selected in this session.

#### Kanban production-order release defaults

The **Automatically Release Production Orders** check box in the **Item Data by Warehouse (whwmd2110s000)** session determines the default setting for the automatic release of production orders. If you select this check box, production orders created for the applicable item and warehouse combinations are automatically released by default. If cleared, production orders are released in the **Release Production Orders (tisfc0204m000)** session. The setting of this check box is updated to these fields:

- **Release Production Orders** check box in the **Generate Orders (Kanban) (whinh2200m000)** session

- **Release Production Orders** field in the **Transfer Production Order Advice (whina3202m000)** session if you select the **Default** option. If set to **Default**, LN checks the setting of the **Automatically Release Production Orders** check box in the **Item Data by Warehouse (whwmd2110s000)** session for the item and warehouse combinations of the production order advice in the selection range.

The default value in the **Automatically Release Production Orders** check box in the **Item Data by Warehouse (whwmd2110s000)** session is taken from the **Automatically Release Production Orders** check box in the **Item - Warehousing (whwmd4500m000)** session or the **Item - Warehousing by Site (whwmd4104m000)** session, if sites are implemented.

The default value of the **Automatically Release Production Orders** check box in the **Item - Warehousing (whwmd4500m000)** session is taken from the **Automatically Release Production Orders** check box in the **Item Warehousing Defaults (whwmd4501m000)** session.

### Outbound advice run number settings

In these fields, you can specify default run numbers for outbound advice that is to be generated for kanban supply orders:

- **Run** in the **Default Order Types by Origin (whinh0120m000)** session
- **Kanban Run Number** in the **Warehouses (whwmd2500m000)** session

These default run numbers are used to generate outbound advice for kanban supply orders if no run number is specified manually in the **Generate Outbound Advice (whinh4201m000)** session.

If no run number is specified manually, and a default run number is found in the **Default Order Types by Origin (whinh0120m000)** session, this number is used. If no number is found in the **Default Order Types by Origin (whinh0120m000)** session, the run number defined in the **Warehouses (whwmd2500m000)** session is used.

### Generate orders or order advice automatically

Select the **Generate Kanban Orders/Advice Automatically** check box in the **Item Data by Warehouse (whwmd2110s000)** session to generate kanban supply orders or order advice for newly added or activated signals.

### Kanban-order advice grouping

If kanban-order advice is implemented, by default order advice is created for each kanban signal.

If the **Combine Order Advice** check box is selected in the **Item Data by Warehouse (whwmd2110s000)** session, supply requests from multiple kanban signals for the same item can be grouped into a single advice.

New supply requests are added to existing kanban order advice if the existing advice is not confirmed. If no matching existing unconfirmed order advice is present, LN creates new order advices.

Supply requests for the same purchased item is grouped into a single purchase-order advice. After the purchased-order advice is confirmed, purchase-order advice for different items but for the same business partner can be converted to a single purchase order.

Supply requests for the same manufactured item can be grouped into a single production-order advice.

Supply requests for the same item and supply-from warehouse can be grouped into a single warehouse-order advice.

If order advice is created from multiple kanban signals, the kanban signals that triggered the creation of the order advice are displayed in a separate session that you can start from the kanban order advice sessions.

### Item and supply settings

To enable the supply of items to a warehouse using the kanban supply system, on the **Supply** tab in the **Item Data by Warehouse (whwmd2110s000)** session, complete these steps:

- 1 In the **Supply System** field, select **Kanban**.
- 2 If the item is supplied from a warehouse, the **Supply from Warehouse** check box must be selected and the **Supply Warehouse** can be specified.
- 3 If the item is supplied by a supplier or a work center, the **Supply from Warehouse** check box must be cleared. The item type determines whether the item is supplied by a work center or a supplier:
  - If the item type is **Product**, the supply source of the item displayed in the **Actual Supply Source** field of the **Items (tcibd0501m000)** session determines from where supply takes place:
    - A business partner if the supply source is **Purchase**.
    - A work center if the supply source is:
      - **Job Shop**
      - **Repetitive**
      - **Assembly**
      - **Distribution**
  - If the item type is **Purchased**, the item is supplied by a supplier. A buy-from business partner and a ship-from business partner can be specified to supply the item. If no buy-from business partner and ship-from business partner are specified, LN retrieves the item's default supplier from the **Items - Purchase Business Partner (tdipu0110m000)** session.
  - If the item type is **Manufactured**, the item is supplied from a work center. LN retrieves the work center from the Job Shop Control module in Manufacturing.

**Note:** If you change the supply system from **Kanban** into another supply system when active kanban signals are present, the question: "Active signals exist. Continue?" is displayed. If you click Yes, the active signals are set to inactive, and all signal related fields retain their values and become read-only. This is to ensure that you can easily switch back to supply system **Kanban**.

### Signal settings

- 1 On the **Kanban** tab of the **Warehouse Master Data Parameters (whwmd0100s000)** session:
  - Select the **Reuse Kanban Signals** check box to determine whether kanban signals are reusable by default.
  - Specify the default mask for kanban labels in the **ID Mask** field if kanban signals must be created based on a mask. This field is unavailable if predefined kanban signals are implemented.
- 2 On the **Kanban** tab of the **Warehouses (whwmd2500m000)** session:
  - Select the **Reuse Kanban Signals** check box to determine whether kanban signals are reusable for the items stored in the warehouse.
  - Specify the kanban label mask for the warehouse in the **ID Mask** field. If predefined signals are used for the current site or the current company, this field is unavailable.

- 3 On the **Kanban** tab of the **Item Data by Warehouse (whwmd2110s000)** session, specify these fields:
- **Supply Quantity**
  - **Label Layout**

### Predefined signal settings

Predefined kanban signals are implemented by *logistic company* or by *site*. If the use of predefined kanban signals is implemented, you cannot use masks to define the layout of kanban signals.

- In the **Warehouse Master Data Parameters (whwmd0100s000)** session, select the **Use Predefined Kanban Signals** check box if kanban signals must be entered manually without using a mask in the current logistic company. If this check box is selected, the **ID Mask** field is unavailable.
- In the **Kanban Signal** section of the **Warehousing Settings by Site (whwmd2101m000)** session, select the **Use Predefined Kanban Signals** check box if kanban signals must be entered manually without using a mask for the relevant sites. If this check box is selected, you cannot define kanban signal masks for the warehouses of the current site.

### Loop settings

On the **Kanban** tab of the **Item Data by Warehouse (whwmd2110s000)** session, specify a value for these fields:

- **Number of Signals**
- **Total Supply Quantity**

The number of kanban signals can be specified manually or calculated by LN. To calculate the number of signals, you must also specify a value for these fields:

- **Horizon for Historical Demand**
- **Horizon for Future Demand**
- **Offset Date**
- **Offset Date**
- **Average Daily Demand**
- **Buffer**
- **Stock Coverage**

#### Note:

- To easily respond to demand fluctuations, in the **Global Update of Kanban Parameters (whinh2200m100)** session, you can adjust kanban supply settings for selected ranges of warehouses and items.
- If you use the Enterprise Modeler Content Pack with LN, consider using the MPL0030 (Kanban) wizard to set up kanban. You can execute this predefined *wizard* from the **Wizards by Project Model (tgwzr4502m000)** session after you specified the *business function model* for your company.

## Predefined kanban signals

Predefined kanban signals are manually entered without using a *mask*.

You can implement the use of predefined kanban signals by *logistic company* or by *site*.

If the use of predefined kanban signals is implemented, these rules apply:

- You cannot use masks to define the layout of kanban signals.
- Kanban signals cannot be created automatically.
- In the **Kanban Signals (whwmd2111m000)** session, the **Add Signal** option is unavailable. You must click **New** in the toolbar and manually enter a new signal in the **Kanban Signal ID** field.
- In the **Generate Orders (Kanban) (whinh2200m000)** session, you cannot specify a new kanban signal, you must select existing kanban signals with the **In Stock** status.
- If you increase the number of kanban signals in the **Number of Signals** field in the **Item Data by Warehouse (whwmd2110s000)** session, no new kanban signals are generated. Only the inactive signals that are present are activated.

## Chapter 4: Kanban activation

### Kanban activation

Kanban activation is required to integrate the Factory Track Kanban data setup with Warehousing. When the activation process is completed, you can use the integrated functionality in Warehousing.

The kanban activation processes consist of a preparatory stage and an activation stage.

During the preparatory stage, you must define or adjust master data, set parameters, and maintain kanban order data.

To maintain this data, you must perform the activation activities of the **Integrate Kanban with Warehousing** concept in the **Concept Activation (tceмм4600m000)** session.

You can perform and validate each activation activity as often as needed. For more information about concepts and activation activities, see Concept activation overview and General concept activation procedure.

After completing the activation activities, you can activate the integration by setting the **Integrate Kanban with Warehousing** concept to **Active**. When the concept is activated, these actions are performed:

- The kanban data is transferred to Warehousing.
- The Kanban menu is removed from the Factory Track menu.

#### Activating the kanban integration

- 1 In the **Concept Activation (tceмм4600m100)** session, select **Kanban Integration**.  
Alternatively, from the appropriate menu in the **Kanban Parameters (brkan0100m999)** session, select **Concept Activation**.
- 2 In the **Concept Activation (tceмм4600m000)** session, click **Set in Preparation**.
- 3 Click the activation activity options to perform the activation activities.
- 4 In each session that you access through the **Activation Activity (tceмм4610m000)** session, use the **Validate** option after you complete maintaining the data. See General concept activation procedure for more information about performing activation activities.
- 5 Click **Activate** to set the **Integrate Kanban with Warehousing** concept to **Active**.



## Chapter 5: The Kanban Process

### The kanban order process

Kanban orders are manually created when a user specifies a *kanban signal* and clicks **Generate** in the **Generate Orders (Kanban) (whinh2200m000)** session.

If the Generate Kanban Orders/Advice Automatically check box is selected in the **Item Data by Warehouse (whwmd2110s000)** session, a kanban order is generated for a newly created or newly activated signal in the **Kanban Signals (whwmd2111m000)** session.

**Note:** Instead of kanban orders, *kanban-order advice* is generated if the **Supply from Warehouse** check box is selected in the **Item Data by Warehouse (whwmd2110s000)** session. See Kanban order advice.

A kanban order can be a *transfer order*, a *purchase order*, or a *production order*. The type of order that is created depends on the supply settings of the item. See Kanban setup.

#### Automatically release kanban production orders

Kanban production orders can be released automatically or manually. You can release production orders manually or batchwise in the **Release Production Orders (tisfc0204m000)** session.

Kanban production orders created in the **Generate Orders (Kanban) (whinh2200m000)** session are automatically released if the **Release Production Orders** check box is selected in this session.

In the **Transfer Production Order Advice (whina3202m000)** session, production orders are automatically released if the **Release Production Orders** field is set to **Yes** or to **Default**.

If set to **Default**, the setup of the item and warehouse combinations of the production order advice in the selection range determines whether the generated production orders are automatically released.

For warehouse and item combinations for which the **Automatically Release Production Orders** check box in the **Item Data by Warehouse (whwmd2510m000)** session is selected, the production orders are automatically released. For warehouse and item combinations for which this check box is cleared, the production orders must be manually released in the **Release Production Orders (tisfc0204m000)** session.

#### Kanban signal statuses in the kanban order process

When a kanban order is created for a kanban signal, the process status of the kanban signal is set to **On Order**. The orders are displayed in the **Orders by Kanban Signal (whwmd2512m000)** session. The *kanban signals* for which the order lines are created are displayed in the **Inbound Order Line Kanban Signals (whinh2518m000)** session. In this session, the quantities of each kanban signal are displayed.

For warehouse transfer orders, this information is displayed when the transfer order is created. For purchase and production orders, this information is displayed when the warehouse order is created from the purchase or production order.

If a kanban order is removed, the process status of the related kanban signals is reverted to **In Stock**.

When the inbound order line is received, the process status of the kanban signal is set to **Received**. A receipt line is created for each kanban signal of the inbound order line. The receipt lines and the receipt line quantities are displayed in the **Inbound Order Line Kanban Signals (whinh2518m000)** session. This enhances the transparency of the inbound and receipt of the kanban items for the warehousing personnel.

When the receipt is confirmed, the process status of the kanban signal is set to **In Stock**.

**Note:** A kanban signal has a **Status** and a **Kanban Signal Process Status**. The status shows whether a signal is used in a kanban loop, not used at present but ready for reuse, or permanently inactive. The process status shows the progress of the signal in the kanban order process.

## Order advice in the kanban process

When order advice is created, the process status of the advice changes from **In Stock** to **Advised**. At this stage, you can check and approve the order advice. After approval, you must confirm the order advice.

After confirming the order advice, the process status is set to **Confirmed**.

If required, you can undo the confirmation of the advice and confirm again after reapproval.

After approving and confirming the order advice, you must convert the order advice to kanban orders.

After the order advice is converted to a kanban order, the process status of the kanban signals on which the order is based is set to **On Order** and the order advice is removed.

## Creating and processing kanban-order advice

Kanban-order advice is generated for newly created or activated signals or manually created, which is controlled by the kanban-order advice setup. This topic describes how to manually create and process kanban-order advice.

- 1 In the **Generate Orders (Kanban) (whinh2200m000)** session, specify the kanban signal for which to create order advice and click **Generate**.
- 2 Select the advice and select **Confirm** in the appropriate menu of these sessions:
  - **Warehouse Order Advice (whina3120m000)**
  - **Production Order Advice (whina3100m000)**
  - **Purchase Order Advice (whina3110m000)**

If required, you can undo the confirmation by selecting **Undo Confirm** in the appropriate menu of the sessions of the previous list.

Alternatively, to confirm kanban-order advice, specify a range in these sessions:

- **Confirm Warehouse Order Advice (whina3221m000)**
- **Confirm Purchase Order Advice (whina3211m000)**
- **Confirm Production Order Advice (whina3201m000)**

**3** In these sessions, select the advice and in the appropriate menu, select **Transfer**:

- **Warehouse Order Advice (whina3120m000)**
- **Production Order Advice (whina3100m000)**
- **Purchase Order Advice (whina3110m000)**

Alternatively, to transfer kanban-order advice to kanban orders, specify a range in these sessions:

- **Transfer Production Order Advice (whina3202m000)**
- **Transfer Purchase Order Advice (whina3212m000)**
- **Transfer Warehouse Order Advice (whina3222m000)**

## Changes in kanban order quantities

In the course of the kanban order process, the ordered quantity of a kanban order can be changed.

The changed order quantity affects the kanban signal quantities that are linked to the kanban order.

A kanban order is linked to multiple signals if the kanban order is created from kanban-order advice to which order advice grouping applies.

If the ordered quantity is increased, and the kanban order is linked to multiple kanban signals, the quantity of the last kanban signal is increased. If the ordered quantity is decreased, the quantity of the last signal is decreased, and the other signals are decreased from the last signal upwards if required.

Purchase-order advice A has a total quantity of 15. Three kanban signals are linked to advice A. The quantity of each signal is 5.

Purchase order PUR100 and order line 10 is created. The kanban signals are linked to the order line. This information is displayed in the **Orders by Kanban Signal (wmd2512m000)** session.

### Situation 1: increased order quantity

The order quantity of PUR100 is increased from 15 to 17 and released to Warehousing. In the **Consigned Inventory (whwmd2518m000)** session, the first two kanban signals each have a quantity of 5, and the last signal has quantity 7.

### Situation 2: decreased order quantity

The order quantity of PUR100 is decreased from 15 to 8 and released to Warehousing. In the **Consigned Inventory (whwmd2518m000)** session, the last of the original three signals is not replenished and, therefore, not displayed, the second signal has quantity 3, and the first signal has quantity 5.

## Chapter 6: Kanban Labels

### Kanban label layout and printing

To create and maintain label layouts for labels to be used for kanban, use the **Label Layouts (whwmd5520m000)** session.

To print the labels, use the **Print Labels for Kanban Signals (whwmd5422m000)** session.

To be able to generate a kanban ID in the **Item Data by Warehouse (whwmd2110s000)** session, first the default **ID Mask** must be specified in the **Warehouse Master Data Parameters (whwmd0100s000)** session.

## Chapter 7: Calculations

### Calculation of supply quantity, number of signals, and average daily demand

The calculation of the supply quantity for *kanban loops*, the number of *kanban signals*, and the average daily demand is performed in the **Item Data by Warehouse (whwmd2110s000)** session.

LN calculates the default supply quantity for kanban loops by multiplying the signal supply quantity with the number of kanban signals.

The number of kanban signals is specified or calculated by LN. If calculated, this formula is used:

$$\text{Number of kanban signals} = D * T * (1+B/100)/Q$$

#### Legend

D	<b>Average Daily Demand</b>
T	<b>Stock Coverage</b>
B	<b>Buffer</b>
Q	<b>Supply Quantity</b>

#### Average daily demand

The average daily demand for (end) items from the current warehouse is based on **Job Shop Control** and **ASC production orders**. The items supplied by the kanban order are used to assemble or produce the (end) items. The average daily demand is used to calculate the number of kanban signals required to effectively supply a shop floor warehouse.

The value of the **Average Daily Demand** field can be manually specified or calculated. If calculated, LN determines this demand for the period defined by the future and history horizons specified in the **Horizon for Historical Demand** and **Horizon for Future Demand** fields.

For the future horizon, LN checks the planned issues for production orders in the **Planned Inventory Transactions (whinp1500m000)** session. Planned issues with a date in the past are also included.

For the history horizon, LN checks the completed issues for production orders in the **Item - Warehouse - Inventory Transactions (whinr1510m000)** session.

The demand quantity thus found is divided by the number of work days with or without planned or completed issues for production within the horizons defined.

The Use Zero-Usage Days for Average Daily Demand field in the **Warehouse Master Data Parameters (whwmd0100s000)** session is used to determine whether work days without production can be included in the calculation of the average daily demand.

For example, if the future and history horizons span five days, but there is planned or actual production on four days within these horizons, the average daily demand is based on 4 days if zero production days are not included. If included, the average daily demand is based on 5 days.

If zero-production work days are included, the average daily usage is lower than it would be without including zero-production work days.

### **Stock coverage**

This is the number of days within the future horizon, which usually represents the lead time of an end product for which the component demand is covered by the available stock. The lead time is the transport time added with the production time.

The stock coverage is used to calculate the number of kanban signals. The value in the Stock Coverage field is manually specified.

### **Buffer**

A percentage of the average daily demand used to calculate the number of kanban signals and the default supply quantity of kanban orders. This percentage is added to the average daily demand, which results in a higher default supply quantity for the kanban orders. This is used to prevent underdeliveries.

Percentages in excess of 100% are allowed.

### **Offset date**

For the future horizon, you can specify an offset date.

The offset date helps you identify a peak or a slump in demand for a future period, so you can adjust the supply quantities in advance.

### **Signal supply quantity**

The quantity of items that must be supplied by a *kanban signal*. This quantity is manually specified.

## Chapter 8: Decrease or Increase Kanban Signals

### Increase or decrease the number of kanban signals

You can increase or decrease the number of *kanban signals* using these sessions:

- **Item Data by Warehouse (whwmd2110s000)**
- **Global Update of Kanban Parameters (whinh2200m100)**
- **Update Kanban Parameters (whwmd2113m000)**

#### Reusable signals

If you increase the number of signals, either manually or by calculation, you are asked if the number of **Active** signals must be increased.

If yes, and **Inactive** signals are present, first the **Inactive** signals are activated. The signals are activated in alphabetical order. If this does not cover the total quantity by which you want to increase the number of signals, LN creates new **Active** signals for the remaining quantity. Kanban signals are displayed in the **Kanban Signals (whwmd2111m000)** session.

If no, the number of signals is not updated.

If you decrease the number of signals, LN sets the required number of active signals to **Inactive**.

#### Non-reusable signals

If you increase the number of signals, you are asked whether the number of signals must be increased. If yes, new **Active** signals are created. If the number of signals is decreased, the required number of active signals is closed in alphabetical order.

**Note:** If the use of predefined kanban signals is implemented, new kanban signals cannot be generated.

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