

Warehouse Management Module (WMS)

1. Overview

Priority's Warehouse Management module provides advanced tools for planning and monitoring all aspects of warehouse management.

The outstanding advantage of **Priority's** WMS module is its complete integration with the other system modules. For example, warehouses, parts and distribution routes maintained in the **Inventory Management** module serve WMS as well. All data is automatically updated online.

The new module supports the three basic operations required in warehouse management:

- Directed picking
- Directed replenishment
- Directed putaway.

You can also use the module to plan other routine warehouse tasks, such as the preparation of shipments, the receipt of goods, returns to a vendor and warehouse transfers. For each warehouse operation recorded in the module, the appropriate inventory transaction document (e.g., Customer Shipment, Sales Invoice, Warehouse Transfer) is opened automatically via built-in auxiliary programs.

The module interfaces with ADC (Automated Data Collection) systems, and supports the input of inventory data via electronic hand-held devices and other data collection tools.

Running the **Priority** WMS module allows you to save on manpower; the warehouse manager communicates with the warehouse staff via work plans, which are quickly prepared, and include optimum instructions for inventory operations such as picking, storing and replenishing. You also save on administrative work, which allows a single warehouse manager to employ a larger staff. Furthermore, the work plans can be prepared for shifts, to be executed even in the manager's absence. Existing **Priority** clients that prefer integrative solutions to external systems will achieve significant savings in all that relates to the preparations that must ordinarily be made to activate a module such as this.

The module integrates an entire system of analytical options, including report generators that can be used, for example, to compare planning data to actual performance in customized reports, and OLAP cubes, which provide dynamic analyses of interactions in a variety of cross-sections, such as warehouses, task type, and the like.

2. Warehouse Task Management

The central entity in the Warehouse Management module is the **warehouse task**. The work plan for a given warehouse is detailed in the **Warehouse Task Log**. Each task consists of a single activity of a specific type (e.g., picking, refreshing, storing, disposal, transferring), and is assigned to an employee. The employee reports execution of the task, either directly in the system or using a hand-held device. Each warehouse task is managed via statuses representing its various stages of progress.

On the basis of a performed task, the system automatically opens the relevant document (e.g, a sales invoice for a customer, on the basis of a pick list).

3. Waves

Waves are the system's main method of automating and concentrating warehouse tasks. Creating a picking wave from an order, for example, allows the warehouse manager to choose order items according to any combination of parameters (e.g., customer distribution route, due date), and automatically open tasks according to a given strategy. You can instruct the system to release the new tasks immediately. In the same manner, you can create a replenishment wave based on orders and inventory levels, an inventory count wave or a vendor returns wave.

4. Expanded Warehouse Definitions

The WMS module expands the options for defining warehouses to include **zones**. A zone constitutes a kind of sub-warehouse, usually representing a type of aisle within the warehouse. Every bin in the warehouse is assigned to a zone. You can define the distance between any one zone and another.

Within the bins you can maintain **pallets**, and define the maximum number of pallets that any given bin can contain, as well as the maximum weight that the bin can bear. The system supports the preparation of pallets, including the possibility of loading different parts in different quantities on the same pallet, transporting and unloading pallets, and more.

5. Descriptions of WMS Tasks

5.1 Picking

The warehouse manager specifies in the task the sources for picking operations by selecting a specific order, latest due date and distribution route or delivery date (if you work with **Priority's Delivery Scheduling** module). The manager selects a pick strategy defining what orders are to be filled first (sort algorithm). Quantities to be picked can also be designated. After marking the target population, the manager runs a program that automatically itemizes the task using a picking algorithm that takes into account factors such as the expiration date of lots in the warehouse, earmarked inventory, inventory status and a user-

defined pick strategy that determines the inventory to be picked first (e.g., fast bins before slow bins; unpalletized before palletized items).

The system orders the task items according to a recommended picking order. Similarly, if the order quantity is larger than the quantity on the pallet, the system instructs the manager to pick a full pallet.

After defining the task, the manager runs the **warehouse task** program directly from within the task. The system then opens a customer shipment or sales invoice (according to the customer's definitions), which includes the list of picked goods and the customer's details.

Additional auxiliary programs include **Print Carton Labels** and **Print Pallet Contents**.

Containers are also handled during the picking operation, when a container number is specified in the task header.

Outgoing and incoming shipping vouchers have also been expanded in this manner, to include containers shipped, or expected to arrive. In both cases, you can link open tasks to the voucher.

5.2 Replenishment

Replenishment entails transferring inventory from slow bins to fast bins, that is, to bins from among which the pick is performed.

Inventory in slow bins is usually managed in pallets, while inventory in fast bins is not; in other words, replenishment also involves unpalleting.

The purpose of replenishment is to increase the percentage of success of the picking operation, to maximize the ability to supply goods required by sales orders.

The **Priority** replenishment task uses two basic algorithms:

- Replenishment by order
- Replenishment by inventory levels.

When replenishing by orders, the warehouse manager marks the orders in the same manner as in a picking operation. This operation is performed as a preparation for picking. The system checks if enough goods are stored in the fast bins to supply the order total for a selected distribution route. If there are not, it searches the slow bins and recommends what to transfer.

When replenishing by inventory levels, the system recommends which inventory to move from slow bins to fast ones whose inventory levels have dropped below the minimum quantity. This kind of replenishment can be run at regular intervals, by warehouse personnel whose sole concern is to maintain inventory levels in picking warehouses.

5.3 Putaway

The putaway operation deals first and foremost with the process of unloading a container and storing the goods in a warehouse.

The warehouse employee task usually begins with the palleting of received goods tightly within a container.

The GRV, recorded against the purchase order and including a line for each part number, serves as the basis by which the warehouse manager marks the required quantities of pallets and the required pallet types. For each pallet you can define which parts will be on each level, and how many levels will be placed one atop another. The system creates new pallet numbers, opens palleting instructions and recommends to the warehouse manager a location for the pallet in the warehouse.

The system also handles cases in which the goods arrive from the vendor on prepared pallets.

A put strategy, defined per part, determines the bins in which received items are permitted to be stored.

5.4 Inventory Count

The inventory count task for a warehouse or zone automatically lists those parts in inventory that were not counted within a defined period. After the actual count, the system prepares the count documents from which arise any variance transactions, in turn affecting inventory levels.

5.5 Vendor Returns

The vendor return task allows the warehouse manager to mark inventory that needs to be returned. After performing the pick for returns, the system creates a returns to vendor document.

5.6 Disposal

The disposal task allows the warehouse manager to mark inventory that needs to be disposed of. After the disposal is recorded, the system creates an inventory disposal document.

5.7 Palleting

The warehouse manager marks inventory that needs to be palleted, and manually specifies the location of the new pallet. When the warehouse employee reports completion of the task, the system automatically creates a warehouse transfer document.

5.8 Unpalleting

The warehouse manager records the pallet that needs to be unpalleted, and the target bin in which the unpalleted goods will be put. After completion of the task is reported, the system opens a warehouse transfer document (where the **To Pallet** column remains empty).

5.9 Move

The warehouse manager marks the inventory that needs to be transferred as well as the target warehouse. Alternatively, the manager can mark a specific pallet that needs to be transferred from one bin to another. After the transfer is performed, the system opens a warehouse transfer document.

5.10 Value-Added Tasks

The warehouse manager can run a custom wave of value-added tasks for a variety of purposes. These tasks do not generate inventory documents. For instance, the manager can run a wave that creates tasks directing warehouse personnel to those bins in which a given part is stored, so as to attach barcode labels.

5.11 Issues

The system also supports tasks that issue inventory to kits, to bulk or to warehouse assemblies. These tasks are fully integrated with **Priority**'s production and assembly modules. Issued quantities are based on demands generated by work orders and recorded assembly documents and task completion directly reports production/assembly quantities.