

White Paper



Best Practice
mbas – Warehouse Management

White Paper		GC/T/0113 V 1.0
mbas-Warehouse Management		W. E. F. 01/01/2009

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1. Introduction

mbas Warehouse Management System provides comprehensive warehouse management solution to the different industries, viz, Organized Retail, Global Trading and Manufacturing industries. Apart from the basic inventory management, mbas WMS provides seamless integration of all the business functions of the organizations, where stock movement is required. Inventory, Space optimization, advanced tracking through Barcode & RFID and Warehouse activities to support critical business functions are its focus areas. Different functions like Manufacturing, Plant Maintenance, Consignment, Sub-Contracting, Quality Control or Service, mbas Warehouse Management provides a comprehensive solution for all the movements of material, with tight integration of the respective business functions.

2. Overview

Warehouse Structure

Present day Organizations need wide array of storage structure for managing different inventory functions efficiently and effectively. mbas Warehouse Management provides the provision to define an extensive warehouse structure.

Now warehouse can be created for each and every business unit, depending upon their business functionality. Each warehouse can have numerous warehouse locations within it. Each of the locations can be configured as designated storage area, for materials of specific nature.

Further each of the warehouse locations can have multiple Bins within it. Depending upon the characteristics of material to be stored, each of the bins can again be classified with Bin Types.

Thus mbas Warehouse Management provides a three layered storage structure. Further it provides the flexibility to configure the storage specification of the item, to the desired warehouse storage locations. Hence, during all the warehouse management processes, the

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system ensures the movements are happening from the designated warehouse storage locations.

Replenishment Management:

mbas Warehouse Management system’s Replenishment Management process always ensures the stock of the items, at the desired level, based on the replenishment parameters. The process is invoked, with the automated ROL processing.

Automated Replenishment:

The system provides the provision to define a set of replenish parameters and a host of ordering methodologies, for each item, for each of business units of the organization. Then anytime, the ROL Indent can be generated, the system populates the indent with the items which needs replenishment based on their set replenishment parameters, along with the order quantities.

Manual Replenishment:

Apart form the automated replenishment, the system provides the option to execute the manual replenishment. The user can generate the Purchase Indent for any of the warehouse item, the system enforces the order methodologies for the requisite quantities.

In-Bound Processing

mbas Warehouse Management handles typical In-Bound processing comprising of all the In-Bound stock movement to the inventory. These movements can be broadly classified into the following

Internal Movements

mbas Warehouse Management System’s Internal In-Bound processes comprises of the Receipt of finished good from production, Receipt of unused and return stock from plant maintenance, Inter Stock Transfer Receipts, Inspection Order Receipts, and Work Order Receipts. All the internal in-bound movements are processed with the requisite storage specifications and other details viz. Lot No, Expiry Date, Manufacturing date, Grade and

Serial Nos, along with its valuation. Apart from the same the system executes the finance postings, automatically, wherever they are applicable.

External Movements

mbas Warehouse Management System's External In-Bound processes comprises of Receipt of Regular Goods From Suppliers, Receipt of Consignment Goods from Suppliers, Receipt of Customer Goods for Sub-Contracting, Receipt of Sub-Contracted Material from the Vendor and Receipt of Sales Return Goods. In all the external in-bound movements, the system updates the stock with the storage specification. Apart from the same, the system updates the necessary valuation of the received stock. Along with the same, the finance postings are executed automatically, wherever they are applicable.



Out-Bound Processing

mbas Warehouse Management System's Out-Bound processes enable all material movements out of warehouse. These Out-Bound movements can be broadly classified into the Internal and external movements.

Internal Movements

The Internal Out-Bound movements comprises of IST Issue, Production Order Issue, Inspection Order Issue, Work Order Issue and Stores Issue. These processes basically facilitates the support to different business functions in terms of material supply. For each of this movements, the system updates the stock with the specified storage details, along with their values.

External Movements

The External Out-Bound movements comprises of Picking and DN, Consignment OUT, RDN Issue, Purchase Return and Sub-Contracting Delivery Note. These movements basically facilitates the external business processes in terms of the material supply. All these movements updates the stock with as per the specified storage details and so as the valuation.

Warehouse Activities:

mbas Warehouse Management System provides a host of value added warehouse activities. Few of them are Indent Processing, Item Kitting, Location Transfers etc.

Item Kitting

The item kitting process is very useful for the industries selling item in sets, rather than selling them individually. This process basically consolidates the child materials and form the

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parent material. Each time the Assembly process is run, the system updates the stock, with an increment of the parent item, and with a decrease in the child items. On the reverse process, the system de-consolidates the parent item and forms the child items, during dis-assembly.

Picking

With the advent of the Order Management, the system auto-triggers the picking process. In this process, based on a host of picking strategies, the system suggests the optimum picking sequence, along with their storage specifications. This Picking run facilitates the picking of perishable items, based on their date of expiry. Apart from the same, the system enforces the movement of the stock based on the Manufacturing date, Lot, Grade etc. Thus the user can generate the picking list, take a copy of the same, and can conduct the picking.

Packing:

mbas Warehouse Management system supports extensive packing processes. It supports definition of the packing materials, and the process of packing. Each time the order management process triggers for the packing process for the finished goods, the system facilitates the packing process, as per the packing definition. With the packing process on, now organizations can have any packing process configured for each of their final finished good for shipping.

Put-Away

mbas Warehouse Management system facilitates the Put-away process, in all the In-Bound processes. Each time, the system goes for a stock receipt, it enforces one of the hosts of Put-away methodologies, configured for each of the item. The system provides an optimum put-away list, with the storage specifications, down to the level of Bins, Lots, Serial Nos and so on. The system validates the storage definition configuration of the item, during put-away

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runs. Thus with the generated Put-away list, the user can go-ahead and place the stock in the desired storage locations.

Seasonal Stock Maintenance

mbas Warehouse Management System facilitates the organizations to configure stock and replenishment parameters, based on different seasons. This seasonal stock maintenance can again be configured separately for different warehouses of the organization.

Stock Keeping Unit

mbas Warehouse Management System facilitates the organizations to create, transact and maintain different stock keeping units of the same material. The user can create different variants, whose value/combined values can create a SKUs. For example now Colors, Size, Gender, Texture etc can be defined as different variants, and variant sets can be created with the specific values against it, viz. Red/Green/Blue ; 32/34/36 ; M/F, PLY/Cott etc. Any combination of the same can be defined as an SKU, say Shirt of Red Color, 32 Size, Male and Cotton can be defined as one SKU. Once SKU is defined, the system allows seamless flow, of SKUs across the WMS application for all transaction.

Tracking

mbas Warehouse Management system provides extensive material tracking facilities. It supports the Serial Numbers/Barcodes and Radio Frequency Identification based tracking of the items. Apart from the same, the system also provides the provisions to transact based on the Lot basis.

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Barcode Compatibility:

mbas WMS provides the opportunity to generate barcodes for the item(s), taking the host of classification parameters as inputs, viz. Item Type, Item Category, Item Group etc. Once the barcodes are generated the user prints the labels and pastes them on to the materials.

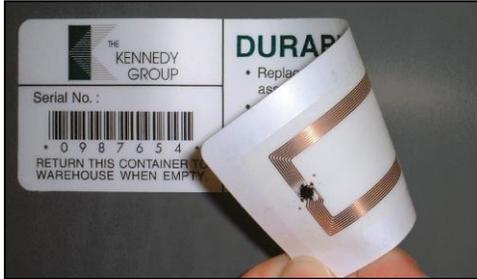


During all the In-Bound processes (and at Stock Opening Balance) the system stores the scanned barcode info, along with the other storage specifications. During all the Out-Bound processes the system automatically fetches the storage info of the material on the scan. So, the system maintains absolute tracking of each and every piece of the material stored in the warehouse.

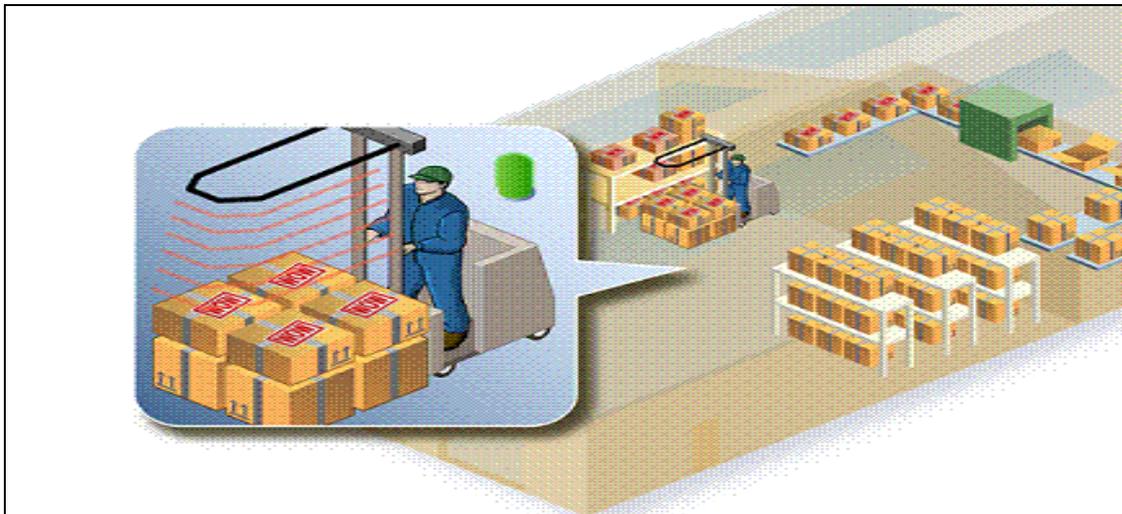
RFID Compatibility

mbas WMS provides absolute tracking of material, through RFID technology, at all levels of their packaging. The system facilitates to incorporate all the material information stored in the RFID tags (both Active and Passive tags) which subsequently scanned through the

RFID interrogators; into the system. These information is then processed with the master data of the materials. For the material having RFID tracking applicability, at the time of all the Out-Bound processes, the system captures the stock of the items by their mere displacement, when they pass through the RFID antennas, fixed at the warehouse doors.



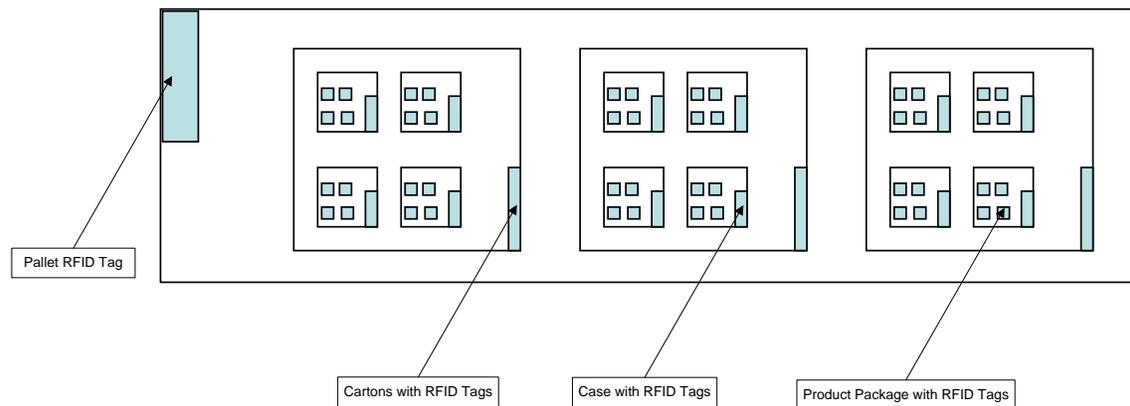
It also supports the critical Warehouse Activities (as mentioned above) along with the processes of Physical Inventory, viz. Stock Opening Balance, Stock Reconciliation etc. Thus through RFID technology, the system keeps an end to end tracking of the entire stock, of all the items/SKUs.



Cascading RFID

Now organizations, can have RFID based stock maintenance, at any level of their packaging. We propose that improved applications of RFID technology in the supply chain can be achieved by incorporating cascading smart tags, wherein groups of products such as cases,

pallets, or truckloads are associated with a "macro tag" that provides information about smaller groupings of products or individual products and their associated tags. For example, a case of 55 tagged products can have a macro tag on the case that can provide information about the 55 individual units in the case. The tag can contain a code that can point to a database with previously scanned information for each of the 55 units (e.g., scanned when the units were assembled into the case, or before collection).



A pallet of such cases (say, 27 cases) can be provided with a higher-level macro tag that contains or points to information for each of the macro tags for the cases.

In general, RFID chips can be used to track products grouped in various hierarchies: (1) individual items or single packages containing multiple items for consumer purchase; (2) cartons or cases of multiple items; (3) pallets of multiple cartons or cases; and (4) loads (e.g., truckloads, shiploads, or railcar loads) of multiple pallets. The products at each of these levels may be assigned an RFID label that is associated with information pertaining to at least one adjacent hierarchical level. For example, an RFID label on a pallet may be associated in a database with the RFID labels for each carton on the pallet, or may be associated with data pertaining to the RFID label from the truckload.

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Lot and Serial No Compatibility

mbas WMS also provides the flexibility of tracking the Lots or Batches of the items/SKUs. At the time every In-Bound process, the system keeps the information of the stock of the items/SKUs with respect to their Lots/Batches, generating the Lot Nos, automatically. The stock is then tagged with the labels bearing the Lot Nos and kept in the Warehouse. During all the Out-Bound processes, the system calls upon all the Lots of the Items/SKUs. What's more, the system also allows complete as well as partial issue of the stock from the selected Lots, maintaining the stock against them.

Further the system facilitates the Barcode functions within the Lot. Here in the system generates the barcodes on the fly. Then the user can take the printed labels of the barcodes and paste it on the stock units. Then the system captures the barcode information of the stock, along with the barcodes and takes the stock into the warehouse. During all the Out-Bound processes, upon calling the desired Lot Nos, the system provides all the barcodes of the item which are part of the selected lot(s). Thus the system provides seamless tracking of the material along with their stock, till the barcode level, well along with their batches or lots.

3. Benefits

In this whole process, the consignee enjoys the following advantages:

- Absolute material and stock tracking flexibility, ensuring 99.9% Inventory accuracy. mbas WMS supports a host of tracking methodologies viz
 - Lot/Batch based Tracking
 - Barcode based Tracking
 - RFID based Tracking
- Absolute visibility of the Inventory helps plan better, the demand and supply of the materials across the supply chain. Stock maintenance across different SKUs and Specifications of the Item(s), provides further visibility of the stock
- Maximizing the usage of warehouse space

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- Reduction of un-wanted Inventory Levels
- Optimal stock maintenance through strong Replenishment Planning and Execution.
- Seasonal Stock Maintenance with the Expiry date functionality ensures the movement of the stock, within the due dates, thus protecting against the business loss, which might have been caused due to waste
- Smooth Pick and Put-Awes, reduces the warehouse processing time, and hence contributes towards saving significant amount of cost
- Improved customer satisfaction.

4. Conclusion

mbas Warehouse Management System provides end to end warehousing solutions for Trading, Retail and Manufacturing industries. The system supports physical inventory management right starting from the Stock Opening Balance, Reconciliation to the Transfer Posting of the stock etc. Further it supports all the In-Bound and Out-Bound movements of material stock, related to different business functions viz. Sales and Distribution, Procurement, Consignment IN & OUT, Sub-Contracting IN & OUT, External Services, Production and Quality Control etc. A host of warehouse activities ensures some of the critical business functions to get executed and in-turn contributes towards optimal stock maintenance through a strong replenishment. mbas WMS gives the absolute material stock tracking through Barcode/RFID technologies, thus providing complete visibility to the organization.