Infor SCM Warehouse Management 2000 Product Brief

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MAXIMIZE & OPTIMIZE

Infor SCM Warehouse Management 2000 provides your company with immediate and accurate visibility into inventory availability, enabling it to better serve you through providing flexible tracking of inventory levels and locations, and by notifying you when more product is needed. It provides your business with the ability to anticipate product demand and create a plan that most effectively meets the demand by making sure that the right products are available at the right time. The result is improved revenue, customer satisfaction, and customer loyalty.

Infor SCM WM 2000 is engineered to reduce direct operating costs and improve asset utilization, while providing flexibility and cost-based optimization services. It is a software solution that enables businesses to maximize their product placement strategies, establish business rules to intelligently prioritize tasks, implement fair and meaningful productivity and incentive pay programs, and increase efficiency of all logistics operations. This solution enables cost-optimized, closed-loop business process management, and planning, including layout and product positioning improvements, task management, time and attendance, assignment scheduling and monitoring, engineered labor standards, and reporting.

Key features include:

- Superior performance in large, complex environments. Infor SCM WM 2000 is one of the proven industry leaders in handling the high volumes of complex transactions found in today's large fulfillment centers.
- Directed task management. Infor SCM WM 2000 has advanced directed task management that aligns the efforts of the operation with the rapidly changing work priorities in high-volume facilities.
- Multiple platforms. Infor SCM WM 2000 supports multiple databases, including Oracle®, and Informix®.
- Enterprise integration. Infor SCM WM 2000 supports all major radio frequency (RF) technologies, real time voice recognition, and RFID. It provides a range of integration capabilities to existing enterprise applications including ERP, Slotting, Advanced Planning, and Transportation solutions.

MAXIMIZE & OPTIMIZE

THE PROVEN SOLUTION

Infor SCM WM 2000 is the proven warehousing solution for your business. Already installed in distribution centers (DCs) across the globe, Infor SCM WM 2000 is designed to service nearly all verticals in the Supply Chain industry, including:

- Grocery
- Wholesale/Industrial Parts Distribution
- High-tech Electronics
- CPG
- Retail

Both public and private warehousing clients use Infor SCM WM 2000 to maximize use of their DC resources and help their workforce be more efficient. A robust yet flexible solution, Infor SCM WM 2000 provides functionality for nearly all warehousing processes, from the most vital storage, selection, and retrieval requirements to the most advanced Value-Added Services (VAS) capabilities. Whether you specialize in Business to Business (B2B) or Business to Consumer (B2C) warehousing and shipping, Infor SCM WM 2000 has the proven features to meet your current needs and elevate your business to the next level of its logistics development.

FUNCTIONAL FOUNDATIONS

Infor SCM WM 2000 is a functionally rich, integrated software application that enables distribution management to control all movement of merchandise through the warehouse. From the time merchandise is received until it is shipped, Infor SCM WM 2000 provides a total systems solution to distribution center information and operational requirements. Infor SCM WM 2000 uses radio frequency technology to provide real-time communications to operations including Receiving, EDI/ASN, Directed Putaway, Replenishment, Order Selection, Flowthru, Crossdock, Inventory Control, Cycle Counting, Load Control, and Satellite Facility Control.

The system also provides a fully integrated, online, realtime work force management system that tracks and reports all employee activity within a distribution center. It is a total systems solution for labor standards, employee reporting and labor information requirements. Using engineered standard work assignments; this system enables distribution managers to measure and control all activity, and leads to 15% - 50% increases in employee productivity.

FEATURES INCLUDE

Wholesale/Industrial Parts Distribution

- Workforce scheduling
- Automatic feed to payroll
- Job function tracking
- Labor assignment generation/tracking
- Engineered standards
- Indirect labor assignment generation and realtime information monitoring/reporting

The following depicts the areas of Infor SCM WM 2000's extensive functionality:

- Receiving
- Shipping
- Inventory Management
- Cross Dock
- Satellite Control
- Clean Manifesting
- Time and Attendance
- RF Receiving
- RF/Voice Replenishment
- Replenishment
- Cycle Counting
- Flowthru
- Load Control
- Labor Monitoring
- Productivity Reporting
- Putaway
- RF Interleaving
- RF/Voice stocker

FUNCTIONAL FOUNDATIONS

- RF/Voice Cycle Counting
- Labor Standards
- RF/Voice Putaway
- RF / Voice Selection
- RF Loading
- Slotting

Realtime Distribution Management provides a total system solution to meet the realtime information and operational requirements of “mission critical” distribution centers.

Labor Control provides increased productivity through the use of labor standards, employee reporting, time and attendance, and realtime labor information.

Paperless Productivity improves productivity and information availability within a distribution center, in a realtime manner, by the use of hand-held and forklift mounted RF terminals.

Whether you need core Infor SCM WM functionality or more advanced warehousing techniques, Infor SCM WM 2000 has all the capabilities to support and improve your warehouse’s services.

CORE FUNCTIONALITY

PRE-RECEIVING

Infor SCM 2000 supports both manual and Radio Frequency (RF) receiving methods, giving you the flexibility you need to accurately and efficiently receive material into your distribution center.

The typical process flow for pre-receiving is as follows:

1. Appointments are taken by appointment clerks, using Infor SCM WM 2000 to determine appropriate truck arrival times and doors, based on projected resource availability.
2. Receiving supervisors view the anticipated receipt schedule (online or reports) to determine the amount of work for the upcoming receiving shift.
3. Receiving supervisor's process the problem analysis reporting; this determines if any items scheduled to be received are missing vital data. This gives the supervisor the time to correct potential errors prior to shift start.
4. Receiving clerks create receiving documentation for the day's scheduled purchase orders, unless this is a paperless (Radio Frequency-based) receiving operation.
5. Inbound purchase orders are assigned appointment dates and times by the receipt appointment clerk using Infor SCM WM 2000. This allows the receipt supervisor access to the anticipated receipt volumes using both online transactions and reporting. The supervisor can use this information to develop a staffing plan for the receiving shift.

ASN

Infor SCM WM 2000 coordinates with supporting software to provide data mapping support from standard EDI formats into Infor SCM WM 2000 input formats for various transaction types, ranging from inbound purchase orders to outbound load information. This method uses mailbox technology to electronically route the data from the vendor to the warehouse management system. In addition to the electronic method, inbound purchase order ASN data can be keyed directly into Infor SCM WM 2000. This is typically performed for faxed ASN data.

CORE FUNCTIONALITY

RECEIVING

After all pre-receiving preparations have been done and verified by the receiving supervisor, the following process is done for each purchase order throughout the receiving shift.

PAPER-BASED RECEIVING

1. The truck arrives, the driver reports in at the guard shack first, then reports to the receiving office clerk.
2. The receiving clerk verifies the load paperwork and initiates Infor SCM WM 2000 processes to produce receiving documentation and pallet labels for the truck. The system assigns the putaway slots at this time, in most installations.
3. The truck driver is told at what door to unload and given a TI x HI report to assist in load stacking. The receiving checker is given the receiving documentation and meets the truck driver at the receiving door.
4. The truck driver (or lumpers) stacks the load to the TI x HI the warehouse requires, using the TI x HI report generated by Infor SCM WM 2000.
5. The receiving checker counts the products being received and notes any overages, shortages, or damages on the receiving documentation. Pallet labels are applied to the pallets. Once labeled, a pallet can be picked up by a forklift and put away.
6. The receiving documentation is returned to the receiving clerk in the receiving office. Any discrepancies are keyed into Infor SCM WM 2000 and the inventory is made available for shipping.
7. The truck driver signs off on the delivery and the process is complete.

RADIO FREQUENCY-BASED RECEIVING

1. The truck arrives, the driver reports in at the guard shack first, then reports to the receiving office clerk.
2. The receiving clerk verifies the load paperwork and appointment number (previously assigned by the vendor phoning into the facility). An appointment number can be assigned at the time the delivery arrives.
3. The truck driver is told at what door to unload and given the TI x HI report to assist in load stacking. The receiving checker is given the appointment number and meets the truck driver at the receiving door with a hand-held RF unit.
4. The truck driver (or lumpers) stacks the load to the TI x HI the warehouse requires, using the TI x HI report generated by Infor SCM WM 2000.

5 The receiving checker does a detail count of each pallet being received using the hand-held RF unit. A generic label is applied to the pallet, scanned Infor SCM WM 2000, and associated with the proper product and purchase order being received. Once labeled, a pallet can be picked up by a forklift and put away.

6 The receiving checker initiates a purchase order close process using the RF terminal once all items have been counted, labeled, and scanned into the system. The system prompts the checker to resolve any overage, shortage, or damage situations. This process also completes the purchase order and makes the inventory available for shipping.

7 The truck driver signs off on the delivery and the process is complete.

RECEIVING VALIDATIONS & REPORTS

All online transactions, relating to the receipt of a purchase order, use the purchase order data, the product data, and the vendor data to perform edits during the receiving process. Any additions to purchase orders, product data requirements, and so on, are evaluated during the receipt process for validity.

Any purchase order, purchase order detail line, or product that fails an edit is displayed to the user in an online error message window. If it is a critical error, the user is prompted to correct the problem before the receiving process can continue for the item in question. If it is simply a warning, the user can override the warning and proceed with the receiving process if they choose to do so.

Receiving reports are used extensively to provide the receiving supervisor with the information necessary to successfully operate a receiving shift. These reports are used for labor scheduling, purchase order receipt, and daily receiving recaps.

All receiving reports are requested manually. The submission screens for these reports have various options, depending on the report, but typically allow the user to print the report for all purchase orders for a particular receiving day or shift.

LOAD CREATION ADVICE

Load creation is done on the receiving dock at receipt time. Infor SCM WM 2000 creates a TI x HI report for each purchase order to be used by the truck driver (or lumpers) to stack the product to the TI x HI required by the warehouse. The system uses the TI x HI data and the expected receipt quantity to develop a number of pallets to be received.

It is possible for the receipt quantity to be split, with part of the receipt being directed to conventional storage and part of the receipt being directed to a flowthru area because of existing Crossdock demand.

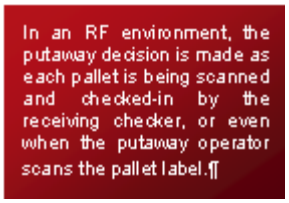
ASN information is accepted at either the purchase order line item level or at the load ID (pallet) level. If pallet level ASN data is sent to Infor SCM WM 2000, the quantities for all pallets for each purchase order detail line is summed to calculate an expected receipt quantity for each purchase order detail line.

QC processes are currently part of the receiving checker's count procedures. If a questionable product is found during the load check-in process, it is the receiving checker's job to identify this and take the appropriate action.

PUTAWAY

Putaway instructions can be presented to the putaway operators in two ways. The putaway location can be printed on the pallet labels, which the operators would use in a non-RF environment. RF implemented sites would display the putaway location to the operator after the operator has scanned the bar-coded pallet label.

System parameter options allow the putaway decision for a pallet to be done at various points in the receiving process. If the operation requires the putaway location to be printed on the pallet label (in a non-RF environment, for example), then the putaway decision is done when the receiving paperwork is generated in the receiving office, prior to truck unloading and check-in.



Infor SCM WM 2000 has multiple system parameters and option switches that control the way the system directed putaway module works. Product parameters such as size, weight, date sensitivity, and lot sensitivity combine with location parameters such as size, cube capacity, weight capacity, stack factors, and zones to develop a list of possible putaway locations. These locations are then evaluated based on labor and cube utilization parameters to make the best possible putaway choice for each pallet. The general logic is as follows:

- Is the receiving warehouse under reserve control? If not, Infor SCM WM 2000 simply tracks a total balance-on-hand for each product in the warehouse and, no putaway decisions need to be made. This is sometimes used for satellite (offsite) storage facilities, or for companies who contract third party warehouses to control part of their inventory.
- Is there any flowthru demand (Crossdock directly to customer)? If flowthru demand is present, Infor SCM WM 2000 splits off the proper quantity to be diverted to the flowthru operation. The flowthru receipt quantity still goes through the putaway algorithms, but it is placed into a different area of the warehouse. The remaining quantity is put away to conventional storage using a different set of putaway rules.
- Is the product date sensitive or lot number sensitive? If so, the system does not attempt to consolidate the product being received into locations that currently have that product in them. If consolidation is allowed, based on system options and product parameters, the system attempts to consolidate to maximize the cube utilization of the locations currently assigned to the product being putaway, including the pick slot and forward reserve locations. Other parameters also are used when making the decision about possible consolidation into existing locations, such as allowable hand-stack percentages, strict product rotation restrictions, and minimum and maximum location allowed per zone parameters.

CORE FUNCTIONALITY

- If there is still product to be put away, the preferred putaway zones for this product are evaluated for available locations. The available locations are evaluated based on cube utilization and labor factors, and the best are chosen and assigned to this product. Up to 50 different preferred zones can be established for each product.
- If there is still product to be put away, the system has been unable to find a suitable location for the remaining pallets of this product. Inventory control personnel are normally notified and the situation is analyzed and resolved. The system can also be set up to allow the putaway operator to manually find a putaway location and report to the system where the pallet was stored. This is not the preferred solution for most warehouses, because of the increased labor costs involved in allowing the putaway operator to do this function rather than the system. This does work well for some very large and bulky product lines, however, such as furniture.

ORDER MANAGEMENT

Infor SCM WM 2000 allows full customer order inquiry and maintenance functions. Order line updates, additions, or even complete new order entry is supported. The wave planning process allows access to the entire customer order well, based on several inquiry criteria, to facilitate wave building and mass order release to pick. After picking and loading confirmation, Infor SCM WM 2000 reports all shipments and order exceptions (i.e. shortages, round-ups, substitutions) to the host systems for invoicing purposes.

Customer orders, while they can be key entered, are typically interfaced into Infor SCM WM 2000. If the orders are already routed prior to download, then they have an initial status of Sequenced, meaning they are ready to be included in a wave. If they are not routed, then they have an initial status of HLD, or hold, until they have been routed, either manually or by a routing package

Orders in SEQ status are manually reviewed by the wave planner, who groups the orders for release to picking based on routing information and delivery date. The wave planner puts the orders into Released status so the next wave processes the orders.

The wave planner also is in charge of submitting the wave to pick. The wave planner normally builds a wave that is large enough to produce 2 - 3 hours worth of selection work, which also creates the replenishment work necessary to support that selection. During the wave planning process, the wave planner can examine the customer orders by delivery date, customer number, or by order type. Order types are the normal method of grouping orders that should be picked at the same time.

Orders that have been through the wave process and have selection documents created for them are in Archived status. Once the selection assignments have been completed for an order and the product loaded on the truck, the load close transaction is performed, which puts the orders in Complete status and finalizes the shipping details and exceptions to be sent back to the host invoicing system.

CORE FUNCTIONALITY

Shipment Planning / Wave Planning

Individual customer orders can be processed and picked whenever necessary to support emergency (walk-in) business, but the vast majority of orders are processed through the wave planning function of Infor SCM WM 2000. Waves are created throughout the workday by the wave planner, who is in charge of monitoring the amount of work currently out in the warehouse and the anticipated completion time of that work. When the wave planner identifies that more work is needed, then the next wave is set up and released. This puts the warehouse shipping management in charge of when and how much work is generated, which gives the warehouse more flexibility in planning and executing throughout the workday.

As each wave is released, selection documents and replenishment documents are created. As the selection work is being done, the priorities of the replenishment work are automatically monitored and updated by Infor SCM WM 2000 to ensure that the replenishment happens in a timely manner to support the selection.

Stock Selection

The order detail line specifies the product and the case pack that the customer has requested. Infor SCM WM 2000 matches this to the product tables to find the various product revisions (called product details in Infor SCM WM 2000) that match the case pack requested. If there are multiples, the system ships the oldest product first until stock is depleted, then ships the next oldest.

Once the product detail to ship has been identified, the system decides from which location to fill the order. If the order quantity is large, then a pallet select from a reserve location can be generated to fill the order, which reduces or eliminates the hand selection process. If the quantity is not large enough to justify a pallet select, then the system must decide from which pick slot to fill the order. Infor SCM WM 2000 allows multiple pick slots per product detail, typically one for full case order quantities and the other for each picking. The customer order quantity is used to determine from which pick slot to ship. The order detail also has the ability to specify which pick slot to use.

In many warehouse operations, the floating pick concept is used to support selection of a large number of slow moving items from a specific area of the warehouse. Typically, an aisle or two of the warehouse is dedicated to this type of picking, and all slow-moving items are put in this area. Many different items can be put in the same location, simply because there are a lot of different items, but not much inventory per item. No replenishment is done in this area, if the selection slot for an item is depleted, the system rotates to the next location and makes that location the new pick slot. Infor SCM WM 2000 fully supports the floating pick methodology as a configuration option.

CORE FUNCTIONALITY

PICK PLANNING

Shipping containers such as totes, pallets, cages, etc. are defined to Infor SCM WM 2000. The capacity in cubic feet and weight is defined for each container, and these containers are specified as the preferred picking container for a picking section.

The wave planning process creates the selection assignments necessary to pick all the orders included in the wave. Areas for the warehouse are defined to Infor SCM WM 2000 as picking sections. Examples of picking sections would be warehouses that have a pick-to-belt operation, as well as conventional pick-to-pallet. Both areas would be defined in the warehouse but as two separate picking sections. All selection within each picking section is evaluated for batch picking opportunities to see if multiple customer orders should be batched together and picked at one time. The delivery schedule of the remaining orders is evaluated on the route and stop, so the orders are picked and brought to the staging areas in the order necessary to support proper loading.

Breaks in selection assignments can be caused by several factors. In the example above, the assignments would be broken when more than 140 cube, or 5000 pounds in a picking section were ordered by a customer. Additionally, hard breaks at the end of aisles can be defined in Infor SCM WM 2000, which would force a break, regardless of cube and weight considerations (e.g., when a soft goods aisle ends and a hard goods aisle begins).

Customer level overrides include pallet rounding allowed flags, delivery manifest required flags, catchweight required flags, pick type override flags (to force picking from a particular location), the type of selection document used, and the size of the selection unit used. So a single customer cannot allow their orders to be rounded up, and also want their delivery on small pallets, which only allow 45 cubic feet or 1500 pounds per pallet, due to small delivery doors at their facility. The combination of the picking section definitions with the ability to modify those parameters for specific aisles within a picking section or by customer requirement overrides, gives Infor SCM WM 2000 tremendous flexibility in supporting complex picking operations.

Infor SCM WM 2000 approaches picking by logical picking assignments, based on operational definitions of how a particular area (picking section) is normally picked. The system can be set up to support pick by order, batch picking, and pick to belt environments very easily.

Infor SCM WM 2000 has been successfully interfaced to all types of warehouse automation devices. Installations have ranged from simply supplying information to controller units, such as bar-coded shipping labels identifying the divert lane for a sortation system to writing special automation control software for ASRS systems. Each client's warehousing operation is evaluated before the automation solution is developed and integrated into Infor SCM WM 2000.

CORE FUNCTIONALITY

The cube and weight of the product being selected is used to determine when a shipping container is full. The system knows when to use master case cube and weight, and when to use inner pack or each cube and weight, to properly fill the shipping containers.

WORK QUEUE MANAGEMENT

Infor SCM WM 2000 does full workflow management of all forklift-related operations in the warehouse. All pallet movements within the warehouse (putaway, replenishment, pallet selects, pallet moves, and so on) are created in the RF Workwell and assigned a priority by the system. These work units are assigned to forklift operators as they complete their previous task, based on where the fork operator is, what their equipment capabilities are, what the fork operator capabilities are, what work profile the fork operator is assigned, and the priority of the work units. The system manages the priority of all replenishment type work to ensure that the selectors have the product at the pick slot when it is needed.

Warehouse supervisors have multiple transactions and reports available to monitor the forklift fleet activity. The system is designed to be self-monitoring, managing the available forklift fleet in the most efficient manner possible. The supervisors can override or change the RF Workwell and work priorities at any time, if they want or need to override the system.

User attributes include:

- Types of work qualified to do. Is the user qualified to do putaway, replenishment, pallet moves, hauling, staging moves, scheduled refills, inventory moves and miscellaneous pallet moves? Each user can be set up to disallow any or all of these types of work.
- Section of the warehouse where the user is assigned. The warehouse is divided into replenishment sections, with fork operators assigned to these sections. This is used to minimize travel time, but the work profiles can cause fork operators to float to other sections to help out, if the workload dictates this.
- Work profile to which the user is assigned. The profiles are normally set up to allow the user to “float” to other sections of the warehouse, based on workloads and priority of outstanding work by section. This allows flexibility in handling the fork workload, without manual management intervention to control the varying work conditions.
- Equipment currently being used. Equipment capabilities, such as lift height, weight capacity, number of pallets that can be safely carried, aisle range restrictions, and location type restrictions are used to evaluate if the user can do a specific piece of work. If not, the work is given to another user. For example, if a let-down is coming from a location that is 310 inches from the ground, and the user’s equipment can only reach 300 inches, this user cannot do this piece of work.

- Location attributes. In addition to the user and equipment attributes, the system looks at the locations involved based on what warehouse section they are, how high they are, and if the fork is allowed to access that type of location. The pallet weights are also considered, so that only a fork capable of lifting that pallet is assigned to the work unit.

Infor SCM WM 2000 warehouse management system manages task interleaving for forklift operators between putaway assignments and replenishment assignments. Interleaving eliminates the deadhead travel time from the end of the putaway trip back to the dock to get more putaway pallets. Instead, the fork operator is directed to do replenishments or pallet selects on the way back to the dock.

PICKING / SELECTION

Infor SCM WM 2000 currently supports picking labels, paper pick lists, electronic selection (RF and/or Voice) or a combination of these. The selection method is set for each picking section defined to the Infor SCM WM 2000 system, but can be overridden at the customer level.

WM 2000 currently supports picking labels, paper pick lists, electronic selection (RF and/or Voice) or a combination of these.

Pickers that are being tracked under a labor management system typically do not stop and wait for replenishment if the pick slot is empty. They return the unused selection labels to the shipping office, where the shipping supervisor attempts to resolve the problem.

The shipping supervisor looks for outstanding replenishments. If there are none, and there is no product in the warehouse, a mark-out must be keyed into the system so the shortage can be reported to the customer and the invoicing system. If there is not an outstanding replenishment, then an inventory quantity discrepancy must have existed in the pick slot. If there is an outstanding replenishment, the supervisor determines why it did not occur in time to support the selector. There are several reasons this could occur, most of which are set-up issues. For example, the weight on the product file could be incorrect, which causes the pallet to calculate out to 10,000 pounds and there are no forks qualified to carry it. Whatever the reason, the supervisor can correct the problem and force the replenishment to happen by manually assigning the work unit to a fork operator.

The shipping supervisor typically accumulates the short pick labels and creates a single, new selection assignment if there is product available for shipping. In this way, the selector is on full selection labor standards.

CORE FUNCTIONALITY

Once selection documents are created, the inventory is assumed shipped unless a markout is keyed into Infor SCM WM 2000. The load close process is the process that confirms shipment, locking in the shipment details and the shipment exceptions (that are sent to the host invoicing system). This process also creates the shipment manifests, which match the invoice, supporting a true post-billing environment.

STAGING

During wave planning, each order must have either a shipping door or staging lane defined. Whichever point is defined is where the selector must drop the selected merchandise. This gives Infor SCM WM 2000 a point to calculate the labor standards and travel required for the selector. This point is always developed on the selection document, so the selector knows where to drop the load.

The Infor SCM WM 2000 System supports direct loading of trailers. If a door is specified on the selection document, the selector is responsible for loading the shipping container on the truck and marking the loading control sheet that those container IDs are now on the truck. The door must be known at wave planning time for this to be a valid option.

LOADING

Infor SCM WM 2000 has a paper-based and RF-driven loading system. In the paper-based system, a loading sheet is created for each route (truck) within a wave. This loading sheet lists all shipping containers that should be on that truck, by stop and customer. Depending on the operation, either a loader or the selector checks off, on the loading sheet, for each shipping container that is loaded onto a truck. A shipping container can be a pallet, tote, or cage, and so on. Infor SCM WM 2000 creates an outbound label for each of these containers for the selector to apply to the completed shipping container.

Infor SCM WM 2000 supports an RF-based loading system, which prompts the loader for the shipping containers and requires a reconciliation of shipping containers not scanned onto the truck prior to load confirmation. This functionality can be used to build pallets, combine pallets, or split pallets onto existing or new routes.

CORE FUNCTIONALITY

SHIPPING

The load close process is the process that confirms shipment, such as locking in the shipment details and the shipment exceptions that are sent to the host invoicing system. This process also creates the shipment manifests, which match the invoice, supporting a true post-billing environment.

Infor SCM WM 2000 creates a customer manifest for each stop on a route. An additional manifest for hazardous materials is created for all items that are classified as hazardous.

The load close process for the route automatically triggers WM 2000 to create the shipping paperwork and send the shipment details and exceptions to the host invoicing system.

Infor SCM WM 2000 creates a customer manifest for each stop on a route.

REPLENISHMENT

Each product on the Infor SCM WM 2000 warehouse management system must have at least one pick location associated with it to support shipping operations. When the pick slot is assigned to the product, the inventory control clerk sets up parameters to control the replenishment process. The first thing considered is the type of location being used as a pick slot. If it is a rack or floor type location that can physically handle a full pallet or pallets, the location is classified as pallet handling and all replenishment into that location occurs in one or more logical pallets. If it is a case handling flow rack or a shelf type location, it is classified as a case handling location and all replenishment into that location occurs in case quantities. This means that a fork operator could be directed to pull a pallet from reserve, stack X number of cases into the case handling pick slot, and return Y number of remaining (unused) cases to another reserve storage location.

Regardless of whether the pick slot is case handling or pallet handling, a replenishment level in shipping units is defined for this product/location combination, such as 5 shipping units. The system can calculate a capacity for the product/location combination based on location dimensions and product dimensions, or the inventory control clerk can specify an override capacity in either cases or pallets, depending on the handling characteristics of the location.

Example #1: Product A is associated with a case handling shelf pick slot. The replenishment level is set at 2 cases and the capacity of the location (for this product) calculates out to 10 cases. During the wave planning process, the inventory level of this pick slot is reduced to a quantity of 2. The system generates a case handling replenishment of 8 cases from a reserve storage slot following FIFO inventory turn rules. In all probability, the fork operator is directed to pull a full pallet from reserve, put 8 cases into the pick slot, and put the remainder back into a reserve slot (either the original reserve slot on a new “best fit “ location).

Example #2: Product A is associated with a triple-deep pallet handling flow location pick slot. A full pallet is normally 50 cases, so the inventory control clerk sets the replenishment level at 45 cases and the system knows the capacity is 3 logical pallets. A replenishment level of 45 cases means that there should only be 1 pallet left in the slot; so when the wave planning function reduces the inventory in the slot to 45 or less, the system generates 2 separate pallet replenishment instructions. Pallet handling slots never have a quantity to be returned to reserve storage.

Whenever a replenishment instruction is created by Infor SCM WM 2000, the system determines the initial priority and importance that replenishment has compared to other replenishment instructions. A replenishment created because the pick slot is empty when the selector gets there is much more important than a replenishment caused by the replenishment level being reached. The priorities of the replenishments change and become more and more important as the selection for the wave progresses.

In an RF environment, Infor SCM WM 2000 does full workflow management of all forklift-related operations in the warehouse. All pallet movements within the warehouse (putaway, replenishment, pallet selects, pallet moves, and so on) are created in the RF Workwell and assigned a priority by the system. These work units are assigned to forklift operators as they complete their previous task, based on where the fork operator is, what their equipment capabilities are, what the fork operator capabilities are, what work profile the fork operator is assigned to, such as the types of work this operator should be doing, and the priority of the work units. The system manages the priority of all replenishment type work, to ensure that the selectors have the product at the pick slot when it is needed.

Warehouse supervisors have multiple transactions and reports available to monitor the forklift fleet activity. The system is designed to be self-monitoring, managing the available forklift fleet in the most efficient manner possible. The supervisors can override or change the RF Workwell and work priorities at any time, if they want or need to override the system.

CORE FUNCTIONALITY

User attributes influence who is assigned the work units, based on:

- Types of work the user is qualified to do. Type of work the user is qualified to do, such as putaway, replenishment, pallet moves, hauling, staging moves, scheduled refills, inventory moves, and miscellaneous pallet moves. Each user can be set up to disallow any or all of these types of work.
- Section of the warehouse to which the user is assigned. The warehouse is divided into replenishment sections, with fork operators assigned to these sections. This is used to minimize travel time, but the work profiles can cause fork operators to float to other sections to help out, if the workload dictates.
- Work profile to which the user is assigned. The profiles are normally set up to allow the user to “float” to other sections of the warehouse, based on workloads and priority of outstanding work by section. This allows flexibility in handling the fork workload, without manual management intervention to control the varying work conditions.
- Equipment currently being used. Equipment capabilities, such as lift height, weight capacity, number of pallets that can be safely carried, aisle range restrictions, and location type restrictions are used to evaluate if the user can do a specific piece of work. If not, that work is given to another user. For example, if a letdown is coming from a location that is 310 inches from the ground, and the equipment can only reach 300 inches, this user cannot do this piece of work.
- Location attributes. The section of the warehouse an operator is assigned to, the height the forklift can reach, and if the forklift is allowed to access the type of location are all considered in assigning work. The pallet weights are also considered, so that only a fork capable of lifting that pallet is assigned to the work unit.

Infor SCM WM 2000 manages task interleaving for forklift operators between putaway assignments and replenishment assignments. Interleaving eliminates the deadhead travel time from the end of the putaway trip back to the dock to get more putaway pallets. Instead, the fork operator is directed to do replenishments or pallet selects on the way back to the dock.

CORE FUNCTIONALITY

FLOWTHRU

Many organizations need to move product directly to customers, or retail outlets, based on a predetermined allocation, or to satisfy rapid replenishment of outstanding requirements. This is particularly relevant to organizations dealing in high-volume or seasonal merchandise that has been bought for a predetermined stock and sales plan or which has been bought for an event or promotion.

The ability to ship merchandise in the fastest possible turnaround from the time of receipt into the distribution facility and with the minimum of handling is now a key requirement. This implies bypassing the putaway stage of warehouse location so that order picking can take place either at the point of intake or in a special handling area to which the product is moved in bulk.

The Flowthru functionality developed by Infor integrates with the existing order processing, receipt and selection functionality in the warehouse control system; and provides the option to fast ship product in a controlled environment with built-in flexibility to react to changes in requirements at product or order level.

CROSSDOCK

Crossdock is the process by which a warehouse receives shipping containers (normally pallets) into the facility with the intent of simply moving these containers to another truck to be shipped to the customer. These pallets can be stored in the warehouse for several days, depending on the next delivery to the customer. Crossdock pallets are not broken down; they are always handled at the shipping container id level. Infor SCM WM 2000 might not even know the detail composition of the pallets.

There are two main Crossdock scenarios to be considered. The first scenario is pre-picked pallets created by a vendor that have products for a single customer consolidated together. Normally, such pallets are delivered from the vendor directly to the store (DSD, direct store delivery) and are never seen by the distribution center. However, sometimes the warehouse is asked to consolidate these vendor pre-picked pallets into the normal customer delivery of products picked in the warehouse, mainly due to transportation cost considerations.

The second scenario is when pallets picked in one Infor SCM WM 2000 implemented warehouse are to be put on the same truck with pallets picked in another Infor SCM WM 2000 implemented warehouse. The classic example of this scenario is when frozen foods and dry grocery are picked in two different logical warehouses, but only one truck is sent from the distribution center to the customer. Loading pallets from both areas onto the truck must be managed, along with the correct manifests and documentation. The main difference for this scenario is that the warehouse operations associates must be able to specify which outbound pallets are to be Crossdocked into another warehouse.

The goal of Infor's Crossdock software is to create a process for the user by which they can handle the receipt, storage, and shipment of the Crossdock pallets for both scenarios.

CORE FUNCTIONALITY

INVENTORY CONTROL AND COUNTING

Cycle counting and physical inventory is supported in paper based and RF real time environments. Many options are available when submitting the cycle count application. Counts can be based on ABC class, aisle ranges, item cost, movement, balance on hand, or exception conditions. Exception conditions include slot problems reported by fork operators, markouts keyed in due to selection shortages, or inventory control manually entered requests to count by product or location.

When a fork operator is attempting to do a putaway to a location, but has found a pallet in the location, standard procedures are to have the fork operator remove the “bad” pallet and complete the putaway he was attempting to do. A function key on the RF unit allows the fork operator to inform the system that a problem pallet has been found, and the system then directs the fork operator to take the “bad” pallet to a problem resolution zone. Problem resolution zones are areas where problem pallets are taken until inventory control has had a chance to identify the problem and correct it. This action causes a “request to count” be generated for the problem product or location.

Any event on the Infor SCM WM 2000 warehouse management system that changes the total balance-on-hand in the warehouse is reported to the host systems. Examples of these events would be purchase order receipts, inventory adjustments, and shipment to customers. A pallet move from one location to another within the warehouse is not reported to the host system, because there is no change to the balance-on-hand within the warehouse.

All transactions that change the balance-on-hand write activity logs with date/time stamps and the user creating the transaction. These transactions are sent back to the host system on a periodic basis, which can range from realtime notification to only once per day.

The impact on the host inventory is not known until the problem has been resolved by inventory control personnel.

Infor SCM WM 2000 can send a complete balance-on-hand reconciliation file at any time. Many clients use this feature after a physical inventory has been performed on the Infor SCM WM 2000 system to reset the inventory balances on the host systems.

Each pallet in the warehouse has a status associated with it. An Active status means the pallet is available for shipping. Hold status means that the pallet cannot be used to satisfy a customer order. Pallets are manually put into Hold status by inventory control or receiving personnel for quality problems, date expiration, or any other reason why the product should not be shipped.

Other status types include Product Level status, which determines if the product is pending delete, on hold (all pallets), or on physical inventory hold. Locations can be put on Hold status, which automatically holds all products/pallets in that location. Empty locations can be placed in Enabled and Disabled status. An example of this would be a broken rack location that needs repair. Inventory control would move the product out of the location to a new slot and disable the slot. Any location in Disabled status is not used by Infor SCM WM 2000.

CORE FUNCTIONALITY

PRODUCTIVITY AND WORK STANDARDS

Infor SCM WM 2000 warehouse management system has the most comprehensive labor tracking engineered work standards capabilities on the market.

Labor tracking can be done on selection assignments, forklift assignments, receiving checker standards, stocker standards, and loading standards.

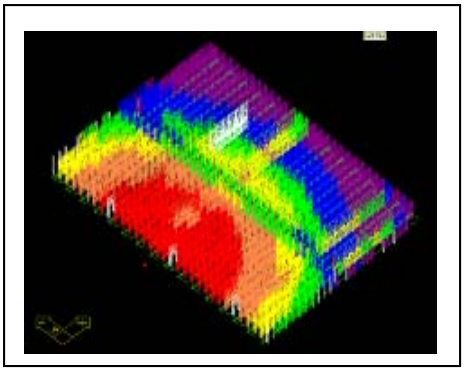
Labor tracking standards can be used at three different levels:

- Time and attendance. Warehouse personnel clock in and out for day, and log onto each work assignment generated by the warehouse management system.
- Reasonable expectancies. Much the same as time and attendance, but a reasonable expected standard time per work assignment is calculated by the system. The reasonable expectancy work standards are based on a database of work standards accumulated by Infor over the years.
- Engineered discrete standards. Much the same as reasonable expectancies, but an actual engineered standard time per work assignment is calculated by the system. Industrial engineers are used to do observation studies of the methods and procedures actually in use in a facility to develop an engineered standard that is 95% or greater accurate.

Infor SCM WM 2000 automatically produces end-of-day and end-of-week labor tracking and performance reporting. Many labor-tracking reports are available on an on-request basis, as well. The daily and weekly performance reports have detail and summary information on the amount of time each associate spent on each of the defined job types in the warehouse. For example, the system reports that associate A spent 25% of Monday doing selection, 29% doing receiving, 32% doing fork work, and 14% doing indirect (other) work. The system can produce assignment level detail for performance against standard, or do summary reporting for performance against standard by job type by day and by week.

CORE FUNCTIONALITY

SLOTTING INTERFACE



Slotting application is a tool, or data repository, from which the Infor SCM WM 2000 requests information on how to layout a warehouse. Slotting does require some initial information from the Infor SCM WM 2000, but this data's only use is in calculating answers to the queries presented by the Infor SCM WM 2000. Given this information it seems appropriate that, with regard to web services, Slotting play the role of the server and host the services. This would put Slotting in charge of deciding what functionality it exposes using the web services and the Infor SCM WM 2000 in charge of deciding when to initiate the functionality call using web services.

Infor SCM WM 2000 has ability to exchange product, location, and assignment information with Slotting via web services. To be more specific the following are the functionality support interface between Slotting and Infor SCM WM 2000.

- Single-item Slotting. Infor SCM WM 2000 sends a Product to Slotting asking for suggested slots (locations). Slotting replies with a list of suggested locations.
- Location Load. Infor SCM WM 2000 asks Slotting for a list of Locations. Slotting responds with an array of Location records.
- Product Sync. Infor SCM WM 2000 sends Slotting a list of new and updated Product records. Slotting responds with a simple confirmation.
- Location Sync. Infor SCM WM 2000 sends Slotting a list of new and updated Location records. Slotting responds with a simple confirmation.
- Assignment Sync. Infor SCM WM 2000 sends Slotting any new Product/Location assignments. Slotting responds with a simple confirmation.

CORE FUNCTIONALITY

VOICE-DIRECTED DATA COLLECTION

Infor SCM WM 2000 has a voice-directed order picking system that packages a standard task with support applications. Using belt-mounted speech recognition hardware, or terminal, the user can perform hands- and eyes-free task picking. The terminal receives pick lists and transmits individual item pick status by communicating through a wireless RF network, and transfers information in a realtime fashion between itself and the Infor SCM WM 2000.

Operators are guided throughout the warehouse by voice instructions relayed by the terminal. The terminal tells the operator which picking location to go to and how many units to pick. The operator verifies the pick location by speaking a check digit from a rack label located at the pick slot. The terminal does not relay information about the next pick location until the operator speaks the correct check digit.

Infor SCM WM 2000 Voice has been enhanced to provide more precise labor performance tracking, usability, and flexibility. Supported functions include:

- Normal Assignments. Regular selections.
- Chase Assignments. Selection to be performed by chaser for shorted products. The selector can only perform chase assignments.
- Normal and Chase Assignments. A selector can do Normal and Chase Assignments.
- Counting Assignment. Periodical cycle or physical counting.
- Stocker Replenishment. Stocker portion of cherry pick replenishment.
- Fork Putaway / Replenishment. Forklift putaway, pallet select, replenishment, other forklift moves.
- Flow Thru. Regular or Batch flow thru

INFOR VOICE-DIRECTED DATA COLLECTION QUICK FACTS

- Infor was the very first SCE company to have realtime Voice interface
- Operating on Fifth release of Voice software
- More voice installations than all other SCE companies combined
- Fully integrated with Labor processing
- Realtime “Balance on Hand” in the pick

ABOUT INFOR

Infor delivers fully integrated enterprise solutions for a wide range of industries, as well as best-in-class, stand-alone products that address the essential challenges its customers face in areas such as enterprise resource planning, supply chain planning and execution, customer and supplier relationship management, asset management, product lifecycle management, financial and performance management as well as business intelligence solutions. With 8,100 employees, Infor provides enterprise solutions to more than 70,000 customers and has offices in over 100 countries. For additional information, visit www.infor.com.

WHO IS INFOR?

Global Presence

- 8,100 employees
- 70,000 customers
- Offices in 100 countries

Domain Expertise

- More than 30 years of combined experience serving our industries
- 80% of our employees touch our customers every day
- Professional Services employees average 8 years experience
- Development employees average 12 years experience

Solutions include:

- corporate performance management — Provides the clear visibility across multiple applications, data sources, and business processes needed to measure and monitor performance, deliver business intelligence, and promote informed decision-making.
- enterprise resource planning — Meets the unique multi-site, multi-currency, multi-language planning, scheduling, production, and sourcing requirements of discrete and process manufacturers and distributors with global operations.
- supply chain management — Puts companies firmly in charge of their supply chain with superior supply chain planning and execution, warehouse management, and transportation management capabilities.
- supplier relationship management — Provides valuable, web-based communication tools that complement our supply chain management solutions and help customers manage their suppliers more tightly to meet changing customer demands.
- customer relationship management — Drives intelligent customer interactions at every touch point with integrated marketing, sales, and service capabilities.
- ecommerce — Includes both buy-side and sell-side solutions that enable back-office ERP systems to participate in a virtual online community, or portal, to facilitate business-to-business transactions and extend customer service.
- enterprise asset management — Helps companies effectively monitor the deployment and performance of their equipment, machinery, facilities, fleets, and other capital assets.
- human capital management — Provides workforce management capabilities in the areas of employee recruitment, compensation, benefits, self-service, learning, and performance management tracking.

ABOUT INFOR

- financial management — Gives companies the reach they need to handle the financial requirements of a global economy, from financial accounting and budgeting to reporting and analysis.
- product lifecycle management — Improves control over product integrity with specification management, product data management, and content and document change management.

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