Warehouse Management Overview



from
The Systems House, Inc.





Benefits of MDS-WMS



- Inventory is the single largest investment made by the distributor
- Improve inventory accuracy
- Improve order processing accuracy (less returns)
- Improve personnel performance and accuracy
- Better utilize warehouse space
- Improve customer satisfaction

The MDS Warehouse Management Solution

- Warehouse Design
 - Single or Multiple Warehouses
 - Branches or Stock Rooms
 - Location Management in Warehouse
 - Location as a Reference or
 - Inventory by Location (Random Locator System)
 - Receive, Stock, and Sell in Multiple Units of Measure
 - Solid Case and Quick Pick Areas (Low Unit)
 - Primary and Backup Locations
 - Low Unit vs. Bulk Picking
 - Low Unit replenishment
 - Environmental and Security Considerations
 - Lot#, Serial#, Expiration Date Control





MDS Warehouse Capabilities



- Warehouse Management Functions (WMS)
 - Receiving
 - Put Away
 - Replenishment (location management)
 - Picking
 - Physical Inventory / Movements / Adjustments
 - Returns from Customers and to Vendors
- Interface to UPS and FedEx
- Delivery Route Management
 - Manifest System
 - Proof of Delivery (Signature capture)
 - Package Tracking with Multiple Stops



Advanced Capabilities

- Implement Bar Coding to Improve Accuracy
 - Not necessarily faster
- Bar Coding Issues
 - Product or Location Bar Coding
 - Manufacturer Can Label Products:
 Not uniform in many industries such as Medical
 - Significant Cost to Barcode Items Upon Receipt
 - Bar Codes do not Define Unit of Measure
 - Alternate Solution: Barcode Locations
 - Maintain Product by Location (one item per location)
- Wireless Solutions
 - Wi-Fi or RF Receiving, Replenishment, and Picking
 - Automated Picking Carousel Systems
 - Voice Response Picking

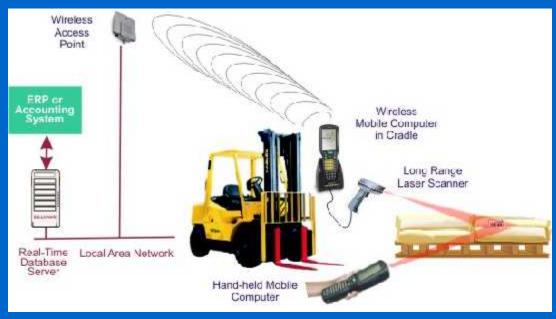


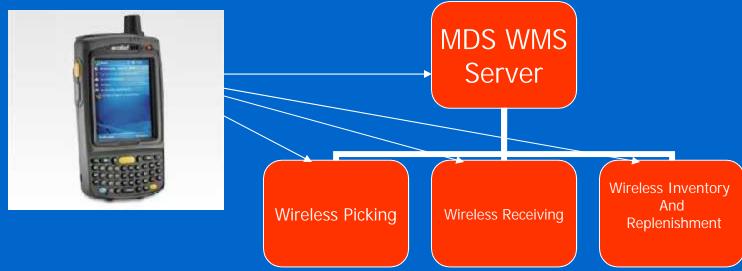


MDSWMS – Latest Enhancements:

- New VB.NET Handheld Application faster, more user friendly, more functional.
- Receiving/Putaway by Warehouse Zone
- Replenishment by Warehouse Zone
- Tracking In Pick by Location
- Multiple Primaries Custom Logic
- Stock Rotation
- Date Controlled items Like lots but Lot# defaults to Exp Date.

WiFi Equipment Schematic

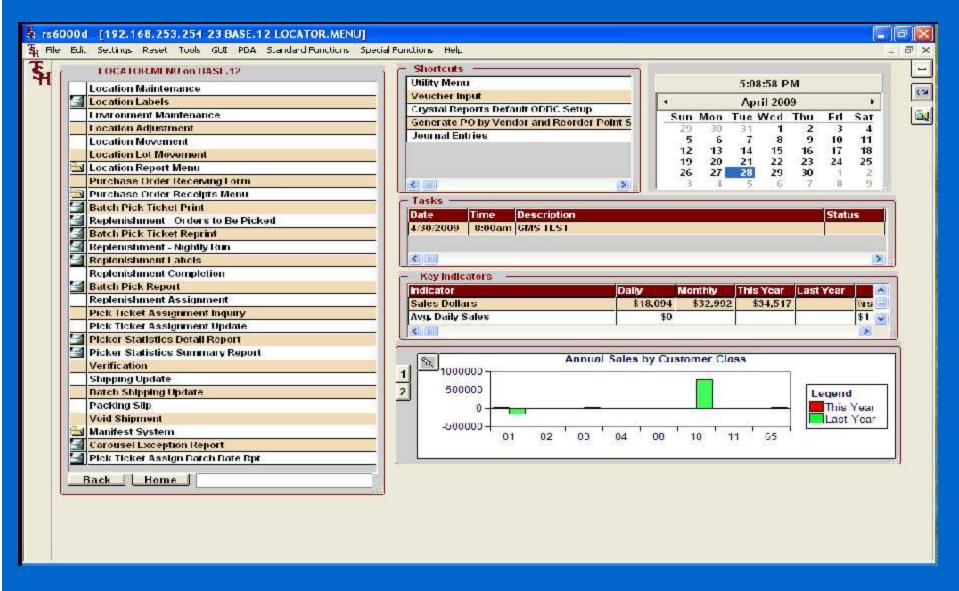




WiFi PDT Handheld/ Equipment



Warehouse Management Menu



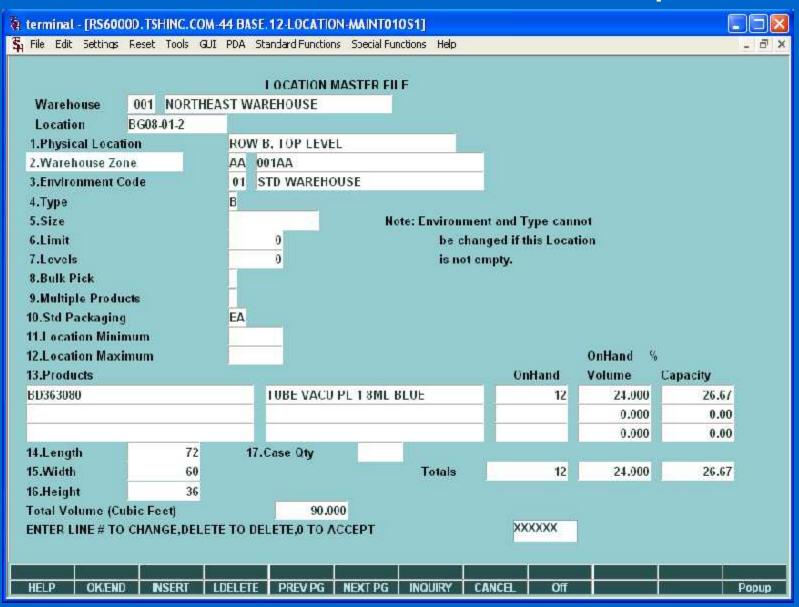
Warehouse Setup

🐐 terminal - [RS6000D, ISHINC.CO	M-20 BASE.12-WAREHOUSE-MAIN (008\$1)		
👣 File Edit Settings Reset Tools (iUI PDA Standard Functions Special Functions Help	J.	_ a ×
WAREHOUSE MAINTENANCE Warehouse Number 00	MDS Warehouse Maintena	nnce	
1.Warehouse Name	NORTHEAST WAREHOUSE	31. Trans Shipping Warehouses	
2.Warehouse Addr 1	1033 ROUTE 46	1.	
3.Warehouse Addr 2		2.	
4.Warehouse Addi 3		3.	
5.City	CLIFTON	4.	4
6.State	NJ	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
7.Zip	07731		
8.0wning Company	01 The Systems House, Inc	()	
9.Phone Number	973-222-7777		
10. Lax Jurisdiction	1 NEW JERSEY		
11.Transfer Cust#	001 WIISE 1		
Warehouse Management	Parameters	El man	
12.Location Control	L 19.Remove Location Flg	N 26.Putaway Print	D
13.Wireless Picking	N 20.Replen Case Rounding	U 27.Replen at Receipt	N
14.Bulk Redirection	Y 21.Redirect if not in Bulk	N 28.Replen by Zone	Y
15.Receiving Method	P 22.0E Replen to Max	N 29.Interface Type	P
16.IM Replen Method	1 23.Putaway Method	Z 30.Wireless Tote	Y
17.Single Product	N 24.Track WO InUse	Y	
18.Prim Replen Method		N	
ENTER I INE # TO CHANGE,DEI	FTF TO DELETE,0 TO ACCEPT	XXXXXXX PAGE 1 OF 3	
LICEN AVERN HOUSE	LOCUCIO DOCUCIO ALCOCIO	CAUCEI OF	Userfile
HELP OK/END INSERT	I DELETE PREVPG NEXT PG INQUIRY	CANCEL Off	Рорир

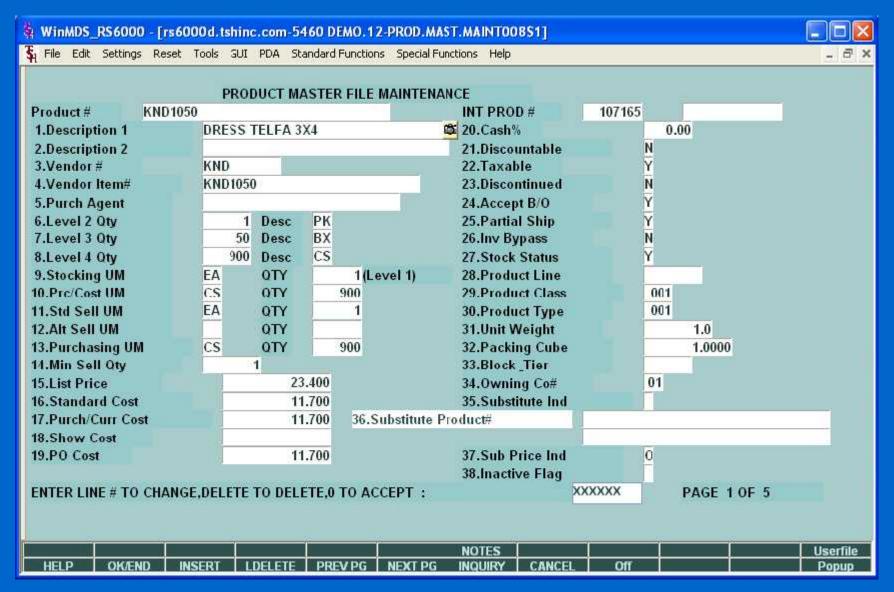
Warehouse Level Parameters

- Location Control in use
- Wireless Picking in use
- Totes in use
- Putaway Method 1 Step, 2 Step, 2 Step by Zone
- Putaway Print Labels, Forms, Both, None
- Replenish at Receipt Time
- Bulk Redirection
- Receiving Method
- IM Replenishment Method
- Single Product per location
- Replenishment Method (Min/Max or to Max)
- Remove Location Flag (upon depletion)
- Replenish Case Rounding
- Redirect if not in Bulk
- OE Replenish to Max
- Wireless Receipts
- Location Format
- Location Match
- Interface Type

Location Control and Setup



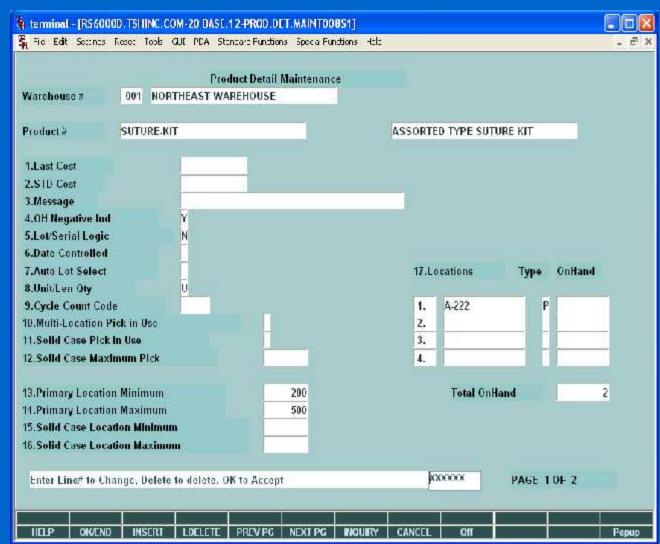
Product Master File



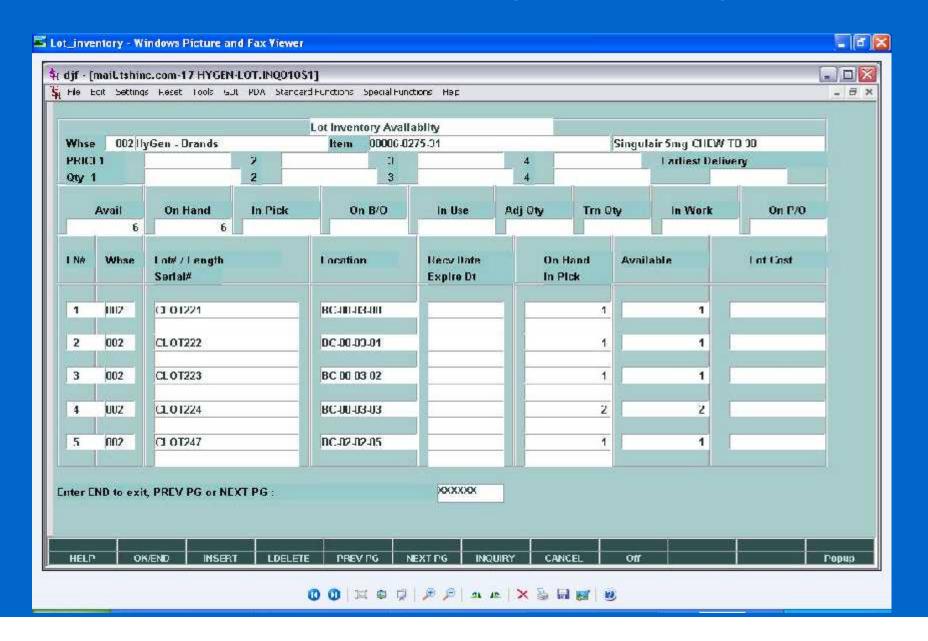
Inventory and Product Information







Lot Inventory Display



Lot and Serial Number Tracking Inquiry

			Lot/Serial Num	ber Transaction	n Ingu	iiry				
			B.		Lo	t Numb	er or ALL	ALL		
Produc# 00591-0782-01 C4-Diethylprop HCL 75mg		00591-0782	82-01			Serial Number or ALL			ALL	
			Pedigree ID or ALL			ALL				
			Warehouse or Al I		ALL	ALL				
.n# L	ot No.		Whs Loc	Quantity		Tnx	Release#	Price	Cust/Vend No.	DS
Serial No	u.		Pedigree	Date		Whs	P/O#/Ref#	Cust	Cust/Vend Name	
1 3	062613		CA 00 00 00		93	INA	01004461001	00.88	100646	
			00000001849	06/02/08		001	na	61.59	Truxton, Inc.	
2 3	062025		CA 00 00 00		27	INV	01004161001	68.00	100646	
			06/02/08		001	na	61.59	Truxton, Inc.		
3 3	062613		CA-00-00-01		48	POR	100/00-1		148	ND
			00000001916	115/23/118		11111	H1H1H7H5	58.20	DIK DRUG CO.	
4)	062025		CA-00-00-00		27	POR			140	ND
			00000001916	05/23/08		UU1	U1U1U/U5	58.20	DIK DRUG CO.	
5 3	062613		CA-00-00-00		144	POR			115	ND
			00000001849	05/20/08		001	01010708	63.35	ANDA INC.	
6 3	061369		CA-00-00-00	8	-54	INV	01003739002	00.86	100646	
			00000000921	05/05/08		001	050208bob	63,35	Truxton, Inc.	
7 30	061369		CA-00-00		54	POR	1		115	ND
			00000001736	05/05/00		001	01010636	60.05	ANDA INC.	
inter EN	ID' to EXIT	, 'NEXT PG' (or 'PREV PG'				кжоок			

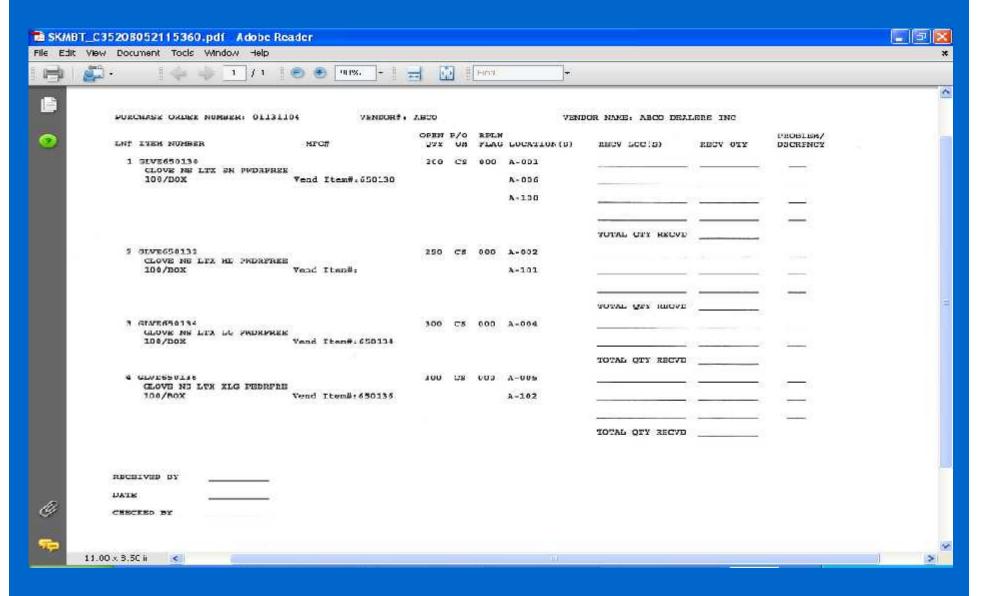


Receiving

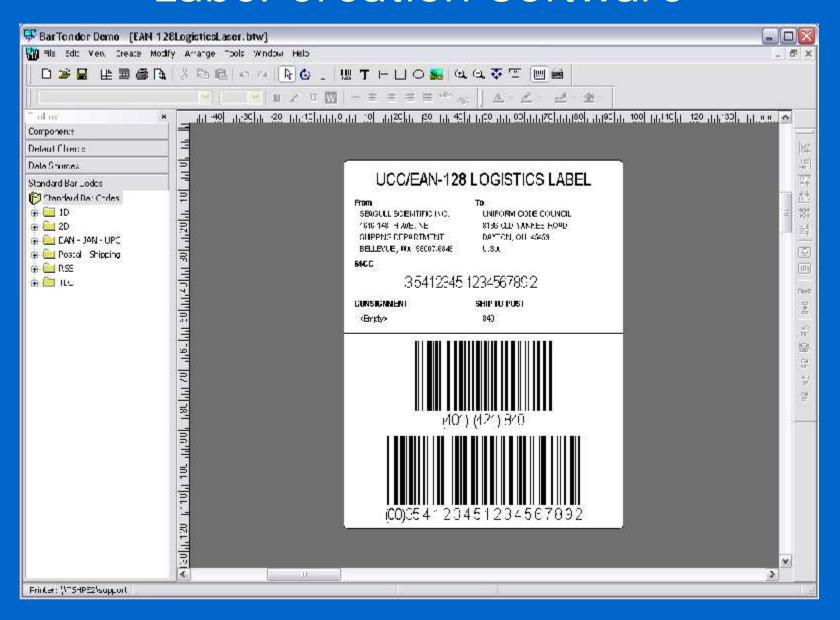


- Receiving Form Printed (by Vendor and Purchase Order)
- Inspect and Approve Receipt
- Receipt and Put Away Information Recorded on Receiving Form
 - Form shows current locations
 - Placement of inventory determined by warehouse personnel
- Generate Bar Coded Labels at Receiving (Optional)
 - Product Labels
 - Lot#, expiration date, weight
- Inventory Receipt Info Entered into MDS System from Receiving Form
 - Can be entered in warehouse or office

Receiving Form



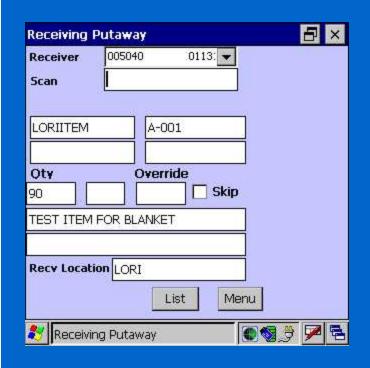
Label Creation Software



Receiving and Put Away Using MDSWMS Wireless

- Recall Purchase Order(s) to PDT
- Inspect and Approve Receipt
- Paperless Receiving Using Portable Data Terminals (PDTs)
- Receive to "Receiving Location" (Staging Area)
 Single Receiving Location or by Zone
- Generate Bar Coded Labels at Receiving (Optional)
 - Product Labels
 - Lot#, expiration date, weight
 - Pallet Labels
- Put Away Merchandise and Record Bin Locations using PDT based on:
 - Available space in primary location
 - Existing backup location
 - Additional backup location
 - Cross-Docking of Backorders By Receiver or By Receiver by Zone
 - Environmental Requirements (hazardous, security)
 - Weight Requirements (i.e. on ground only)

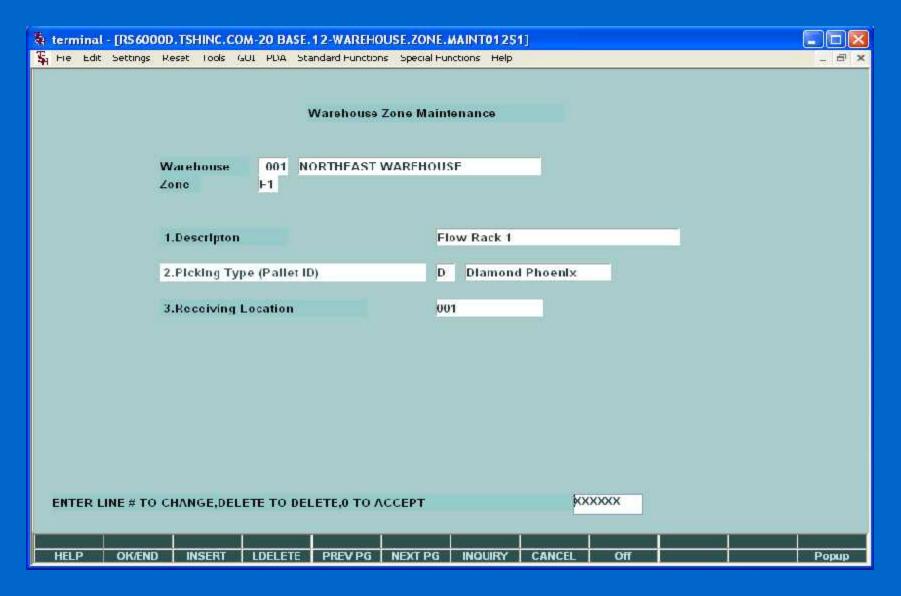
Put Away Function



- ➤ Receive to "Receiving Location"
- ▶Cross Dock Orders
- > Receive to Bulk Location
- ► Receive to Primary Pick Location



Warehouse Zones



Replenishment Process

- 1. Used if inventory by location has been implemented
- 2. Daily and Just in Time Replenishment
 - Daily Restock all primary pick locations up to pre-determined level (i.e. 3 days supplies)
 - During day replenish locations falling below minimum
- 3. Transfer request generated on paper or electronically
- 4. Transfers verified by barcode (Item or Location)
- Stock Rotation Replenishments will pull from the overflow location with the oldest Received Date or earliest Expiration Date



Transfer <u>Re</u>guest is

Automatically Generated

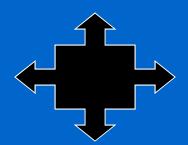
Replenishment Report

		From	Qty	Qty	To	Repl Lvl4		
Product #	Description	Location	Ord	Req (M Location	Qty	Qty	
A34710	VCTR BLD TRANSFER DEVICE	C0105	200	200 1	A 0101090302	1	CS20	
A39414	APPLCTR CHLOROPREP SEPP	C0114	598	598 I	A 0101310201	598	CS1	
A52177	DRESS DISK BIOPATCH	C0302	120	80 I	A 0101260301	2	CS40	
A37887	PROTECTANT SKIN 4 OZ	D0307	24	24 1	A 0101180404	2	CS12	
A22634	SHAMPOO BABY 40Z	E0311	60	60 I	A 0103070303	1	CS60	
A22718	TRANSDU O2 OXISENS LF	F0108	120	120 H	A 0101130301	5	CS24	
A14026	GAUZ VASELINE 3X18	F0203	116	116 I	A 0103120403	116	CS1	
A22662	TRAY DRESS CHG	F0315	20	20 1	A 0102120101	1	CS20	
A12598	STYLET ET SATIN SLIP 14FR	G0215	60	60 I	A 0103090604	3	CS20	
A22648	TOOTHBRUSH 50 TUFF	G0216	71	71 1	A 0103230302	71	CS1	
A38881	CLNSR TECHNICARE 12ML	H0112	50	50 I	A 0101010505	1	CS50	
A52177	DRESS DISK BIOPATCH	H0112	120	40 H	A 0101260301	1	CS40	
A32822	PAD INFLT IM PAD REG	J0210	4	4 1	A 0102050201	1	CS4	
A22699	KIT FATHER DEL XLG	K0316	60	60 I	A 0102190501	2	CS30	

Replenishment



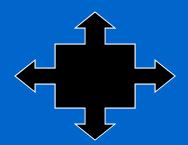
- Transfer ID is scanned.
- On the replenishment picking, each "from" location is scanned.
- On the replenishment put-away, each "to" location is scanned.
- After scanning the "to" location, the product is moved in the system to the new location and an inventory audit is created.



Picking



- I tems can be stored in multiple locations.
 Selection based on:
 - Earliest expiration date
 - Oldest merchandise (receipt date)
 - Solid case vs low unit of Measure
- I tems can now have multiple primary locations
 - Primary Location with Quantity Available
- Orders can be grouped for "batch picking"
- Replenishment if in use, must precede print
- MDS splits each order into picking zones:
 - Automated Picking
 - Bulk Area (solid cases)
 - Low Unit Picks

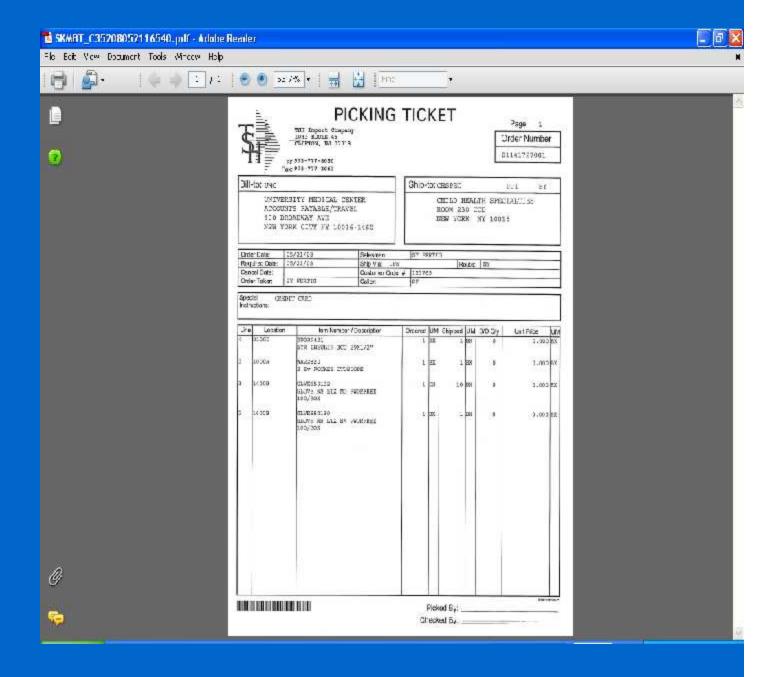


Picking

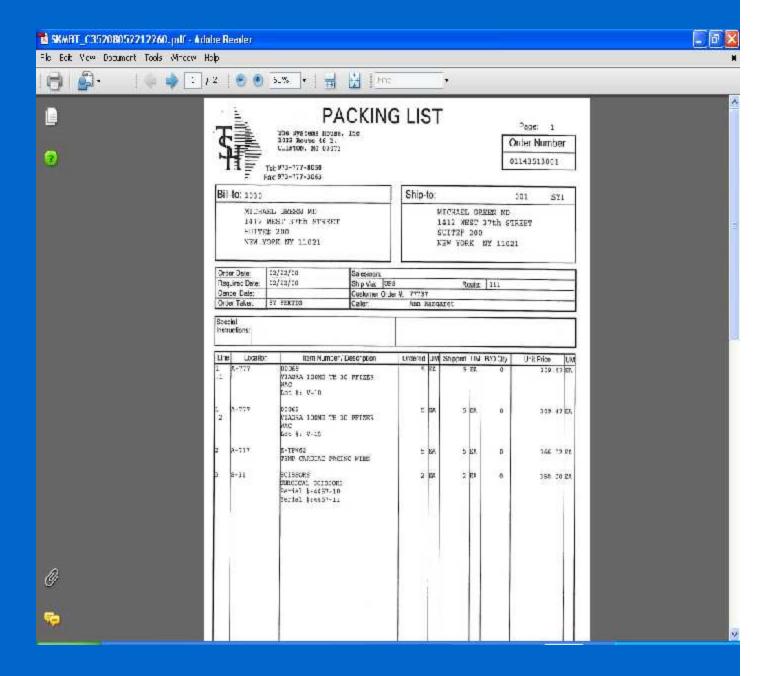


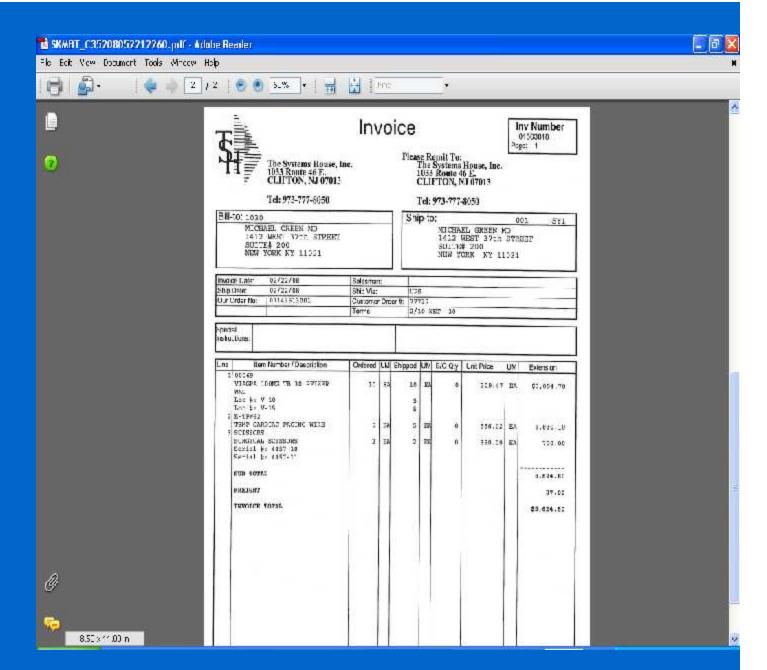
- Pick Tickets can print upon entry or batched by time Interval
- Pick Tickets typically print in pick location sequence
- Picker picks items and notes discrepancies on the pick ticket
- Order is verified to the system.
- Packing Slip Printed
- Shipping process initiated with interface to UPS or FedEx
- Invoice Printed in-line or overnight

Picking Ticket

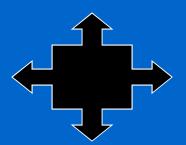


Packing Slip





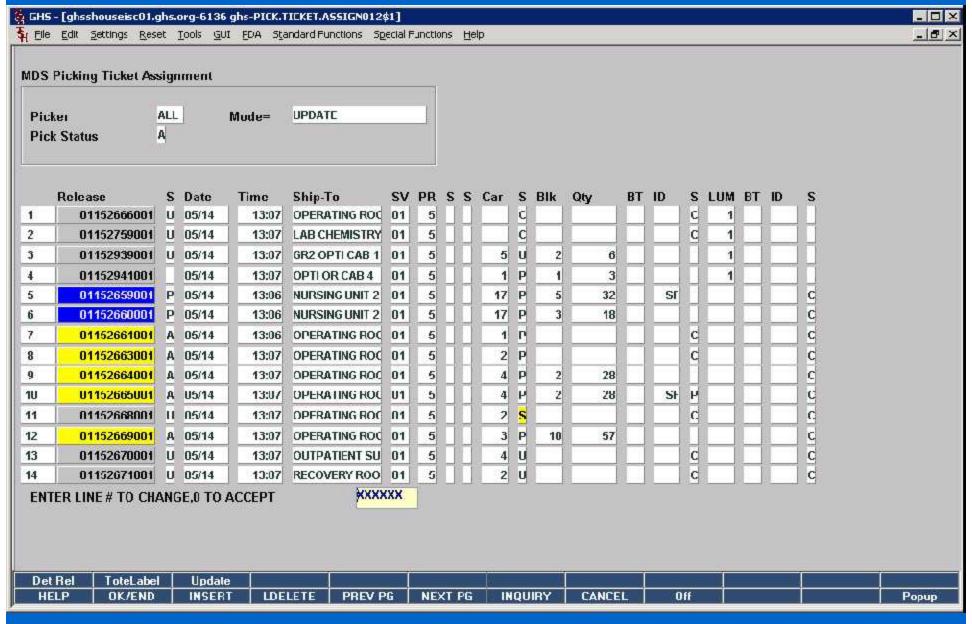
Invoice



Picking using MDSWMS Wireless

- Customer order scheduling based on priority, shipping schedule and personnel availability
- Items can be stored in multiple locations. Selection based on:
 - Earliest expiration date
 - Oldest merchandise (receipt date)
 - Solid case vs low unit of Measure
- Replenishment if in use, must precede print
- MDS splits each order into picking zones:
 - Bulk Area (solid cases)
 - Low Unit Picks
 - Carousel
 - Pick to Light Flow Rack (PTL)
 - Voice Response
- Orders can be grouped for "batch picking"
- Warehouse manager assigns orders to pickers
- Picker obtains next assigned order from PDT
- Display in pick sequence picker can change sequence
- Picker verifies picked items and quantities by barcode (Item or Location)
- Discrepancies noted for review and correction
- Order is verified to the system
- Shipping process initiated

Picking Ticket Assignment

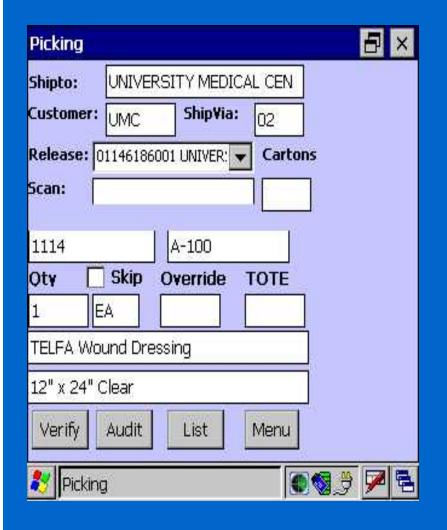


Wireless Menu



Customizable Menu by Operator

Picking



Wireless Picking Using Scanners

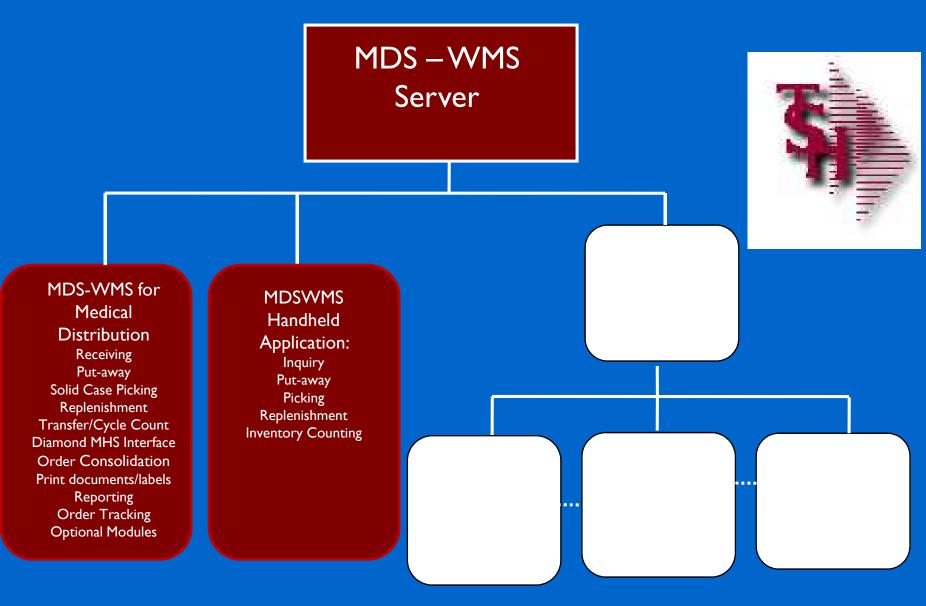


Automated Material Handling

- Innovative technologies
- Advanced software solutions
- Data collection and analysis
- Hardware Solutions:
 - Horizontal carousels
 - Vertical carousels
 - Heavy-duty carousels
 - Vertical lift modules
 - Heavy-duty vertical lift modules
 - Storage and retrieval machines
 - Automatic inserter/extractors
 - Pallet conveyor
 - Tote/case conveyor
 - Sortation systems
 - Light-directed picking
 - Voice-directed picking
 - Wireless picking
 - Specialty products



Software Information Flow



Carousel And Conveyors

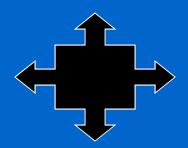




Carousel System

- Automated Storage and Retrieval System for High Speed Order Picking
- The PowerPick software works seamlessly in conjunction with the MDS software
- Saves time while increasing productivity, can improve order picking productivity by as much as 600 percent
- Improves order accuracy and inventory control
- Reduces labor costs
- Saves space

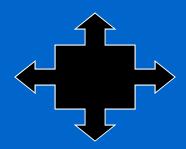




Order Consolidation



- Totes can have fixed Tote ID's, or the Tote number can be assigned and a tote label prepared by MDS at the carousel or PTL system.
- DiamondPick uploads all tote numbers used for an order.
- MDS prints labels for the solid case picks with order number and product bar codes.
- At consolidation station tote bar codes and solid case labels are scanned:
 - Confirm entire order has been picked
 - Print shipping labels
 - Print packing slip(s) by tote.



Labor Statistics



- Labor tracking by picker
 - Number of Lines/Hour/Day/Month
 - Number of Orders/Hour/Day/Month
 - Dollar Value
 - Oty of Items picked
 - Time to Pick
 - Average Lines/Orders

Picker Statistics Report - Summary

Wireless Picker Statistics Summary Report - Ran on - 10 Jun 2009 PAGE 1							
Picker		From	To	Elapsed	Lines	Lines/Hr	Qty
Picker 00	Jeff Schroeder	04:31am 03/06/08	12:16am 03/21/0	0.00	986	0	15327
Picker 3	Shay Martin		03:52pm 03/30/0	33.39	12692	380	210279
Picker 4	Rafael Gonzalez		04:59pm 03/31/0	150.36	344	2	7268
Picker 6	Olive Desire		01:31pm 03/25/0	26.62	13436	505	203000
Picker 7	Jean Abellard		02:14am 03/17/0	0.00	33	0	918
Picker 9	Wanda Cheverez		12:40pm 03/31/0	33.00	21775	660	366077
Picker 11	Carmen Santiago		04:54pm 03/31/0	33.32	12093	363	178876
Picker 12	Rick Schmidt		08:47am 03/31/0	0.00	1006	0	15538
Picker 14	Amy Slabinski		05:01pm 03/31/0	21.52	6642	309	106373
Picker 15	Markus Hayes	07:27pm 03/21/08	02:16am 03/20/0	3.51	244	70	6424



Warehouse Procedures

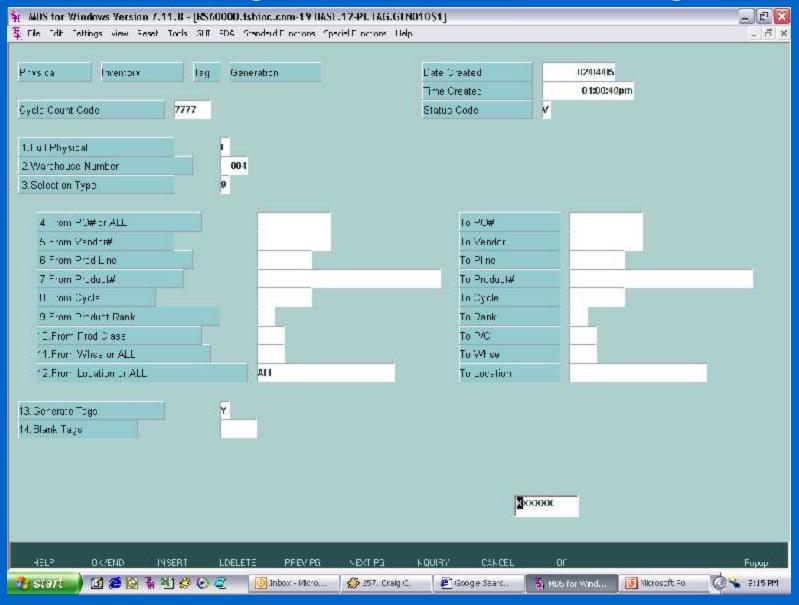
Other Procedures

- Cycle Counts
- Physical Inventory
- Inventory Adjustments
- Transfers
- Customer Returns
- Return to Vendor



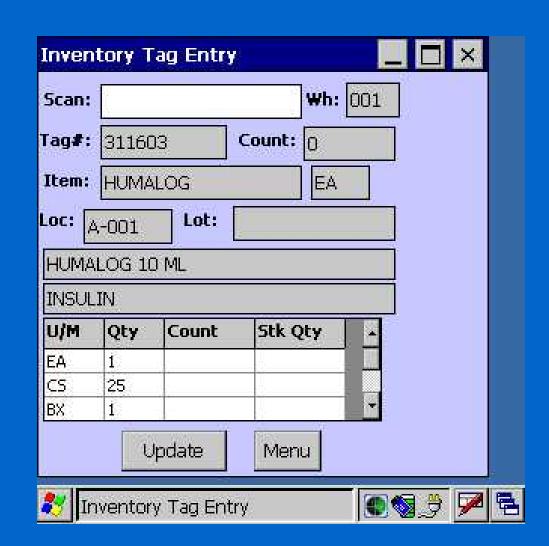


Physical Inventory

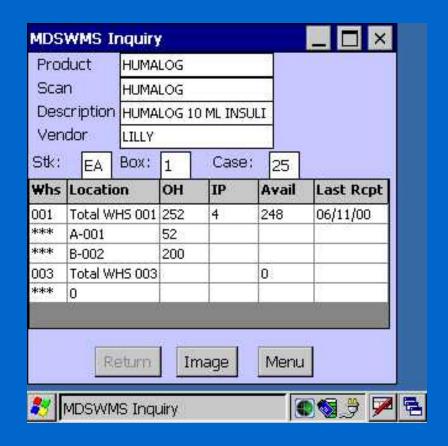


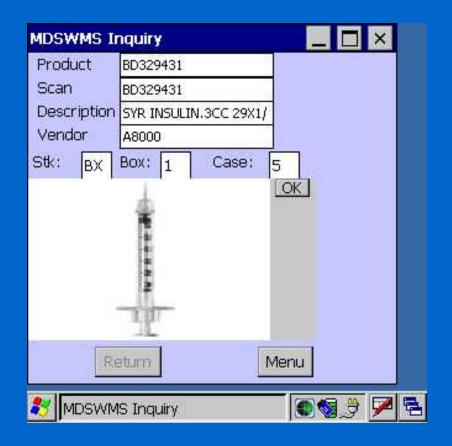
Physical Inventory

Scan tag, location or product and enter counts.

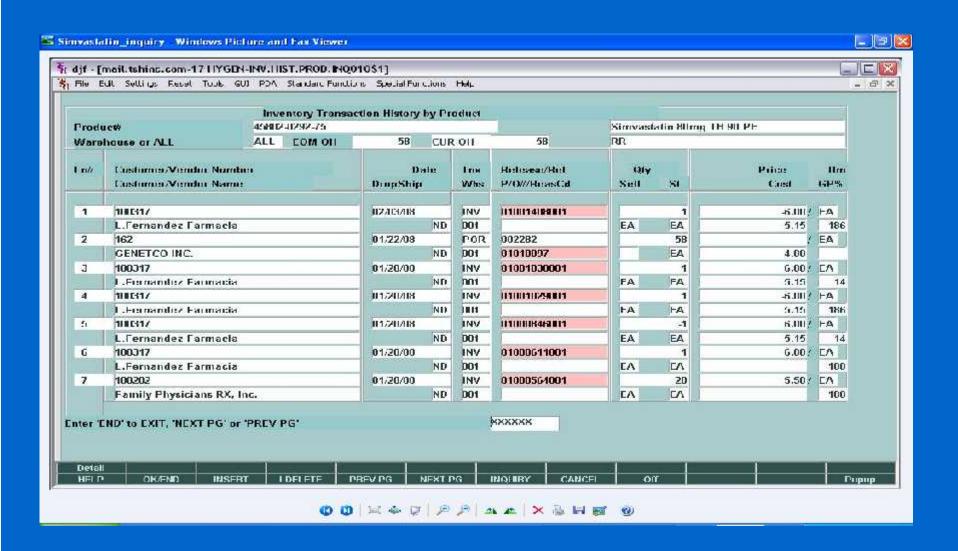


Inventory Inquiry

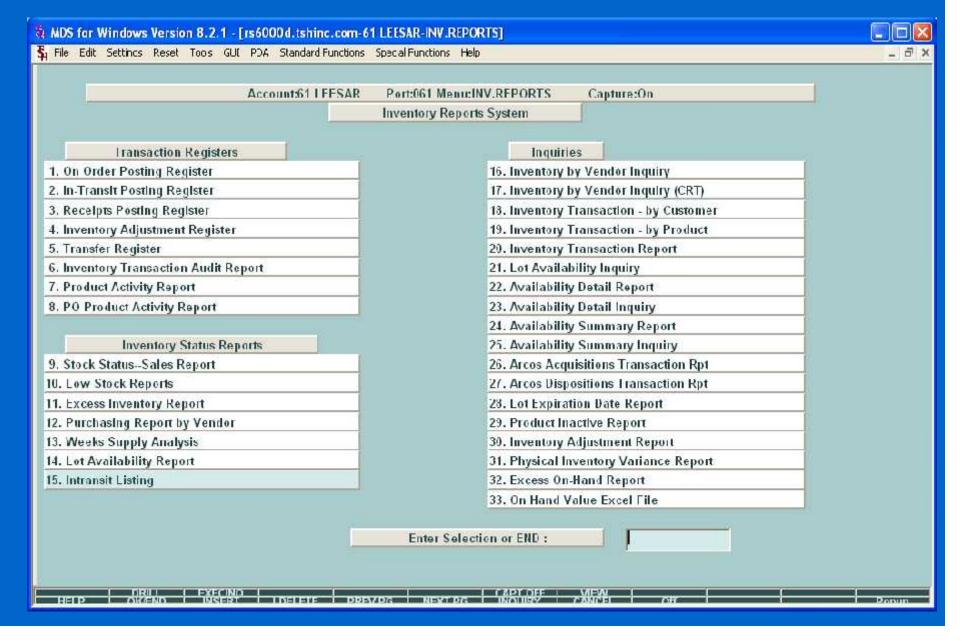




Inventory Transaction Tracking



Reporting





Benefits of MDS-WMS



- Improved inventory accuracy
- Improve personnel performance and accuracy
- Determine time to pick by individual
- Better utilization of warehouse space
- More flexible scheduling