ISO, Flexible Allocation, Zero Pick, and Locations Outline

**ISO – Inventory Selection Optimizer – What are they and what do they do for us?**

ISO is a set of tables and programs that control the automatic selection of inventory. Each table establishes the rules of how the ISO programs should select inventory. Each item in your inventory is assigned to the ISO table that best manages the selection of inventory for that item. Each ISO table consists of a series of rules and point values concerning inventory selection.

ISO is consistent. Regardless of whether an order is entered by a new user, an experienced inventory expert, or entered automatically via an EDI transmission from your customer, Décor 24, ISO uses the same rules to best select inventory. Since the rules are dynamic, as inventory changes, ISO figures point totals and rule settings based on the latest status of inventory and current settings.

LTD has several ISO tables built for various types of items and desired outcomes of the inventory selection. For Example, ISO Table 0 is designed for serialized tile. ISO Table 1 is for setting materials/grouts we wish to not normally transfer. In total, we have 6 different active ISO tables at the current date.

**Main ISO Setting Review**

ISO is based on a points system, so step one is determining how many total points you want to start with. We use 100,000 points. It is possible to have a total that is too small, and you could not configure it to get the desired outcome.

Common points we assign in ISO tables. This is not a complete list and only a list of main settings.

* Points if available quantity > or = requested quantity.
* Points for months old. (If the material has an expiration, points would be higher to favor using older material first.
* Points of over \_ old.
* Points if a single location is used to fill the requested quantity. (Simplify picking)
* Points per quantity (in native U/M) of selected inventory record (lot#/serial#/location) that is in excess of the required quantity.
  + For example, if a 150 square foot order can be filled from a pallet containing 300 square feet, or a pallet containing 900 square feet, the points are calculated. We want the winner to be the smaller pallet. This method achieves the objective of using the smaller open pallet first. This setting is very touchy because it runs a calculation to give an actual point total.
* Points if mixing warehouses. We generally discourage mixing inventory from multiple warehouses and give negative points for this, but it still may be the point winner and the desired outcome.
* Points for each possible warehouse shipping situation.
  + There are hundreds of shipping scenarios having 15 warehouses currently set up.
* Points if location is \_\_\_\_.
  + This is to favor or discourage picking from specific bin locations.
* Points if warehouse area begins with \_\_.
  + This is to favor or discourage picking from a particular area. Location Bins are built with areas.
* Back Order if date required is > \_\_\_ days from order date.
  + This keeps us from allocating material we can backorder and still have before the customer needs it.

This next set of settings are Y/N setting logic.

* Ok to mix SLOTs?
* Ok to mix warehouses?
* Ok to mix serials?
* Ok to mix both current and future stock?
* Enforce that only the Warehouse Matrix is used?
* Force ISO to ignore fractions of a broken Carton/Unit of inventory of items with NB applied?
* Use PO ETA Date on B/O even if greater than Lead Time?

ISO IWMS Location points value options.

* Points if Location is a PickFace.
  + Our preferred picking location for customer orders.
* Points if order line is => a full pallet and the location is a Bulk Storage Location.
  + This is so if a customer orders more than 1 Pallet, and we have bulk stored, it will direct the picker to pull from the bulk storage location.

ISO Log Review

* Every time ISO runs, a log is created. We can pull that log and review the points total per category and if the winner is not the desired result, we can change settings and or points value to get the desired result. This is the main tool used for reviews.

**Flexible Allocation – What does it do and how does it help us?**

Flexible Allocation provides the means to optimize the storage of your allocated inventory and increase your material handling efficiency. The main purpose of flexible allocation is to re-evaluate your allocated inventory and determine if there are better locations to pick the merchandise from based on Pick Face points assigned in the Inventory Selection Optimizer (ISO).

Flexible Allocation has specific rules that we set up and it follows. The Rules FA has to follow are:

* All orders are eligible for FA.
* Only order lines in an O status are eligible, but we can expand the use of other order statuses if desired.
  + If for any reason a user needs to block FA, change the order line to R status.
  + There are valid reasons to not want FA to move material.
    - Needing a specific serial to match an existing job.
    - Not wanting FA to merge grout of the same color to one line, as you would lose room/area notes from SSM.
* ISO must have originally run and selected inventory on the original selection. If ISO was overwritten, the system assumes you do not want it to optimize pick.
* If FA cancels an order line, to merge it with another order line of the same material, it will leave a note on the order.
* If FA moves the allocation to another location, the system will leave a note.
* FA runs every 2 hours per warehouse during business hours. These are staggered for system performance. If all warehouses ran at the same time, it would drag down the server while running.

**Location File – Why do locations have files and settings?**

The location file adds records that describe and help choose where our system picks inventory from and where it is located. We can set material capacities, choose if locations can hold more than one item number at a time, designate areas and then assign items to help in those areas, and all kinds of other cool stuff. Location can be set to automatically change order line status codes, like shipping a transfer truck or loading a will call customer pickup and shipping the material.

The location file ties into ISO as we can add ISO points if the location is set as a pick face, or if the order line quantity is greater than 1 pallet. This increases the odds that the system will pick a desired selection versus one that we would not prefer is made.

Each warehouse has its own location file with all their unique setup and scheme as to how they want them to work.

We can mass upload templates that have pre-determined settings. Then we can fine tune what is needed per location.

Descriptions and definitions of some of the main settings we use for locations.

* There is an 8-character barcode value that is given to each 4-character location. This is what is scanned when using the IWMS system.
* Capacity in Units – allows us to limit the unit specific locations can hold at any given time. Putaway may suggest a location when receiving material, and if the location is at capacity and the amount of the new material will not fit the system will not send you there to put it away.
* Allow Putaway? – controls if locations can have material received into them.
* Allow Pick? – Can order entry choose an item and can the warehouse pick the material.
* Is location a Pick Face? – Normally the preferred locations you want to pick order liens from.
* Is Location a Dock Door?
  + Dock Door locations function a lot differently than normal locations and change status codes on order lines, depending on what the Dock Door is designed to ship.
  + Additional Dock Door setup is required to make the functionality work to the desired result. Many other restrictions are set up to make sure things like taxes, and invoicing happens properly based on ship vias, LPNs, and so the warehouse can plan and see what is shipping out and coming in on our internal transfer system.
* Is Location a Bulk Storage location – Bulk storage is the last place you want ISO to select material to pick from and will only pick from there if it is the only option, or the order quantity is 1 pallet or greater? If the order line is greater than 1 pallet, bulk would be the preferred location.
* Can mix Items and Serial Numbers during Putaway / Location Changes?
  + Controls if locations can mix items. It is either 1 item or multiple items.
* Does this location trigger printing of a manifest label?
  + Can print a label that lists each item in the LPN.
* Does location remove LPN from the order line when doing a move or status change?
  + Breaks the order line off the LPN during the receiving process.
* Prevent Transfers?
  + This prevents the receiving process when moving products from one warehouse to another during cross docks and truck unloading.
* If transfer, change status code?
  + Receives customer transfer when scanned to location.
  + Invoice order lines when scanned to Will Call dock Door.
  + Change order lines to “Transfer in Transit” when loaded on to transfer truck.

**Zero Picks in the Warehouse**

Zero Picking is an option on the RF menu that allows an operator to flag an order line as not being able to be filled at the specified location. This ties into ISO and is limited if ISO was not used.

If the order line was chosen not using ISO and a zero pick is performed:

* The zero pick program will not try to reselect if ISO was not used. The system thinks the specific inventory and serial was hand selections for a reason.
* Line status will change to a U.
* The inventory will be locked and will need to be reviewed and unlocked by the Warehouse.
* Email triggers will be sent to designated email recipients, the warehouse team.

If the order line was picked by ISO:

* The program will rerun ISO and try to make a reselection in the same warehouse.
* If a new inventory selection is available, it will modify the order line and send the picker to the new location.
* An email notification is sent to the designated email recipients, the warehouse team.
* If no new selection can be made, the inventory is locked with a # sign and will need to be reviewed by the warehouse.
* The order line is changed to a U status and the CSR team will need to resolve the issue by ordering from another warehouse or other means necessary.

**Order Header Ship Dates**

ISO and Flexible Allocation heavily rely on the ship date to know what selection to make or what allocation to move. Bad or past dates cause major issues with these programs making the best selections possible.

* An order holding inventory from a pick face, with a past date, will be holding the price picking locations and will push other orders to a stock or bulk location to pick material.
  + If the orders are kept up to date with the best date we can put on the header, it reduces the chances of sub optimal picking.
* If you are adding material to a processed order, and that order has a past date, it can cause ISO to make a selection that would not be our preference.

Dates are a very important part of many aspects of business. Dates directly change the results of ISO and Flexible allocation