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Real-Time Work-in-Process and Materials Tracking Systems
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Reporting Inventory for Items with UDP Parameters in BellHawk V7.8

Introduction

When User Defined (UDP) Parameters are in use we track parts by their Item Number and by their UDP parameters. This is carried through to:

- Containers

- Purchase Order Lines

- Pick Orders

- Work Orders

- Ship Order Lines

This works well as it enables the attributes to be set and modified independent of the item master part number. We also are able to make sure, for example, that a part picked against a pick order has, at a minimum, the attributes required on the pick order. The part picked may have other attributes but, as long as it matches the required attributes on the pick order, it may be selected.

The problem comes with inventory reports, such as:

    a. Items in Stock

    b. Inventory Details by Location

    c. Materials Summary

    d. Materials Value Summary

In these reports we need to show each part on a separate line for each item number and UDP parameter combination. In V7 we reported the item number but not the UDP parameters.

In V7, we tried simply listing the UDP parameters in a separate column of the report - but often this does not give an easy to use representation.

Instead, in V7.8 we use an old industry practice, which is to use composite part numbers with meaning, such as "Vega-L-B" for a T Shirt. In this composite part number "Vega" is the generic Item Master part number, "L" is for "Large" size, and "B" is for "Blue". To support this, within BellHawk we create a generic Item Master part number Vega with choice attribute values of size (S, M, L, XL) and colors (R, B, Y, G etc.). Alternately these could, with less control but more flexibility, be text fields that the user enter at time of the order.

When a customer order is placed, it is placed for a Vega shirt in a specific size and color as UDP attributes. The ship order can then cause a pick order to be generated with the same attributes as the ship order.

On the inventory report we need to show all the different sizes and colors of each type of T shirt in stock on separate lines. In doing this we replace the Item column with the Composite Part Number on reports instead of the Item Number and show the quantities of each Composite Part Number in stock.

In doing this it is necessary retain backwards compatibility with parts that simply have an item number and no UDP Parameters.

Mechanism

We have added a Mask parameter to the Materials HLDO (used to set the Material Types for Items) so that each different type of material can use a separate mask. This Mask parameter can be setup by importing the Materials HLDO through the BellHawk Excel import screen on the Setup switchboard.

The Mask column can contain entries such as "[Item]-[size]-[color,3]", where:

- [Item] is a predefined pseudonym for the item number - can be omitted

- [size] is a the parameter value for the part UDP parameter "size".

- [color,3] is a parameter value for the part UDP parameter "color" with a maximum number of characters of 3. If the UDP parameter value exceeds the designated number of characters, after eliminating any spaces, then the field will be truncated, by dropping trailing characters, to the designated number of characters.

- Everything else in the Mask is separator characters, which will appear in the composite part number. These must be valid TEXTID data type parameters. It is not necessary to use separators but these may help clarity.

Please see the BellHawk V7 High Level Data Object User Manual for information about HLDOs and field data types, such as TEXTID.

When generating a report that lists items, such as "Items in Stock", BellHawk first generates an in-memory data set containing all the active containers records in inventory that meet the pre-selector criteria, such as Item Number, Category, or Material Type. As it is reading each record from the Containers table, BellHawk replaces the Item Number column with the composite part number for each container based on the Item and the UDP parameters specified in the Mask for Item Material Type.

The data set also has columns for length and width. If the Item is dimensioned then BellHawk will add in the values for length and/or width, if specified.

BellHawk then sorts these records by composite part number and adds up the quantities of all entries with like composite part numbers, and the same length and width if specified, and reports the quantities of each composite part number, having the same length and width values (within plus or minus .01, if specified).

Note that:

1. If there is no Mask for the Item's Material Type then the default mask of "[Item]" will be used for the composite part number. This will ensure compatibility with systems not using UDP parameters.

2. In generating composite part numbers all spaces will be eliminated. Entries in the composite part number field can contain any UDP parameter.

3. For Choice UDP parameters, the choice values will be used in making up the composite part numbers. Thus color choices may be "Red", "Green", and "Blue" but the composite part number color field will contain the corresponding R, G, and B values.

4. Option type UDP parameters will appear as Y or N in the composite part number. If more meaningful values are required in the composite part number then these should be changed to Choice parameters.

5. Only parameters listed in the mask will be shown in the composite part number. There may be other parameters such as length and width that are not shown in the composite part number.

6. When forming up a composite part number, BellHawk will:

   a. Check that the composite part number does not exceed 50 characters (same as a regular part number).

   b. Check that the composite part number is a valid TEXTID type string

   c. If a specified parameter value in the mask is not available then replace its value with a # symbol and write a warning message into the log file.

Commentary

This method supersedes other prior methods for displaying the UDP fields for parts in inventory. It enables users of generic parts with UDP parameters to see their materials inventory in a form that is easy to understand.