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Using BellHawk Defense to Generate WAWF Submissions

Introduction

A major problem for many smaller defense contractors is the amount of effort required to accurately generate WAWF submissions so they will not be rejected. This gets very difficult when there are, for example, many items with UID labels that are packed in cartons that need National Stock Number (NSN) tracking labels, which themselves are packed onto pallets that have a Military Shipping Label with an embedded RFID tag.

The WAWF submission needs to contain all the data that relates to serialized and non–serialized items that are shipped and the contract line items to which they relate, along with the RFID tag data for the intermediate cartons and the pallet or outer shipping container.

Typing this data in, with 24 or more digits for the tracking numbers that comprise the UID serial and the contents of the RFID tag can be very time consuming and error prone, particularly given the arcane format for the data files used for WAWF submission. This is exacerbated by the fact that the labeling of items, their packing into boxes and their final packing and shipment can take

place at different times and locales. So getting all the data together, even to start preparing the WAWF submission can be challenge.

BellHawk takes an integrated approach to this problem. It works in conjunction with the BarTender® Enterprise software from Seagull Scientific to generate UID labels, carton labels and Military Shipping labels on a wide variety of barcode printers and combination barcode and RFID printers.

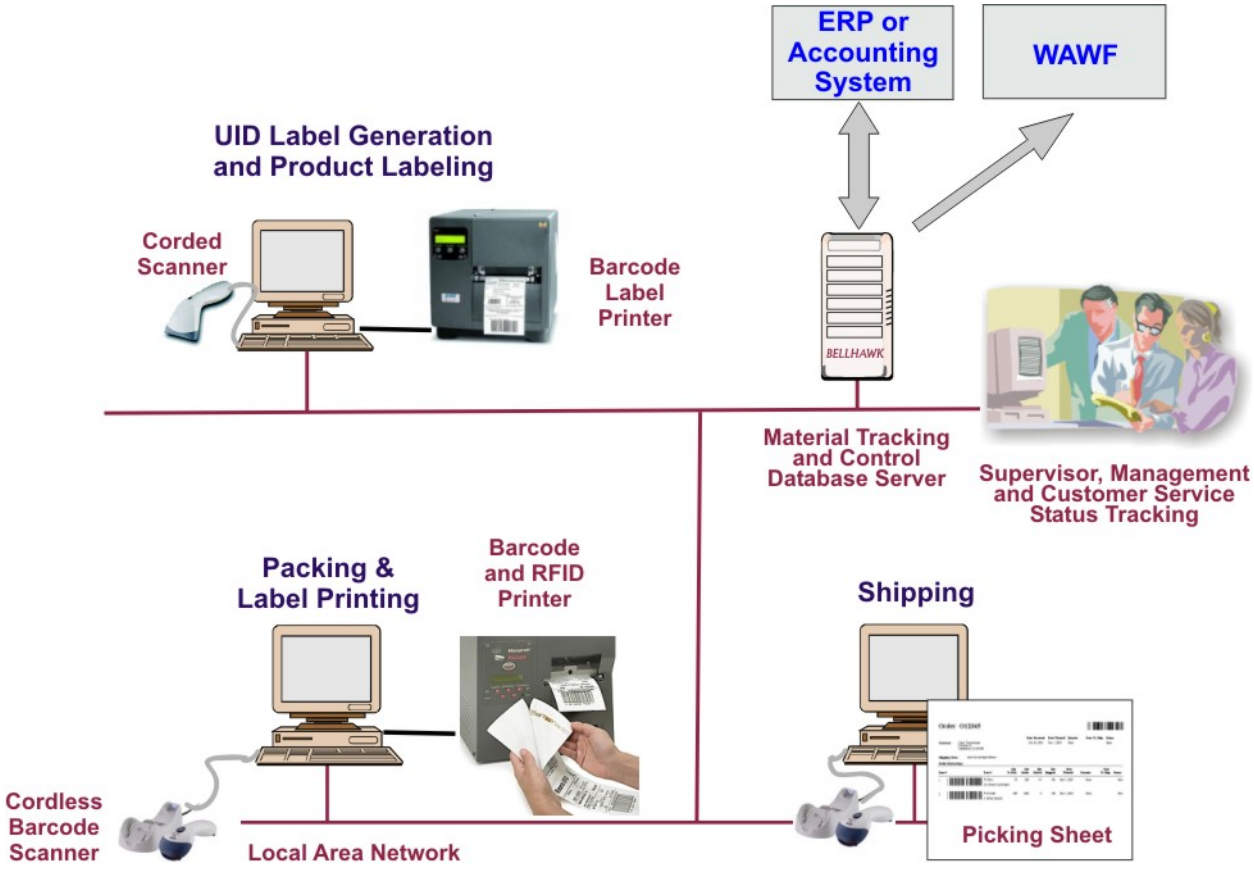
BellHawk tracks the generation of the UID labels and their application to serialized products or it can use preprinted UID labels. It then tracks the generation of carton labels (with RFID tags if needed) and the packing of the serialized and any non–serialized items into the cartons. It then generates military or commercial shipping labels, as needed, and tracks the packing of the cartons onto pallets or into shipping containers. Then it tracks the shipment of those shipping containers, so it knows which shipping containers were included in a shipment for which a WAWF submission needs to be generated.

Finally, from all this data, it automatically generates a WAWF submission file for Lines 15 through 30 of the WAWF submission. These lines contain all the Contract Line Item data for the shipment and their related UID and RFID data. These lines are then "cut and pasted" into a Word document that has all the Contract Data in Lines 1–14 and the resultant file is sent by FTP to WAWF.

The great benefit of this approach is that it absolutely minimizes "fat–fingering" in data with the time it takes and the mistakes that are made. Other side benefits are:

1. Automatically creates UID labels, in the correct format, from data stored in the BellHawk database, with automatic generation of serial numbers if needed.
2. Automated generation of carton labels, with embedded RFID tags if needed.
3. Guarantees unique numbers generated for UID labels and carton tracking barcodes, because these are generated from a central database server, even if multiple people are simultaneously generating labels.
4. Tracking of inventory of UID labeled parts, including those retained as government owned equipment. This includes tracking cartons of UID labeled items.
5. Automatic generation of Military Shipping Labels and encoding the RFID tags with all the data coming from the BellHawk database. Includes automatic generation of TCNs for multi–container and multi–part shipments.
6. Automatically relating items shipped to contract line items. The WAWF submission needs to relate to contract line items not internal part numbers shipped. BellHawk handles the relationship between these.
7. Tracks the packing of both contract and non–contract line items (like user manuals, cables etc.). Helps ensure that the wrong items are not packed and shipped and that items are not omitted.

How BellHawk Defense Works



BellHawk Defense has a SQL Server database in which all the data it needs is stored. Some of this data may be imported from an ERP, Accounting or Contract Management system. A typical BellHawk Defense system has:

- One or more PCs used to generate UID labels and to record their attachment to serialized products. These are typically equipped with a corded barcode scanner to scan the UID labels as they are applied to the products.
- One or more PCs used to record the packing of materials into cartons and onto pallets or into other shipping containers. These are typically equipped with a cordless barcode scanner to scan the UID labels of the items packed into cartons or the carton tracking barcodes as they are packed onto pallets or into shipping containers. These PCs are also equipped with a combination barcode/RFID printer that is used to general carton labels and Military Shipment Labels with embedded RFID tags.
- Typically a PC equipped with a cordless scanner that is used to record the shipment of the containers and to generate the WAWF submission file.

All these functions can be performed with a single PC but, more realistically, multiple PCs, appropriate to the physical plant layout, are used. There can also be multiple other PCs running the BellHawk software that are used to look at the status of serialized items, their packing and shipping and to run reports. Please note that licenses are required for PCs used for scanning or label generation but PCs that are simply used for viewing or reporting on the data in the database do not require a license to run the BellHawk software.

BellHawk can also export the transactions that record the production of serialized items and their shipment to the customer back to the ERP or accounting system. This saves double entry of inventory tracking data.

Using BellHawk Defense

The following section assumes that the BellHawk system has been installed and setup as described in the installation and setup guides on the BellHawk website at www.Bellhawk.com. It also assumes that the UID, NSN and MSL label formats have been setup as described in the BellHawk Tag Users Manual, which can be found on the same site.

The process starts with the generation of UID labels. In this process the user enters the part number and the serial numbers for the parts. Alternately BellHawk can generate the serial numbers, if so specified. BellHawk then generates the labels for the products using a Type 1 or Type 2 UID format.

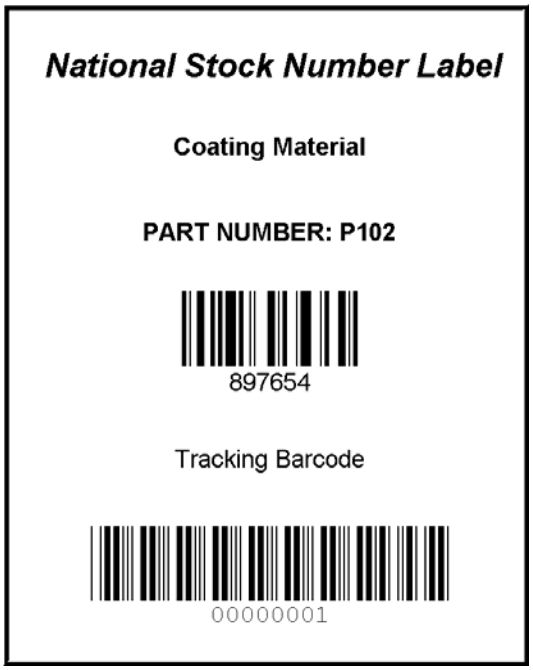
As the labels are attached to products, they are scanned to record the item into the BellHawk database. This can be done by scanning the 2D UID label or, if there is room on the label, then a linear barcode containing the UII information can be printed on the label and scanned instead of the UID code using a less expensive 1D barcode scanner.

As an alternative to generating the UID labels within BellHawk, pre–printed UID barcodes can be scanned as the serialized parts are entered within BellHawk. This occurs when parts are received from subcontractors, which already have UID codes on them, and when metal or ceramic labels are being used to withstand harsh environments. In this case, the part numbers and serial numbers have to be entered when the label is scanned.

Once this is done, all the parts can be seen in the BellHawk material tracking system, and this entry transaction can be exported to the ERP or accounting system, if needed.

The UID labels can be used incrementally and BellHawk keeps track of which labels have been used and which are not. BellHawk will always generate unique serial numbers for UID codes as these are generated by the BellHawk server and are guaranteed to be unique, even if multiple people are generating UID labels at the same time.

The next step may be the recording of the packing of the UID items in a carton. The process here is similar and starts with printing of the carton labels, which have a linear tracking barcode on them. These labels also have a part number barcode on them and may shortly be required to have an embedded RFID tag.



When items are packed in the carton, the process starts with scanning the tracking barcode for the carton and then the tracking barcodes (UID or UII) are scanned for each of the items packed in the carton. This records which items went into which cartons.

Non–serialized items can also be entered into BellHawk by recording their entry into barcoded bins. The packing of these items into the same cartons as UID items (if needed) can be recorded by scanning the bin barcode and recording the quantity of items packed into the carton.

We can use a similar process to record the loading of a shipping carton or a pallet but more usually this is done as a picking and packing step against a customer order.

The first step in this process is to enter the following information into BellHawk:

- Contract Information, including contract number, customer, ship–to address and other contract data items needed to generate the Military Shipping Label (MSL).
- Contract Line Item Information (what you get paid for).
- Ship Order Information, for a specific shipment.
- Ship Order Line Information and how the shipped items relate to the contract line items.

This information can be imported from your ERP or Contract Management system or entered directly in BellHawk. Alternately it can be setup in an Excel spreadsheet and imported into BellHawk that way. BellHawk does provide Excel template files that give all the contract information needed to generate the MSL with RFID tag.

Once the contract and ship order information has been entered into BellHawk, then a barcoded picking sheet can be generated for the ship order.

The pick sheet has a barcode identifying the pick order and barcodes identifying the ship order line items to be picked or packed for a specific customer ship order. This can be used as a packing sheet to pack individual items into a shipment carton or to record the packing of cartons onto a pallet or into a shipping container (or a mixture of the two).

When packing individual items, a temporary barcode is attached to the container and scanned. Then a line item barcode is scanned from the pick sheet followed by scanning the UIDs or UIIs of the serialized items that correspond to this. As the items are being packed, BellHawk will check that the correct items are being packed and will warn the packer if too many items are packed for the order line item. It will also show the quantity to be shipped versus the quantity ordered so as to help avoid under–shipments. At the same time, the packing of non–serialized items from barcoded bins can also be recorded.

At the completion of packing the carton then a packing slip can be printed out, which details the contents of the carton. Also what was packed into the carton is recorded in the BellHawk database.

Alternately, if pre–packed cartons are being loaded onto a pallet, a temporary tracking barcode is assigned to the pallet and scanned. Then the barcodes on the cartons are scanned, after scanning the line item barcode. This records the loading of the cartons onto the pallet, along with the UID's of their contents.

Once a shipping container or pallet has been packed, then the temporary tracking barcode on the pallet or shipping carton is scanned and the MSL is automatically printed out. All the data elements for the MSL, including those within the 2D PDF417 barcode are drawn from the BellHawk database so the person preparing the label does not have to enter any data items. The exception to this may be the Weight and Cube of the shipping container or pallet, which can be estimated from data stored in BellHawk or entered manually.

If the MSL is being printed on a combination Barcode/RFID printer then the contents of the RFID tag are generated automatically in conjunction with BarTender and stored within BellHawk along with the TCN tracking barcode.

BellHawk Defense can also generate commercial shipment labels with UCC 128 tracking barcodes for shipments to Prime Contractors and to DoD locations that do not require MSLs.

Once all the cartons or pallets or other shipping containers have been packed for a shipment then a pre–shipment pro–forma WAWF submission can be created by going to a PC screen, selecting the ship order, and giving BellHawk a text file name into which to place the WAWF lines 15 through 30 data. This can then be combined with your Line 1–14 WAWF Data and submitted for pre–shipment approval to the appropriate DoD contract management person.

At this point, any adjustments can be made to what is being shipped by, for example, unpicking items from the shipment that are on hold status and cannot be shipped.

The final step is to record the shipment of all the items that were packed for a ship order by scanning a barcode at the bottom of the barcoded picking sheet. This then records that all the picked items were shipped. Then the shipment can be selected and the final WAWF submission generated for that shipment.

In generating the WAWF submissions, BellHawk Defense takes into account which items were related to the Contract Line items and which were not. Thus the contract may have been for a pack of 5 widgets. You actually recorded that you shipped 5 individual widgets plus an installation guide and a tube of lubricant, needed for installation. If you have setup BellHawk correctly, it will know that the 5 individual widgets corresponded to a shipment of 1 Pack of 5 widgets (which is what should appear on the WAWF Line Item as this is what was on the

contract). It will also know that the installation guide and the lubricant did not correspond to contract line items and therefore should not appear in the WAWF submission.

Commentary

Setting up a BellHawk system to automate the process of generating WAWF submissions and also creating UID and MSL labels is a complex process that takes time. But, once the system is setup, however, then the process of labeling parts, tracking their multiple layers of packaging and labeling, and the generation of the resultant WAWF submission becomes very easy. This means that once setup, the process of recording the information needed for the WAWF submissions can be performed by production and shipping people. This largely eliminates the need for expensive managers to get involved in what now becomes a straight forward label generation and barcode scanning process. This structured BellHawk process also eliminates many possible sources of errors in the submission of data to WAWF and reduces the possibility of a hold–up in shipment approval, a resultant payment rejection or a DoD audit.

