

BellHawk TAG Barcode Label Printing Option

Overview

While BellHawk can track materials using pre-printed rolls of barcodes, such as that shown here, users are often required to apply barcode labels with human readable information, in addition to a unique tracking barcode, and possibly other barcodes.



Such labels could be generated using a barcode label printing program by manually generating a unique tracking barcode and entering the other data before selecting a printer and manually printing out the required label. This is a time consuming and error prone process which can be automated using the optional BellHawk TAG Barcode Label Printing Option.

The purpose of TAG is to reduce the time and eliminate mistakes in generating labels on barcode label printers for attachment to containers of material, assets, and shipping containers.

TAG does this by automatically selecting the correct label and printer for each specific situation, based on user defined rules. TAG then automatically fills in the data fields with the correct data from the BellHawk database. This eliminates errors resulting from selecting the wrong label format and manually filling in the wrong data.

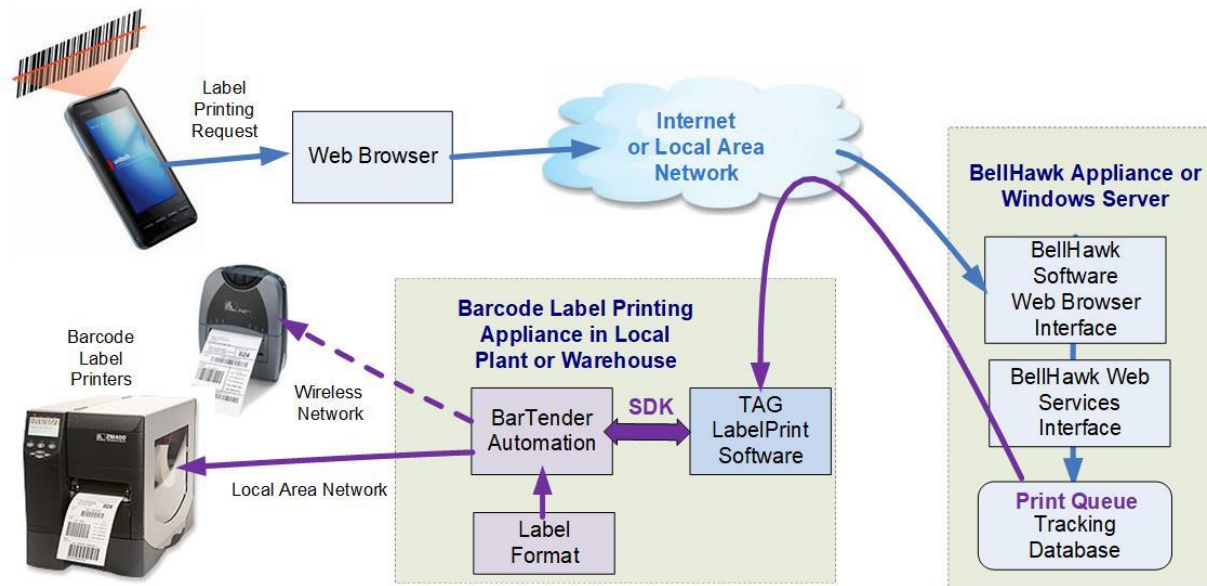
TAG consists of software within BellHawk, which handles the barcode label printing requests and a Barcode Label Printing Appliance (BLPA) which is installed in each manufacturing plant or warehouse, where labels are to be printed.



The BLPA is a ruggedized IIOT (Industrial Internet of Things) computer, which is shipped to each site, complete with all the needed label printing software, ready to plug in.

After the BLPA is plugged into the local area network, then after some remote setup by KnarrTek, it is ready to begin label printing on a wide variety of barcode label printers.

How TAG Works



When a material handler or machine operator is entering a new container of materials into BellHawk, they will first fill out all the information about the contents of the container. Then, instead of scanning a preprinted barcode label, the user can select the print button [#] on the screen of the PC, mobile computer, or other device they are using for data entry.

Previously established rules in BellHawk are then used to select the appropriate label to print out, and the printer on which to print it, along with some of the data just entered. The BLPA then picks up the request, from a label print queue in the BellHawk database, selects the label format, fills in the data fields, and outputs the print data to the appropriate printer.

The print queue entry typically consists of a small amount of data, read over the limited bandwidth internet, which is converted to a much larger amount of data by the BLPA before feeding this data over the high-speed local area network in the plant or warehouse, to the appropriate printer.

The benefit is that appropriately formatted labels can be quickly printed on demand on a barcode printer adjacent to where the labels are needed without waiting for large amounts of data to be transmitted over a relatively slow Internet. This becomes even more apparent when pre-printing large sets of sequentially numbered GS1 labels to be attached to a batch of products.

This also enables printing labels on networked wireless printers carried by a user. In this case, the user is unaware that the print request has been handled by a BellHawk box in a remote data center only to be printed on a belt or fork-lift truck mounted wireless printer.

The TAG LabelPrint software runs inside the BLPA and uses the BarTender Automation software, from Seagull Scientific, which is also installed in the BLPA, to generate the barcode labels.

LabelPrint uses the BarTender SDK to populate the selected label format with the correct data and to cause the BarTender software print it to the appropriate printer on the local area network.

BarTender provides printer drivers for a wide range of barcode label printers as well as providing a tool for laying out the barcode label format, including specifying names for label fields.

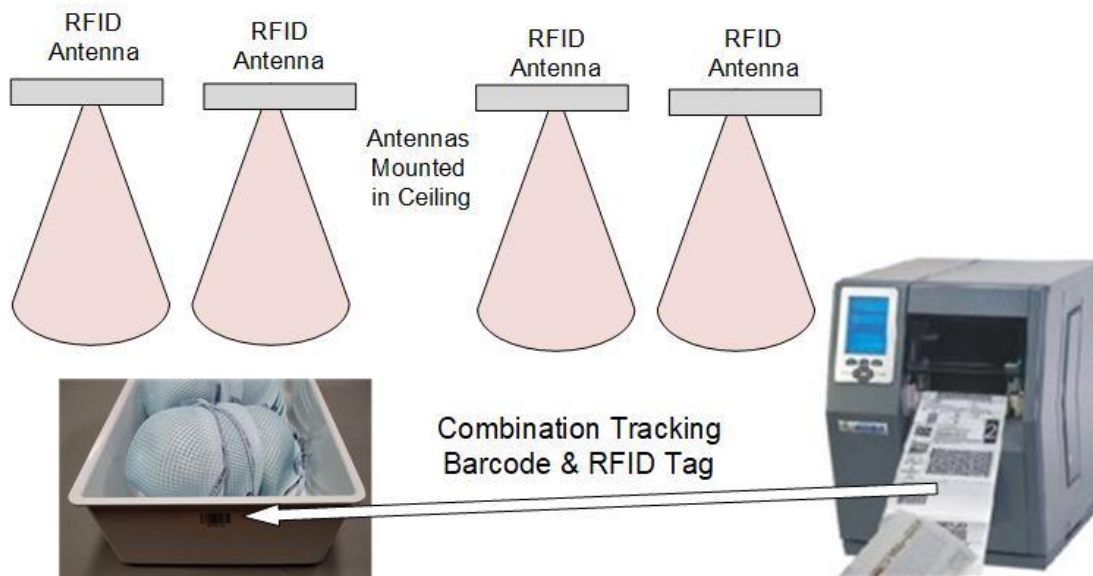
The BLPA is shipped to each client site, already loaded with all needed software and local databases, ready to be plugged into the local rea network and remotely configured by the KnarrTek staff, over the Internet, ready to start label printing. As a result, no local IT on-site support is required.

For high-speed label printing, the BLPA computer needs to be located on the same local area network as the barcode label printers it serves. Multiple BLPA's can be used at geographically separated sites, interacting with a common BellHawk system over the Internet to achieve high speed label printing at each site.

TAG is designed so that multiple versions of LabelPrint can be accessing the print queue at the same time, printing out the labels on the designated printer in the appropriate facility from a common BellHawk tracking database.

By performing the CPU intensive task of converting a label print request to a large amount of printer data, into a separate print server IIOT box, we avoid the issue of interfering with the speed of barcode scanning using the BellHawk IIOT computer itself.

Creating Combination Barcode-RFID Labels



If a combination barcode label printer/ RFID tag encoder is used, then TAG can print the barcode and encode the RFID tag. This enables containers of material to be tracked using the barcode or the RFID tag, as appropriate.

BellHawk Rules

In BellHawk, TAG rules can be imported using Excel spreadsheets. These rules can be used to specify which printer and label format should be used along with how the named fields on the label relate to standard and user-defined parameter values for the container or item to which the label will apply.

These rules can be based on a number of factors, such as:

- Mobile device being used for data entry and the transaction being performed
- Part number, category, or material type or user defined characteristics such a hazardous materials rating
- Type of container being used (box, bottle, pallet etc.)
- Customer to which the container or item will be shipped.
- Quality Control status (passed or failed inspection)

These rules can also control how many duplicate labels and how many sequentially numbered labels (for different items or containers) are to be printed at a time.

For speed of barcode label printing, it is important that BarTender Automation be on the same local area network as the printers to which it is printing. These barcode label printers can be connected via the plant LAN or wireless network. They can also be plugged into PCs connected to the plant LAN or wireless network.

The optional TAG module can print out a wide range of information onto labels. This includes all the parameters associated with containers or individually barcoded items, such as part number, quantity, unit of measure, lot number, serial number, expiration date. It can include customer and supplier names and address information. TAG can also be used to print out user defined parameters, such as sizes, colors, and hazardous equipment markings onto labels.

TAG rules can also drive combined barcode and RFID tag printers to create LPN tracking labels with embedded RFID tags which can be automatically interrogated to record the movement of containers from one location to another.



Preprinting Labels

As well as printing barcode labels on-demand, as described above, TAG does support pre-printing of labels using a PC. This is so that barcode labels to be attached to containers or items can be printed ahead of time in an office environment.

While printing labels on-demand at time of application can help prevent errors due to placing labels on the wrong containers, there are situations where it is beneficial to print labels ahead of time. These include situations where:

1. The location where labels are to be applied would be hazardous to barcode labels printers due to dust, moisture, acidic, or explosive atmospheric conditions.
2. Large numbers of identical labels need to be applied to essentially identical containers by operators with limited skills to manage the reloading of media into barcode printers and fixing any jams that may occur.

Transactions

TAG supports print-on-demand and pre-printing of labels with the following material transactions:

1. Enter or receive material into inventory
2. Receive against purchase order
3. Record material out of work order step/operation
4. Return material from operation.
5. Tagging pallets, totes, or other containers with a license-plate tracking barcode.
6. Packing materials into containers, such as boxes, and packing these boxes onto pallets
7. Picking and packing materials for customer orders
8. Shipping materials to customers.

Print-on-demand labeling enables labels to be automatically generated as the operator is doing any of the listed transactions. The label format and the data on the label are automatically selected according to rules setup within the BellHawk knowledge-base by clients.

TAG then uses the data entered during the transaction, along with other data in its database, to populate the fields on the label, via the print queue, including generating a unique "license-plate" tracking barcode. LabelPrint then automatically prints out the labels for the operator to apply to containers of material or individually barcoded items.

Each label contains a "license-plate" tracking barcode that uniquely identifies the container to which it is attached. This tracking barcode is then scanned to track the movement, usage, packing and shipping of the container.

With labels pre-printed through TAG, each label is printed with a pre-numbered "license plate" tracking barcode. Also, the data about each container to which the label will be attached is stored in the BellHawk database. After the pre-printed label is attached to the container, the tracking barcode is scanned by the operator, and all the information stored with the label is transferred to the data entry transaction screen, thus saving duplicate data entry.

Commentary

Please note that TAG is not needed to print out forms, such picking sheets with barcodes on them, from BellHawk as these are printed on office printers with software embedded in BellHawk. Also please note that TAG is not needed for materials tracking, which can be performed using pre-printed rolls of license-plate tracking barcodes.

BellHawk can work with barcode labels generated by other systems provided that the contents of the barcodes are appropriate and coordinated by data automated transmission to BellHawk from the system that generated the labels.

However, for those situations when printing out labels in receiving, production, or packing is required, then it is generally much easier and less costly to generate the labels within BellHawk, using a TAG label print server, as part of the normal transactional data entry, to save on data entry time and to prevent expensive label generation mistakes.

For More Information

For more information about BellHawk, TAG, and the BLPA or KnarrTek's capabilities and services, please see www.KnarrTek.com or send an Email to Sales@KnarrTek.com or call (774)415-7878.