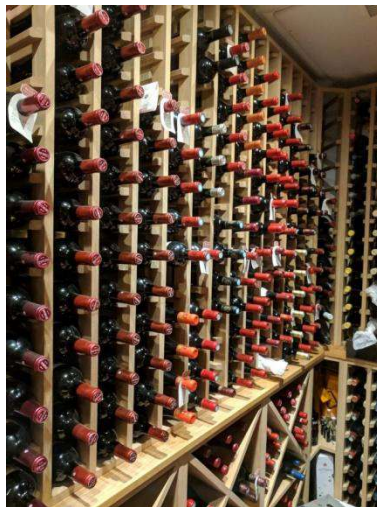




WHITE PAPER

Spring 2021

'Live' Digital Bottle Inventory Management



- Introducing - CapTag 'BottleTrack'

*A Disruptive Change for Tracking & Controlling
Bottled Wines & Beverages*

Contents

SUMMARY OVERVIEW	3
BACKGROUND: CONTROLLING & RECORDING WET STOCK LEVELS	4
THE DIGITAL SOLUTION	5
HOW THE BOTTLETRACK SYSTEM WORKS	6
Overview.....	6
System steps	7
Components.....	7
Labels and NeckTags	7
Enrolment/Data Association Station.....	8
RFID readers	8
Data cloud	8
The Checkout Station	9
BENEFITS ACHIEVABLE.....	10
GETTING STARTED ON YOUR DIGITAL JOURNEY	11
ABOUT CAPTAG SOLUTIONS LTD	11

Summary Overview

Any area of saving will help the hospitality industry recover from these desperate COVID times & get back onto its feet.

Controlling stocks of wines and beverages has always been an essential part of maintaining profit margins in the hospitality trade.

- but, done thoroughly, this is a time consuming and costly business as every bottle has to be individually examined – which is especially not recommended for ‘fine wines’

Managers in busy hotels, and bars, dream of being able to do frequent inventory checks, certainly weekly and ideally daily

- but the practicality and cost of doing this has so far been prohibitive.

Now there is a new way to simplify the way wet stock is tracked and counted in bars & cellars on shelves/racks, and even in fridges, based on revolutionary RFID technology from CapTag Solutions.

CapTag Solutions have innovated, and patented, a focused development of an RFID technology that is presently applied globally to over 10 billion items of apparel every year for inventory management using RFID industry standard readers

The CapTag innovation involves using two unique RFID products – used independently - or together, both containing a unique electronic/digital identity stored in the RFID chip during manufacture:

- CapTag Labels – self-adhesive single use labels
- NeckTag - re-usable tags on the bottle neck

Labels, or NeckTags, are applied to bottles which can then be instantly added to the businesses’ stock database.

Bottles are then stored as usual in bar areas, or in cellars, or fridges.

All the bar manager needs to do is to scan bottles in stored areas, or in boxes, with the individual bottle identities being captured:

- at long range (several metres)
- at high speed (100’s per second)

so, counting is quick and reliable.

The individual unique electronic identity of each bottle captured is then sent to the central database, which then generates any required reports.

The CapTag inventory management system can either be independent of, or easily integrated into any standard POS, or other internal or cloud database system

Background: Controlling & recording wet stock levels

The overall purpose of all inventory management system in any Hospitality business is to calculate the cost of sales, and determine the gross margins achieved on those sales. The cost of sales is most often calculated, at the end of each day's trading, ideally when the bar is closed, by measuring the change in stock. The simplest method, used in most bars, relies on the manager checking stock levels, which if done thoroughly, is a time consuming and costly business, so is often only done visually and superficially.

Studies have shown that restaurants rarely conduct thorough inventory counts. Even 41 % of caterers said that an inventory is conducted only once a year, and 40% of them only once a month. Only 17 % of them pay attention on every inventory object to detail and control each item. Around 40% of private bars and restaurants do a manual inventory count once a month.

A daily, or even shift based check would provide much more information to managers and owners helping them to identify and solve potential problems faster and easier and increasing the businesses profits. The sooner problem areas are addressed the better:

- pilferage
- stock waste control, overflowing of drinks, poor storage conditions
- issues with the cash register, e.g.: understatements, misuse not properly programmed
- free drinks, discounts or allowances for goods need to be properly recorded
- department requisition mistakes, (between bars, lounges, restaurants, nightclub bars)
- accurately forecasting future stock orders to reduce overbuying
- mixed drink pricing problems, incorrect quantities, inconsistent prices for overall drinks offering

Ideally daily, or shift-based inventory checks would be best, as problems can then be identified quickly and rapid action taken. Unfortunately, until now, this requires too much time and effort and is not standard practice.

With any inventory system when a stock item reaches a pre-determined minimum stock level then products are re-ordered – but what should be the minimum stock level, taking into account the need to avoid 'stockouts'?

To maintain the lowest stock levels - and cash tied up in the business - this is often done by 'just in time (JIT)' re-ordering but this relies on:

- knowledge of actual stock levels;
- & rapid response from suppliers

- to ensure the business does not run out of stock altogether. With accurate knowledge of actual stock levels and movement of those levels, money tied up in stock can be reduced and ideally stock holding costs can then be carried by the suppliers, who effectively act as the Business' warehouse.

Computerized Point-of-sale Systems (POS) have integrated links to track sales and a good POS system will record information in hourly, daily, and month-to-date increments, such as:

- product sales mix
- revenue (per shift, sales period, or server)
- server-tips report (which is also used for tax purposes in the USA)

- total revenue

More sophisticated POS systems also interface with inventory and purchasing programs to follow beverages and other bar items through purchase, use, to the eventual sale. And can also identify fast and slow-moving stock.

The Digital Solution

CapTag Solutions Ltd have taken a globally proven RFID technology and have innovated, and patented, a focussed solution for identifying, locating & tracking containers of liquids, such as wine, spirits and soft drinks in bottles.

As you may know, the initials RFID mean Radio Frequency IDentification, which everybody uses, most of the time without knowing it. You may be surprised how many times you use RFID technology in your everyday life, in areas such as animal ‘chipping’, road tolling, building access control, passports, sports event timing, with, by far the largest application being in apparel, where over 10 billion tags are used each year for inventory & stock control.

The basic concept of operation is:

- An antenna, built into a handheld or fixed reader (or scanner), sends out radio signals.
- These signals are received and returned by an RFID label or tag, which has a globally unique digital identity, with information added – which in its simplest form is the digital ID of the label or tag.
- The reader which is integrated with a software system accepts and stores this data and triggers actions.

The advantages of RFID digital technology over its analogue equivalents the barcode & QR Code are:

- RFID technology automates data collection and vastly reduces human effort and error
- RFID supports tag reading with no line-of-sight or item-by-item scans required
- RFID readers can read multiple RFID tags simultaneously, offering increases in efficiency
- All RFID tags within range can be detected instantly and matched with information in your database
- Assets can be cross-referenced against assigned locations and recorded as present, missing, or relocated
- RFID can be integrated with active scanning and fixed readers for a totally automated tracking solution
- Assets and employees can be tracked and located automatically for everything from supply chain and asset management to facility security and emergency planning
- Available scanners support both RFID and barcoding so you can upgrade at your own pace

CapTag Solutions Ltd specialises in RFID technology for bottles containing liquids where conventional RAIN RFID labels, as used in apparel applications, don’t work effectively

Conventional RAIN labels are too large and operate only at short range; because the liquid in the bottle absorbs the radio waves on which all conventional labels depend on for their communication.

Now, CapTag® labels & NeckTags have been developed, and 3 patents granted and with 4 further applications in progress, to uniquely use that radio absorption to read bottles, at high speed and from metres away.

... and, as no line of sight is needed, those bottles can also be read inside sealed cartons, wooden cases, or when clustered on shelves or conveyors – unlike QR or traditional barcodes.

In summary CapTag® RFID Labels enable Retailers, Restaurants & Hotels, using the standard CapTag® UHF labels and NeckTags to build productivity solutions that enhance the efficiency of their businesses by streamlining the way stocks of bottles are received, stored and tracked.

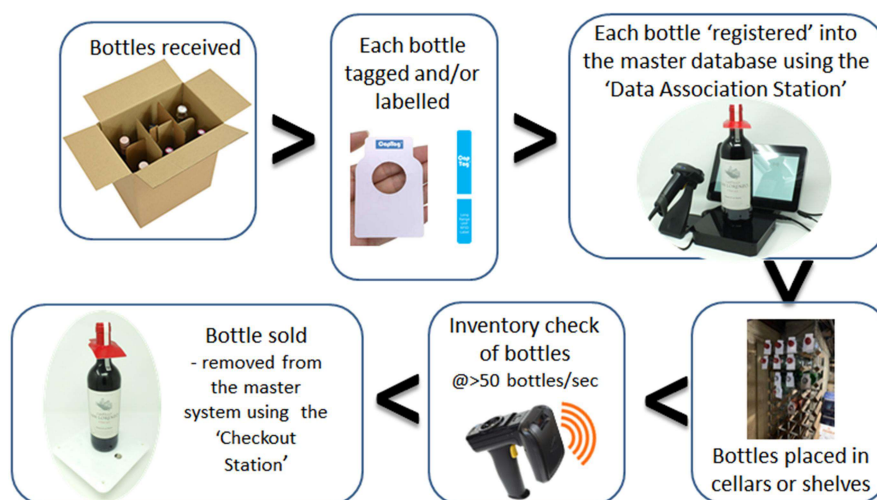
How the BottleTrack system works

Overview

The BottleTrack system, in essence, tracks every bottle individually in its journey through the premises: from original receipt from the supplier or wholesaler; through placement and storage in the cellar or bar, in racks, on shelves, in fridges or even in closed boxes; to being moved individually, or in bulk, within a premise; and finally, being sold to a customer.

The major benefit of BottleTrack being that the manager or owner can have an instant and immediate snapshot of the status of any or every bottle within the business. So that key information is available to manage the business effectively and efficiently from a stock perspective and, when combined with the POS data from a sales perspective as well.

How CapTag BottleTrack works



System steps

In a standard implementation, bottles of wines, spirits and soft drinks are received from the supplier/wholesaler.

Stage 1. **Labelling/tagging** - These bottles are removed from their boxes and labelled and/or NeckTag-ed

(high value bottles are likely to have both single use label as well a reusable NeckTag for security purposes)

Stage 2. **Enrolling/Encoding** - The labelled or tagged bottles are then individually enrolled (‘encoded’) into the premises master stock database with the corresponding description of the bottle. This is normally done using the analogue barcode on the bottle for the generic description of the bottle contents, to reduce repetitive data input

– it should be noted that the stock database in its basic configuration is cloud based and can be independent of any existing stock database

Stage 3. **Storing** - The labelled and/or NeckTag bottles can then be stored on racks, shelves, in fridges or in cartons or wooden boxes. It should be noted that the NeckTag is specifically designed to be repeatedly written on, in line with normal Sommelier working practice – so that the CapTag BottleTrack digital system easily integrates with traditional working practices within any Hospitality business.

Stage 4. **Stock Checks** - Routine stock checks can then be done for the complete premises, or areas within premises. Even parts of cellars can have instant & accurate stock checks done on a daily, shift or part shift basis, as the CapTag BottleTrack counts bottles at read rates of 50 bottles per second and at metres distances from the bottles. The most significant point being that no bottles need to be moved – so fine wines are not disturbed – even when in wooden boxes.

Stage 5. **Bottles sold** - The final step is the removal of the bottle from stock when sold through the use of the ‘Checkout Terminal’

Components

Labels and NeckTags



Plain Self-adhesive single use CapTag Label



Plain reusable CapTag NeckTag

Which can both be branded for the premises or business identity

Enrolment/Data Association Station

To enrol each bottle into the master database of the stock management system bottles already labelled or with a NeckTag applied, are placed on a Data Association station and the bar code on the bottle scanned.

The system then logs the unique electronic ID on each tag and associates it with the all the key product information: e.g.name, bottle size etc.



Data Association Station

RFID readers

When it comes to choosing a suitable reader, any industry standard RAIN compatible RFID reader can be used to read CapTag labels or NeckTags.



Handheld portable reader



Doorway

Fixed portal readers



overhead

Data cloud

CapTag has created a simple 'cloud'-based software platform to hold the master database in a closed, confidential system. This ensures that the identity of any specific bottle and its location is constantly 'live' and can be accessed from anywhere at any time.

'Live' Digital Bottle Inventory Management

All the data stored can be easily exported or queried, in order to generate reports, apply business intelligence techniques, etc. This can be independent of or easily integrated into any standard POS, or other internal or cloud database system. CapTag's software partners are available to assist in creating a tailored solution, as required.



CapTag Cloud

CapTag Cloud interface showing a search and filter section with fields for App, Item class, Code, Description, and Productid. Below this is a table listing various wine items with columns for App, Productid, Skuid, Item class, Itemtype, Category, Code, Name, and Image.

App	Productid	Skuid	Item class	Itemtype	Category	Code	Name	Image
10090034	000103420450	000103420450	sku			000103420450	Offley L.S.V. 1984	
10090053	001037410580	001037410580	sku			001037410580	Australian White Wine	
10090052	001110601874	001110601874	sku			001110601874	Pinot Grigio Olive Hills	
10090051	0001102004	0001102004	sku			0001102004	Maison Luginy Les Genievres	
10090050	0001102004	0001102004	sku			0001102004	Muscadet Casselmoine	
10090049	00008900138	00008900138	sku			00008900138	Sauvignon Klein Steinberg	
10090048	0001102004	0001102004	sku			0001102004	Chablis Simon Fabre	
10090047	000049002021	000049002021	sku			000049002021	Saint Veran	
10090046	00002033184	00002033184	sku			00002033184	Chardonnay Lagrasse	
10090045	00008900138	00008900138	sku			00008900138	Pinot Grigio Ca Luca	
10090044	00006111001	00006111001	sku			00006111001	Jean Paul Cuvee White	
10090043	00001900003	00001900003	sku			00001900003	Orange Du Midi	
10090038	00004308299	00004308299	sku			00004308299	Divine Oro Gran Reserva Tempr	
10090035	0012008411892	0012008411892	sku			0012008411892	Cabernet Sauvignon Wolf Black	
10090034	0010400811001	0010400811001	sku			0010400811001	Rioja Marques De Caceres Whi	
10090033	00003909034	00003909034	sku			00003909034	Marbec Trivento Reserva	
10090032	00103967072	00103967072	sku			00103967072	Barberana Tempranillo Del Su	
10090031	0010400811001	0010400811001	sku			0010400811001	Rioja Marques De Caceres Roj	
10090028	001105000057	001105000057	sku			001105000057	Shiraz Wakefield	
10090024	00005000155	00005000155	sku			00005000155	Cotes Du Rhone Villages	
10090023	00005000137	00005000137	sku			00005000137	Gigondas Haute Amaronne	
10090022	00003300264	00003300264	sku			00003300264	Chateaux Du Pape	
10090021	00013215004	00013215004	sku			00013215004	Rioja El Somo	
10090020	00010052003	00010052003	sku			00010052003	Pinot Noir Borthwick Paper Ro	
10090019	001047205942	001047205942	sku			001047205942	Rioja Len Reserva	

CapTag

CapTag interface showing a search and filter section with fields for Extra, Itemtype, Name, Category, and Skuid. Below this is a table listing various wine items with columns for Code, Name, Image, and Image.

Code	Name	Image	Image	Image
5011106018742	Pinot Grigio Olive Hills			
8008863012576	Pinot Grigio Ca Luca			
9421005520033	Pinot Noir Borthwick Paper Ro			
5054775909995	Pinot Grigio Delle Venezie			
8005011000164	Pinot Grigio Rose Ponte			
8000160617607	Pinot Grigio Blush			

The Checkout Station

To 'remove' sold bottles from the master database in the inventory control system, any NeckTags collected and removed from sold bottles or CapTag labelled empty bottles are simply passed over a Bottle 'Checkout Station'. This is a simply flat-bed RFID scanner connected via an ethernet cable to the network with no keyboard or moving parts. It captures the digital identity of the NeckTag and/or label and the system records the fact that a specific bottle is no longer 'in stock'.



The Bottle 'CheckOut Station'

Benefits achievable

Deploying a regular CapTag-based stock management system will help control costs and significantly improve gross profit margins as highlighted below:

- To control costs, by reducing under and over-stocking, minimizing stock levels and capital tied up, with more efficient re-ordering & improving stock rotation, while maintaining adequate levels of products are maintained to satisfy customer demand
- Improving gross profit margins - The exact savings to be made will of course depend on the size of the bar and the number of bottles being managed, but conservatively, improvements of between 2 and 5% on the gross profit margin can be expected.

Furthermore, regular stock control can also help to identify 'problem areas' in relation all wine and beverage stocks so that steps can be taken to control possible losses, information which is vital to highlighting poor controls.

Being able to scan bottles at long range (several metres), and providing required reports delivers benefits in a variety of ways as follows:

- Live stock counting, anywhere – on racks, in fridges or in cartons or boxes
- Instant & accurate stock checks, even daily, without the need to disturb 'fine wines'



- Finding a selected wine is quick and easy.
- It is just a matter of referencing the bottle ID you want and using the hand-held reader to approach stored bottle until the Geiger counter on the device begins to detect the signal. The closer you are to the required bottle the faster the beep becomes and the bar on the smart phone screen increases.
- This means that there is no longer any need to store wines in tag numeric order, often saving valuable storage space. Wines can be stored randomly
- Furthermore, checking out re-usable NeckTags on sold bottles provides a simple and immediate way of reconciling data from the PoS system at the end of or even during a trading day. Any discrepancies or problems can be identified and investigated immediately.



Getting started on your digital journey

All the components are available from stock and are provided on the basis of a fixed monthly fee over a minimum term of 2 years.

So, no upfront payment is required.

All hardware carries a 2-year warranty.

In the UK, CapTag Solutions, or one of our fully trained partners, can assist you in initial training and system set up.

If you require further information or would like to arrange for a demonstration please contact us directly by email at:

info@captag.solutions

About CapTag Solutions Ltd

CapTag Solutions Ltd was founded in 2015 by and has designed a complete family of unique RFID labels for use not only on bottled products (especially wines & spirits) but also on packaged meat and cheese.

CapTag’s self-adhesive labels and re-usable Necktags deliver exceptional performance when used as a key component in stock control, as well as in applications such as EAS security and smart cabinets. The range of labels includes multi-functional RAIN UHF & NFC labels that are also read with smart phones, as well as at long range, using standard RAIN UHF readers.

A range of hardware and software has also been developed to support systems integrators and people less experienced in deploying autoID tracking solutions based on bar codes.

CapTag can supply all the components directly, but we have established a network of fully trained systems integrators throughout the world able to provide local support.

Website: www.captag.solutions

Linkedin: <https://www.linkedin.com/company/captag-solutions-ltd/>

YouTube: https://www.youtube.com/channel/UCx_rVR4EY2dIz1z22mSH1-w