ESCIMS
Excise Supply Chain Information Management System

DEPARTMENT OF EXCISE, ENTERTAINMENT AND LUXURY TAX, GOVERNMENT OF NCT, DELHI

Standard Operating Procedure
For
Hotel, Club and Restaurant

ESCIMS

About this Document

Purpose

The purpose of this document is to detail down the specification for Hotel, Club and Restaurant (HCR) barcode readiness as per the project requirements.

Intended Audience

Managers at Hotel Club and Restaurant under advice from Delhi Excise will be using this document for receiving, sale of liquor through scanner and uploading of barcodes in ESCIMS.

Table of Content

Acronyms and Abbreviation

S. No.	Abbreviation	Description
1.	BW	Bonded Warehouse
2.	CSD	Canteen Stores Department
3.	ESCIMS	Excise Supply Chain Information Management System
4.	GTIN	Global Trade Identification Number
5.	HCR	Hotel, Club and Restaurant
6.	HHT	Hand Held Terminal
7.	IA	Implementation Agency
8.	ICT	Information and Communication Technology
9.	IFL	Imported Foreign Liquor
10.	IP	Import Permits
11.	SKU	Stock Keeping Unit
12.	SOP	Standard Operating Procedure
13.	SSCC	Serial Shipping Container Code
14.	TP	Transport Permits
15.	XML	Extensible Markup Language

1. Introduction

Delhi Excise Department, Government of National Capital Territory of Delhi proposes to initiate 'Excise Supply Chain Information Management System' (referred as ESCIMS throughout the document) in order to automate and regulate liquor sale in Delhi. The objective of ESCIMS is to make the system more transparent, efficient, effective and accountable with the help of Information & Communication Technology (ICT). The project covers the Excise services at Department and Corporations, Bonded Warehouses, Vends including HCR & private vends and Distilleries. The system shall prevent any leakage and provide real time information to the excise department. The system should enable the department to track the source of the each bottle that is sold at the Vends or Hotel Club and Restaurant (HCR) in Delhi.

ESCIMS shall work on GS1 compliance barcodes placed at case and bottle level. These barcodes will be generated and printed on case/bottle by liquor manufacturing distillery as per the specifications recommended in distillery specification document.

The objective of this document is to indicate relevant technology and process details for implementation of the bar code mechanism in hotel, club and restaurant. It needs to be highlighted and understood by all stakeholders that if the bar code is not found readable due to transit damages, poor quality of printing, paper, pasting, etc., suitable penal action will be taken.

1.1 Objectives of ESCIMS

The Delhi Excise Department has envisaged meeting the following objectives through ESCIMS solution:

- To enforce and regulate liquor trade in Delhi without promoting it
- To mobilize revenue generation under the multiple heads of taxation that it administers.

1.2 Benefits from ESCIMS

The benefits expected out of implementing the ESCIMS solution are:

- Reduction in smuggling and brand pushing of liquor which help in better revenue mobilization.
- Automation of the issue of Transport Permits, Import Permits, No Objection Certificates will obviate the necessity of people coming to department.
- Generation of timely, intelligent reports and comparisons will help managerial control, Inventory management, improve efficiency and enable revenue record reconciliation on daily basis. Also bringing departments float to zero simultaneously. This will also help flattening of tax cycle.
- Ease of tax rates or regulatory changes being put in force immediately and also providing transparency to department and its business with its clients.

1.3 Outcomes from ESCIMS

The outcomes expected out of ESCIMS are:

- Assessment of Excise duty to be paid/ paid in real time
- Online MIS system for prompt and efficient decision making
- Online availability of Allocation, Sales and Payments related information
- Transport of Liquor within defined service levels
- Ease of payment of fees for Vend owner.
- An effective grievance redressal mechanism by providing a Helpline/ Call Center function with single seat in 2 shifts
- Online status tracking and enquiry facility
- Ensuring the genuine and correct amount of liquor reach the citizen.

1.4 Implementation Agency

Tata Consultancy Services (TCS) has been selected as Implementation agency (IA) for ESCIMS. The Implementation Agency is responsible for full system Integration of all Excise Department functional areas. Procurement, Installation and commissioning of hardware & software, application development, operation and maintenance support all comes under the scope of TCS. **The scope excludes provision of infrastructure capabilities to Hotel, Club, Restaurant (HCR).**

Thus the need to make hotel, club and restaurant (HCR) ready for the proposed system before it goes live.

1.5 Scope

The scope of this document is to detail down the process changes for HCR that they must comply with before the ESCIMS go-live. The document covers following areas:

- Hotel, Club and Restaurant (HCR) Processes
- ESCIMS Implementation and Operation
- Recommendation
- Application Security

2. Hotel, Club and Restaurant (HCR) as Stakeholder

ESCIMS proposes to automate and regulate liquor sale in Delhi. In order to carry out the project successfully it is important to collaborate with all the stakeholders. In order to keep track of liquor movement within Delhi, HCR is also required to provide details of receipt and issue of material in their store. This section highlights the business functions of Hotel, Club and Restaurant (HCR) that might see a change and sets the expectations for them.

2.1 Business Functions Covered

In the proposed system following business functions shall be affected:

- Applying and Issuing of License
- Raising the Purchase order
- Issue of Transport Permit
- Receiving of liquor against TP
- Recording damage of cases or bottles
- Issue of liquor from store to bars or restaurant or unit (licensed point of sale)
- Payment of Requisite fee and excise Duty

2.2 Benefits for Hotel, Club and Restaurant (HCR)

Hotel, Club and Restaurant (HCR) shall also be benefited from this system as:

- HCR can apply online for the license and track its status.
- HCR can apply purchase order and make payment online. Also, HCR can check the status of purchase order whether transport permit is issued or not.
- Better control over inventory is achieved.
- Supply of spurious liquor is reduced thus protecting HCR's brand image
- Reliability and efficiency in delivery is achieved.

2.3 HCR Process Change Overview

There will be changes in the ways HCR performs the above mentioned functions. The brief overview of the new processes is given here:

- HCR can apply online for the license and can also pay the license fees online through ESCIMS

- Licensee HCR user will raise the purchase order through ESCIMS; the payment of excise duty shall also be made online.
  Place Purchase Order Online screen is shown **Annexure-IV** for reference.

- Transport permit will be generated by ESCIMS which can be printed at Bonded warehouse after the purchase order is approved by Excise department.

- Bonded Warehouse will dispatch the material against the Transport Permit and upload the dispatch details in ESCIMS.

- HCR user will download the Advance Shipment Notice (ASN) corresponding to the TP against which the material is to be received.

- In case HCR uses a Hand Held Terminal (HHT), HCR user will receive materials through HHT scanner and finally will upload on to ESCIMS.

- In case HCR does manual receiving, HCR user will mark the cases as received on ESCIMS.

- In case HCR uses HHT, HCR will scan the cases/ bottles that are to be issued from the store to licensed point of sale and the data will be converted in to XML format by the application and uploaded on to ESCIMS.

- In case HCR does manual issue to point of sale, HCR user will mark the cases/ bottles that are to be issued in ESCIMS.

- HCR will mark the bottles as damaged in ESCIMS whenever the physical stock gets damaged.

3. ESCIMS Implementation and Operations

The detailed step-by-step process of how the HCR operations pertaining to sale and purchase of liquor are explained here.

3.1 Receiving against Transport Permit

For Large HCR, after dispatch of stocks from bonded warehouse, HCR will download TP details in local desktop/directly into HHT from ESCIMS. These downloaded TPs details into HHT will be used for validating the scanned received cases.

3.1.1 Scanning of Received Cases

Hotel, Club and Restaurant (HCR) will scan the received cases through HHT. Finally, Upload of XMLs of received cases against Transport Permits will be transmitted to Local desktop/directly from HHT to ESCIMS.

The process of scanning the received cases against transport permit is as follows:

1. Download Transport Permit details in HHT
2. Scan or Enter Transport Permit Barcode
3. If TP is validated, start scanning of received case barcodes and get validated
4. Press OK to finish the scanning of TP
5. Scan or enter other TP barcode if any and repeat the steps 4 and 5.
6. Finish HHT Receiving by uploading XMLs of received cases against Transport Permits, which in turn will be transmitted to Local desktop/directly from HHT to ESCIMS.

Details of GS1 Barcode Standards for bottles and cases are provided at **Annexure-I** for ready reference. The GS1 Barcode Standards for bottles and cases are meant for distiller so that distillers can comply with GS1 Standards for supply chain as per ESCIMS requirement.

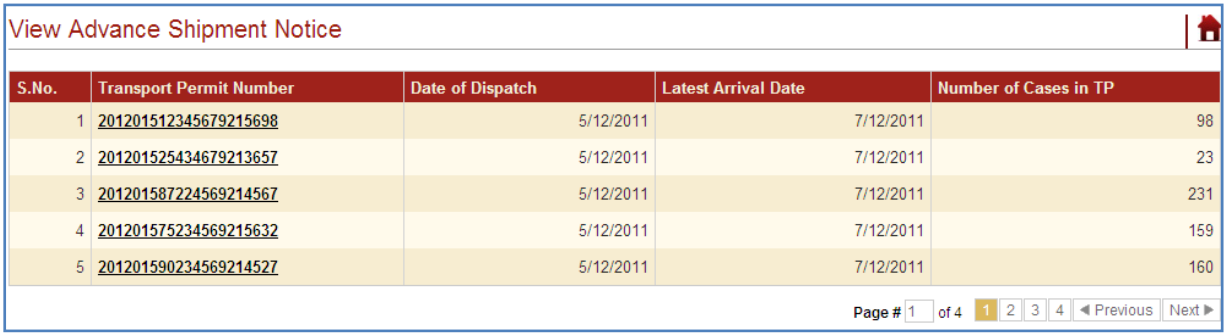
3.1.1 Uploading of XML of received Cases

Hotel, Club and Restaurant (HCR) will upload generated XML of received case details after selecting the Transport Permit details. It will display warehouse details, HCR details, number of cases, TP route and transporter name and truck type.

HCR user will be allowed to mark the damaged cases or bottles while receiving the liquor after uploading XML of received cases.

The process of uploading the received cases against transport permit is as follow:

1. HCR user selects transport permit against which received cases will be uploaded.


View Advance Shipment Notice

S.No.	Transport Permit Number	Date of Dispatch	Latest Arrival Date	Number of Cases in TP
1	20120151234567921 5698	5/12/2011	7/12/2011	98
2	20120152543467921 3657	5/12/2011	7/12/2011	23
3	20120158722456921 4567	5/12/2011	7/12/2011	231
4	20120157523456921 5632	5/12/2011	7/12/2011	159
5	20120159023456921 4527	5/12/2011	7/12/2011	160

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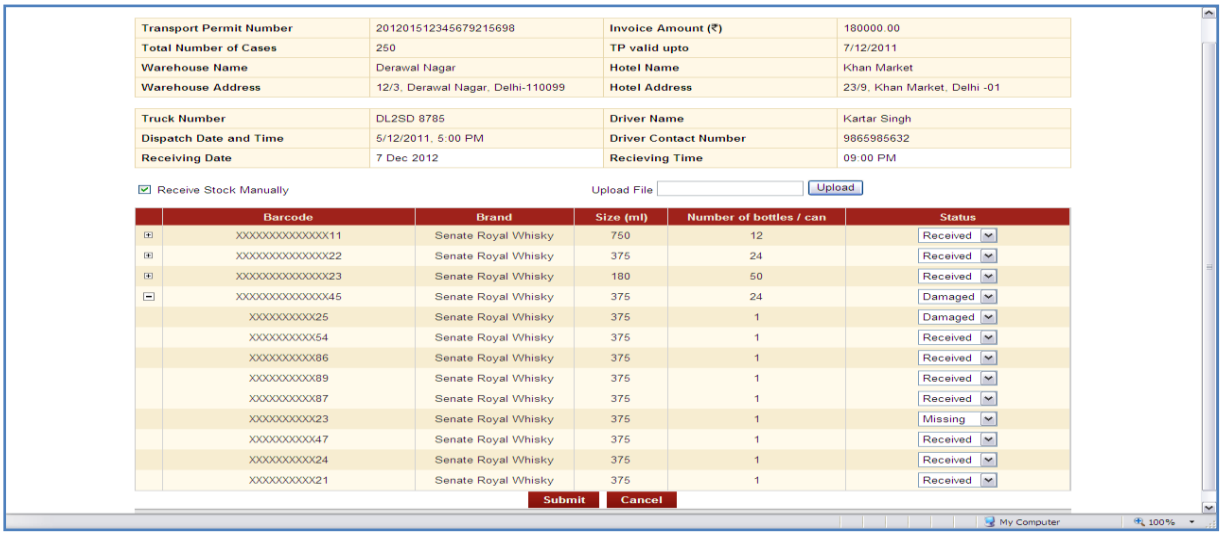
2. HCR will upload XML of received details of scanned cases after selecting the Transport Permit details. It will display warehouse and HCR details, transporter name details etc.



3. After uploading the XML, HCR shall be allowed to mark the cases or bottles as received or damaged.

For small and medium category of HCR, receiving of cases can be done manually. There would be an alternative of receiving cases through HHT also.

After selecting the Transport Permit, It will display cases barcode as per ASN and HCR shall be allowed to mark cases or bottles as received or damaged.

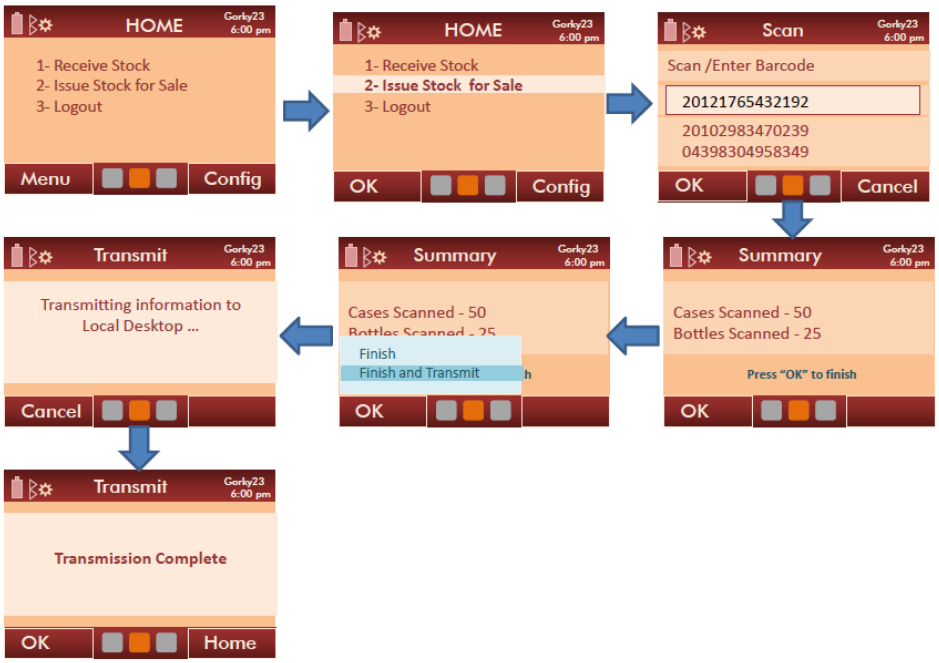
3.1.2 Business Validation

1. Number of received cases will be validated against TP ASN details.
2. Number of received cases GTIN will be validated against TP.
3. SSCC must be unique for case GTIN.

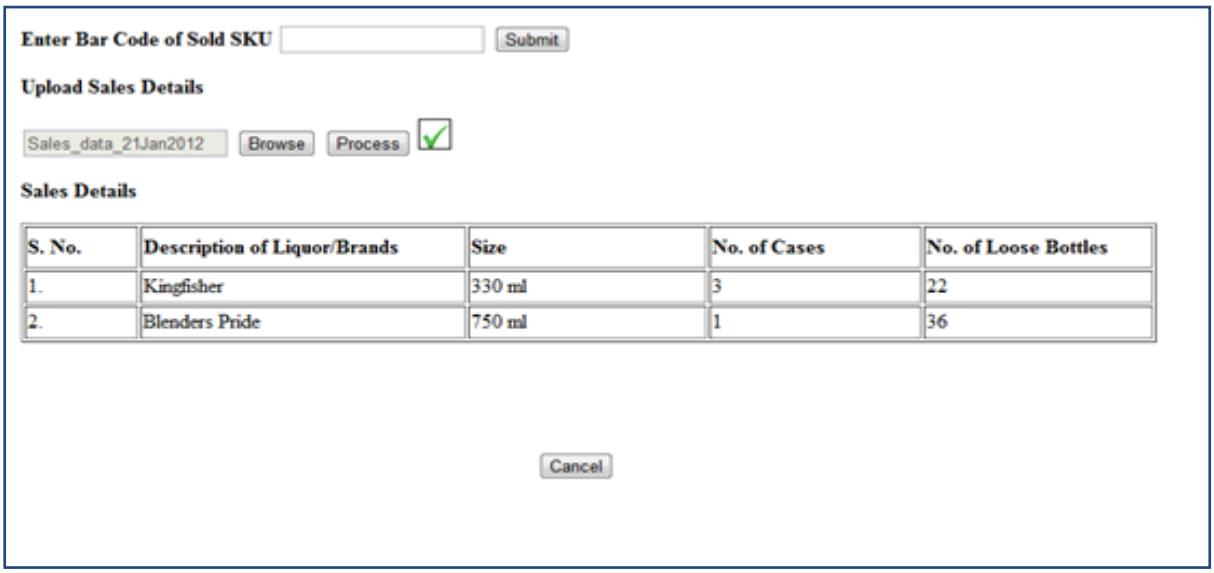
3.2 Issue to Licensed Point of Sale

For the Large Hotel, Club and Restaurant (HCR), HCR will scan the issued cases or bottles through HHT. HHT will create and generate XML file as shown below in sample XML format for all issued cases or bottles to bars or restaurant or licensed point of sales at the end of the day.

Hotel, Club and Restaurant (HCR) will upload generated XML of issued liquor details from store to ESCIMS through desktop/HHT.



For small and medium type of HCR, HCR can enter barcode details of cases and bottles manually while issuing stocks from store to bars or restaurants (licensed point of sale).



3.1.3 Business Validation

1. GTIN and Unique Serial number will be validated.
2. HCR/licensed point of sale id will be validated.

3. Recommendation

Below are the recommendation based on the interactions, site visits and requirements of the project as specified.

1. Each Hotel, Club and Restaurant (HCR) should study and analyze their current process and adopt the new system in a manner that suits their process.

2. In case of HCR using any software application for inventory control, HCR should contact its IT vendor to understand the feasibility of fulfilling the ESCIMS requisites using their current software.

3. HCR should install good quality hand held scanner capable of reading both 1D (Linear) and 2D (Data Matrix) barcodes.

4. In case of damage of bottles at any point of supply chain during transit from bonded warehouse to Hotel, Club and Restaurant (HCR) or issue of liquor from HCR store to bars or restaurants, it will be marked as damaged in ESCIMS application.

5. HCR should undertake a pilot for its store and point of sale so that the outcome may be in line with desired objectives

6. The expected completion date of HCR readiness is **30th Sep 2012**.

4. Application Security

The OWASP Top 10 (Open Web Application Security Project) web application security will be implemented in ESCIMS (portal and core application) application. It will be implemented in different layers of ESCIMS application.

The OWSAP Top 10 securities are:

1. A1: Injection
2. A2: Cross-Site Scripting (XSS)
3. A3: Broken Authentication and Session Management
4. A4: Insecure Direct Object References
5. A5: Cross-Site Request Forgery (CSRF)
6. A6: Security Misconfiguration
7. A7: Insecure Cryptographic Storage
8. A8: Failure to Restrict URL Access
9. A9: Insufficient Transport Layer Protection
10. A10: Unvalidated Redirects and Forwards

Authentication and Authorization of login through portal is the first level security. Further, as soon as user login to the ESCIMS application through portal, a **secure Session will be started.**

Since HCR will upload the received stocks against transport permit and sales details in XML format therefore uploaded XML will be scanned through antivirus. **Application firewall ModSecurity** with Clam Antivirus will be used for virus scanning.

5. Appendix

5.1 Bill of Material

S. No.	Hardware	Descriptions
1.	Desktops with Internet Broadband Connection	Standard configuration of 2GB to 4 GB RAM, above 500GB Hard disk and latest Anti-Virus software and requisite application to store and create XML for upload to ESCIMS using Broadband Internet Connection. Sample XML formats are provided in **Annexure - II**
2.	Scanner	Scanning of 1D and 2D barcodes Detailed Specifications is provided in **Annexure- III**
3.	HHT Application	Excise will provide HHT application for receiving of stocks against TP and issuing of stocks from store.

5.2 Annexure – I – GS1 Barcode Standards for Bottles and Cases

Refer Annexure – I of this document

5.3 Annexure – II – Sample XML Format

Refer Annexure – II of this document

5.4 Annexure – III – Scanner Specifications

Refer Annexure – III of this document

5.5 Annexure – IV – Place Purchase Order Online

Refer Annexure – IV of this document

Annexure – I – GS1 Barcode Standards for Bottles and Cases

GS1 standards in general provide interoperability, flexibility and vendor independence which in turn result in reduction in end product costs to businesses and consumers. These widely implemented standards enable unique and universal identification of products, assets, services, entities/locations, data capture and seamless sharing of supply chain information between trading partners including manufacturers/ suppliers, retailers and consumers. Flow of physical supplies and data sharing/querying also becomes faster, more accurate and seamless across multiple trading partners in supply chains.
GS1 standards works on Identifiers, these identifiers combines with automatic identification technologies like Bar-Codes to establish a connection between the physical entities involved in a supply chain and their related information.

Broadly, there are two types of identifiers:
1. GS1 Identification key, For e.g. GTIN, Batch #, Mfg. Date, Unique Serial #,
2. GS1 Application Identifier, For e.g. (01) for GTIN, (10) Batch #, (11) Mfg. Date, (21) Unique Serial #

Based on the symbol used to encode data, GS1 bar-codes can be categorized into two broad categories:

1. **GS1 barcodes with 1D/linear symbols which include:**
   - European Article Number (EAN) /Universal Product Code (UPC)
   - GS1 DataBar
   - GS1-128
   - Interleaved 2 of 5" (the Barcode Symbology used) and 14 digits (the length of the container symbol (ITF-14)

2. **GS1 BarCodes with 2D symbols which include:**
   - GS1 DataMatrix
   - GS1 composite component

In proposed Delhi Excise ESCIMS, GS1 standards will be used for enabling the traceability and system transparency.

As per project requirement, **1D GS1 128 barcode symbology** shall be used at case/carton level and **2D GS1 Data matrix symbology** shall be used at Bottle level.

Data Structure

GTIN 14 Data Structure

Extension Digit	Company Prefix ----------→						Item Reference ←----------					Check Digit
N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13	N14

Company Prefix

It consists of country code and Company code registered with GS1.

Country Code is "**890**" for company registered with GS1 India office.

Item Reference – It is product id manufactured in the company.

SSCC Data structure

SSCC (Serial Shipping Container Code) – The GS1 identification key used to identify individual logistic Unit. The key is comprised of an Extension digit, GS1 Company Prefix, Serial Reference, and Check Digit.

Application identifier	Extn Digit	Company Prefix ----------→								Serial Reference ←----------								Check Digit
00	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13	N14	N15	N16	N17	N18

Application identifier (00) indicates the data field contains an SSCC.

Extension Digit is used to increase the capacity of Serial reference No. with SSCC. It ranges from 0-9.

GS1 Company Prefix – A globally unique number assigned to a GS1 member company

Serial reference – A global unique Number assigned by company.

Check Digit – A modulo-10 number calculated across the preceding digits to ensure data integrity.

Case Barcode

Implementation Guidelines for GS1 -128 1D Barcode at Case Level

At case/carton level, two barcodes following GS1 128 Barcode symbology shall be printed on a single label to be pasted on each case/carton by the distiller.

a) The first barcode will encode GS1 GTIN number, batch number, manufacturing date and expiry date.

Attribute	Description	Value	Size(N-numeric, AN-Alpha Numeric)
Application identifier	To Identify GTIN Number	01	N2
GTIN	Indicator + Company Prefix + Item Number+ Check Digit		N14
Application identifier	To identify Batch number	10	N2
Batch Number	A unique Number assigned by Distiller for a batch		AN7
Application identifier	To identify Manufacturing Date field	11	N2
Manufacturing Date	Manufacturing Date of liquor	Date shall be in (YYMMDD) format	N6
Application identifier	To identify Best before date field	15	N2
Expiry Date	Expiry date of liquor	Date shall be in (YYMMDD) format	N6

b) The second Barcode will encode unique serial number (SSCC – Serial Shipping Container code) of each carton up to 18 Digits.

Attribute	Description	Value	Size(N-numeric, AN-Alpha Numeric)
Application identifier	To identify Data filed as SSCC	00	N2
SSCC	Unique Serial shipping Container Code assigned by distiller		N18

First bar-code structure at case level:

This bar-code will have GTIN number (a unique product code for case), batch number, manufacturing date and expiry date.

AI	GTIN-14			AI	Batch Number	AI	Manufacturing Date	AI	Best Before Date
	Extension Digit (1 digit) Country Code (3 digits)	Company Prefix + Item Reference Number(9 digits)	Check Digit (1 digit)						YYMMDD
01	08902967201905			10	0000518	11	111010	15	000000

ABC Company Limited registered in GS1 India. The Components of GTINs are follows:

Extension Digit – 0
Country Code – 890
Company Code – 2967
Item Reference – 20190 – Director`s Special Black Whisky 750ml case pack
Batch Number – 0000518
Manufacturing Date – 111010 in (YYMMDD format) - 10-Oct-2011
Expiry Date – 000000 (It will be used for liquor otherwise it will be zeros for other liquors)

Second bar-code structure at case level:

SSCC (Serial Shipping Container Code) to identify individual carton uniquely.

Application Identifier Code	Serial Shipping Container Code (Unique Serial Number) (18 digits)
00	089029670000012345

Extension Digit – 0
Country Code – 890
Company Code – 2967
Unique Serial Number – 0000012345 – Uniquely identification of case

Sample Case barcode:

Bottle Barcode/Mono Carton/Small Case

Implementation Guidelines for GS1 2D Data Matrix Barcode at Bottle Level/Mono Carton/Small Case (Secondary Packaging)

At Bottle level/Mono Carton/Small Case, 2D GS1 Data matrix symbology shall be used encoded with GTIN, batch Number and unique serial number provided by Distiller.

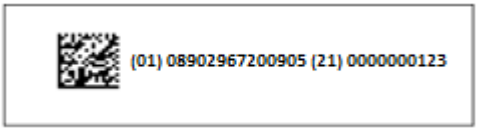
Attribute	Description	Value	Size(N-numeric, AN-Alpha Numeric)
Application identifier	To identify GTIN Number	01	N2
GTIN	Indicator + Company Prefix + Item Number+ check digit		N14
Application identifier	To identify unique serial number	21	N2
Serial number	Unique Serial Number		N10

Bottle/Mono Carton/Small Case Barcode Examples

Application Identifier Code	GTIN-14			Application Identifier Code	Unique Serial Number
	Extension Digit (1 digit) Country Code (3 digits)	Company Prefix + Item Reference Number (9 digits)	Check Digit (1 digit)		(10 digits)
01	08902967200905			21	0000000123

ABC Company Limited registered in GS1 India. The Components of GTINs are follows:
Extension Digit – 0
Country Code – 890
Company Code – 2967
Item Reference – 20090
Unique Serial Number – 0000000123

Sample Bottle Barcode:



Annexure – II – Sample XML Format

Sample XML Format for receiving of cases:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--Sample XML file generated by XMLSpy v2011 rel. 3 sp1 (http://www.altova.com)-->

<BarCodeDetails xsi:noNamespaceSchemaLocation="BarCodeDetails.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <TPDetails IPNumber="TP001">
                <SSCC>089034560000000011</SSCC>
                <SSCC>089034560000000022</SSCC>
                <SSCC>089034560000000033</SSCC>
                <SSCC>089034560000000045</SSCC>
                <SSCC>089034560000000056</SSCC>
                <SSCC>089034560000000067</SSCC>
                <SSCC>089034560000000078</SSCC>
                <SSCC>089034560000000089</SSCC>
List of SSCC barcode details of scanned cases
……..
……
        </TPDetails>
</BarCodeDetails>
```

Sample XML file uploaded Sale details in HCR – BarcodeDetails.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2011 rel. 3 sp1 (http://www.altova.com)-->
<BarCodeDetails xsi:noNamespaceSchemaLocation="BarCodeDetails.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <HotelDetails Hotelid = “H001" Restaurant =”R001”>
                <SSCC>089034560000000067</SSCC>
                <SSCC>089034560000000078</SSCC>
                <SSCC>089034560000000089</SSCC>
                List of SSCC barcode details of sold case details
                ……..
                <BottlelDetails>
                        <GTIN>89034567891561</GTIN>
                        <SerialNumber>1234567890</SerialNumber>
                        <SoldDate>2011-11-09</SoldDate>
                </BottlelDetails>
                <BottlelDetails>
                        <GTIN>89034567891561</GTIN>
                        <SerialNumber>1234567891</SerialNumber>
                        <SoldDate>2011-11-09</SoldDate>
                </BottlelDetails>
                .... List of sold bottles details
        </HotelDetails>
        .... List of other restaurant id details
</BarCodeDetails>
```

Annexure – III – Scanner Specifications

2D Data Matrix is read by imaging cameras devices. The principle is based upon first capturing the image of the symbol and then analyzing it. This is different technology from the one used by many of the laser scanners for reading the linear barcode symbol. A linear symbol can be read by a single laser beam passing across the length of the symbol. However, to read Data Matrix symbol requires the entire image to be read in both the X and Y axis. 2D is considered to be having better readability compared to 1D. It can be read from any angle and side of scanning. In case of any minor damage to the 2D bar code, the readability is still ensured.

Scanners will be used for scanning the cases during receiving of cases against TP and issuing of liquor from HCR' store to bars or restaurant (licensed point of sale).

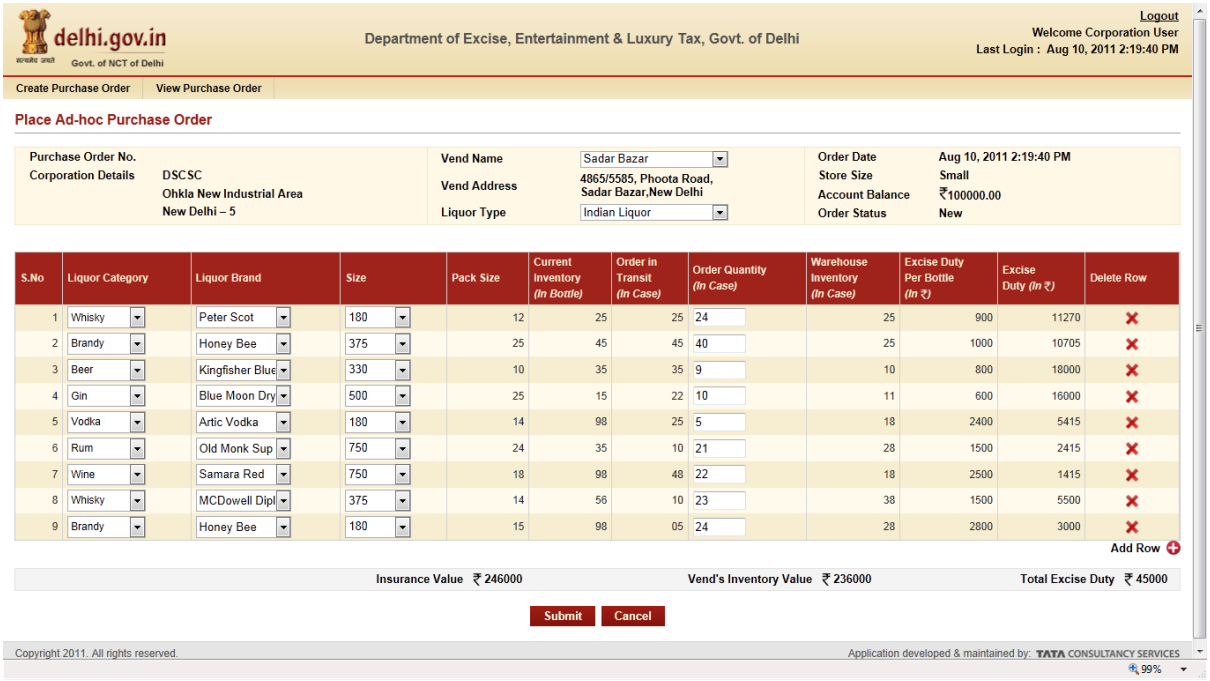
It is to be understood by the Hotel, Club and Restaurant (HCR) Owner that the product features and specifications of the devices recommended in the document for scanners are for reference only. Hotel, Club and Restaurant (HCR) Owners have to decide and discussed with vendor to procure and meet the requirement of 1D and 2D barcodes scanning.

To ensure the reliability of barcode scanning, it is recommended that scanner should possess following features:

- Comprehensive data capture options — 1D, 2D, image capture
- Supports for all major 1D, PDF, postal and 2D symbologies
- High Resolution of camera
- Rugged Design
- Tempered Glass exit window
- Multiple on-board interfaces and universal cable
- Omni-directional scanning, wide working range
- Comprehensive connectivity options — including wireless, cordless and corded
- High resolution high contrast color QVGA display

A good quality hand held digital image or mobile scanners (HHT) capable of scanning GS1 barcodes (1D and 2D barcodes) possessing above mentioned features should be used.

Annexure – IV – Place Purchase Order Online



ESCIMS

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