GS1 DIY Self-Learning Materials

GS1 Standards & Keys for Logistics and Inventory Management

GS1 Malaysia Berhad
Preface

• This DIY Self Learning Material will provide insights into:

- The barcodes used for logistics and inventory management
- Application Identifiers (AI)
- Function One Key (FNC1)
- Serial Shipping Container Code (SSCC)
- GS1 Logistic Label
Different Types of GS1 Barcode Symbols

Barcode symbol for **traceability** of inventory and logistical use. Contains additional production information such as batch/lot, expiry date, etc.

GS1-128

2D Barcode, can store a lot of information in a small space. Only readable via camera-based scanners. The default barcode symbol for **Healthcare traceability** use. Similar to QR Code in use.

GS1 2D DataMatrix

GS1 QR Code

2D Barcode, can store a lot of information in a small space. Only readable via camera-based scanners. Similar to Datamatrix in use, but is more efficient at encoding **logograms** such as Chinese, Japanese, Korean, etc.
GS1 QR Code & GS1 Data Matrix Comparison

• The **Data Matrix** was first developed in 1989 by I.D. Matrix.
• The **QR Code** was first developed in 1994 by Denso Wave.
• Both codes encode large amounts of data into a small area and employ error detection and error correction.
• The QR Code is slightly more efficient in encoding Japanese Kanji characters, but otherwise neither code has a practical advantage over the other.
• As the Data Matrix has been around longer, it has been adopted for use in the **Healthcare Industry** as the **preferred data carrier** for all pharmaceutical and medical device products.
• Both codes are considered GS1 2D Barcodes when they are encoded in accordance to GS1 specifications and guidelines, eg. the inclusion of the Function Key One (**FNC1**) ASCII code as a group separator, or the inclusion of the GS1 unique identifiers such as **GTIN**.

![QR Code Example](image1)

![Data Matrix Example](image2)
GS1 Application Identifiers

An element string that carries dynamic or “production” data that, in conjunction with the GS1 Key, provides additional information about the item identified at the point of acquisition.
GS1 Application Identifier (AI)

AIs are used for:

**Item identification** - Identification number (GTIN) of a trade item

**Traceability numbers**
- Batch number
- Lot Number
- Serial Number

**Dates**
- Use By Date
- Production Date
- Expiry Date
GS1 Function One / <FNC1> Key

- A GS1 Malaysia barcode must contain functions that identify it as using GS1 standards.
- A FNC1 key is used to show that a barcode is following GS1 standards and as a group separator.
- A group separator is used to tell a barcode scanner when a group of variable data finishes, and when the next one starts.
GS1 Function One / <FNC1> Key

• All production data that can be encoded into a GS1 barcode is separated into 2 types; fixed length and non-fixed length.

• Fixed length = non-variable data, e.g.
  • All Dates; i.e. expiry date, sell-by date; are 6 digits in length
  • GTIN is always 14 digits in length

• Non-fixed length = variable data, e.g.
  • Batch / Lot Number, can be of any length up, to a maximum of 20
  • Serial Number, can be of any length, up to a maximum of 20
Logistics Unit

• Items of any composition
• Established for transport and/or storage
• Tracked and traced through the supply chain
• Logistic units are individually identified with the Serial Shipping Container Code (SSCC).
• Millions of products in many configurations and packaging types.

Possible types of logistic units:
✓ A carton
✓ A pallet
✓ A group of shrink wrapped units
✓ A cargo container
Serial Shipping Container Code (SSCC)

- The Serial Shipping Container Code is a standard for the individual identification of logistic units.
- The SCC can be used by all parties in the supply chain as a reference number to the relevant information held in computer files.
- It is identified by the Application Identifier (AI) ’00’.
- It is most commonly represented with the GS1-128 symbol.
- It is a mandatory field on the GS1 Logistic Label.
- The SCC individually identifies the logistic unit to which it is applied for the lifetime of that unit (it can be re-used after 1 year).
SSCC: An Entity Identifier

All stakeholders in a supply chain can use SSCC to keep track of their products as it moves.
GS1 Logistics Label

• A voluntary standard for the numbering and barcoding of logistic units.

• Provides clear and concise information about the logistic unit to which the label is fixed, in both machine and human readable form.
Want to learn more?

Attend GS1 Malaysia’s Capacity Building & Implementation Program to find out more!
Effective Implementation of GS1 Standards and Keys – FREE to attend!

**Effective Implementation of GS1 Standards & Keys**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday to Friday</td>
<td>3.00 PM - 4.00 PM</td>
<td>• Learn how to assign GS1 barcode numbers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Upload your product information to our online repository for visibility &amp; authenticity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Why an active GS1 Membership is important for your Business.</td>
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</tbody>
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**JOIN US NOW ON ZOOM!**

*Subject to change*
Migration to “Data-Rich 2D” Initiative (FOC)

Migration to “Data-Rich 2D” Zoom Link: https://us06web.zoom.us/j/8251390076
**Verified by GS1 – Product Databank Support & Services**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Highlights</th>
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</thead>
<tbody>
<tr>
<td>Every Thursday of the</td>
<td>10.00</td>
<td>• <strong>WHAT is VbG-PDSS?</strong></td>
</tr>
<tr>
<td>Month</td>
<td>AM</td>
<td>• <strong>WHY is VbG-PDSS so Important?</strong></td>
</tr>
<tr>
<td></td>
<td>11.30</td>
<td>• <strong>The Services &amp; Platforms Managed by VbG-PDSS</strong></td>
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</table>

*Subject to change

**VbG-PDSS Zoom Link:** [https://us06web.zoom.us/j/8977066545](https://us06web.zoom.us/j/8977066545)

**JOIN US NOW ON ZOOM!**
# GS1 Industry Focus Forums

## GS1 Malaysia Industry Focus Forums

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<tr>
<th>TOPIC 1</th>
<th>TOPIC 2</th>
<th>TOPIC 3</th>
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</thead>
<tbody>
<tr>
<td>Supply Chain Optimisation and Regulatory Fulfilment using Global Location Number (GLN) and GS1 Services</td>
<td>Comply with Global Unique Device Identification (UDI) Regulation &amp; Directive of Healthcare using GS1 Standards</td>
<td>The Importance of GS1 Global Location Number (GLN)</td>
</tr>
<tr>
<td><strong>Key Learnings:</strong></td>
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<tr>
<td>- Comply with Retail Merchandising Requirements</td>
<td>- Achieve compliance with international directives and country-specific regulations on medical devices and pharmaceutical products</td>
<td>- Comply with international directives and country-specific regulations on location and entity identification such as the Russian certificate of conformity for all products originating outside of EAEU and the use of GLN by NPRA-MOH for COVID-19 vaccine track and trace.</td>
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<tr>
<td>- Fulfil Global Regulatory Compliance</td>
<td>- Fulfilling regulatory compliance required by US FDA GUDID, EU EUDAMED, China NMPA, UAE BrandSync, and many more.</td>
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<tr>
<td>- Track &amp; Trace using the GS1 2D Datamatrix</td>
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*Chargeable:*
- 1-5 people – RM 500
- 6-10 people – RM 1000

Write to databank@gs1my.org to book your session!
In-House Business Consultation

Need a special tailor-made **In-House Business Consultation** session? GS1 Malaysia can provide advisory support for you to meet your specific needs.

Each session can be **half-day** or **full day**.

Scan here for the Fee Structure:
# Official GS1 Communications Channels

<table>
<thead>
<tr>
<th><strong>Official GS1 Malaysia WhatsApp</strong></th>
<th><strong>Official GS1 Malaysia Emails</strong></th>
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</thead>
<tbody>
<tr>
<td>+6014-3933 228</td>
<td><a href="mailto:gs1malaysia@gs1my.org">gs1malaysia@gs1my.org</a></td>
</tr>
<tr>
<td>(Membership, Services &amp; Support)</td>
<td></td>
</tr>
<tr>
<td>+6011-1616 8228</td>
<td><a href="mailto:membership@gs1my.org">membership@gs1my.org</a></td>
</tr>
<tr>
<td>(Membership, Services &amp; Support)</td>
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</tr>
<tr>
<td>+6016-2455 228</td>
<td><a href="mailto:payment@gs1my.org">payment@gs1my.org</a></td>
</tr>
<tr>
<td>(Strictly for Payment Only)</td>
<td></td>
</tr>
<tr>
<td>+6012-2722 646</td>
<td><a href="mailto:gs1mymembership@googlegroups.com">gs1mymembership@googlegroups.com</a></td>
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<tr>
<th><strong>Official GS1 Malaysia Land Line &amp; Fax Line</strong></th>
<th><strong>Official GS1 Malaysia Website</strong></th>
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<tbody>
<tr>
<td>Land: +603-6286 7200</td>
<td><a href="http://www.gs1my.org">www.gs1my.org</a></td>
</tr>
<tr>
<td>Fax: +603-6276 1042</td>
<td></td>
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