# *KEY STEPS TO BARCODE IMPLEMENTATION*

To gain the full benefits of product numbering, product numbers must be allocated correctly and the bar codes must be printed accurately to ensure that they <u>scan first time, every time</u>.

1. **Become a GS1 Mauritius member and obtain a GS1 Global Company Prefix (GCP)**
   You need to be registered with GS1 Mauritius to obtain a bank of numbers. These numbers will include a Company Prefix which is uniquely assigned to your company. The GCP is, depending on the range of numbers you applied for, either in nine, eight, or seven digits of thirteen-digit Global Trade Item Number (GTIN).

### 9 Digit company prefix : 1 000 numbers

| Company Prefix | | | | | | | | | Item No. | | | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | P | P | P | P | P | P | P | P | I | I | I | C |

### 8 Digit company prefix : 10 000 numbers

| Company Prefix | | | | | | | | Item No. | | | | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | P | P | P | P | P | P | P | I | I | I | I | C |

### 7 Digit company prefix : 100 000 numbers

| Company Prefix | | | | | | | Item No. | | | | | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | P | P | P | P | P | P | I | I | I | I | I | C |

2. **Assign Numbers**
   Using your GS1 Global Company Prefix, generate your number(s). When assigning numbers to retail items a separate Global Trade Item Number (GTIN) must be given for each different size, shape, weight, colour, flavor, pack configuration, promotional variant.

   - Number sequentially. Example of Sequential Numbering

     GLN:              609123456000C
     Product A:        609123456001C
     Product B:        609123456002C
     Product C:        609123456003C

   - Check digit calculation
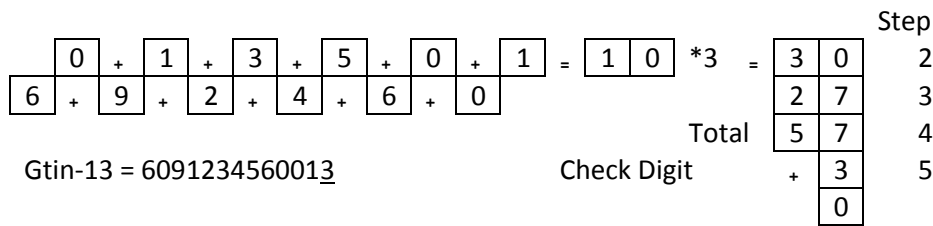     The GTIN Check Digit Calculator is available on

     http://www.gs1.org/barcodes/support/check_digit_calculator

     <u>OR</u>

     1. GTIN-13 : Enter 12 digits in blocks
     2. Add digits in top blocks and multiply answer by 3
     3. Add digits in lower blocks
     4. Add result of step 2 above to result of step 3
     5. Check Digit is a number, which when added to the unit digit of result of step 4, produces an answer of 0

GTIN-13
Example : 609123456001-C

|   |   |   |   |   |   |   |   |   |   |   |   | Step |
|---|---|---|---|---|---|---|---|---|---|---|---|------|
| 0 | + | 1 | + | 3 | + | 5 | + | 0 | + | 1 | = 1 0 *3 = 3 0 | 2 |
| 6 | + | 9 | + | 2 | + | 4 | + | 6 | + | 0 | | 2 7 | 3 |
| | | | | | | | | | Total | 5 7 | 4 |
| | | | | | | | | Check Digit | + 3 | | 5 |
| | | | | | | | | | 0 | | |

Gtin-13 = 609123456001<u>3</u>

- Numbering of Outer Cases 14 digit (GTIN-14)
  - Prefix the internal consumer unit number with any  digit from 1-8 (indicator) and re-calculate the check digit
  - Indicator 9 is reserved for variable measure items

- Keep a record of numbers allocated to the products in a database

| SEQUENCE | CHECK DIGIT | GTIN | PRODUCT DESCRIPTION |
|----------|-------------|------|---------------------|
| 609123456001 | 3 | 6091234560013 | Ex: Jam Strawberry 50g |
| 609123456002 | 0 | 6091234560020 | Jam Peach 50g |
| 609123456003 | 7 | 6091234560037 | Jam Strawberry 100gr |

## 3. Select a barcode printing method
Bar code labels can either be printed by a printer or produced in-house.

## 4. Select a 'primary' scanning environment
There are four basic scanning environments for trade items that ultimately will influence the choice of the barcode, size and placement.  These environments are:
- Retail Point-of-Sale Only
- General Distribution Only
- Point-of-Sale and General Distribution
- Special environments (e.g. medical device marketing)

## 5. Select the most appropriate barcode
Please refer to the table below for selecting the right barcode:

| Application Areas | Encoded GTIN and / or attribute information | Symbol |
|-------------------|---------------------------------------------|--------|
| General Retail Point-of-Sale and General Distribution | GTIN-13 | EAN-13 |
| Outercase | GTIN-13<br>GTIN-14 | EAN-13<br>ITF-14 / GS1-128 |
| Pallet | GTIN-14<br>SSCC | ITF-14 / GS1-128<br>GS1-128 (00) |

## 6. Pick a barcode size
The EAN/UCC Symbol has a nominal height and width.

| Standard Size 100% | Width (mm) | Height (mm) |
|--------------------|------------|-------------|
| EAN/UCC for GTIN-13 | 37.29 | 25.91 |

The specified magnification range for an EAN/UCC Symbol for a GTIN-13 being scanned at

- Retail POS                              : 80% - 200%
- General distribution              : 150% - 200%
- For more information, please refer to the [GS1 General Specifications](#)

Note:
- <u>Truncation</u> (where the height is decreased) should be avoided as it may have a negative impact on scan rates for omnidirectional scanners.
- <u>Light Margins / Quiet Zones</u> is the area surrounding the bar code on the left and right. Without these light margins, the scanner is unable to recognise the beginning and the end of the bar code. The light margins vary depending on the magnification of the bar code. For a nominal size (100%), the right light margin should be 2,31 mm and 3,63 mm to the left, with 0,33 mm required from the top of the bars. Make sure that absolutely no information or graphics infringe on this area.

7. **Format the Barcode Human Readable Interpretation**
   The text beneath a barcode is important because if the barcode is damaged or of poor quality, then the text is used as a back-up.

8. **Pick a barcode colour**
   Scanners interpret bar codes by measuring the widths of the light and dark bars. The optimum colour combination for a barcode symbol is black bars with a white background (spaces and Quiet Zones).

   Combinations of other colours can be equally as effective. As a scanner's beam is a shade of red, the contrast seen by scanner is different to that seen by the human eye. The table below gives an indication of how certain colour combinations work together.

<p align="center"><strong>Suitable Colour Combinations</strong></p>

| Good Contrast | Poor Contrast |
|---|---|
| Black on White | Red on White |
| Blue on white | Orange on White |
| Green on white | Yellow on White |
| Black on Red | Black on Blue |
| Blue on Orange | Black on Green |
| Green on yellow | Red on Blue |

If you want to use other colours, the following may help you:

## 9. Choose the barcode placement



Picket Fence



Ladder

## NEVER ON THE BASE!

| Consumer Units | Multipacks and Cash & Carry Packs |
|---|---|
| • Close to the natural base<br>• Lower right quadrant<br>• Opposite the promotional panel<br>• Between 8mm and 100mm from the edge<br>• Orientated ladder fashion on cylindrical products | • On longer side and, if possible, opposite the promotional panel<br>• Lower right quadrant<br>• Choose flat surface if irregular |
| **For Distribution** | **For Pallets** |
| • Lowest edge of bar code is 32 mm from base of unit and at least 19mm from vertical edges.<br>• Placement must be on the short side and the side to the right.<br>• Picket Fence | • Height from 400mm to 800mm from base of unit.<br>• Not closer than 50mm from vertical edges |

## 10. Enhance a barcode quality

Once the barcode symbols have been printed, they need to be tested.  Testing is the technical process by which a barcode symbol is analysed to determine its conformance with specifications for the symbol.  Ongoing checks are recommended to ensure that the barcode complies with the required quality standard and to identify any potential problems.

**For more information, contact**

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