Implementing 2DBarcodes with Woolworths

Step-by-step guide for Woolworths suppliers of Variable Weight Products

Product identification and labelling for retail point-of-sale is changing. Woolworths are at the forefront of the barcode evolution with the implementation of GS1 2DBarcodes (2DB). As products are rolled out, suppliers will be notified by Woolworths when their products are required to transition to 2DBarcodes. To support this shift, GS1 Australia, in partnership with Woolworths, have prepared an easy to follow step-by-step guide, assisting suppliers with their transition to 2DBarcodes.

What are 2DBarcodes?

2DBarcodes are a square on-pack symbol made up of individual dots or squares. The innovative 2DBarcodes enable multiple data elements to be embedded. This data is made available to the retailer, supplier and customer when the product is scanned at point-of-sale. The types of data that can be embedded in the 2DBarcode include; product batch or lot number, serial number, best before date, use-by date, pack date, product weight, price and more.

Follow this handy guide for Woolworths suppliers to implement GS1 2DBarcodes.

Contact us

For supplier assistance regarding the transition to 2DBarcodes with Woolworths contact

E foodbeverageteam@ gs1au.org

STEP 1: Is your product variable weight?

Variable weight

Products sold at a price per kilo, for example Lamb Loin Chops sold at $27.00 per kilo.

If you supply variable weight products, **continue to Step 2**.

If your product is fixed weight

Products sold at a total fixed price, for example Pork and Veal Meatballs sold at a total price of $7.00

If you supply fixed weight products, please contact GS1 Australia for assistance with implementing 2DBarcodes with Woolworths by emailing foodbeverage.team@gs1au.org

STEP 2: Is your product supplier branded or Woolworths branded?

Variable Measure Number

Global Trade Item Number

The current barcodes on your products use a Variable Measure Number(VMN)*, encoded in an EAN-13 barcode. To transition to 2DBarcodes with Woolworths, VMNs will be replaced with GTINs(Global Trade Item Numbers). A GS1 DataMatrix requires a GTIN to operate at Point-of sale.

To obtain GTINs for your products, suppliers need to identify whether a product is 'supplier branded' or 'Woolworths branded'.

* The VMN will still be needed by suppliers who trade with other retail partners as only Woolworths are currently transitioning to 2DB. If you supply to multiple trading partners, please ensure they are capable of reading 2DBarcodes.

Supplier branded product

Products that display a supplier's name or logo on the packaging, as determined by the brand owner.

If your product is supplier branded, you will be assigning your own GTINs for each of your products. For instructions on how to do this, **continue to Step 3**.

Woolworths branded product

Products that display the Woolworths name or logo on the packaging, as determined by the brand owner.

If your product is Woolworths branded, Woolworths will be assigning you with GTINs for each of your products. For further instructions email DataEmbedded@woolworths.com.au

STEP 3: Allocate a unique Global Trade Item Number (GTIN) to your product

A GTIN is made up of the following elements:
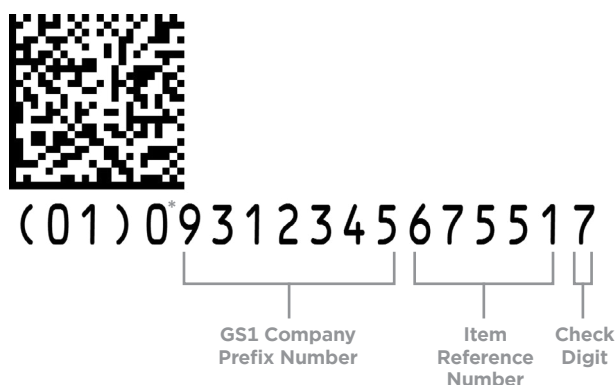
1. A GS1 Company Prefix number

This is allocated to you by GS1 Australia. This number will remain the same for each of your GTINs. As a member of GS1 Australia you can see all your GS1 numbers, including your company prefix number using the MyGS1 Member Portal at https://www.gs1au.org/mygs1

2. An Item Reference number

This is allocated by the supplier. To produce these numbers, GS1 recommends beginning with zeroes and increasing the count sequentially e.g. 0000, 0001, 0002... If you have numerous products, a spreadsheet may be useful to auto-generate your numbers and keep a record.

3. A Check Digit

The check digit is calculated using an online tool provided by GS1 Australia. To generate a check digit for each of your GTINs use the **GS1 Check Digit Calculator** at https://www.gs1au.org/resources/check-digit-calculator

(01) 0*9 3 1 2 3 4 5 6 7 5 5 1 7

GS1 Company Prefix Number   Item Reference Number   Check Digit

* **Filler Zero** – AI(01) must be followed by 14 digits in a GS1 DataMatrix symbology. So GTIN-13 must therefore be preceded by a meaningless Filler Zero.

STEP 4: Contact your print partners

Suppliers will need to consider their print, scales and application processes and how these work with their current internal systems. It is recommended you contact your scanning, printing and/or scale labelling supplier to determine the status of your equipment to support GS1 DataMatrix symbols. Ensure your label stock is non-glossy. Matte stock is preferred for products that are kept in refrigerated environments. For assistance you can visit the GS1 Solution Provider Directory at https://www.gs1au.org/solution-providers

STEP 5: Send your newly created GTINs to Woolworths

Once you have created your GTINS for your products you will need to send these to Woolworths for entry into their Point-of-Sale (POS) system. You can do this by sending an email to DataEmbedded@woolworths.com.au

STEP 6: Embed extra data in your new 2DBarcodes

Now comes the exciting part! Embedding the data into your 2DBarcodes. The following table provides the data formats required for each data type required by Woolworths.

Data Type	AI*	Format
Global Trade Item Number (GTIN)	01	14 Numeric Characters
Sell price	3922	Up to 15 numeric characters with 2 decimal places
NET weight in kgs	3103	6 numeric characters with 3 decimal
Use By Date/Expiry Date	17	6 numeric characters in YYMMDD format
Best Before Date	15	6 numeric characters in YYMMDD format
Batch/ Lot Number	10	Up to 20 alpha/numeric characters

2DBarcode data formats for variable measure products sold at POS

*Application Identifiers (AI) are used to enable scanners to understand what information it is reading, an AI code is required in front of each piece of data. The AI codes are shown in column 2.

Here is an example of a barcode for a GS1 DataMatrix demonstrating where each of the embedded data elements are located.

(01)09312345675517(3103)000456(17)210218(3922)000899(10)ABC12345

Global Trade Item Number	Net Weight	Use By Date	Price to pay	Batch/Lot Number
09312345675517	0.456Kg	18th Feb 2021	$8.99	ABC12345

STEP 7: Design your 2DBarcode symbol

Woolworths are using the GS1 DataMatrix* barcode symbol for their transition to 2DBarcodes. The GS1 DataMatrix is a 2D or two-dimensional barcode symbol made up of individual dots or squares. This representation is an ordered grid of dark and light dots bordered by a finder pattern. The **Finder Pattern** is partly used to specify the orientation and structure of the symbol. The **Data** is encoded using a series of dark or light dots based upon a pre-determined size. The size of these dots is known as the X-dimension.
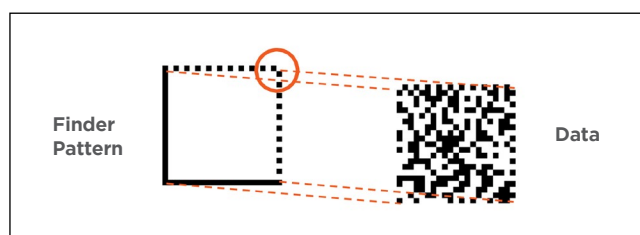
*A GS1 DataMatrix must be used for transitioning to 2DBarcodes with Woolworths, other types of DataMatrix will not scan at Woolworths point-of-sale. Use the following table to design your GS1 DataMaxtrix (**2DBarcode symbol**).

Barcode specifications for GS1 DataMatrix		
To improve scannability it is recommended to print the DataMatrix symbol at the target size of 0.625 or 0.750 X-dimension and use 22 rows x 22 columns in a square format. The size of the symbol should be determined by your printing process and based on the Dots Per Inch (DPI) of your printer (recommended 300 DPI or higher	Height is determined by the X-Dimension and data that is encoded.	It is mandatory to print (at a minimum) the GTIN underneath the barcode. This enables manual processing of the GTIN at POS when the barcode is not readable.
Ensure that you use GS1 DataMatrix as this is not the same as the plain DataMatrix version.	The GS1 DataMatrix is formed by adding a FNC1 character in the first position of Data Matrix ECC 200. (Control character]d2)	Separate data fields that are not pre-defined with FNC1 separator. (Control character <GS>)
Do not encode the brackets around the Application Identifiers in the GS1 DataMatrix. The Application Identifiers should only be between brackets in the human readable text underneath the barcode.	Data encoded multiple times with an error correction algorithm.	AI (01) must be followed by 14 digits. A GTIN-13 must therefore be preceded by a filler zero.

STEP 8: Test your systems for 2DBarcodes

2DBarcodes are read by imaging scanners or vision systems that are two-dimensional. Most other scanners that are not two-dimensional imagers cannot read 2DBarcodes. It is recommended suppliers contact their IT department to test their systems and scanners. For supplier branded items, ensure your databases and systems can accommodate for the additional GTIN and additional embedded data as you may also be required to maintain the VMN for other trading partners.

STEP 9: Submit your label samples to GS1 Australia for verification

To ensure your 2DBarcodes scan first time, every time at the Woolworths checkout, suppliers must submit their label samples to GS1 Barcode Check. A service offered by GS1 Australia where a range of factors can be tested, including compliance to global standards, size, colour, print quality, numbering and more. Once tested, GS1 will provide you with a **Barcode Verification Report** indicating the compliance of your barcode and if necessary, any changes you may need to make. This report is required by Woolworths to check that the correct AI's and data have been encoded in each 2DBarcode. To access GS1 Barcode Check visit www.gs1au.org/barcode-check. Once you have received your Barcode Verification Report, email this to DataEmbedded@woolworths.com.au

STEP 10: Incorporate a barcode quality plan

It is highly recommend to incorporate a barcode quality plan as a Standard Operating Procedure (SOP) within your business including the following;

- When printing any barcode to a label, ensure you print a horizontal line above the barcode symbol across the print width. This only needs to be around 3mm and allows the operators to physically see faults within the printhead when the labels are being printed. If there is a gap where there is no printing then a scheduled printhead clean or printer head replacement is necessary. A scheduled printhead clean is recommended once every label change or on a scheduled basis. Your barcode printer supplier can assist with this.

By printing this horizontal line across the print width you can see where there is a print fault. This may affect scannability.

- Introduce an intermittent scan test to ensure readability. There are printers in the market that have these inbuilt.

- Introduce 300DPI printers when looking at replacements.

- Adhere to the recommend barcode symbol size as stated in this guide.

- Ensure your labels are applied to a flat, even surface without crinkles or wrapping around the edge of the product.

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