

---

# GS1 DataMatrix Implementation Talking Points

## Cannabis

### Purpose

This document has been developed as a guide to initiate trading partner communication regarding GS1 DataMatrix implementation within the Canadian cannabis supply chain. This document does not include detailed technical information on how to implement the GS1 DataMatrix.

### Audience

- Cannabis Licensed Producers (LPs)
- Jurisdictions
- Cannabis retailers
- Solution providers
- Other supply chain trading partners

### Scope

Cannabis products for recreational use only.

### Background

In environments with automated systems, the physical article needs to be identifiable in machine-readable form (such as a barcode). Barcodes are symbols that can be scanned electronically using laser or camera-based scanners and are used to encode information such as product identification, serial numbers, and batch numbers. Barcodes play a key role in supply chain, enabling trading partners to automatically identify and track products as they move through the supply chain. Selecting the right barcode is critical to the success of the barcode implementation process.

The Canadian cannabis community agreed on the implementation of the GS1 DataMatrix on all products that go through point-of-sale (POS) by January 1, 2025. At that time, the GS1 DataMatrix will replace the linear barcode for all cannabis products.

### What is GS1 DataMatrix?

A single 2D (two dimensional) barcode can hold a significant amount of information and may remain legible even when printed at a small size, etched onto a product, or become slightly damaged. GS1 DataMatrix is a two-dimensional matrix symbology that has been used in the public domain since 1994. The GS1 system has adopted the GS1 DataMatrix because it can encode GS1 system data structures (e.g., Application Identifiers), and offers many technical advantages over other barcodes.

The GS1 DataMatrix has a compact design and can be developed through multiple production methods, allowing it to be placed onto various surfaces. When implementing the GS1 DataMatrix, choosing the form of the symbol must be made based on several criteria, including configuration, available space on the product type, amount of data to encode, the printing process.

It is possible to encode the same data in both forms of the GS1 DataMatrix:



GS1 DataMatrix can carry additional information such as batch/lot number and packaging date using GS1 Application Identifiers. In its square-form, the GS1 DataMatrix has a maximum capacity of 3116 numeric or 2335 alphanumeric characters. In its rectangle-form, the GS1 DataMatrix has the maximum capacity of 96 numeric or 71 alphanumeric characters. GS1 DataMatrix symbols are read by two-dimensional camera scanners. Scanners that are not camera-ready cannot read the GS1 DataMatrix.

## Benefits of GS1 DataMatrix

- Recommended globally for all regulated healthcare product (i.e., pharmaceuticals and medical devices).
  - Canadian pharmacy sector implementation of GS1 DataMatrix is well underway.
  - US Drug Supply Chain Security Act (DSCSA) for pharmaceutical products (due date, November 27, 2018).
- Can encode required variable data such as lot/batch number and packaging date
- Small and ideal for all packaging sizes.
- Capacity of up to 3,116 numeric or 2,335 alphanumeric characters.
- Uses Reed-Solomon error correction. This feature allows, to a certain extent, the correction of error in the barcode. For example, if the barcode is damaged through transportation and logistics the barcode will still be readable by scanners.

## Implementation timeline

The Canadian cannabis community decided to implement the GS1 DataMatrix on all products that go through point-of-sale by January 1, 2025.

## Implementation considerations

### General points (People, Process, Technology)

- Determine if your internal staff require education and training on GS1 Standards.
- Review your internal processes and adjust them to be able to utilize GS1 DataMatrix.
- Ensure your internal systems (e.g., point-of-sale, Enterprise Resource Planning (ERP), warehouse management system, inventory management system, etc.) can receive, store, and process the additional information that is encoded in the GS1 DataMatrix.
- Ensure that your internal systems are interoperable, and that you can share and process the information that is encoded in the barcode.

---

## For Retailers

- Ensure that your scanners can read the GS1 DataMatrix.
  - GS1 DataMatrix symbols require scanners that can read in two dimensions. These scanners use camera or imaging technology. This is a different technology from the one used by many of the laser scanners for reading linear barcodes. Laser scanners **cannot** read 2D barcodes such as GS1 DataMatrix.
    - **Note:** Almost any scanner capable of reading the GS1 DataMatrix can also read linear barcodes such as GS1-128, EAN-13 and UPC-A as well.
- In addition to GTINs, ensure internal systems can receive, store, and process the supplementary information that is encoded in the GS1 DataMatrix such as the batch/lot number and packaging date.
- Communicate your implementation timeline and your requirements to your solution provider(s) and scanner vendor(s) to make sure your systems and scanners are ready before the due date of January 1, 2025.
- Communicate your expectation to receive only the GS1 DataMatrix on products to your Licensed Producers.
  - **Note:** Give your trading partners (i.e., Licenced Producers) time to make the required modifications in their systems and processes to be able to generate GS1 DataMatrix by the required date.

## For Licensed Producers

- Ensure your printers can print the GS1 DataMatrix as per [GS1 General Specifications](#).
  - Seek your printer vendor guidance on how to setup your printers to print the GS1 DataMatrix.
    - **Note 1:** Information must be printed "inline" and cannot be pre-printed artwork.
    - **Note 2:** Ensure your printer prints the GS1 DataMatrix barcode. There are other types of 2D or Data Matrix barcodes, which cannot encode GS1 Application Identifiers to include additional data, such as lot number, in the barcode.
- Ensure your internal systems can provide the supplementary information that needs to be encoded in the barcode, such as lot/batch number and packaging date. This requires internal systems to be interoperable.
- Communicate the GS1 DataMatrix implementation timeline and your requirements with your solution provider(s) and printer vendor(s) to make sure your systems and printers are ready before the due date of January 1, 2025.
- Communicate your timeline to print only GS1 DataMatrix on products to your customers (retailers).
  - **Note:** Give your customers time to make the required modifications in their systems and processes and to be able to scan the GS1 DataMatrix.
- Consult GS1 General Specifications to ensure the GS1 DataMatrix is created correctly and verify that the GS1 DataMatrix has been created accurately before moving to production.
  - **Note:** Use [GS1 Canada Barcode Scan Verification](#) to validate your barcode.

---

## Support

- [GS1 Canada Standards Page](#)
- [GS1 General Specifications](#)
- [GS1 DataMatrix Guideline](#)
- [Barcoding for Designers, Printers and Packagers](#)
- [Barcode Scanning Equipment Selection Criteria](#)
- [Symbology Placement Guidelines](#)
- For additional support contact GS1 Canada Industry Support Services team at [info@gs1ca.org](mailto:info@gs1ca.org)