APPLIBRA

USER GUIDE

AL GS1

GS1

AL GS1 is the GS1-128 (EAN-128) barcode engine for Business Central.

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AppLibra - applibra.com

AL GS1 is the GS1-128 (EAN-128) barcode engine for Business Central. It encodes and decodes standard GS1 barcodes, manages application identifiers, GTINs and SSCCs, and - over Web API and the AL Message Passing bus - drives label printing and scan-to-document logistics. This guide covers setup and daily use.

1. Concepts in one minute

- A **GS1-128 barcode** is a chain of **application identifiers (AI)**: each AI is a code plus a value - SSCC (00), GTIN (01/02), lot (10), production, best-before and expiry dates, serial (21), net and gross weight, package quantity, and more.
- An **application identifier** is defined once in a master list with its format, data type, length and validation rule; the app ships the full GS1 list and you can re-import it.
- A **barcode model** (a header with its lines) declares which AIs a barcode contains and where each value comes from. Only a model in **Released** status can be used to encode.
- A **GTIN source** resolves the GTIN (AI 01/02) for a given item by **company, customer, vendor or barcode source group**. The same table works both ways: decode a supplier barcode, encode a customer-specific one.
- **Encoding** builds a barcode from a document; **decoding** reads a scanned barcode back into its AIs.
- A scanned barcode is captured through a **Web API** and assigned to a document (lot, weight, SSCC) over the **AL Message Passing** bus, which forwards the data to AL Tracking and AL Catch Weight; the same bus feeds GS1 tags to AL Zebra Print Label.

2. Prerequisites

- Microsoft Dynamics 365 Business Central, version 28.0 or higher, online (SaaS) and on-premises. AppSource covers online environments; on-premises is distributed and installed directly by AppLibra, through the AppLibra License Manager.
- The dependencies installed: AL License and Trial Management, AL Barcode, AL Message Passing, AL Foundation App, AL Role Center.
- Permissions: assign the **AL GS1** permission set (daily use) or **AL GS1 Setup**, which includes it and adds master data maintenance.

3. Setup

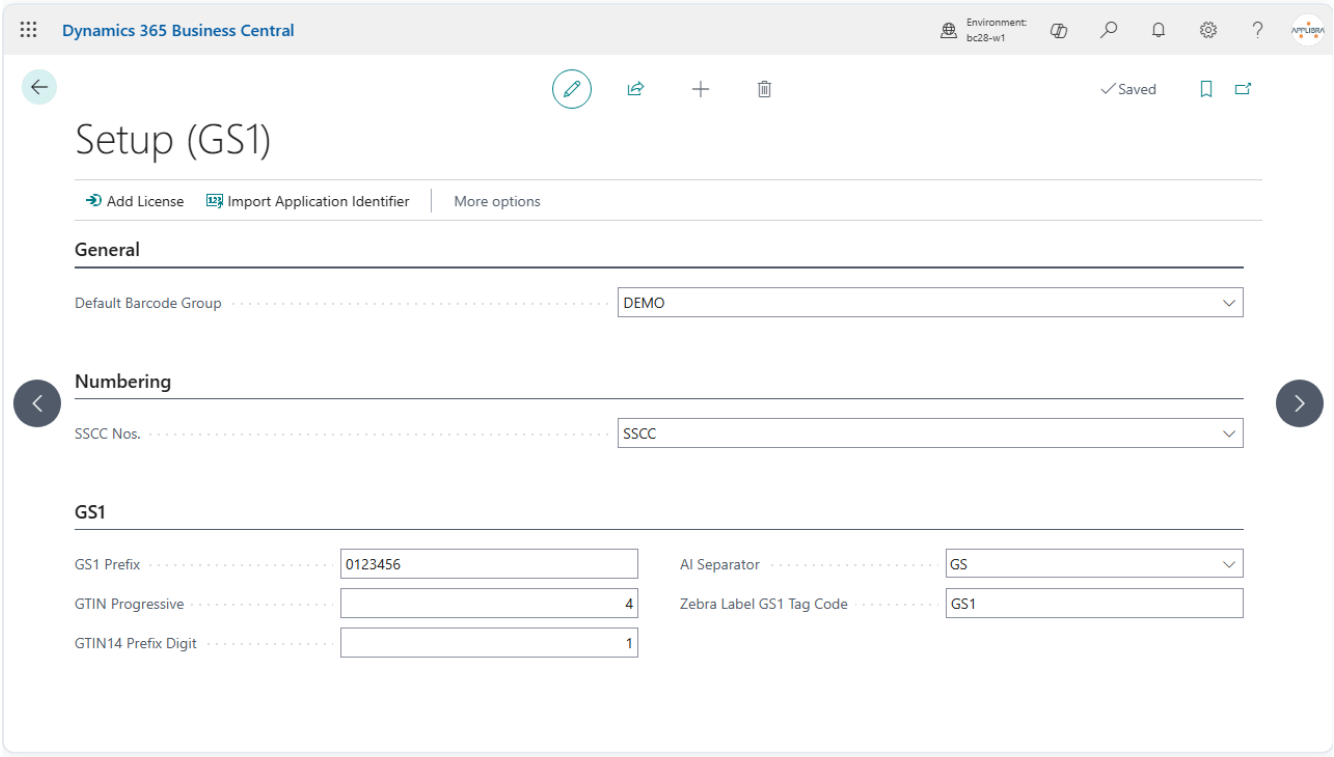
3.1 Activate the license

Open **Setup (GS1)**: the record is created on first open and a trial is registered automatically. Use **Add License** to enter a license when you have one.

3.2 Setup (GS1)

On **Setup (GS1)**, fill in:

- **Default Barcode Source Group** - the group used to resolve items when a scan has no more specific source.
- **SSCC Nos.** - the number series (an integer progressive) used to generate SSCCs.
- **GS1 Prefix** - your GS1 company prefix; it must be **7 or 9** characters long to build SSCCs.
- **GTIN Progressive** - the running number used to generate new GTINs.
- **GTIN14 Prefix Digit** - the packaging indicator digit (1 to 8) for new ITF-14 / GTIN-14 codes.
- **AI Separator** - the separator between variable-length AIs (GS, CD or CA).
- **Zebra Label GS1 Tag Code** - the tag code AL Zebra Print Label uses to inject GS1 values into a label.

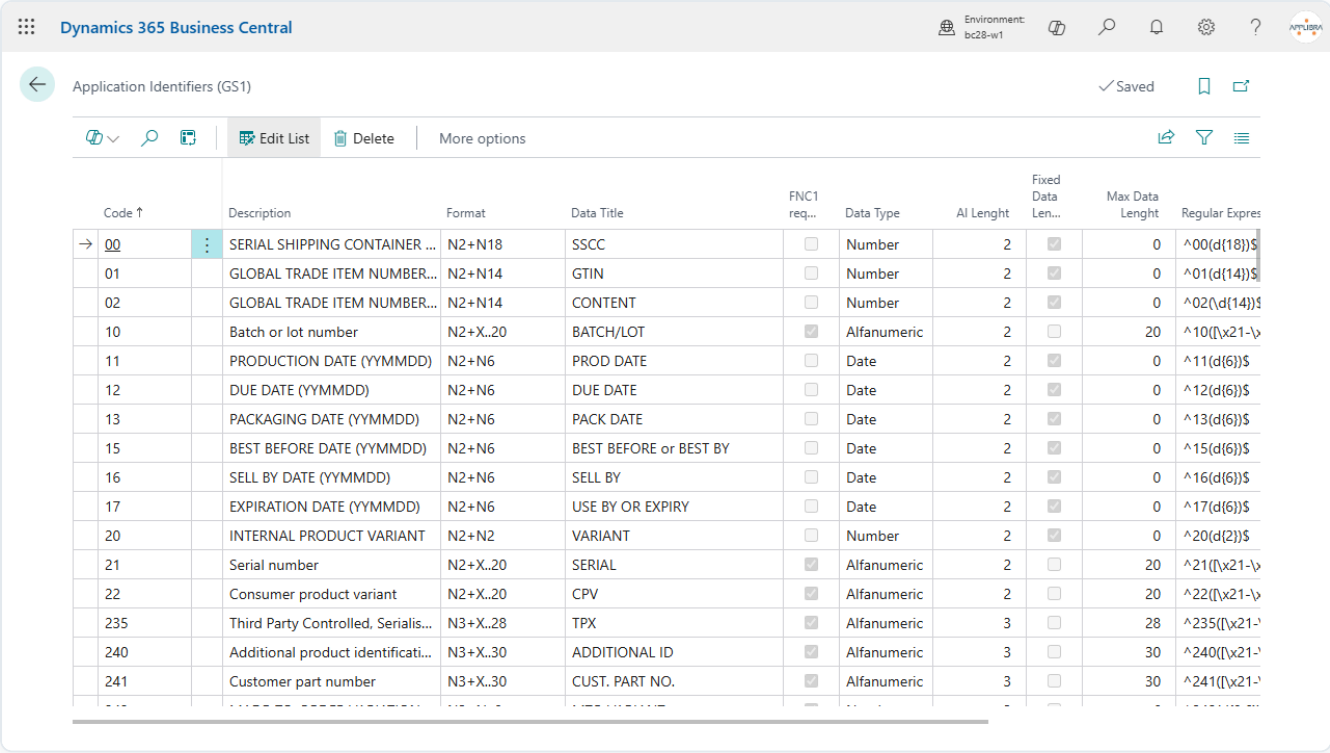


The GS1 setup with company prefix, SSCC number series, AI separator and default barcode source group

The setup is also registered in the Business Central **Manual Setup** list (search "AL GS1 Setup"), next to the standard features.

3.3 Import the application identifiers

From **Setup (GS1)** or the **Application Identifiers (GS1)** list, run **Import Application Identifier** and pick the Excel file with the AI list (code, description, format, data title, FNC1, regular expression). This fills or refreshes the AI master.



Code	Description	Format	Data Title	FNC1 req...	Data Type	AI Lenght	Fixed Data Len...	Max Data Lenght	Regular Expres
00	SERIAL SHIPPING CONTAINER ...	N2+N18	SSCC	☐	Number	2	☑	0	^00(d{18})$
01	GLOBAL TRADE ITEM NUMBER...	N2+N14	GTIN	☐	Number	2	☑	0	^01(d{14})$
02	GLOBAL TRADE ITEM NUMBER...	N2+N14	CONTENT	☐	Number	2	☑	0	^02(\d{14})$
10	Batch or lot number	N2+X..20	BATCH/LOT	☑	Alfanumeric	2	☐	20	^10([\x21-\
11	PRODUCTION DATE (YYMMDD)	N2+N6	PROD DATE	☐	Date	2	☑	0	^11(d{6})$
12	DUE DATE (YYMMDD)	N2+N6	DUE DATE	☐	Date	2	☑	0	^12(d{6})$
13	PACKAGING DATE (YYMMDD)	N2+N6	PACK DATE	☐	Date	2	☑	0	^13(d{6})$
15	BEST BEFORE DATE (YYMMDD)	N2+N6	BEST BEFORE or BEST BY	☐	Date	2	☑	0	^15(d{6})$
16	SELL BY DATE (YYMMDD)	N2+N6	SELL BY	☐	Date	2	☑	0	^16(d{6})$
17	EXPIRATION DATE (YYMMDD)	N2+N6	USE BY OR EXPIRY	☐	Date	2	☑	0	^17(d{6})$
20	INTERNAL PRODUCT VARIANT	N2+N2	VARIANT	☐	Number	2	☑	0	^20(d{2})$
21	Serial number	N2+X..20	SERIAL	☑	Alfanumeric	2	☐	20	^21([\x21-\
22	Consumer product variant	N2+X..20	CPV	☑	Alfanumeric	2	☐	20	^22([\x21-\
235	Third Party Controlled, Serialis...	N3+X..28	TPX	☑	Alfanumeric	3	☐	28	^235([\x21-
240	Additional product identificati...	N3+X..30	ADDITIONAL ID	☑	Alfanumeric	3	☐	30	^240([\x21-
241	Customer part number	N3+X..30	CUST. PART NO.	☑	Alfanumeric	3	☐	30	^241([\x21-

The application identifier master with format, data type, length and validation rule

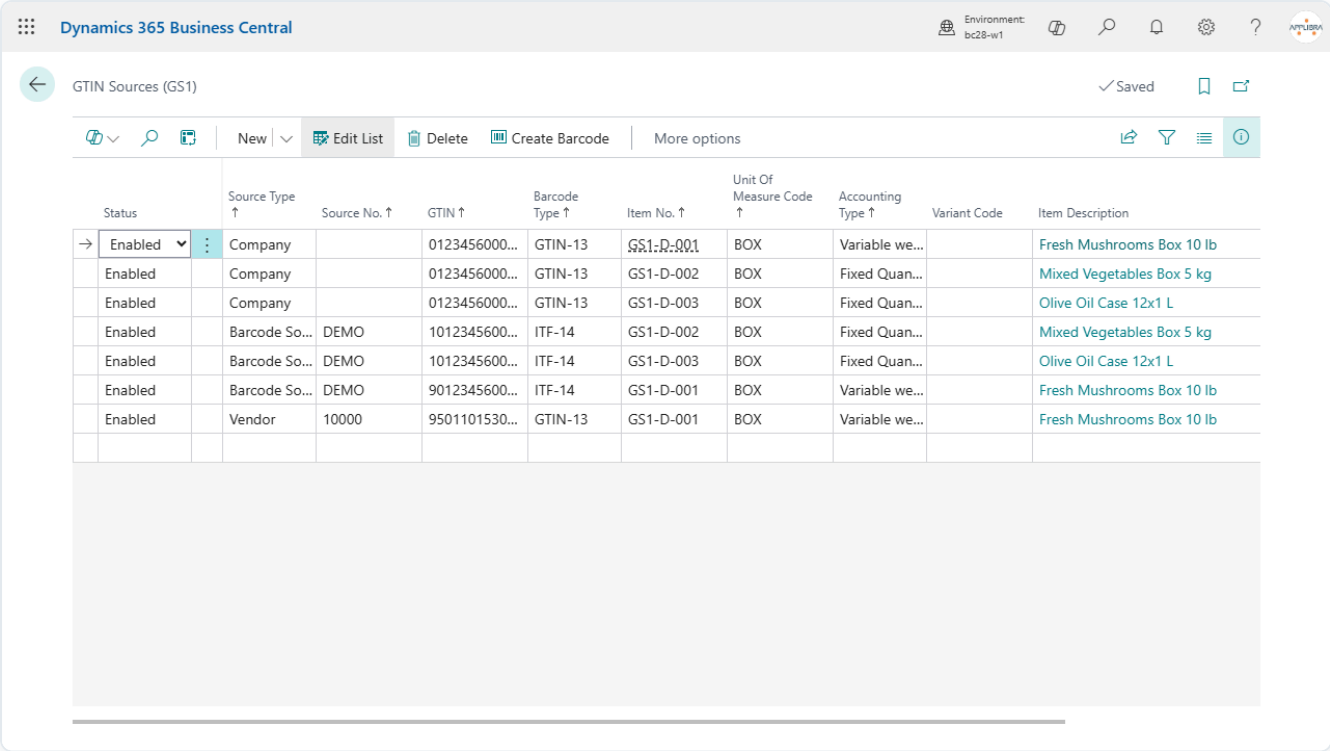
3.4 Barcode source groups

Open **Barcode Source Groups (GS1)** and create a group for each set of partners that share the same barcode standard. Assign a group to a customer or vendor in the card's **Barcode** group (**Barcode Source Group No.**).

4. GTIN and GTIN sources

Open **GTIN Sources (GS1)** (or the **GTIN Sources (GS1)** action on an item, customer or vendor card) and add one row per item and source:

- choose the **Source Type** (Company, Vendor, Customer, Barcode Source Group) and **Source No.**;
- set the **Item No.**, **Unit of Measure Code**, **Barcode Type** and **Accounting Type**;
- leave **GTIN** empty to have a new one generated, or type an existing GTIN (for example a supplier's) to decode incoming barcodes.



Status	Source Type	Source No.	GTIN	Barcode Type	Item No.	Unit Of Measure Code	Accounting Type	Variant Code	Item Description
Enabled	Company		0123456000...	GTIN-13	GS1-D-001	BOX	Variable we...		Fresh Mushrooms Box 10 lb
Enabled	Company		0123456000...	GTIN-13	GS1-D-002	BOX	Fixed Quan...		Mixed Vegetables Box 5 kg
Enabled	Company		0123456000...	GTIN-13	GS1-D-003	BOX	Fixed Quan...		Olive Oil Case 12x1 L
Enabled	Barcode So...	DEMO	1012345600...	ITF-14	GS1-D-002	BOX	Fixed Quan...		Mixed Vegetables Box 5 kg
Enabled	Barcode So...	DEMO	1012345600...	ITF-14	GS1-D-003	BOX	Fixed Quan...		Olive Oil Case 12x1 L
Enabled	Barcode So...	DEMO	9012345600...	ITF-14	GS1-D-001	BOX	Variable we...		Fresh Mushrooms Box 10 lb
Enabled	Vendor	10000	9501101530...	GTIN-13	GS1-D-001	BOX	Variable we...		Fresh Mushrooms Box 10 lb

GTIN sources by item and source, decoding a vendor barcode and encoding a customer one

On the item card, the **Barcode** group carries the default **Accounting Type** (**Fixed Quantity** or **Variable weight**); variable-weight items build GTINs with the reserved prefix digit and connect to catch weight.

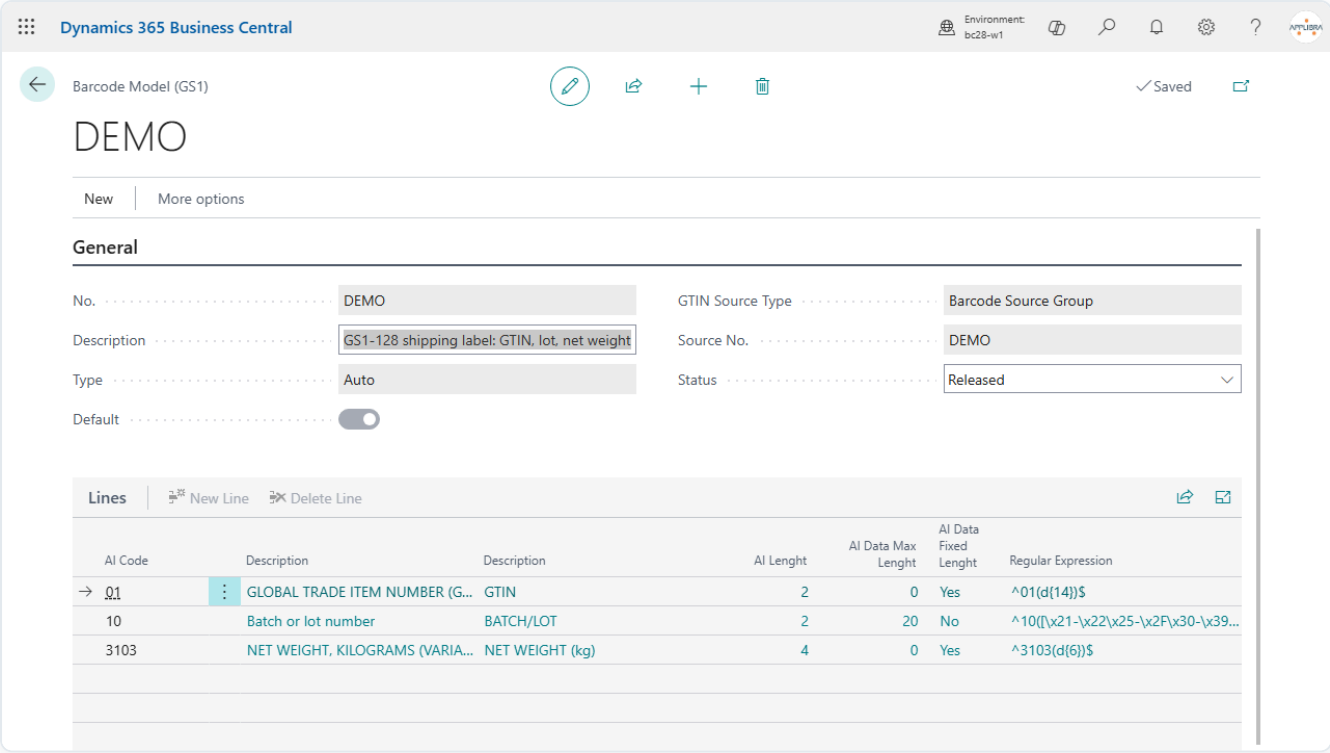
Generating codes. Adding a GTIN source with an empty GTIN generates a new GTIN from the GS1 prefix and progressive, with the correct GS1 check digit, and can convert it to an ITF-14 for packaging. SSCCs are generated from the **SSCC Nos.** series and the GS1 prefix, again with the check digit; they populate AI 00 when a model includes it. **GTIN List (GS1)** lists every generated code with its barcode type and progressive.

Barcode image. On **GTIN Sources (GS1)**, **Create Barcode** renders the barcode image (through AL Barcode) and stores it on the row, shown in the **Barcode** FactBox.

5. Barcode models

Open **Barcode Models (GS1)**, create a **Barcode Model (GS1)**, then:

1. set **Description**, **Type**, the **Source Type** and **Source No.** the model is built for, and **Default** if it is the fallback model;
2. in the lines, add one row per **AI Code** to include in the barcode;
3. set **Status** to **Released**. A model that carries AI **02** must also carry AI **37**, otherwise it stays Open.



A barcode model with the application identifiers that make it up and the source of each value

6. Daily use

6.1 Encode a GS1-128 for a document

1. Open the **Barcode Model (GS1)** of a Released model.
2. Choose **Encode GS1 128** and pick the source line (a sales order line, for a customer or source-group model).
3. The app reads the item, GTIN, lot, dates, weights and quantities from that line and returns the full GS1-128 string, ready for a label or downstream use.

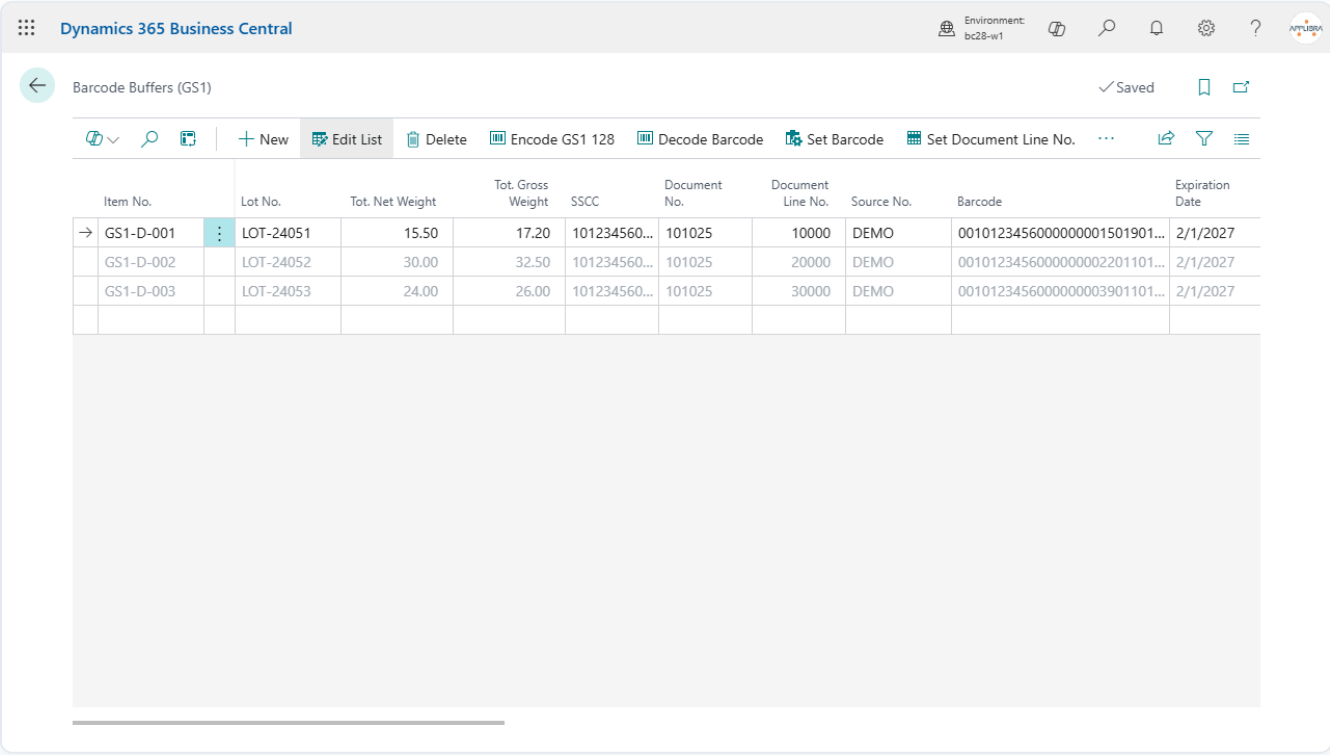
Two details of that string, both as the GS1 general specifications require them. A fixed length numeric value is padded with leading zeros up to the length its format declares, so a net weight of 15.5 kg under AI `3103`, whose format is `N4+N6`, is written `015500` and not `15500`. And the separator that closes a variable length value stands only between two identifiers: after the last one there is nothing left to delimit, so none is written. Labels printed with earlier versions of the app may show those weights without the leading zeros, or a separator hanging after the last value: the string changes, the data behind it does not, and a scanner reads the new one as the standard prescribes.

6.2 Print a Zebra GS1 label

When AL Zebra Print Label prints a label whose tag matches the **Zebra Label GS1 Tag Code**, AL GS1 expands it into one tag per application identifier (value and barcode form), so a single template prints a compliant GS1-128 label.

6.3 Scan to a document (inbound/outbound)

1. A scanner posts the scanned barcode through the **Web API**; the app creates a record in **Barcode Buffers (GS1)** for the document line.
2. The barcode is **decoded** into its AIs, and the app resolves the item (from the GTIN and its source), the lot, the weights and the SSCC. Weights come in kilograms (310x net, 330x gross) or pounds (320x net, 340x gross) and are converted into the company weight unit, so a label in pounds reads correctly in a company that weighs in kilograms and the other way round.
3. The assignment is dispatched over **AL Message Passing** to **AL Tracking** (lot, pallet, external or supplier lot) and **AL Catch Weight** (weight), so the document is updated without manual typing.
4. On a sales order line, the **Has Logistic Error** field lights up if a scan could not be resolved; drill into it to open the **Operation Log (GS1)** for that line.



Captured scans with the resolved item, lot, weight and SSCC, and the linked document line

6.4 Reading the results

- **Barcode Buffers (GS1)** shows the scans in process, with the resolved item, lot, weights, SSCC and any message.
- **GTIN List (GS1)** lists every generated GTIN/SSCC with its barcode type and progressive.
- **Operation Log (GS1)** records operations and errors.

7. Where to find it

The app is reachable four ways:

- **Tell Me** (the magnifier): search the page name, or "GS1" to see them all - Setup (GS1), Application Identifiers (GS1), Barcode Source Groups (GS1), GTIN Sources (GS1), Barcode Models (GS1), Barcode Buffers (GS1), GTIN List (GS1), Operation Log (GS1), Users (GS1).
- **Shipping and Receiving role center**: the **GS1** group with its **Setup** subgroup, plus Barcode Buffers, GTIN List and Operation Log.
- **AppLibra hub**: Shift+F12 -> Explore other roles -> AppLibra; the **GS1** group gathers all the pages of the app, and **Setup (GS1)** also appears in the shared Setup section.
- **Manual Setup**: the "AL GS1 Setup" entry in the Business Central manual setup list.

On the **Item, Customer and Vendor cards** you also find the **Barcode** group and the **GTIN Sources (GS1)** action.

8. Tips and troubleshooting

- **SSCC will not generate.** The **GS1 Prefix** must be exactly 7 or 9 characters and **SSCC Nos.** must be an integer number series.
- **A model stays Open.** A model that includes AI 02 (packaging GTIN) must also include AI 37 (count of items); add the line before releasing.
- **Encode does nothing.** Only a **Released** model encodes, and it must have at least one line; the barcode is built from the picked document line, so that line must carry the values (item, lot, weights).
- **Duplicate GTIN error.** A GTIN must be unique for the same source, item, unit of measure, variant, barcode and accounting type; reuse the existing row instead of adding a second one.
- **A blocked item.** Blocking an item disables its GTIN sources (supplier sources excepted), so it no longer resolves in encode or scan.
- **"Weight unit not convertible".** The company weight unit (the unit classified as weight in AppLibra) must be a kilogram or a pound, recognized by its **International Standard Code** (KGM or LBR) or, when that is blank, by the code KG or LB. Fill in the International Standard Code on the unit named in the message; the same unit is used when a label is printed, so the weights on the label are converted too.
- **Scanning needs the Web API.** Scan capture runs through the Web API and the Message Passing bus, not a built-in scanner driver; the scan is linked to the document line it targets, and the lot, weight and pallet assignment lands through AL Tracking and AL Catch Weight.

9. Support and resources

- Publisher: **AppLibra** - https://applibra.com
- App page: https://applibra.com/apps/al-gs1
- Online help: https://applibra.com/apps/al-gs1/help
- Privacy policy: https://applibra.com/privacy-policy
- Terms of use: https://applibra.com/terms