

Trusted Resolution

Checking who may speak for a product before an agent trusts the data

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Not Only EPCIS

What we build and provide at benelog.

Digital Data Management

[Demo](#)
[Manage Data](#)
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[Logout](#)

API Data Explorer

Select a data type to view the corresponding JSON response.

Product (JSON-LD) ↺

```

1 {
2   "@context": [
3     "https://ref.gs1.org/voc/data/gslVoc.jsonld",
4     "https://ref.openepcis.org/extensions/eu/textile/textile-operational-context.jsonld"
5   ],
6   "id": "https://demo.epcis.cloud/01/09521000002159",
7   "type": [
8     "eutex:Footwear",
9     "eutex:TextileFootwear"
10  ],
11  "gtin": "09521000002159",
12  "productName": "EcoStride Trail Running Shoe, Forest Green"
13 }
```

API Data Explorer

Select a data type to view the corresponding JSON response.

Linkset ↺

```

1 {
2   "linkset": [
3     {
4       "anchor": "https://demo.epcis.cloud/01/09521000002159",
5       "itemDescription": "EcoStride Trail Running Shoe, Forest Green",
6       "https://ref.gs1.org/voc/defaultLink": {
7         "href": "https://demo.epcis.cloud/01/09521000002159",
8         "title": "EcoStride Trail Running Shoe, Forest Green"
9       }
10     }
11  ]
12 }
```

Default link GS1

<https://ref.gs1.org/voc/defaultLink>

Alpine Pro Winter Jacket, Navy

<https://demo.epcis.cloud/01/09521000001428> Public

type unknown

Digital Product Passport GS1

<https://ref.gs1.org/voc/dpp>

Digital Product Passport

<https://dpp.demo.epcis.cloud/v1/dppsByProduct/Fk2Fid.demo.epcis.cloud%2F01%2F09521000001428> Public

Locked — filled in automatically file type unknown

Related image GS1

<https://ref.gs1.org/voc/relatedImage>

Related image

<https://files.demo.epcis.cloud/files/products/01/alpine-pro-winter-jacket-1> Public

Locked — from product data file type unknown

By granularity (sums to total)

GTIN	model level
SGTIN	instance level (serial)
LGtin	class level (lot)
GLN	party / location
GTN	model level
PARTY	model level
SSCC	logistic unit

OpenEPCIS

Open-core EPCIS 2.0. EPCIS tools on GS1 Global sandbox.

GS1 Conformant resolver

Digital Link for brands: GTIN registry, links, own domains, ERP and PIM connected.

ref.openepcis.io

DPP vocabularies. Agentic AI support for governed JSON-LD from us today.

GS1 verification and validation

OpenEPCIS checks against “Verified by GS1”, Support for VCs.

First things first

The ID, and the link.

THE ID

GTIN

The number under the barcode, on billions of packages. A GS1 Member Organisation licenses a Company Prefix to a company; the company assigns its GTINs underneath it.

0 9 506 000 134 352

GCP (global company prefix) licensed by GS1 · number assigned to brand

The prefix licence is the one thing that ties a GTIN to a company. The Member Organisation knows who holds it; Verified by GS1 is the lookup.

THE LINK

GS1 Digital Link

The same GTIN written as a URL can be put into a QR code.

<https://id.gs1.org/01/0 950 600 013 4352>

resolves to a linkset: product page, passport, events

Brands may print their own domain. id.gs1.org is the canonical form.

A well-built demo, and a question nobody asked

Battery passport, Official GS1 demo GTIN, every signature valid.

PASSPORT



SERIAL: CE-C630-04-18832 BATTERY: 2019
✓ **Authentic** KEEPER: **Vela Storage**

ISSUER RECORD

✓ **Issued by Cella-Energia**
Added to at every step, never rewritten.

Passport ID [Download certificate](#)
/01/09506000134352/21/DEMO-027FD0FD10EA ⓘ

Maker's identity **did:key:zQ3s...z92u** ⓘ

Latest blockchain record **294940...8b19** ⓘ

Entries **4, all check out**

Written **Not published: a demonstration**

How to independently verify ▾

VERIFIED BY GS1

Verified by GS1

09506000134352 [Search](#)

✓ **GS1 Complete data**
The EAN/GTIN or GLN 9506000134352 is registered to GS1 Global Office.

Product Company



Status OK
GTIN 9506000134352

CHECKS

Authentic ✓

did:key valid ✓

Digital Link ✓

According to GS1:
risotto rice.

Three sources, one GTIN, one choice

Same product, three honest answers, and an agent that has to pick one.

brand.example

The brand's page

netContent 411 g
allergen **may contain milk**
availability InStock
signed no

shop.example

A retailer

netContent **400 g**
allergen **none listed**
availability InStock; 6,49 EUR
signed yes, retailer key

productdata.example

A data aggregator

netContent 411 g
allergen **contains celery**
availability **Discontinued**
signed no

WHAT AN AGENT MAY DO TODAY

Pick one, by ranking, by recency, by whoever has the richest markup. Signatures would not help; all three could sign.

Where. Who signed. Who may.

Every statement has a speaker, a subject and a content. Today we can verify the speaker.

RESOLUTION

Where is the data?

Digital Link resolves the GTIN to a linkset. Any domain will do.

attacker.example/01/0 950 600 013 4352 → resolves

VERIFICATION

Who signed it?

The verifier proves the signature, an identity anchor proves the issuer. Neither mentions the GTIN.

did:key:z6Mk... → signature valid

AUTHORITY

May the signer speak about this GTIN? And may it say this?

GS1 knows the holder. Whether the agent ever gets there depends on the printed host. And nothing anywhere says what a party is entitled to say.

speaker → ? → subject → ? → statement

Many parties speak about one product

Each is legitimate for its part. An agent cannot tell which part is whose.

PARTY	SAYS	AS EPCIS EVENT
Manufacturer	made it, packed it, shipped it	commissioning · packing · shipping
Shipper	moved it	receiving · transporting · shipping
Retailer	sold it	receiving · retail_selling
Repair service	repaired it, replaced a part	repairing · replacing

EPCIS: the GS1 standard for supply-chain events, one event per step.

TWO CHECKS FOR THE AGENT

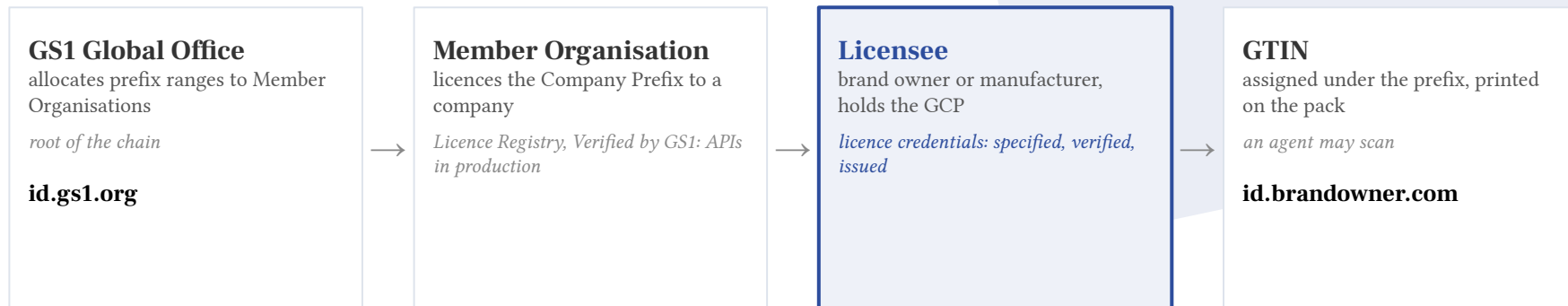
Is this party allowed to speak about this product? And is this the kind of thing it says?
A retailer selling: normal. A retailer announcing a recall: not.

WHERE THAT TABLE LIVES

In every traceability system, built again for every customer. It never leaves.

Ownership of a GTIN is on record in one place

The registry that assigned it. For the GTIN that is GS1, and GS1 has started publishing it.



PRECEDENT

GLEIF publishes this chain for the LEI, the identifier for legal entities in finance, as credentials: GLEIF, qualified issuer, legal entity, person in a role.

WHAT GS1 HAS TODAY

Licence Registry and Verified by GS1 as APIs. A VC data model for the licence chain. A reference verifier (GS1 US). Optional Support for Verifiable Credentials (GS1 NL und BE, LU?).

Verifying Entitlement

From a Digital Link to a decision. Three steps work today, one needs a format, one needs the roles.

1 Canonicalise Whatever domain is printed, `id.gs1.org/01/{gtin}`.

works today

2 Resolve and compare `id.gs1.org` points to the licensee's registered resolver. Compare with the host the data came from.

works today

3 Ask who holds the GTIN Verified by GS1 returns the licensee. Rate-limited and unsigned, but there.

works today

4 Verify the licence chain Global Office → MO → licensee → key. GS1 has model and verifier, Some GS1 MOs issue VCs, our prototype can verify it.

needs discovery

5 Check the role Does this party hold a role for this kind of statement about this product? Published nowhere today.

needs the roles

Conclusion

WHERE WE ARE

Agents verify who signs. Nobody checks whether the signer may speak about the product, or may say this.

Few Member Organisations issue the licence as a credential. Verifiers exist. Resolvers exist.

WHAT IS MISSING

- 1 Enabling Agents to run required checks in the same way.
- 2 A way to find the credential for a Digital Link.
- 3 The roles and permissions: who contributes what, out of the traceability systems and into the open.

