



**International
Standard**

ISO/IEC 19988

**Information technology — GS1 Core
Business Vocabulary (CBV)**

*Technologies de l'information — Vocabulaire normatif relatif aux
activités de base GS1*

**Third edition
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Foreword

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This document was prepared by GS1 [as the Core Business Vocabulary (CBV) Standard, Release 2.0] and drafted in accordance with its editorial rules. It was adopted, under the JTC 1 PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

This third edition cancels and replaces the second edition (ISO/IEC 19988:2017), which has been technically revised.

The main changes are as follows:

- support for GS1 Web Vocabulary, URI semantic equivalence by means of owl:sameAs relationships;
- new "How" event dimension;
- overview of EPCIS event "dimensions" with cross-references to relevant sections in EPCIS (ISO/IEC 19987) and CBV (this document);
- new Persistent Disposition indicating non-transient business state of an object;
- use of new prefix 952 in all examples;
- new business step values: `sampling`, `sensor_reporting`;
- clarified definitions of business step values: `commissioning`, `encoding`, `inspecting`, `removing`;

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- addition of new disposition values: available, completeness_verified, completeness_inferred, conformant, container_open, mismatch_instance, mismatch_class, mismatch_quantity, needs replacement, non_conformant, unavailable;
- clarified definition and example of disposition value in_progress, recommending omission;
- deprecated disposition value: no_pedigree_match;
- new business transaction types cert, testprd, testres, upevt;
- clarified definition of business transaction type poc to make it clear that Purchase Order Confirmation is also used to represent Sales Order;
- sensor measurement types now supported;
- clarification of HTTPS URLs as a recommended approach alongside HTTP URLs;
- introduced support for constrained set of GS1 Digital Link URIs supported alongside generic HTTP URLs for identification of object instance, class, location, business transaction, source/destination, and transformation;
- clarification preference for PGLN to identify owning and possessing parties;
- introduction of Hash URI as business transaction identifier;
- introduction of EPCIS Event Hash ID as an event Identifier;
- introduction of chemical substance identifiers;
- introduction of microorganism identifiers;
- restriction of date types to specific subset of W3C primitive datatypes;
- extended support for QNames to express master data attributes;
- incorporation of additions published previously as CBVCNs 17-339 (Tax ID), 18-108 (Fish Attributes);
- inclusion of certification attributes in Certification List;
- additionalTradeItemId now as additionalTradeItemIDList;
- deprecation of latitude and longitude from location/party master data;
- addition of geoLocation and geoFence to location/party master data;
- addition of AdditionalPartyIDList;
- example event data moved to machine-readable artefacts;
- introduction of <https://ref.gs1.org/cbv> namespace, to underpin CBV 2.0 support for Linked Data.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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1 Introduction – Core Business Vocabulary

This GS1 standard defines the Core Business Vocabulary (CBV). The goal of this standard is to specify various vocabulary elements and their values for use in conjunction with the EPCIS standard [EPCIS2.0], which defines mechanisms to exchange information both within and across organisation boundaries. [EPCIS and the CBV are developed, maintained and published by GS1; EPCIS and the CBV are also published within ISO's PAS process as ISO/IEC 19987 and ISO/IEC 19988, respectively.](#) The vocabulary identifiers and definitions in this standard will ensure that all parties who exchange EPCIS data using the CBV will have a common understanding of the semantic meaning of that data.

This standard is intended to provide a basic capability that meets the above goal. In particular, this standard is designed to define vocabularies that are *core* to the EPCIS abstract data model and are applicable to a broad set of business scenarios common to many industries that have a desire or requirement to share data. This standard intends to provide a useful set of values and definitions that can be consistently understood by each party in the supply chain.

Additional end user requirements may be addressed by augmenting the vocabulary elements herein with additional vocabulary elements defined for a particular industry or a set of users or a single user. Additional values for the standard vocabulary types defined in this standard may be included in follow-on versions of this standard.

This standard includes identifier syntax and specific vocabulary element values with their definitions for these *Standard Vocabularies*:

- Business step identifiers
- Disposition identifiers
- Business transaction types
- Source/Destination types
- Error reason identifiers
- Sensor measurement types
- Sensor alert types

This standard provides identifier syntax options for these *User Vocabularies*:

- Objects
- Locations
- Business transactions
- Source/Destination identifiers
- Transformation identifiers
- Event identifiers
- Chemical substance identifiers
- Microorganism identifiers

This standard provides *Master Data Attributes and Values* for describing Physical Locations including:

- Site Location
- Sub-Site Type
- Sub-Site Attributes
- Sub-Site Detail

Additional detailed master data regarding locations (addresses, etc.) are not defined in this standard.

2 Relationship to the GS1 System Architecture

The CBV is a companion standard to the EPCIS standard. EPCIS is the standard that defines the technical interfaces for capturing and sharing event data. EPCIS defines a framework data model for event data. The CBV is a GS1 *data standard* that supplements that framework by defining specific data values that may populate the EPCIS data model. As such, the CBV exists in the "Share" group of GS1 standards.

3 Relationship to EPCIS

This section specifies how the CBV standard relates to the EPCIS standard.

3.1 EPCIS event structure

The EPCIS 2.0 standard [EPCIS2.0] specifies the data elements in an EPCIS event. The following lists these data elements, and indicates where the CBV provides identifiers that may be used as values for those data elements.

- **The "what" dimension** contains (for most event types) one or more unique identifiers for physical or digital objects or classes of physical or digital objects. Identifiers for physical or digital objects are specified in section 8.2 and 8.3. In the case of an EPCIS *TransformationEvent*, an optional *TransformationID* may be used to link together multiple events that describe the same transformation. *TransformationIDs* are included in section 8.8.

- **The "when" dimension** reflects the moment in time at which an EPCIS event occurred. Event time is fully specified in the EPCIS standard.

- **The "where" dimension** consists of two identifiers that describe different aspects of where an event occurred:

- **Read Point** (*readPoint*): The location where the EPCIS event took place. In the case of an EPCIS event arising from reading a barcode or RFID tag, the Read Point is often the location where the barcode or RFID tag was read. Identifiers for read points are specified in section 8.3.

Example: A reader is placed at dock door #3 at the London Distribution Centre (DC). Product passed through the dock door. Read point = <The identifier that stands for London DC Dock Door #3>

- **Business Location** (*bizLocation*): The location where the subject of the event is assumed to be following an EPCIS event, until a new event takes place that indicates otherwise. Identifiers for business locations are specified in section 8.3.

Example: A product is read through the sales floor transition door at store #123. The product is now sitting on the sales floor. Business location = <The identifier that stands for store #123 Sales Floor>

- **The "why" dimension** provides business process information associated with the event, including the business process step that "triggered" the event's capture:

- **Business Step** (*bizStep*): Denotes a specific activity within a business process. The business step field of an event specifies what business process step was taking place that caused the event to be captured. Identifiers for business steps are specified in section 7.1.

Example: an EPCIS event is generated as a product departs the location identified by the Read Point. Business Step = <The identifier that denotes "shipping">

- **Disposition** (*disposition*): Denotes the business state of an object. The disposition field of an event specifies the business condition of the subject of the event (the things specified in the "what" dimension), subsequent to the event. The disposition is assumed to hold true until another event indicates a change of disposition. Identifiers for dispositions and persistent dispositions (see below) are specified in section 7.2.

Example: an EPCIS event is generated and afterward the products can be sold as-is and customers can access product for purchase. Disposition = <The identifier that denotes "sellable and accessible">

- **Persistent Disposition** (*persistentDisposition*): Denotes the *persistent* business state of an object. The *persistentDisposition* field of an event is used to *set* or *unset* the business condition of the subject of the event (the things specified in the "what" dimension), subsequent to the event. Unlike the disposition, the *persistentDisposition* is not overridden by subsequently set dispositions or persistent dispositions, and can only be negated or rescinded by being explicitly "unset". Identifiers for dispositions and persistent dispositions are specified in section 7.2.


Example: an EPCIS event is generated to infer the presence of children still aggregated to their parent (i.e., not yet unpacked nor physically scanned). *persistentDisposition* = <The identifier that denotes "completeness inferred">




- **Business Transaction References:** An EPCIS event may refer to one or more business transaction documents. Each such reference consists of two identifiers:
 - **Business Transaction Type:** Denotes a particular kind of business transaction. *Example: the identifier that denotes "purchase order".* Identifiers for business transaction types are specified in section 7.4.
 - **Business Transaction Identifier:** Denotes a specific business transaction document of the type indicated by the Business Transaction Type. *Example: <The identifier that denotes Example Corp purchase order #123456>* Identifiers for business transactions are specified in section 8.5.
- **Source and Destination References:** An EPCIS event may refer to one or more sources and/or destinations that describe the endpoints of a business transfer of which the event is a part. Each source or destination reference consists of two identifiers:
 - **Source or Destination Type:** Denotes a particular kind of source or destination. *Example: the identifier that denotes "owning party".* Identifiers for source and destination types are specified in section 7.4.
 - **Source or Destination Identifier:** Denotes a source or destination of the type indicated by the Business Transaction Type. *Example: <The identifier that denotes Example Corp as an owning party>* Identifiers for sources and destinations are specified in section 8.6.


- **The "how" dimension** contains the *SensorElementList* of one or more *SensorElements*, which is used to express conditional information about an object or physical location, as captured by associated sensors. Each *SensorElement* contains:
 - one or more *sensorReport* elements, including one or more attributes that pertain to a specific sensor observation;
 - an optional *sensorMetadata* element, including one or more meta data attributes that apply to all *sensorReport* elements within the same *SensorElement*.

The *SensorElement* provides a rich and flexible framework to convey all kind of sensor-based data, from simple physical observations via multi-dimensional observations to outputs of smart sensor devices. This can include, but is not limited to, information on the concentration of chemical substances and microorganisms.

3.2 Overview of EPCIS event "dimensions" (non-normative)

Dimension in EPCIS/CBV 1.x	Categorisation in EPCIS/CBV 2.0		Field	EPCIS section in which the field is defined	CBV section in which its value range is specified
WHAT	Objects in Focus (WHAT) 	Instances	epcList	7.4.2 ObjectEvent 7.4.4 TransactionEvent	EPC Tag Data Standard (TDS) section 6, "EPC URI" 8.2 Physical or Digital Objects (Instance)
			parentID	7.4.3 AggregationEvent 7.4.4 TransactionEvent 7.4.6 AssociationEvent	
			childEPCs	7.4.3 AggregationEvent 7.4.6 AssociationEvent	
			inputEPCList	7.4.5 Transformation Event	
			outputEPCList		
			Classes	quantityList	
		childQuantityList		7.4.3 AggregationEvent 7.4.6 AssociationEvent	
		inputQuantityList		7.4.5 Transformation Event	
		outputQuantityList			

Dimension in EPCIS/CBV 1.x	Categorisation in EPCIS/CBV 2.0	Field	EPCIS section in which the field is defined	CBV section in which its value range is specified
WHEN	Chronology (WHEN) 	eventTime	7.4.1 EPCISEvent	
		eventTimeZoneOffset		
		recordTime	7.4.1 EPCISEvent	
WHERE	Whereabouts (WHERE) 	readPoint	7.4.2 ObjectEvent	8.4 Locations
		bizLocation	7.4.3 AggregationEvent 7.4.4 TransactionEvent 7.4.5 TransformationEvent 7.4.6 AssociationEvent	
n/a	Condition (HOW) 	sensorElementList	7.4.2 ObjectEvent 7.4.3 AggregationEvent 7.4.4 TransactionEvent 7.4.5 TransformationEvent 7.4.6 AssociationEvent	7.6 Sensor Measurement Types 8.9 Chemical substance identifiers 8.10 Microorganism identifiers
WHY	Business Context (WHY)	bizStep	7.4.2 ObjectEvent	7.1 Business Steps
		bizTransactionList	7.4.3 AggregationEvent	8.5 Business Transactions

Dimension in EPCIS/CBV 1.x	Categorisation in EPCIS/CBV 2.0	Field	EPCIS section in which the field is defined	CBV section in which its value range is specified
		disposition	7.4.4 TransactionEvent	7.1 Dispositions
		persistentDisposition	7.4.5 TransformationEvent	7.1 Dispositions
		sourceList	7.4.6 AssociationEvent	8.6 Source/Destination Identifiers
		destinationList		
	Other fields	ilmd	7.3.7 Instance/lot master data (ILMD)	9 Trade Item Master Data
(core field)		action	7.3.2 Action type	
(transformationID)		transformationID	7.4.5 TransformationEvent	8.7 Transformation Identifiers
(core field)		eventID	7.4.1 EPCISEvent	8.8 Event Identifiers
(core field)		errorDeclaration	7.4.1 EPCISEvent	7.5 Error Reason Identifiers 8.8 Event Identifiers

3.3 Vocabulary kinds

(The material in this section is adapted directly from [EPCIS], section 6.2.)

Vocabularies are used extensively within EPCIS to model conceptual, physical, and digital entities that exist in the real world.

Examples of vocabularies defined in the EPCIS standard are business steps, dispositions, location identifiers, physical or digital object identifiers, business transaction type names, and business transaction identifiers. In each case, a vocabulary represents a finite (though open-ended) set of alternatives that may appear in specific fields of events.