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INTERNATIONAL STANDARD

ISO/IEC 19987

Second edition
2017-10

Information technology — EPC Information Services (EPCIS) Standard

Technologies de l'information — Norme relative aux services d'information sur les codes de produit électronique

Withdrawn

Reference number
ISO/IEC 19987:2017(E)

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Foreword

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This document was prepared by the GS1 and was adopted, under the PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, Information technology, in parallel with its approval by national bodies of ISO and IEC.

This second edition cancels and replaces the first edition (ISO/IEC 19987:2015), which has been technically revised.

The main changes compared to the previous edition are as follows:

— A mechanism is introduced to declare that a prior EPCIS event is in error, for use when it is impossible to correct the historical trace by means of ordinary EPCIS events.

— An optional eventID is added to all EPCIS events.

— The Simple Event Query is enhanced to clarify that queries for extension or ILMD fields apply only to top-level XML elements, and a new set of query parameters is introduced to query for XML elements nested within top-level elements.

— The role of an EPCIS document as a means to transmit events point-to-point is clarified.

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— The EPCIS Header in the XML schemas is enhanced to allow for optional inclusion of master data.

— The use of extension elements within <readPoint> and <bizLocation> is deprecated.

— Section 12 regarding conformance is added.

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Document Summary

Document Item	Current Value
Document Name	EPC Information Services (EPCIS) Standard
Document Date	Sep 2016
Document Version	1.2
Document Issue	
Document Status	Ratified
Document Description	enables disparate applications to create and share visibility event data, both within and across enterprises.

Log of Changes

Release	Date of Change	Changed By	Summary of Change
1.0			Initial version
1.1	May 2014		EPCIS 1.1 is fully backward compatible with EPCIS 1.0.1. EPCIS 1.1 includes these new or enhanced features: Support for class-level identification is added to `ObjectEvent`, `AggregationEvent`, and `TransformationEvent` through the addition of quantity lists. A new event type, `TransformationEvent`, provides for the description of events in which inputs are consumed and outputs are produced. The “why” dimension of all event types are enhanced so that information about the sources and destinations of business transfers may be included. The “why” dimension of certain event types are enhanced so that item/lot master data may be included. The `SimpleEventQuery` is enhanced to encompass the above changes to event types. The introductory material is revised to align with the GS1 System Architecture. The XML extension mechanism is explained more fully. The `QuantityEvent` is deprecated, as its functionality is fully subsumed by `ObjectEvent` with the addition of quantity lists.

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Release	Date of Change	Changed By	Summary of Change
1.2	Sep 2016		EPCIS 1.2 is fully backward compatible with EPCIS 1.1 and 1.0.1. EPCIS 1.2 includes these new or enhanced features: A mechanism is introduced to declare that a prior EPCIS event is in error, for use when it is impossible to correct the historical trace by means of ordinary EPCIS events. This mechanism includes the `errorDeclaration` structure in an EPCIS event and associated query parameters. An optional `eventID` is added to all EPCIS events. Its main intended use is to allow for an error declaration event to (optionally) refer to one or more corrective events. The Simple Event Query is enhanced to clarify that queries for extension or ILMD fields apply only to top-level XML elements, and a new set of query parameters is introduced to query for XML elements nested within top-level elements. The role of an EPCIS document as a means to transmit events point-to-point is clarified. The EPCIS Header in the XML schemas is enhanced to allow for optional inclusion of master data. The use of extension elements within `<readPoint>` and `<bizLocation>` is deprecated. Section 12 regarding conformance is added.

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1 Introduction

This document is a GS1 standard that defines Version 1.2 of EPC Information Services (EPCIS). The goal of EPCIS is to enable disparate applications to create and share visibility event data, both within and across enterprises. Ultimately, this sharing is aimed at enabling users to gain a shared view of physical or digital objects within a relevant business context.

"Objects" in the context of EPCIS typically refers to physical objects that are identified either at a class or instance level and which are handled in physical handling steps of an overall business process involving one or more organisations. Examples of such physical objects include trade items (products), logistic units, returnable assets, fixed assets, physical documents, etc. "Objects" may also refer to digital objects, also identified at either a class or instance level, which participate in comparable business process steps. Examples of such digital objects include digital trade items (music downloads, electronic books, etc.), digital documents (electronic coupons, etc.), and so forth. Throughout this document the word "object" is used to denote a physical or digital object, identified at a class or instance level, that is the subject of a business process step. EPCIS data consist of "visibility events," each of which is the record of the completion of a specific business process step acting upon one or more objects.

The EPCIS standard was originally conceived as part of a broader effort to enhance collaboration between trading partners by sharing of detailed information about physical or digital objects. The name EPCIS reflects the origins of this effort in the development of the Electronic Product Code (EPC). It should be noted, however, that EPCIS does not require the use of Electronic Product Codes, nor of Radio-Frequency Identification (RFID) data carriers, and as of EPCIS 1.2 does not even require instance-level identification (for which the Electronic Product Code was originally designed). The EPCIS standard applies to all situations in which visibility event data is to be captured and shared, and the presence of "EPC" within the name is of historical significance only.

EPCIS provides open, standardised interfaces that allow for seamless integration of well-defined services in inter-company environments as well as within companies. Standard interfaces are defined in the EPCIS standard to enable visibility event data to be captured and queried using a defined set of service operations and associated data standards, all combined with appropriate security mechanisms that satisfy the needs of user companies. In many or most cases, this will involve the use of one or more persistent databases of visibility event data, though elements of the Services approach could be used for direct application-to-application sharing without persistent databases.

With or without persistent databases, the EPCIS specification specifies only a standard data sharing interface between applications that capture visibility event data and those that need access to it. *It does not specify how the service operations or databases themselves should be implemented.* This includes not defining how the EPCIS services should acquire and/or compute the data they need, except to the extent the data is captured using the standard EPCIS capture operations. The interfaces are needed for interoperability, while the implementations allow for competition among those providing the technology and implementing the standard.

EPCIS is intended to be used in conjunction with the GS1 Core Business Vocabulary (CBV) standard [CBV1.2]. The CBV standard provides definitions of data values that may be used to populate the data structures defined in the EPCIS standard. The use of the standardised vocabulary provided by the CBV standard is critical to interoperability and critical to provide for querying of data by reducing the variation in how different businesses express common intent. Therefore, applications should use the CBV standard to the greatest extent possible in constructing EPCIS data.

The companion EPCIS and CBV Implementation Guideline [EPCISGuideline] provides additional guidance for building visibility systems using EPCIS and CBV, including detailed discussion of how to model specific business situations using EPCIS/CBV data and methods for sharing such data between trading partners.

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