INTERNATIONAL STANDARD

ISO 10303-41

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Industrial automation systems and integration — Product data representation and exchange —

Part 41: Integrated generic resource: Fundamentals of product description and support

Systèmes d'automatisation industrielle et intégration — Représentation et échange de données de produits —
Partie 41: Ressources génériques intégrées: Principes de description et de support de produits

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 10303 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 10303-41 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 4, *Industrial data*.

This second edition of ISO 10303-41 constitutes a technical revision of the first edition (ISO 10303-41:1994), which is provisionally retained to support continued use and maintenance of implementations based on the first edition, and to satisfy the normative references of other parts of ISO 10303. This edition incorporates the corrections published in ISO 10303-41/Cor.1:1999.

This International Standard is organized as a series of parts, each published separately. The parts of ISO 10303 fall into one of the following series: description methods, integrated resources, application interpreted constructs, application protocols, abstract test suites, implementation methods, and conformance testing. The series are described in ISO 10303-1. A complete list of parts of ISO 10303 is available from Internet:

<http://www.nist.gov/sc4/editing/step/titles/>.

This part of ISO 10303 is a member of the integrated resources series. The integrated resources specify a single conceptual product data model.

Annexes A and B form a normative part of this part of ISO 10303. Annexes C to F are for information only.

Introduction

ISO 10303 is an International Standard for the computer-interpretable representation and exchange of product data. The objective is to provide a neutral mechanism capable of describing product data throughout the life cycle of a product, independent from any particular system. The nature of this description makes it suitable not only for neutral file exchange, but also as a basis for implementing and sharing product databases and archiving.

This part of ISO 10303 is a member of the integrated resource series. Major subdivisions of this part of ISO 10303 are:

a) generic product description resources;

1) **application_context_schema**;

2) **product_definition_schema**;

3) **product_property_definition_schema**;

4) **product_property_representation_schema**.

b) generic management resources;

1) **management_resources_schema**.

c) support resources.

1) **action_schema**;

2) **approval_schema**;

3) **certification_schema**;

4) **contract_schema**;

5) **date_time_schema**;

6) **document_schema**;

7) **effectivity_schema**;

8) **external_reference_schema**;

9) **group_schema**;

10) **measure_schema**;

11) **person_organization_schema**;

12) **security_classification_schema**;

13) **support_resource_schema**;

14) **basic_attribute_schema**.

The groupings of resource schemas into these major subdivisions are shown in Figure 1. In addition, Figure 1 shows the relationship of the schemas in this part of ISO 10303 to other schemas that belong to the integrated resources of this International Standard using the EXPRESS-G notation. EXPRESS-G is defined in annex D of ISO 10303-11. The schemas illustrated in Figure 1 are components of the integrated resources.

The generic product description resources provide an overall organization for the integrated resources that are documented in other parts of ISO 10303. They specify resource constructs that provide consistent representation of facts about products in different application-specific views.

The generic management resources support the description of information that is used to manage and control product data. Together, the generic product description resources and the generic management resources are the foundations upon which application interpreted models, the normative conceptual schemas of application protocols, are built. Application interpreted models specialize selected generic management resources to elements of the integrated product description resources to satisfy the requirements that are specified in the application reference model.

The support resources are a set of shared resource constructs that are used by the ISO 10303 integrated resources. They provide an underlying consistency across the resources of ISO 10303.

This edition incorporates modifications that are upwardly compatible with the previous edition. These modifications to the EXPRESS specifications have been done so that:

— instances encoded according to ISO 10303-21 [2] and that conform to an ISO 10303 application protocol based on the previous edition of this part, also conform to a revision of that application protocol based on this edition;

— interfaces that conform to ISO 10303-22 [3] and to an ISO 10303 application protocol based on the previous edition of this part, also conform to a revision of that application protocol based on this edition;

— the mapping tables of ISO 10303 application protocols based on the previous edition of this part remain valid in a revision of that application protocol based on this edition.