Supercedes

ISO/CD TS 10303-1021 (E)
Product data representation and exchange: Application module:Identification assignment

ABSTRACT:
This document is the draft technical specification of the application module for Identification assignment.

KEYWORDS:
module, identification, assignment

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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.

The main task of technical committees is to prepare International Standards. 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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50% of the members of the parent committee casting a vote;

- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed every three years with a view to deciding whether it can be transformed into an International Standard.

ISO/TS 10303-1021 was prepared by Technical Committee ISO/TC 184, Industrial automation systems and integration, Subcommittee SC4, Industrial data.

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 modules, 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 the Internet:

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

Annexes A and B form an integral part of this part of ISO 10303. Annexes, C, D, and E 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 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, application modules, abstract test suites, implementation methods, and conformance testing. The series are described in ISO 10303-1. This part of ISO 10303 is a member of the application module series.

The Identification assignment application module supports the requirement to assign identifications to product data.

Industrial automation systems and integration — Product data representation and exchange — Part 1021: Application module: Identification assignment

1 Scope

This part of ISO 10303 specifies the application module for Identification assignment. The identifications created through this construct are intended to be used only for non-product instance data. Alternate or alias identifiers for products are products themselves and are created through **Product_identification**. The following are within scope of this part of ISO 10303:

- establishing a data structure which records identification information;

- establishing a data structure to optionally assign an organization or person in an organization as a context for the identifier;

- when a context is provided, the identifier shall be unique in that context;

- establishing a data structure for relating the identification information to product data;

- establishing a data structure for recoding the role the identification information plays when assigned.

The following are outside the scope of this part of ISO 10303:

- all things which are not involved in the specification of the concepts of identification assignment.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10303. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10303 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

- ISO/IEC 8824-1:1995, Information Technology - Open Systems Interconnection - Abstract Syntax Notation One (ASN.1) - Part 1: Specification of Basic Notation.

- ISO 10303-1, Industrial automation systems and integration - Product data representation and exchange - Part 1: Overview and fundamental principles.

- ISO 10303-11, Industrial automation systems and integration - Product data representation and exchange - Part 11: Description methods: The EXPRESS language reference manual.

- ISO 10303-21, Industrial automation systems and integration - Product data representation and exchange - Part 21: Clear text encoding of the exchange structure.

- ISO 10303-31, Industrial automation systems and integration - Product data representation and exchange - Part 31: Conformance testing methodology and framework: General concepts.

- ISO 10303-41, Industrial automation systems and integration - Product data representation and exchange - Part 41: Integrated generic resource: Fundamentals of product description and support.

- ISO 10303-202, Industrial automation systems and integration - Product data representation and exchange - Part 202: Application protocol: Associative Draughting

- ISO 10303-1011, Industrial automation systems and integration - Product data representation and exchange - Part 1011: Application module: Person organisation

- ISO 10303-1013, Industrial automation systems and integration - Product data representation and exchange - Part 1013: Application module: Person organisation assignment

3 Terms, definitions, and abbreviations

3.1 Terms defined in ISO 10303-1

This part of ISO 10303 makes use of the following terms defined in ISO 10303-1.

- application;

- application object;

- application protocol;

- application reference model

- data;

- information;

- integrated resource;

- product;

- product data;

- unit of functionality.

3.2 Terms defined in ISO 10303-202

This part of ISO 10303 makes use of the following terms defined in ISO 10303-202.

- application interpreted construct.

3.3 Terms defined in ISO 10303-1001

This part of ISO 10303 makes use of the following terms defined in ISO 10303-1001.

- application module.

3.4 Abbreviations

AM	Application Module
ARM	Application Reference Model
MIM	Module Interpreted Model
UoF	Unit of Functionality
URL	Universal Resource Locator

4 Information requirements

This clause specifies the information requirements for Identification assignment.

The information requirements are specified as a set of units of functionality, application elements, and application assertions. These assertions pertain to individual application entities and to relationships between application entities. The information requirements are defined using the terminology of the subject area of this application module.

1. - A graphical representation of the information requirements is given in annex C.

2. - The mapping specification is specified in 5.1 which shows how the information requirements are met using the integrated resources of this International Standard. The use of the integrated resources introduces additional requirements which are common to application modules and application protocols.

EXPRESS specification:

```
*)
SCHEMA Identification_assignment_arm;
(*
```

4.1 Units of functionality

This subclause specifies the units of functionality (UoF) for the Identification assignment application module as well as any support elements needed for the module definition. This part of ISO 10303 specifies the following units of functionality:

- Identification assignment.

This part of ISO 10303 uses the following units of functionality.

- Person_Organisation;

- Person_Organisation_Assignment.

The units of functionality and a description of the functions that each UoF supports are given

below.

4.1.1 Identification_Assignment

The Identification_Assignment UoF specifies the definitional information for the concept of assignment of identification.

The following application objects are defined in the Identification_Assignment UoF:

- Identification_Assignment.

4.1.2 Person_Organisation_Assignment

This UoF is defined in the Person organisation assignment module. The following application entities from this UoF are referenced in the Identification assignment module:

- Organisation_or_person_in_organisation_assignment.

4.1.3 Person_Organisation

This UoF is defined in the Person organisation module.

4.2 Required AM ARMs

EXPRESS specification:

```
*)
USE FROM Person_organisation_assignment_arm; -- Person organisation
assignment
(*
```

4.3 ARM type definitions

- identification_item

Identification_Item Application Type

This select is a place holder for assignments of identification information to elements of product data.

EXPRESS specification:

```
*)
TYPE identification_item = EXTENSIBLE SELECT
  ();
END_TYPE;
(*
```

- identification_organisation_or_person_in_organisation_item

Identification_Organisation_or_Person_In_Organisation_Item Application Type

This select extends the assignments of an organization or a person in an organization to Identification_assignments.

```
*)
TYPE identification_organisation_or_person_in_organisation_item =
SELECT
  BASED_ON organisation_or_person_in_organisation_item WITH
  (Identification_assignment);
END_TYPE;
(*
```

4.4 ARM entity definitions

- Identification_assignment

Identification_assignment Application Object

An **Identification_assignment** assigns an identifier which is unique for the domain of the owner (when known) to product data.

EXPRESS specification:

```
*)
ENTITY Identification_assignment;
  identifier  : STRING;
  role        : OPTIONAL STRING;
  description : OPTIONAL STRING;
  items       : SET [1:?] OF identification_item;
INVERSE
  owner       : SET [0:1] OF
Organisation_or_person_in_organisation_assignment FOR items;
WHERE
  WR1: SELF.owner.role = 'identification owner';
END_ENTITY;
(*
```

Attribute definitions:

identifier : the identification string to be assigned to product data.

role : the function served by the identification.

description : a textual meaning for the identification assignment.

items : the product data to which the identifier is assigned.

owner : the optional organization or person in organization that defines or owns the identification.

Formal propositions:

WR1 : The **owner** role must be 'identification owner'

```
*)
END_SCHEMA;
(*
```

5 Module interpreted model

5.1 Mapping specification

- Identification_assignment

Mapping specification

Application element	MIM element	Source	Rules	Reference Path
Identification_assignment	identification_assignment	41		
identifier	identification_assignment.assigned_id	41		
role	identification_role.name	41		identification_assignment<- identification_role identification_role.name
description	identification_role.name	41		identification_assignment<- identification_role identification_role.description
items	applied_identification_assignment.items	1021		identification_assignment<= applied_identification_assignment applied_identification_assignment.items
owner	(applied_organization_assignment.items) (applied_person_and_organization_assignment.items)	1013		identification_assignment<= applied_identification_assignment (applied_organization_assignment.items-> {applied_organization_assignment applied_organization_assignment.role-> organization_role organization_role.name='design owner'}) {applied_person_and_organization_assignment

				applied_person_and_organization_assignment.role-> person_and_organization_role person_and_organization_role.name='design owner'})
owner	applied_identification_assignment.items	1021		identification_assignment<= applied_identification_assignment applied_identification_assignment.items

5.2 MIM EXPRESS short listing

EXPRESS specification:

```
*)
SCHEMA Identification_assignment_mim;
  USE FROM management_resources_schema -- ISO 10303-41
    (identification_assignment);
  USE FROM Person_organisation_assignment_mim; -- ISO 10303-1013
(*
```

5.2.1 MIM EXPRESS types

5.2.1.1 identification_item

An **identification_item** specifies those objects to which an **identification** may be assigned.

EXPRESS specification:

```
*)
TYPE identification_item = EXTENSIBLE SELECT
  ();
END_TYPE;
(*
```

5.2.1.2 identification_organization_item

An **identification_organization_item** extends organization assignment to **applied_identification_assignment** instances.

EXPRESS specification:

```
*)
TYPE identification_organization_item = SELECT
  BASED_ON organization_item WITH
  (applied_identification_assignment);
END_TYPE;
(*
```

5.2.1.3 identification_person_and_organization_item

A **identification_person_and_organization_item** extends person and organization assignment to **applied_identification_assignment** instances.

EXPRESS specification:

```
*)
TYPE identification_person_and_organization_item = SELECT
  BASED_ON person_and_organization_item WITH
  (applied_identification_assignment);
END_TYPE;
(*
```

5.2.2 MIM EXPRESS entities

5.2.2.1 applied_identification_assignment

EXPRESS specification:

```
*)
ENTITY applied_identification_assignment
  SUBTYPE OF (identification_assignment);
  items : SET [1:?] of identification_item;
END_ENTITY;
```

```
(*
```

5.2.3 MIM EXPRESS rules

```
*)
END_SCHEMA;
(*
```

Annexes

A Module Short Names (Normative)

The following table provides the short names of entities specified in this part of ISO 10303. Requirements on the use of the short names are found in the implementation methods included in ISO 10303.

ADDRESS	ADDRSS
APPLIED_IDENTIFICATION_ASSIGNMENT	APIDAS
APPLIED_ORGANIZATION_ASSIGNMENT	APORAS
APPLIED_PERSON_AND_ORGANIZATION_ASSIGNMENT	APAOA
DESCRIPTION_ATTRIBUTE	DSCATT
IDENTIFICATION_ASSIGNMENT	IDNASS
IDENTIFICATION_ROLE	IDNRL
ORGANIZATION	ORGNZT
ORGANIZATIONAL_ADDRESS	ORGADD
ORGANIZATION_ASSIGNMENT	ORGASS
NAME_ATTRIBUTE	NMATT
PERSON	PERSON
PERSON_AND_ORGANIZATION	PRANOR
PERSON_AND_ORGANIZATION_ASSIGNMENT	PAOA
PERSONAL_ADDRESS	PRSADD

B Information object registration (Normative)

B.1 Document Identification

To provide for unambiguous identification of an information object in an open system, the object identifier

{ iso standard 10303 part(1021) version(0) }

is assigned to this part of ISO 10303. The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.

B.2 Schema Identification

B.2.1 Short Form Schema

To provide for unambiguous identification of the schema specification given in this application module in an open information system, the object identifier:

{ iso standard 10303 part(1021) version(0) object(1) Identification-assignment-mim(2) }

is assigned to the Identification_assignment_mim short form schema (see 5.2).

The meaning of this value is defined in ISO 8824-1, and is described in ISO 10303-1.

B.2.2 Long Form Schema

To provide for unambiguous identification of the schema specification given in this application module in an open information system, the object identifier:

{ iso standard 10303 part(1021) version(0) object(1) Identification-assignment-mim(1) }

is assigned to the Identification_assignment_mim long form schema.

The meaning of this value is defined in ISO 8824-1, and is described in ISO 10303-1.

C ARM EXPRESS-G (Informative)

The following diagrams correspond to the ARM EXPRESS given in Annex E. The diagrams use the EXPRESS-G graphical notation for the EXPRESS language. EXPRESS-G is defined in annex A of ISO 10303-11.

- ARM Diagram 1

Application Module: Identification assignment ARM EXPRESS-G Diagram 1
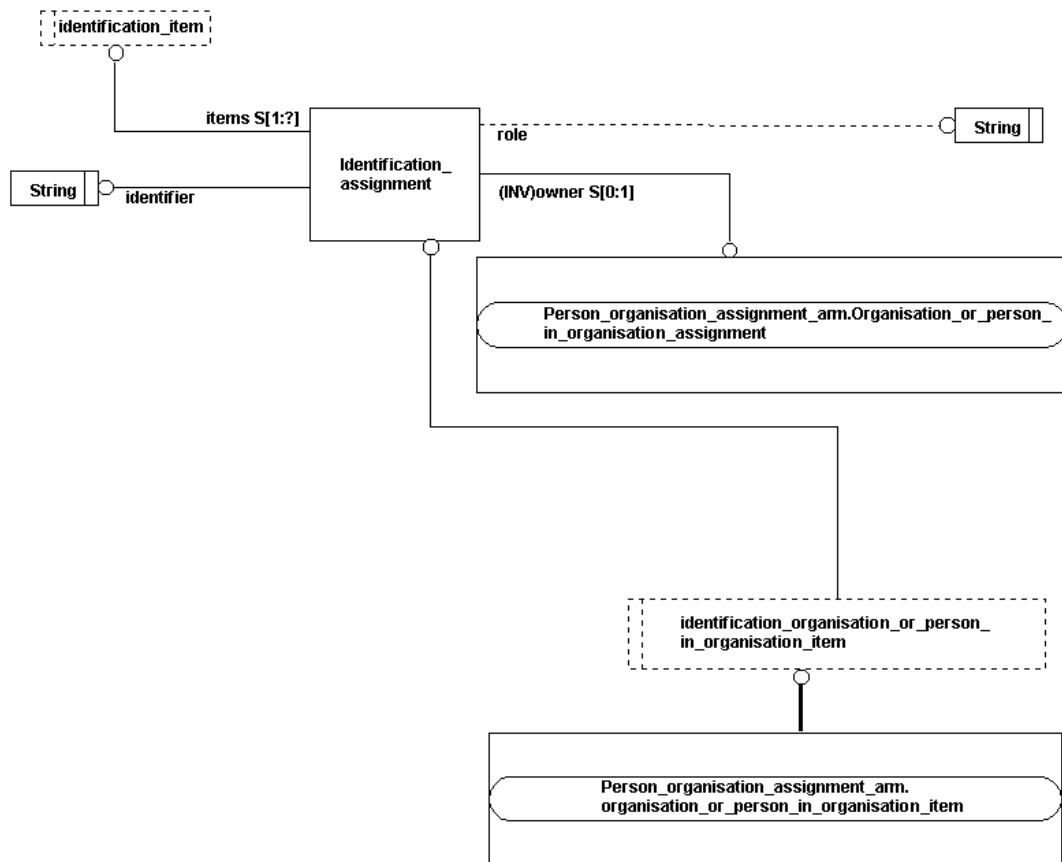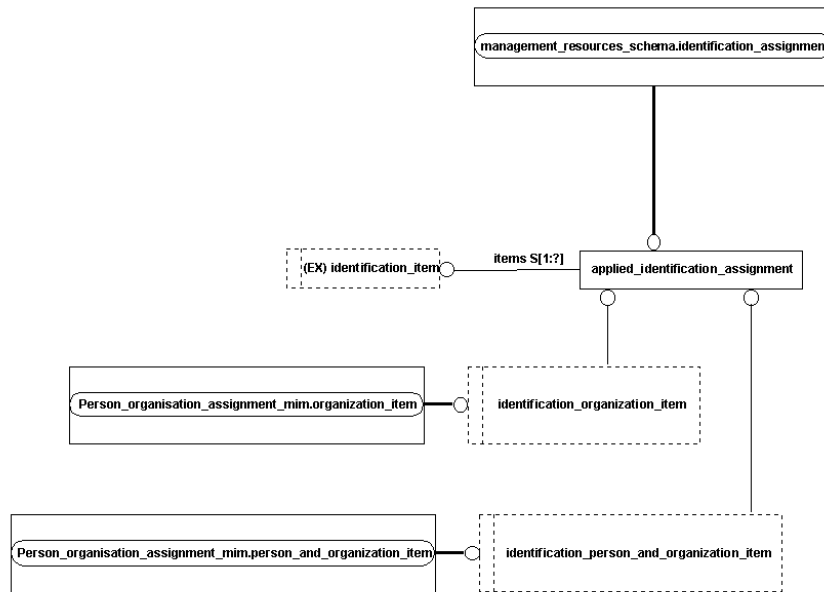
D Module MIM EXPRESS-G (Informative)

The following diagrams correspond to the MIM EXPRESS short listing given in Clause 5.2. The diagrams use the EXPRESS-G graphical notation for the EXPRESS language. EXPRESS-G is defined in annex A of ISO 10303-11.

- MIM Diagram 1

Application Module: Identification assignment MIM EXPRESS-G Diagram 1

E AM ARM and MIM EXPRESS (Informative)

This annex provides a listing of the EXPRESS for the ARM specified in clause 4, the short form schema given in clause 5.2, and the long form expanded EXPRESS schema derived from the short form in clause 5.2 without comments or other explanatory text. It also provides a listing of the EXPRESS entity names and corresponding short names as specified in annex A of this part of ISO 10303. The content of this annex is in computer-interpretable form.

	ARM	MIM	
		Short Form	Long Form
HTML version	ARM EXPRESS	MIM SF EXPRESS	MIM LF EXPRESS
Text version	ARM EXPRESS text	MIM SF EXPRESS text	MIM LF EXPRESS text

- Short Names

F Application module implementation and usage guide (Informative)

This clause describes usages of this module.

Bibliography

[1] ISO TC 184/SC4 1997, Proposed Standing Document - Guidelines for application module development, revision 0.6
<http://wg10step.aticorp.org/Deliverables/Guidelines/AMConGde06.html>

Page last updated - 6 Dec 2000