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Intelligent transport systems — Identifiers

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

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.

Introduction

ISO/TC 204 has defined several documents that require globally unique identifiers to reference specific items of interest (e.g. protocols, ITS applications, organizations). Items that need to be identified can be registered in the Registry of Intelligent Transport System Items (RITSI), where they are assigned a formal identifier. RITSI is designed in an open format such that:

— documents, including those developed outside of ISO, can:

  — define data elements that reference RITSI registers as their value domain specification, and

  — include informative statements that indicate the identifier that has been assigned to a specific item;

— new items can be recorded in a timely fashion;

— the listing of registered items can be browsed and searched.

This document is designed to be used by the Intelligent Transport Systems (ITS) community at large but is particularly directed at application developers and equipment providers.

This document specifies the procedures used to manage RITSI. The document is presented as follows:

— Clause 5 provides an overview of the document and the concepts used;

— Clause 6 defines the attributes that are used to characterize item classes;

— Clause 7 defines attributes that are used to characterize registered items;

— Clause 8 defines the information and rules related to requests that are submitted;

— Annex A provides the request form for use for all requested changes to the registers maintained according to the rules defined by this document.

Intelligent transport systems — Identifiers

1 Scope

This document defines the rules and processes used to assign and manage identifiers to items of interest within the ITS community.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8824-1, *Information technology — Abstract Syntax Notation One (ASN.1) — Part 1: Specification of basic notation*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country code*

ISO/TS 14812, *Intelligent transport systems — Vocabulary*

ISO 17419, *Intelligent transport systems — Cooperative systems — Globally unique identification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17419, ISO/TS 14812 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
identifier
expression used to distinguish a *registered item* (3.6) uniquely and unambiguously within the scope of an *item class* (3.3)

3.2
item
member of an *item class* (3.3)

Note 1 to entry: The term "item" can be used to refer to any entity of interest, whether it has been included in a register or not.

3.3
item class
set of entities of interest that need to be uniquely distinguished from one another

3.4
register
table where each row is used to assign an *identifier* (3.1) to represent an *item* (3.2)

3.5
registry
collection of *registers* (3.4)

3.6
registered item
item (3.2) approved for inclusion in a *register* (3.4)

3.7
requester
entity responsible for submitting requests for an *item* (3.2)

Note 1 to entry: The request can relate to registering a new item or modifying an existing registered item.

4 Abbreviated terms

CCMS	cooperative ITS credentials management system
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	information and communications technology
ISO	International Organization for Standardization
ITS	intelligent transport system
ITS-S	ITS station
MA	maintenance agency
NRA/I	national registration authority for issuers
TCP	transmission control protocol
URL	universal resource locator

5 Concepts

5.1 Purpose

Within information exchanges, there is often a need to reference an entity of interest (e.g. a country, an organization, a document, a protocol) unambiguously and concisely. One way to achieve this is to define an identifier, which is a concise expression (e.g. an integer value) that is used to represent the item of interest. The identifier can be an integer, a hierarchical structure (e.g. an ASN.1 OBJECT IDENTIFIER) or any other concise representation of a more complex concept (e.g. a two-character country code).

The association of an identifier with a specific item is provided with the use of a register (i.e. a listing). The register is presented as a table with columns representing different attributes (e.g. the name of the item) and meta-attributes (e.g. the last date the registered item was updated) associated with each registered item; each row of the table represents the assignment of an identifier (i.e. concise expression) to a specific item along with other administrative attributes.

This document specifies the attributes and meta-attributes used within the RITSI and the process for requesting the registration of a new item or modifying an item previously registered. The registers are maintained by a maintenance agency (MA). The name and contact information of the maintenance agency for this document can be found at www.iso.org/maintenance_agencies.

This site also provides a link to the website containing the current registers covered by this document.

5.2 Scope of identifiers

This document defines the process for registering all ITS-specific item classes that require a global scope, are not affected by privacy concerns, and only consist of simple attributes. Specific identifiers that are outside of the scope of this document include:

Identifiers that uniquely identify an ITS-S unit or an ITS-S communication unit: The attributes associated with these identifiers can potentially be used to reveal sensitive information and require a more secure infrastructure than considered by this document. It is expected that the assignment of these identifiers will be conducted through a distributed system and be based on the ITS-S equipment manufacturer identifier coupled with a manufacturer-specific serial number. It is further expected that the use of this identifier will be limited to the portion of the Cooperative ITS Credentials Management system (CCMS) that needs to maintain the status of each such identifier when issuing certificates, and that each such CCMS will contain its own register for this purpose.

Identifiers for data concepts: Data concepts are defined through complex attributes and require more complex management than is defined in this document. It is expected that data concepts will be registered in the Central ITS Data Concept Registry (CIDCR), as defined in the ISO 14817 series, and/or as a part of the ITS logical data model.

Local identifiers: Some ITS identifiers are only used within a local context. The uniqueness of these identifiers is managed by the scope in which the identifier is used. For example, the ITS application process instance identifier within an ITS-S unit is managed by the ITS-S unit itself.

Multi-part identifiers: Some ITS identifiers are formed by combining more elemental identifiers (e.g. an ITS application process identifier with the ITS application developer identifier). In these cases, the lists defined by this document will contain the elemental identifiers (to the extent that they are within its scope), but this document will not define combined identifiers.

Broader ICT identifiers: The ITS community uses several broader information and communications technologies (ICT) and as a result is dependent upon identifiers managed by those broader communities. For example, values for the TCP port number are managed by ICANN. This document does not intend the development of lists that would duplicate these values.

5.3 Existing assignments

In some cases, identifiers were assigned to items prior to recording the registers within the RITSI. The registers maintained according to this document shall incorporate all known authorized assignments made prior to the creation of the RITSI.

6 Attributes for each register

The definition of each item class (and associated register) shall be characterized by the attributes shown in Table 1.

Table 1 — Attributes for lists

Attribute	Definition
Name	A short English textual name or acronym used by humans to identify the item class.
Description	A textual description, in English, of the item class.
Special attributes	The special attributes, as defined in 7.2, that may be included as a part of the definition of each item registered within the item class along with an indication of whether a value for the attribute is required, optional or conditional when registering an item and an indication of whether the attribute shall be provided by the requester.
Policy	A reference to a section on tbe RITSI website that defines the policy for registering items within the item class.

Table 1 *(continued)*

Attribute	Definition
Datatype	The domain of all potential valid values allowed for the identifier used to identify an item of the item class, represented in abstract syntax notation one (ASN.1) in accordance with ISO/IEC 8824-1. The range includes all potential values regardless of state, including reserved values.
Documents	The document(s) that are known to make direct normative reference to this item class, for example, as the value domain of a data element. (This does not include documents that reference a document that references the item class.)

7 Attributes for each item

7.1 General attributes

The definition of each item shall support the general attributes defined in Table 2. All textual (i.e. UTF8String) fields shall be in English to promote global understanding.

Table 2 — General attributes for identifiers

Attribute	Definition	Type
ID	The assigned globally unique identifier that can be used to concisely identify the registered item.	<Per identifier Type>
Name	A short textual name for the registered item.	UTF8String
Description	An optional textual description of the registered item. Any special conditions related to references to the item should be specified in this attribute.	UTF8String
Assignee	The name of the entity that is currently designated to be responsible for monitoring the accuracy of the attributes associated with the registered item and alerting the ISO 5345 maintenance agency secretariat when updates are needed. The assignee is typically the organization that requested the registration of the item, but it may be transferred to a new assignee as necessary.	UTF8String
Updated	The date on which the assignment was last updated.	DATE-TIME
State	The registration state of the item.	ENUMERATED { reserved, allocated, new, assigned, revised, legacy, noLongerInUse }
Decision	The URL reference to the document containing the formal decision to register the item.	UTF8String

The decision field may be hidden on the public website as it is primarily intended for the internal management of the MA. Registered items may be associated with footnotes to record any additional notes about the assignment.

7.2 Special attributes

The "special attributes" (see Table 1) of an item class identifies the additional attributes that are applicable to registered items of that item class. Each attribute identified by the "special attributes" column shall reference one of the special attributes defined in Table 3 and indicate whether it is required, optional or conditional and whether it shall be provided by the requester. All textual fields (i.e. UTF8String) shall be in English to promote global understanding.