

**Information and documentation — Principles of identification**

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ISO/TS 22943

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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](http://www.iso.org/directives) (see [www.iso.org/directives](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 9, *Identification and description*.

~~A list of all parts in the ISO 22943 series can be found on the ISO website.~~

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](http://www.iso.org/members.html).

## Introduction

ISO/TC46/SC9 is the ISO subcommittee on ~~Identification~~identification and description that creates standards for content identifiers, description and associated metadata and models for use in information organizations, including libraries, museums and archives, and the content industries, including publishing and other content producers and providers under the auspices of ISO Technical Committee 46 on Information and documentation. The ~~Committee~~committee is responsible for a suite of identifier standards, including the International Standard Book Number (ISBN), the International Standard Serial Number (ISSN), the International Standard Name Identifier (ISNI), the International Standard Recording Code (ISRC), the International Standard Audiovisual Number (ISAN), the Digital Object Identifier (DOI), the International Standard Link Identifier (ISLI), International Musical Work Code (ISWC), among several other standards. It also oversees the numerous registration authorities that manage these identifier systems.

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## Introduction

Identification systems, as defined in this document, create concise codes (“identifiers”) that can be used to refer unambiguously to something or someone (the “referent”). In this way, the identifier can be provided as a proxy for the referent itself, for instance in cataloguing it in a library, enquiring about its attributes, ordering a copy of it or (if a person or party) attributing authorship in something. To be useful an identification system should be built upon trust in a variety of its characteristics. These include the reliability of the binding between identifier and the referent, trust in the assignment of the identifier, the related metadata, the longevity of the identification system, and the extent of the system’s use in its sector. This document describes the characteristics of identification systems that provide this trust to meet the needs of particular use cases and have other characteristics that make them useful in real world circumstances.

Having an identifier opens the possibility to access trusted information about the referent as well as to facilitate services that use the identifier. These related metadata ~~might~~can include information about the referent, such as rights or pricing information or connected information such as creators or derivatives. Services ~~might~~can include more efficient data exchange, order processing, or discovery. Services can even extend to deliver the referent itself via a supply chain if this is appropriate.

Identification systems are built upon trust among parties in the supply chain of information about a referent. Where the trust in the identifier has been generated by appropriate technologies, policies, and governance, then the value of systems which use it is increased as they enable the curation, discovery, commercial exploitation and preservation of the referents to which an identification system has been applied. This value comes about through increased efficiency for all participants in the ecosystem. There are a number of ways in which the binding between the identifier and the referent can be made trustworthy. This begins with the source of the data and it being recognized as a canonical source of data about the referent. This is further supported by consensus and engagement of the community of implementers and users of the identifier and its related data. The ability of the system to provide data reliably and in ways that users of the identification system require enhances this trust. The viability of the system and its ability to persist, both financially and technologically, buttress the community’s willingness to rely on the system.

A core function of an identification system is to draw a distinction between referents. Referents may often be similar and share common attributes. What distinguishes one referent from another is often defined by the use cases that are described by the identifier standard. Clear assignment rules, i.e., the specifications for when a “thing” is the same as another “thing” and when they are different, are a critical component of any identification system. Any community of practice should carefully consider, and be appropriately cautious in adopting, any proposal that increases the number of identifiers used to deal with similar populations of referents. The costs of management escalate with the number of identifiers assigned and finer granularity may, unless clearly justified, increase costs both for the system and for users who need to deal with multiple identifiers to specify what they otherwise regard as a single referent.

The following are two examples of identifiers and some of their associated kernel metadata:

~~ISSN: ISSN 0261-0523~~

~~**Sample Kernel Metadata**~~

~~**Key Title:** Philosophical transactions of the Royal Society of London~~

~~**Country:** UK~~

~~**ISSN Center responsible for the record:**~~

~~ISSN National Centre for the UK~~

~~**Medium:** Print~~

~~**Last modification date:** 22/06/2020~~

~~ISAN: ISAN 0000-0000-1BF0-0000-C-0000-0000-1~~

~~**Sample Kernel Metadata**~~

~~**Title:** All The President's Men~~

~~**Language:** ENG~~

~~**Type:** Feature Film~~

~~**Participants information**~~

~~**Types // First name / Last name**~~

~~Director // Alan / Pakula (ISNI 0000 0000 8387 6497)~~

~~Actor // Dustin / Hoffman (ISNI 0000 0001 2148 4241)~~

ISSN: ISSN 0261-0523

**Sample Kernel Metadata**

**Key Title:** Philosophical transactions of the Royal Society of London

**Country:** UK

**ISSN Center responsible for the record:**

ISSN National Centre for the UK

**Medium:** Print

**Last modification date:** 22/06/2020

ISAN: ISAN 0000-0000-1BF0-0000-C-0000-0000-1

**Sample Kernel Metadata**

**Title:** All The President's Men

**Language:** ENG

**Type:** Feature Film

**Participants information**

**Types // First name / Last name**

Director // Alan / Pakula (ISNI 0000 0000 8387 6497)

Actor // Dustin / Hoffman (ISNI 0000 0001 2148 4241)

The examples noted above given adhere to many of the core principles of identification system described in this document. Both identifiers are globally unique in a sizable namespace that can cover more than the potential items in its conceivable universe. The identifier examples comply in accordance with a variety of underlying standards about structure, and additional referencing standards. Outside of any relevant context, the identifier string itself is devoid of meaning. But within the context of a broader identification system, by being attached with a prefix, an appropriate display, or field heading, the string then becomes bound to a wealth of additional information that exists about the referent. It is not the string of characters, per se, that makes an identifier valuable, it is that associated metadata and the broader identification system that bind the identifier together in the ecosystem to create value. There is also a certain synergy if the attributes themselves are (or can be associated with) other identifiers -- this contributes to the "web of identifiers'identifiers" and enables further discovery (e.g., contributors associated with an ISBN or ISAN may themselves be identified via ISNI, such as noted in the ISAN example).

These systems require a great deal of infrastructure and investment to manage the information, including the assignment process, the curation efforts, the technical systems, and the maintenance of the entire system as community needs grow over time. The principles described in this document help support these systems.

**NOTE**—In some cases, identifier systems might not include all the attributes or characteristics described in this document. Not all ~~of~~ these attributes need apply in every circumstance. Furthermore, it is understood that there are some elements of these principles which may not be operable in existing or future systems and a lack of conformance with these principles should be evaluated on its merits within that system and its own context. For example, there are a variety of distributed identifier systems that have wide adoption, such as URN or URI, which do not involve centralized management of the identification systems.

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