INTERNATIONAL STANDARD

# ISO/IEC 7826-1

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# Information technology — General structure for the interchange of code values —

## Part 1: Identification of coding schemes

*Technologies de l'information — Structure générale pour l'échange de valeurs de code —*

*Partie 1: Identification des systèmes de codification*

Reference number
ISO/IEC 7826-1:1994(E)

# Contents

## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 7826-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 14, *Data element principles*.

ISO/IEC 7826 consists of the following parts, under the general title *Information technology — General structure for the interchange of code values*:

— *Part 1: Identification of coding schemes*

— *Part 2: Registration of coding schemes*

Annex A forms an integral part of this part of ISO/IEC 7826.

# Introduction

The increased use of data processing and telecommunications capabilities in commercial, governmental, and other, applications, has made possible the interchange of information in an effective machine-processable form. It is apparent that, as automated interchange increases, it becomes essential to provide the appropriate information interchange standards.

Representation of information in coded form can facilitate its processing by computer and enable it to be expressed with a precision and an independence of language that may be difficult to achieve in other forms. Consequently it is frequently used in information interchange for all types of application.

In many application areas there are ambitious programmes to develop coding schemes for data elements, coding schemes that often may be of good use outside the application they originally were specified for. Users preparing for multi-application and international information interchange are now urgently asking for ways to organize their coding schemes under a general structure.

In the development of this part of ISO/IEC 7826 it was recognized that for many categories of data it is neither feasible nor practical to adopt one single coding scheme. Thus, a member of any category can be coded under more than one coding scheme. This part of ISO/IEC 7826 recognizes the existence of these coding schemes and provides a means for systematically incorporating them in a uniform structure, for the purpose of information interchange, using an "International Coding Scheme Identifier" (ICSI).

The intention is to provide a simple mechanism allowing for existing coding schemes to be globally recognised. A couple of basic requirements may be highlighted:

— as a matter of principle, the mechanism has as the sole purpose to identify the coding scheme. Other qualities, like ownership, may be registered as attributes describing the coding scheme but they are kept separated from the ICSI value in order not to complicate its use;

— from a technical aspect the ICSI has to be short, i.e. consist of few characters, as one way of implementing coding scheme identifiers is to interchange them together with each code value.

ISO/IEC 7826 describes a general structure for the interchange of code values, specified according to registered coding schemes. Part 1 sets out the technique for the identification of such registered coding schemes. Part 2 outlines the procedure for registration of existing and new coding schemes. ISO/IEC 7826 does not provide guidance on the coding schemes for individual data elements.

The use of this part of ISO/IEC 7826 will

— reduce the potential ambiguity of information in coded form;

— reduce the need for human intervention in the interchange in machine-to-machine environments;

— diminish the time required to specify interchange arrangements;

— provide independence from language;

— in consequence of the foregoing, reduce the cost of interchanging data.

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# Information technology — General structure for the interchange of code values —

# Part 1:
Identification of coding schemes



## 1 Scope

This part of ISO/IEC 7826 specifies a general structure for the identification of coding schemes for the purpose of information interchange, using international coding scheme identifiers (ICSIs). Any code value resulting from the application of such a coding scheme can thus be given an unambiguous meaning by association with the ICSI value.

This part of ISO/IEC 7826 does not specify the mechanism for the association of ICSI value and code value and is therefore independent of syntax used in interchange. It should have wide applicability among users of data elements.

Specification of the coding schemes themselves and aspects on technical implementation in interchange, like internal procedures, file organization techniques, storage media, encoding rules, languages, etc., are outside the scope of this part of ISO/IEC 7826.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 7826. 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/IEC 7826 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 2382-1:1993, *Information technology — Vocabulary — Part 1: Fundamental terms.*

ISO 2382-4:1987, *Information processing systems — Vocabulary — Part 04: Organization of data.*

ISO 6523:1984, *Data interchange — Structures for the identification of organizations.*

ISO/IEC 7826-2:1994, *Information technology — General structure for the interchange of code values — Part 2: Registration of coding schemes.*

## 3 Definitions

For the purposes of this part of ISO/IEC 7826, the following definitions apply.

**3.1 character:** Member of a set of elements that is used for the representation, organization, or control of data.

[ISO 2382-4]

**3.2 character set:** Finite set of different characters that is complete for a given purpose.

[ISO 2382-4]

**3.3 coding scheme:** Collection of rules that maps the elements of one set on to the elements of a second set.

NOTES

1 The elements may be characters or character strings.

2 The first set is the coded set and the second is the code element set.

3 "coding scheme" is preferred to "code" in this part of ISO/IEC 7826 as the latter has several (deprecated) meanings.

[ISO 2382-4]

**3.4 coded set:** Set of elements which is mapped on to another set according to a coding scheme.

EXAMPLE 1 — A list of names of airports which is mapped on to a corresponding set of three-letter abbreviations.

[ISO 2382-4, using "coding scheme" as indicated in note 3 in 3.3]

**3.5 code value:** Result of applying a coding scheme to an element in a coded set.

EXAMPLE 2 — "CDG" as the representation of Paris Charles-de-Gaulle in the coding scheme for three-letter representation of airport names.

[ISO 2382-4, using "coding scheme" as indicated in note 3 in 3.3]

**3.6 code element set:** Result of applying a coding scheme to all elements of a coded set.

EXAMPLE 3 — All three-letter international representations of airport names.

[ISO 2382-4, using "coding scheme" as indicated in note 3 in 3.3]

**3.7 data:** Representation of facts, concepts, or instructions in a formalized manner, suitable for communication, interpretation, or processing by human beings or by automatic means.

[ISO 2382-1]

**3.8 data element:** Category of data which represents a concept and whose properties are expressed as a set of data element attributes which permit it to support information interchange.

**3.9 data item:** One occurrence of the concept represented by a data element, expressed by its name, its representation, and any explanation needed to understand its meaning.

**3.10 information interchange:** Process of sending and receiving data in such a manner that the information content or meaning assigned to the data is not altered during the transmission.

**3.11 international coding scheme identifier, ICSI:** Identifier assigned to uniquely identify a registered coding scheme for use in information interchange.

NOTE 4 A formal description of the attributes of the ICSI is given in annex A.

## 4 Identification of coding schemes

Coding schemes registered under the provisions of ISO/IEC 7826-2 are each designated by an ICSI value. The ICSI value uniquely identifies the coding scheme within the framework of ISO/IEC 7826.

### 4.1 Structure for the interchange of a code value

A code value to be interchanged is given a meaning unambiguously by association between:

a) the ICSI value of the appropriate coding scheme

and

b) the code value (within that coding scheme).

### 4.2 The international coding scheme identifier (ICSI)

**4.2.1** An ICSI value shall be assigned to a coding scheme under the procedure specified in ISO/IEC 7826-2.

**4.2.2** An ICSI value shall have a length of maximum six characters. The ICSI shall conform to the formal specification of annex A.

**4.2.3** To guarantee unique identification of coding schemes, an ICSI value once assigned shall not be reallocated.

**4.2.4** ICSI values reserved for special use are specified in clause 5.

### 4.3 The code value

**4.3.1** The coding scheme governing the code value shall be registered under the procedure specified in ISO/IEC 7826-2.

**4.3.2** Each code value shall be unique within its coding scheme.

**4.3.3** The format of the code value, including the number of characters and character set used, shall comply with the coding scheme as documented upon its registration.

### 4.4 Mechanism for association of ICSI value and code value

The mechanism by which the ICSI value and the code value are associated is not specified in this part of ISO/IEC 7826. It may include implicit use of ICSI value (e.g. prior agreement between interchanging partners allowing for its omission in the actual interchange) as well as explicit interchange of ICSI value together with the code value in accordance with agreed specifications. Any syntax may be agreed for this purpose.

## 5 Provisions for the allocation of ICSI values

The ICSI value carries no meaning but to identify a coding scheme. For practical purposes, however, the following provisions are made for allocation of series of ICSI values.

### 5.1 Recognition of existing identification structures

It is recognized that identifiers for the identification of coding schemes are being issued by other authorities operating inside and outside the aegis of ISO/IEC.

It is important that ambiguity is avoided, and coding schemes with their associated identifiers may be in use for many years. ICSI values which could be confused with other identifiers performing the same or a similar function shall therefore not knowingly be assigned.

ISO/IEC 7826-2 specifies the proper procedure to recognize, in an ordered manner, identifiers issued to coding schemes by such other bodies.

### 5.2 Identification of private coding schemes

For use by interchange parties, if they, by prior agreement, wish to interchange code values under a private coding scheme to which no ICSI value has been assigned, or to one where the allocation of an ICSI value is pending, the following range of ICSI values is reserved:

009900 — 009999 (fixed length, using digits of the decimal numeration system only).

The interchange parties shall agree on the identification of the coding scheme and the specification of code values as well as their maintenance. They shall ensure that choice of ICSI values under private agreement causes no ambiguities in information interchange between them.