

Implementation of
ISO 8459-3:1994

Information and documentation — Bibliographic data element directory —

Part 3: Information retrieval
applications

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee DOT/7, Mechanized information, upon which the following bodies were represented:

- ASLIB
- Bodleian Library
- British Association for Information and Library Education and Research
- British Library
- British Photographic Association
- City University
- Engineering Equipment and Materials Users' Association
- Institute of Information Scientists
- Joint Information Systems Committee
- LASER
- Library Association
- Standing Conference of National and University Libraries
- University of Bath

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National foreword

This British Standard reproduces verbatim ISO 8459-3:1994 and implements it as the UK national standard.

This British Standard is published under the direction of the Information and Documentation Assembly whose Technical Committee DOT/7 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO title page, pages ii to iv, pages 1 to 34 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

INTERNATIONAL STANDARD

ISO
8459-3

First edition
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Information and documentation — Bibliographic data element directory —

Part 3:

Information retrieval applications

*Information et documentation — Répertoire des éléments de données
bibliographiques —*

Partie 3: Applications à la recherche documentaire



Reference number
ISO 8459-3:1994(E)

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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.

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.

International Standard ISO 8459-3 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 4, *Computer applications in information and documentation*.

ISO 8459 consists of the following parts, under the general title *Information and documentation — Bibliographic data element directory*.

- *Part 1: Interloan applications;*
- *Part 2: Acquisitions applications;*
- *Part 3: Information retrieval applications.*

Annex A forms an integral part of this part of ISO 8459. Annex B and Annex C are for information only.

Introduction

Data are interchanged for the purpose of starting or supporting a process. In order to transmit information required to support a process, the various elements of data in the interchanged messages must be fully understandable to the processes concerned. This part of ISO 8459 describes, in the form of a directory, data elements used to support information retrieval processes or applications.

The data elements that may occur in an information retrieval transaction are presented in four ways:

- a) A data element directory (see clause 4) with annexes containing code values and description for messages (see A.1) and date time qualifier (see A.2);
- b) An index (see clause 5) consisting of names, keywords and synonyms for data elements and data element values including names assigned to date/time qualifiers and messages;
- c) A structured order of data elements (see clause 6) which relates similar data elements in a hierarchical fashion;
- d) A matrix (see clause 7) showing the data elements pertaining to specific information retrieval messages.

ISO 8459 will, when complete, comprise a comprehensive data element directory for bibliographic use. This part of ISO 8459 is primarily intended for new documentation and information retrieval systems.

1 Scope

This part of ISO 8459 specifies and describes data elements required in the interchange of data between information retrieval systems (i.e. terminal-to-computer or computer-to-computer). It also identifies messages and their data elements which are used in information retrieval transactions.

It is intended to support both batch and interactive information retrieval transactions. Annex B provides examples of how this part of ISO 8459 may be used.

The structuring of the data elements in support of information retrieval applications falls outside the scope of this part of ISO 8459. For sample structuring of these data elements, see ISO 8777 (commands for interactive searching), ISO 10162 (search and retrieve application service definition for open systems interconnection) and ISO 10163 (search and retrieve application protocol specification for open systems interconnection).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8459. 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 8459 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 639:1988, *Code for the representation of names of languages*.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*.

ISO 2108:1992, *Information and documentation — International Standard book numbering (ISBN)*.

ISO 2709:1981, *Documentation — Format for bibliographic information interchange on magnetic tape*.

ISO 2788:1986, *Documentation — Guidelines for the establishment and development of monolingual thesauri*.

ISO 3297:1986, *Documentation — International Standard serial numbering (ISSN)*.

ISO 4217:1990, *Codes for the representation of currencies and funds*.

ISO 5426:1983, *Extension of the Latin alphabet coded character set for bibliographic information interchange*.

ISO 5427:1984, *Extension of the Cyrillic alphabet coded character set for bibliographic information interchange*.

ISO 5428:1984, *Greek alphabet coded character set for bibliographic information interchange*.

ISO 7498-3:1989, *Information processing systems — Open Systems Interconnection — Basic Reference Model — Part 3: Naming and addressing*.

ISO 8601:1988, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

ISO 8777:1993, *Information and documentation — Commands for interactive text searching*.

ISO 9040:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Service*.

ISO 9041-1:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol — Part 1: Specification*.

ISO/IEC 10027:1990, *Information technology — Information Resource Dictionary System (IRDS) frame-work*.

ISO 10162:1993, *Information and documentation — Open Systems Interconnection — Search and Retrieve Application Service Definition*.

ISO 10163-1:1993, *Information and documentation — Open Systems Interconnection — Search and Retrieve Application Protocol Specification — Part 1: Protocol specification*.

3 Definitions

For the purposes of this part of ISO 8459, the following definitions apply.

3.1 character string

a combination of letters, digits, punctuation marks or other symbols

3.2 data element

a basic unit of identifiable and definable data. It has a data element name represented by a tag as identifier and one or more values for expressing (a) particular fact(s)

3.3 data element directory

a listing of data elements with specifications of representative data element values, as appropriate

3.4 data element group

a set of related data elements

3.5 data element group name

one or more words in a natural language identifying a data element group

3.6 data element name

one or more words in a natural language identifying a data element

3.7 data element value

a fact expressed by codes, digits or natural language corresponding to the data element description and representation

3.8 information retrieval

the action, methods and procedures for recovering from stored data information on a given matter or references to pertinent documents

3.9 message

a structured combination of data elements used in an information retrieval transaction

3.10 record

a group of data usually treated as a unit

3.11 representation

the way in which a particular data element value is expressed using one or more number(s), letter(s) or symbol(s)

3.12 result set

the group of records, citations, items, or other information units retrieved by the use of a FIND command in the search process

3.13 search request

a structured query which describes the data elements and their values that the retrieved items should satisfy

3.14 tag

an identifier allocated for use in place of a data element name or data element group name (In this part of ISO 8459, a group of three digits.)

3.15 transaction

the creation or modification of a message required to support the retrieval of full text or secondary information request for the source document and associated payments

4 Directory

The directory names and defines data elements and data element groups used to support information retrieval transactions. The information pertaining to each data element or data element group is presented in four separate columns, labelled tag, name, description and representation. A “tag” is used to identify a data element as well as a data element group. “Name” contains data element names and data element group names. Data element group names are printed in bold letters to differentiate them from data element names. “Description” includes a definition for each data element or data element group followed by a list of corresponding tags for data elements that comprise the group. “Representation and remarks” includes explanatory text about conventions and/or standards used to represent values applicable to a data element or a data element group as well as sample values, if applicable.

To ensure that the data element names, definitions and values are maintained in a timely fashion, ISO 8459-5 will provide specific procedures to be followed in processing updates to this part of ISO 8459.

Tag	Name	Description	Representation and remarks
001	Message identification	Data used to identify a particular message Group identifier for data elements 002–010.	See A.1 . Also used in conjunction with date/time qualifier (905). See A.2 for the various qualifiers that can be specified. See ISO 8601. Used by automated systems to indicate the precise hour, minute and second that a transaction occurred. Used in conjunction with date/time qualifier (905). See A.2 . This code or number is assigned by the institution or system responsible for creating the specific type of document or message (i.e. invoice, claim, etc.).
002	Message name	Phrase or code identifying the function of a message.	
003	Date	Year, month and day on which a transaction is performed.	
004	Time stamp	Time at which a message was sent or received.	
010	Transaction number	Code or number assigned to identify a transaction in support of information retrieval services (i.e. invoice, claim, etc.)	
040	Session details	Data which identify various details about a specific session. Group identifier for data elements 050–110, 120, 550, 848, 849, 900–910.	
050	Transaction participant	Data which identify each party associated with a transaction and the role performed by that party. Group identifier for data elements 060–078, 110, 120.	
060	Participant's function	Word or code which specifies the function or role performed by a party to an information retrieval session.	Possible functions or roles include: 0 = information service = provider 1 = database producer 2 = gateway 3 = user 4 = directory

Tag	Name	Description	Representation and remarks
076	Password	Code used by a system to authenticate the identity of an individual or automated process that has requested or is using a system function or service.	This code may be revised periodically to preserve its security. A password is typically supplied by the user at session initiation time but it could also be requested at any time during a session. Other mechanisms for user authentication are being standardized, for example, security architecture, ISO 7498-2 and new work item on authentication framework. This data element is used in conjunction with user's identifier (122), an institution identifier (113) and telenetwork user ID (165).
077	Password edition	Code or phrase used to identify the current and previous password(s)	Two editions of passwords are defined to support password revision. These are: 0 = old password 1 = current password
078	Password type	Code or phrase used to indicate the specific services allowed to the password holder.	This data element is used by systems to support multiple levels of authentication. Possible values include: 0 = system connection 1 = database connection 2 = read access 3 = write access 4 = delete privileges 5 = output instructions Security level (849) is used to control access to classified information. Related to access privileges (724), which provides various details associated with type of privilege (078).
080	Session identifier	Code or number used to identify a specific period of interaction between a user and an automated system.	A session typically covers all transactions between user and system from log-on to log-off. Sessions may be aborted prematurely by unusual systems or telecommunications events to produce an artificial log-off point. Sophisticated systems allow sessions to be suspended and resumed later or to change applications during a particular session.

Tag	Name	Description	Representation and remarks
081	Subsession identifier	Code or number used to identify a period of interaction with one specific service provided within a single session on an automated system.	May be used as a qualifier for session identifier (080).
086	Reference identifier	Code or number assigned to a system to system communication.	This number is used to monitor and verify that all system interactions have been transferred and processed in the proper sequence.
087	Continue flag	Instruction that processing should continue even though resource constraints (090, 091, 092, 725) have been exceeded.	Possible values include: 0 = continue 1 = stop
088	Suspend flag	Indication whether processing has been suspended whenever resource constraints have been exceeded (090, 091, 092, 725).	Possible values include: 0 = processing not suspended 1 = processing suspended
090	Cost constraint	Predefined monetary value, which if exceeded will result in a specific system action.	Cost constraints are frequently used to limit the system resources that may be consumed by any one user over a given period of time.
091	Hit constraint	Maximum number of records authorized to be retrieved in any given search	
092	Session length constraint	Predefined time limit, which if exceeded will result in a predefined system action.	A system will typically terminate session after a set amount of time of system usage or inactivity.
093	Transmission speed	Number used to designate the rate of data transmission between two pieces of computer equipment measured in bits per second.	
094	Packet size	Number of octets in a packet.	Packet formats are based on the general structure as defined in X.25. A single X.25 interface can theoretically handle 4 095 virtual channels, packet sizes up to 2 048 octets each, and packet sequencing to 128 packets per logical channel. Since network suppliers' nodal processors are too small to handle this much traffic through a single interface, in practice the support offered over each interface is limited to the current capacity of the network's access node.

Tag	Name	Description	Representation and remarks
095	Resource usage type	Code or phrase used to indicate the type of system resource that has been utilized within a session or given time period.	Systems typically maintain information on the following resources in order to support planning, monitoring and controlling of these resources: 0 = CPU time 1 = connect time 2 = records retrieved online 3 = records retrieved offline 4 = number of sessions 5 = octets of disk storage 6 = number of saved profiles 7 = packets transmitted 8 = memory 9 = terminal transactions 10 = number of disk accesses 11 = number of tapes Used in conjunction with amount of usage (097).
096	System performance	Data collected to inform management about system performance.	Typical system performance measures include: 0 = start-up delay 1 = percentage of downtime 2 = number of system malfunctions 3 = number of telecommunication interruptions 4 = average response time Used in conjunction with amount of usage (097).
097	Amount of usage	Quantities which measure the values established under resource usage type (095) and system performance (096).	
098	Records returned	An integer indicating the number of database and/or diagnostic records returned.	
101	User types	Identification of the category, chosen for management purposes, to which a user belongs.	Possible values are: 0 = intermediary 1 = end user 2 = government 3 = university 4 = scientific institution
102	Search type	Identification of the type of search made against a database.	Used to indicate: bibliographic, directory, numeric, graphic and other types of searches.