INTERNATIONAL STANDARD

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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

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. Annexes B and 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.

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Information and documentation — Bibliographic data element directory —

Part 3:
Information retrieval applications

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) framework.*

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.	
002	Message name	Phrase or code identifying the function of a message.	See A.1.
003	Date	Year, month and day on which a transaction is performed.	Also used in conjunction with date/time qualifier (905). See A.2 for the various qualifiers that can be specified. See ISO 8601.
004	Time stamp	Time at which a message was sent or received.	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.
010	Transaction number	Code or number assigned to identify a transaction in support of information retrieval services (i.e. invoice, claim, etc.).	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.).
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
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 authentification 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).

Tag	Name	Description	Representation and remarks
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.
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.

Tag	Name	Description	Representation and remarks
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.
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.	

Tag	Name	Description	Representation and remarks
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.
103	Database type	Identification of the type of database, both generic and specific.	Used to indicate: bibliographic, directory, numeric, graphic and other types of databases.
110	**Institution identification**	Data elements intended to identify an institution participating in a session. Group identifier for data elements 111-113 and 130-137.	
111	Name of institution	Word, phrase or initialism intended to identify an institution or corporation.	
112	Abbreviated name	Short form of an institution's name (111).	
113	Institution identifier	Unique number or code used by an information retrieval system to identify an institution.	
120	**User identification**	Data elements intended to identify an individual using an information retrieval system, or for whom the system is used. Group identifier for data elements 121-123 and 130-137.	
121	User's name	Name of the person that initiated the information retrieval session.	
122	User's identifier	Unique number or code used by an information retrieval system to identify a person initiating a session.	
123	User's affiliation	Identification of the institution with which the user is associated.	
130	**Address**	Code or phrase which gives the geographic location or place associated with an individual or an institution. Group identifier for data elements 131-137.	This element may be used in conjunction with institution name (111) or user's name (121). For telenetwork addresses see (160).
131	Address instruction	Word or code which indicates the address to which the search results, Selective Dissemination of Information (SDI) profiles, invoices, etc. are to be sent if different from the address for the source of a message.	This data element is used in conjunction with address (130). Possible values include: 0 = ship to 1 = bill to

Tag	Name	Description	Representation and remarks
132	Post office box	Box number assigned by the postal authority.	May be used in conjunction with an institution name (111) or user's name (121).
133	Street and number	Number and phrase used to identify a location within a city or rural area.	
134	City	Word or phrase used to identify a city, including suburb or postal area.	
135	Region	Word or phrase identifying an area within a country, e.g. state, province, county.	
136	Country	Word or phrase used to identify a country.	
137	Postal code	Code assigned by the postal authorities of a country which uniquely identifies an address or group of addresses.	
150	Telecommunications carrier	Word, phrase or initialism used to identify the telecommunications carrier facilities being used to access a remote system.	It may be necessary to identify more than one carrier.
160	**Telenetwork address**	Unique number or code used to identify a device within a communications network. Group identifier for data elements 161-166.	
161	Telephone number	Unique number assigned to a telephone line.	
162	Telefacsimile number	Telecommunications number used for sending and receiving telefacsimiles.	
164	Electronic mail identifier	Unique number assigned to an electronic mail box or service connection.	
165	Telenetwork user identifier	Unique code assigned to a user in a communications network.	This data element may or may not have the same value as institution identifier (113) or user's identifier (122).
166	Host system network address	Unique number or code used to identify a host system within a communications network.	See ISO 7498-3.
200	System prompt	Character, string of characters or menu used to support and guide user interaction with an automated system.	Systems should provide user prompts to guide user interaction.
230	**Command expression**	Request for the performance of an operation or for the execution of a particular computer program. Group identifier for data elements 232-281, 610.	A command expression typically consists of a command word (240) and a command specification (250). Certain expressions may consist of a command word only, e.g. instruction to terminate session. A command specification when present follows the command word and qualifies the computer operation invoked by the command word.
232	Search history	Listing of command expressions previously used during a session.	

Tag	Name	Description	Representation and remarks
233	Search profile	Named set of one or more command expressions which may be executed periodically against one or more databases.	The name may be a word, phrase or code.
235	Command identifier	Number or code which is assigned to a command expression and which can be used to reference it.	Separate classes of identifiers could be provided for each type of command expression, for example, search set identifier which is used in ISO 8777 to identify a search expression.
240	Command word	Specific word or abbreviation used to initiate a command expression.	These are usually self-explanatory action verbs that express the sense of the function to be performed. See ISO 8777.
250	**Command specification**	String of characters following a command word and specifying how and on what the command expression is to operate. Group identifier for data elements 252-281.	A command specification may consist of one or more data elements from the sequence 255-281.
252	Completeness attribute	Phrase or code that specifies the completeness of a search expression.	Used to indicate: incomplete field, complete field, etc. For possible values, see ISO 10163:1993, annex D.
253	Term structure attribute	Attribute that specifies the structure of a search term.	Used to indicate: phrase, word, etc. For possible values, see ISO 10163:1993, annex D.
254	Positional attribute	Attribute that specifies the position of a type of search term (name, subject, etc.) within a search expression.	Used to indicate: first in field, first in subfield, etc. For possible values, see ISO 10163:1993, annex D.
255	Search term	One or more words, numbers, or symbols used in the search statement of the command specification of a FIND command expression.	The search term identifies the target of the search, that is, of the FIND command. See ISO 8777.
257	Field label	Code or numeric value used to identify an element of information in an index, thesaurus, query, database record, etc. Field labels are provided for units of information such as abstracts, columns within tables, author.	
258	Related terms	Code or phrase indicating that the search is for entries which are logically related to the specified search term.	Entry relationships are typically defined in controlled vocabularies or hierarchically arranged directories. For possible values, see ISO 2788.
261	Masking symbol	Designated character within a character set that is used to indicate that the exact value is non-critical for a specific number of characters of a search term.	A separate character may be used to indicate the number of characters that are being masked. See ISO 8777.
262	Truncation symbol	Masking symbol (261) that is applied for one or more characters at either end of a search term.	

Tag	Name	Description	Representation and remarks
263	Connector	Symbol that introduces a qualifier used in conjunction with a search term.	The equal sign (=) is used in a number of systems as a connector. For example, FIND TI = SMOKING, indicates that the search term must be part of the title to satisfy the command expression. Possible values are specified in ISO 8777.
264	Separator	Designated character used to mark off or set apart components of a command expression.	Possible values specified in ISO 8777 include space, comma, semicolon, etc.
265	Restoration symbol	One or more symbols or characters used to restore the literal meaning of reserved words, operators or symbols whenever they must be used as part or all of a search term.	In order to use a reserved command word, abbreviation, operator, or symbol as a search term, double quotation marks (") shall enclose the word to restore its literal meaning.
266	Weighting factor	Numeric value that is assigned to a search term or a command expression in order to rank or restrict the number of records that are retrieved.	
271	Boolean operator	Reserved term or symbol used to express logical realtionships between search terms, result sets, or both.	See ISO 8777 for specific Boolean operators.
272	Proximity operator	Code or phrase used to specify the sequence of and distance between search terms.	See ISO 8777 for specific proximity operators.
273	Ranging operator	Code or phrase used to assign ranges of consecutive values to search parameters.	See ISO 8777 for specific ranging operators.
274	Relational attribute	Code or phrase used to indicate relative values.	Relative values are conveyed by terms such as less than, equal. For possible values see ISO 8777 and ISO 10163.
280	Result set identifier	Word, phrase or code assigned by the system to the result set of an executed search command.	
281	Result set qualifier	Code or phrase which qualifies a result set identifier.	Possible values include: 0 = proposed 1 = actual
282	Result set size	Numeric value which identifies the number of records that have been retrieved from an executed FIND command.	
300	Item description	Data elements used to identify an item, usually consisting of descriptive information and headings.	An item may be either a component part within a host publication or an independent publication. See the corresponding parts of ISO 8459 to determine which data elements are used to describe an item for specific applications.
420	**Service charge**	Data concerning the nature of charges associated with the use of specified information retrieval services. Group identifier for data elements 421-473.	

Tag	Name	Description	Representation and remarks
421	Currency code	Code for the currency in which the price of the service is expressed.	This code is used to qualify service charges defined by data elements 428-473 whenever such charges must be represented in one or more currency equivalents. See ISO 4217.
428	Cost type	Code or phrase which indicates the type of charges that have been incurred in using a given system's services.	One or more of the following costs may be specified: 0 = database session 1 = total session 2 = current day 3 = month-to-date 4 = year-to-date 5 = cost-so-far, command 6 = cost-so-far, session 7 = telecommunication cost 8 = royalty charges
429	Cost	Charges for services rendered to a specific account, including information on the charging structure.	
430	Discount	The rate or value by which the supplier reduces the service charge for a session or individual transaction.	
432	Tax	The tax charges pertaining to information services on a single invoice.	
434	Invoice total	The total amount to be paid for the information retrieval services and any other charges on a specific invoice.	
435	Unit cost	The rate applied to each unit of the resources used in a session.	See 095 for examples of resources used.
437	Value-added tax (VAT)	Multistage sales tax levied at each point where information or services are exchanged.	
450	Account number	Number or financial code to which all billable transactions will be charged.	This could include an institutional account or an individual's credit card number. A client may access cost data and statistics associated with his account only.
470	Credit amount	Monetary value or resource time credited to a customer's account.	This amount may include a predefined rate or it could include the cumulative value of discounts (430) for a given period of time.
473	Credit justification	Reason(s) a credit or rebate is requested or confirmed.	
550	**Session parameters**	Set of phrases or codes used to convey default values (predefined by the system and/or set by the user) and other variable, non-instructional information pertinent to the system or session. Group identifier for data elements: 602-609, 715, 720, 722, 725, 735.	

Tag	Name	Description	Representation and remarks
600	**Service profile**	Number of coded or free text statements that identify the policies, services, charges, service hours, etc. pertaining to an information retrieval service. Group identifier for data elements 602-672.	This type of information may also be provided by a directory service supporting an information retrieval system.
602	Protocol options	Code, word or phrase which specify the capabilities that are supported by a service provider or user.	Values provided by ISO 10163 include: 0 = search 1 = present 2 = delset
603	Language of dialogue	Code or word used to select the language in which a user will issue system commands, receive system assistance and responses, etc.	This specification may be given by the user at session initiation time or it could be supplied automatically from the user's profile. If represented in coded form, use ISO 639.
604	Character set	Code or word used to identify the character set in which data is encoded or to indicate the capability of systems hardware and software to process data encoded in one or more scripts.	The ISO standard number assigned to a character set is commonly used to identify a character set, e.g. ISO/IEC 646, ISO 5426, ISO 5427, ISO 5428. This data element is needed to describe capabilities available to each participant in an information retrieval process; i.e. users, providers, etc.
605	Record syntax	Code or phrase identifying the record structure in which the data comprising a message is presented.	The origin may indicate which abstract syntax it prefers the target to use for records in the Search Response and the Present Response. See ISO 10163. If the target cannot supply the information in the requested abstract syntax, it will supply it in one of the other abstract syntaxes from the established set.
606	Record composition	Code or phrase used to designate the extent of a record.	This data element may be used to control the amount of data that is displayed, saved, transmitted, etc. An entire record, any predefined subset or user specified fields may be requested as permitted by a particular information service provider.
607	Version indicator	Number or word which indicates which edition or release of a given specification is being used.	Version indicator may be used in conjunction with protocol control information (830), hardware profile (630), software profile (640), etc.
608	Record type	Code or phrase identifying the purpose of a communicated record.	Typical record types include: 0 = query 1 = database record 2 = diagnostic record 3 = search profile
609	Display format	Visual arrangement or layout of data on a screen or a hardcopy printout.	
610	Database identifier	Unique name specifying a collection of one or more databases from which records are requested.	This data element may identify a set of one or more database names. See ISO 10163.

Tag	Name	Description	Representation and remarks
615	Coverage	Set of dates, subject terms or volume designators used to indicate the scope of a database.	
616	Database size	The number of records in a database, as of a specific date.	Used in conjunction with latest update (672).
620	Database producer	Name or code used to identify the creator of a given database.	
621	Information service provider	Name or code used to identify the organization that makes a database available.	
630	Hardware profile	Hardware facilities for accessing and performing the functions required for the interchange of data between information retrieval systems.	Hardware requirements at the user end will include at a minimum an asynchronous ASCII "dumb" terminal, an RS232 or equivalent interface, a modem, and a communications line.
640	Software profile	Software required to access and to perform the functions necessary for the interchange of data between information retrieval systems.	The software may perform one or more of the following functions: terminal emulation, communications, file transfer, reformatting of data and search assistance.
645	Terminal profile	Detailed specification of the functional capabilities of a terminal.	For a detailed example, see ISO 9040 and ISO 9041.
650	Index identifier	Code or phrase used to name an index to a database.	
651	Index entry	Character string that points to one or more records.	An index entry may be equivalent to a data element, a part of a data element or the combination of all or part of two or more data elements used to identify an item.
652	Index display code	Code or number that is dynamically assigned to index entries during on-line display to enable users to easily reference a given term.	
653	Stop word	Discrete character string which is not used as an index term.	Typically, stop words are language and/or database specific.
654	Postings	Number of records associated with an index entry.	
670	Thesaurus identifier	Code or phrase used to identify a controlled vocabulary.	
671	Classification scheme identifier	Code or phrase used to identify the scheme employed for systematic arrangement.	Possible values include: 0 = Dewey Decimal Classification 1 = Universal Decimal Classification 2 = International Classification for Standards
672	Latest update	Date or volume designator used to indicate when new or revised information was last added to a given database.	

Tag	Name	Description	Representation and remarks
673	Edition of classification scheme	Identification of the edition of the classification scheme from which the classification number was taken.	The term used to convey edition information could denote a year, a number, a language, etc.
700	**User profile**	Data which identifies various characteristics about the user, user's equipment, access privileges, billing information, etc. Group identifier for data elements 710-735.	
710	Search frequency	Code or phrase used to indicate how frequently a search profile (233) is to be executed.	Possible values include: 0 = each update file 1 = monthly 2 = quarterly 3 = weekly
715	Mode of interaction	Code or word selected by the user to indicate that communication with the system will be conducted by entering a command or by choosing an option from a menu.	Possible values include: 0 = command driven 1 = menu driven
720	Output medium	Code or phrase used to specify the medium on which the results of a search should be saved or recorded.	Some media which may be specified include: 0 = floppy disk 1 = magnetic tape 2 = automated system 3 = computer output microform 4 = paper 5 = terminal screen 6 = CD-ROM
722	Display constraints	Limitations in the visual representation of data at the user's terminal or printer.	Typical limitations include: line length, page length, etc. Used in conjunction with 097.
724	Access privileges	Services permitted the user upon successful connection to information retrieval system.	Typical services may include the following: to view an account; to access the system during specified hour and days; to use default procedures; to be connected to specified databases automatically on log-on; to search; to order photocopies of retrieved items; free on-line time; to view recent updates to the system. Related to 078 Password type, which states the type of privilege, 724 provides various details associated with a type of privilege.
725	Resource limitation	Predefined value which imposes a limit on the amount of systems resources that may be consumed or, which if exceeded, will result in a specific system action.	Most systems will impose limits on the amount of disk storage that is available to the user, the number of lines that may be printed, the number of files that may be searched, etc. Used with 095 to identify the type of resource. Complements 090, 091, 092. Used in conjunction with 097.
727	Operation confirmation	User's authorization of a projected computer operation such as delete result set, print large result set, perform an expensive or extensive search.	Possible values include: 0 = no 1 = yes

Tag	Name	Description	Representation and remarks
735	Sort option	Code or phrase that specifies the order in which items in a list are sorted.	The data element(s) by which the list is sorted will need to be specified, using the field label(s) (275), if other than the system default. Possible values include: 0 = ascending order 1 = descending order
810	Related application	Number or code which specifies another application.	Possible values are: 0 = interloan 1 = acquisiton 2 = delivery service
830	**Protocol control information**	Codes used to control interactions between two independent host systems. Group identifier for data elements 831-855.	ISO 10162 and ISO 10163 illustrate how these data elements are used in computer-to-computer communications. Some of these data elements may also be used in terminal-to-computer communications.
831	Query type	Codes used to specify a common format recognized by both the origin (requesting computer) and the target (responding computer).	This data element identifies the form and structure used to express the query (250) contained in the query field (230). Values provided by ISO 10163 include: 0 = private use 1 = reverse Polish notation 2 = ISO 8777 compliant
832	Preferred message size	Codes which specify preferred message size.	A numeric value for the number of octets.
833	Maximum record size	Codes which specify the maximum record size.	A numeric value for the number of octets.
834	Initialization status	Code or word indicating whether the initialize request was accepted or not.	Possible values include: 0 = accept 1 = reject
835	Replace indicator	Codes which indicate whether an existing result set with a same name should be replaced or not.	Possible values include: 0 = yes 1 = no
836	Diagnostic code	Code or phrase to indicate that a process cannot be executed or a record(s) cannot be returned because of errors or system limitations.	For possible values see ISO 10163:1993, annex E.
837	Search status	Code or phrase indicating the result in the processing of a search request.	Possible values include: 0 = successful 1 = unsuccessful Used in conjunction with result set status (838).

Tag	Name	Description	Representation and remarks
838	Result set status	Code or phrase indicating the availability of records when the search status (837) value is unsuccessful.	Values provided by ISO 10163 include: 1 = subset 2 = interim 3 = none
839	Present status	Code or phrase indicating if some or all of the records can be supplied when the search status (837) value is successful.	For possible values, see ISO 10163.
840	Number of records requested	Number of records requested by the user from the result set.	
841	Next result set position	Position within the result set of the next record following the last record returned.	
842	Result set start point	Position within the result set from which records will be returned.	
843	Delete operation status	Code or phrase used to indicate the status of a delete result set operation.	For possible values, see ISO 10163.
844	Small-set-upper-bound	Integer which indicates that all the records comprising a result set are to be returned if the result set size (282) is equal to or less than this integer.	
845	Large-set-lower-bound	Integer that indicates a threshold above which the user will only be informed about the size of the result set.	
846	Medium-set-present-number	Integer which indicates the number of records to be returned with a search response wherever the result set size (282) exceeds the small-set-upper-bound (844) and is less than the large-set-lower-bound (845).	
847	Number not deleted	Numeric value indicating the number of result sets that failed to be deleted.	
848	Security violation	Phrase or code used to report a problem in carrying out an operation for security reasons.	Possible values include: 1 = inappropriate authentication 2 = invalid credentials 3 = unrecognized security level 4 = insufficient access rights 5 = invalid signature
849	Security level	Phrase or code used to specify the right of a user to access information at various levels of confidentiality.	This data element can be associated with specific records or fields within records. It can also be used to classify data fields in records.
855	Extent of deletion	Instruction to delete one or all sets.	Possible values include: 0 = delete specific result set 1 = delete all result sets

Tag	Name	Description	Representation and remarks
860	Record syntax qualifier	Phrase or code which qualifies the record syntax (605).	Possible values include: 0 = preferred 1 = actual
900	Remarks	Any pertinent information that is not covered or amplified by a specific data element.	This data element may appear more than once in an information retrieval transaction and may enlarge upon or qualify any number of different data elements, as well as convey information not covered by particular data elements.
905	Date/time qualifier	Word or code which identifies an activity or condition that will happen or that has happened on a given day.	For a set of specific qualifiers, see A.2. Used in conjunction with date (003).
910	Help topic	Word or phrase that identifies system functions operations or services for which explanatory information is available to a user in order to clarify a given system capability and the steps to be followed in using that capability.	Help could be provided for: command words, Boolean operators, masking characters, etc.

5 Index

The index entries include names, keywords and synonyms for data elements, data element groups and data element values (i.e. codes) listed in the directory and names, keywords and synonyms for specific messages and date/time qualifiers listed in annex A. The entries are arranged in alphabetical order. The right-hand column labelled "Reference" gives the tag or clause and code (if applicable) for the indexed entity.

Entry	Reference
user types	101
user's affiliation	123
user's identifier	122
user's name	121
value-added tax (VAT)	437
version indicator	607

Entry	Reference
weighting factor	266
welcome herald	A.1 code 06
word proximity operator	272
write access	078 code 3
year-to-date costs	428 code 4

6 Structured order of data elements

This clause provides a **structured presentation of the data elements and data element groups** listed in clause 4.

Data elements which identify information in textual form are given in preference to data elements which identify that same information in another form, for example, coded, pictorial, etc. The various forms of representing a given data value have been noted in clause 4 and are not repeated here.

The logical relationship is presented in a table consisting of three columns: ordering number, name and tag. Name and tag refer to the name and tag of a data element or a data element group as given in columns 2 and 1 in clause 4 respectively. An order number identifies a level within an hierarchical arrangement.

A dash separates each level of a multi-level ordering number as illustrated in figure 1.

01	Level one
01-01	Level two
01-01-01	Level three

NOTE — The number of levels is not limited.

Figure 1 — Ordering number convention

The structured order gives users a better overall understanding of the data elements listed in the directory (clause 4). The structured order is illustrative of relationships between data elements in this directory. It is not prescriptive.

Ordering No.	Name	Tag
01	Message identification	001
01-01	Message name	002
01-02	Date	003
01-03	Time stamp	004
01-04	Transaction number	010
02	Transaction participant	050
02-01	Participant's function	060
02-01-01	User identification	110, 120
02-01-01-01	Name of user	111, 121
02-01-01-02	Abbreviated name	112
02-01-01-03	Address	130
02-01-01-03-01	Street and number	133
02-01-01-03-02	City	134
02-01-01-03-03	Region	135
02-01-01-03-04	Country	136
02-01-01-03-05	Postal code	137
02-01-01-04	Address instruction	131
02-02	Telenetwork address	160

Ordering No.	Name	Tag
03	Item description	300
04	Session details	040
04-01	Transaction participant	050
04-02	User identification	110, 120
04-02-01	Name of user	111, 171
04-02-02	Address	130
04-02-03	Telenetwork user identifier	165
04-02-04	Telenetwork address	160
04-03	Session identifier	080
04-03-01	Subsession identifier	081
04-04	Reference identifier	086
04-05	Session parameters	550
04-05-01	Character set	604
04-05-02	Record syntax	605
04-05-02-01	Record composition	606
04-05-02-02	Record type	608
04-05-02-03	Record syntax qualifier	860
04-05-03	Related application	810
04-06	Cost constraint	090
04-07	Hit constraint	091
04-08	Session length constraint	092
04-09	Transmission speed	093
04-10	Packet size	094
04-11	Resource usage	095
04-12	Amount of usage	097
04-13	System performance	096
04-14	User types	101
04-15	Search type	102
04-16	Database type	103
04-17	Password	076
04-17-01	Password edition	077
04-17-02	Password type	078
04-18	Security level	849
04-19	Security violation	848
04-20	Continue flag	087
04-21	Suspend flag	088
04-22	Records returned	098
04-23	Date/time qualifier	905
04-24	Remarks	900
04-25	Help topic	910
05	Command expression	230
05-01	Search history	232
05-02	Search profile	233
05-03	Command identifier	235
05-04	Command word	240
05-05	Command specification	250
05-05-01	Database identifier	610
05-05-02	Completeness attribute	252
05-05-03	Term structure attribute	253
05-05-04	Positional attribute	254
05-05-05	Relational attribute	274
05-05-06	Search term	255

Ordering No.	Name	Tag
05-05-07	Field label	257
05-05-08	Related terms	258
05-05-09	Masking symbol	261
05-05-09-01	Truncation symbol	262
05-05-10	Connector	263
05-05-11	Separator	264
05-05-12	Restoration symbol	265
05-05-13	Weighting factor	266
05-05-14	Boolean operator	271
05-05-15	Proximity operators	272
05-05-16	Ranging operator	273
05-05-17	Result set identifier	280
05-05-18	Result set qualififer	281
05-05-19	Result set size	282
06	Service profile	600
06-01	Hardware profile	630
06-02	Software profile	640
06-03	Terminal profile	645
06-04	Protocol options	602
06-05	Language of dialogue	603
06-06	Session parameters	550
06-06-01	Character set	604
06-06-02	Record syntax	605
06-06-02-01	Record composition	606
06-06-02-02	Record type	608
06-06-02-03	Record syntax qualifier	860
06-06-03	Related application	810
06-07	Telecommunication carrier	150
06-08	System prompt	200
06-09	Host system network address	166
06-10	Information service provider	621
06-11	Database identifier	610
06-11-01	Coverage	615
06-11-01-01	Database size	616
06-11-02	Database producer	620
06-11-03	Latest update	672
06-11-04	Royalty charges	428
06-11-05	Index identifier	650
06-11-05-01	Index entry	651
06-11-05-02	Index display code	652
06-11-05-03	Stop word	653
06-11-05-04	Postings	654
06-11-06	Thesaurus identifier	670
06-11-07	Clasification scheme identifier	671
06-11-07-01	Edition of classification scheme	673
06-12	Service charge	420
06-12-01	Cost	429
06-12-01-01	Cost type	428
06-12-01-02	Discount	430
06-12-01-03	Tax	432
06-12-01-04	Invoice total	434
06-12-01-05	Credit amount	470
06-12-01-05-01	Credit justification	473

Ordering No.	Name	Tag
06-12-01-06	Unit cost	435
06-12-01-07	Currency code	421
06-12-01-08	Value-added tax (VAT)	437
06-12-02	Account number	450
06-13	Date/time qualifier	905
06-13-01	Date	003
06-14	Remarks	900
06-15	Help topic	910
07	User profile	700
07-01	User identification	120
07-01-01	Address	130
07-02	Search frequency	710
07-03	Mode of interaction	715
07-04	Output medium	720
07-05	Display constraints	722
07-06	Access privileges	724
07-08	Resource limitation	725
07-09	Sort option	735
07-10	Operation confirmation	727
08	Protocol control information	830
08-01	Query type	831
08-02	Preferred message size	832
08-03	Maximun message size	833
08-04	Initialization status	834
08-05	Replace indicator	835
08-06	Diagnostic code	836
08-07	Search status	837
08-08	Result set status	838
08-09	Present status	839
08-10	Number of records requested	840
08-11	Next result set position	841
08-12	Result set start point	842
08-13	Delete operation status	843
08-14	Extent of deletion	855
08-15	Number not deleted	847
08-16	Character set	604
08-17	Record syntax	605
08-17-01	Record composition	606
08-17-02	Record type	608
08-17-03	Record syntax qualifier	860
08-18	Display format	609
08-19	Small-set-upper-bound	844
08-20	Large-set-lower-bound	845
08-21	Medium-set-present-number	846
08-22	Related application	810

7 Information retrieval message matrix

Messages, comprising specific data elements, are interchanged by participants to support the information retrieval process or application. Each message has a name and a code by which it may be identified (see A.1).

The following matrix identifies the data elements that are essential in each message to ensure that all the information required to support a given transaction is available. The individual messages are listed across the top of the matrix. The numbers 01 through 64 correspond to the code values in A.1.

Data elements that may be used for each message are listed in the left-hand column. They correspond to the data elements in clause 4 but the list is not exhaustive, merely indicative.

It is recognized that a given item of information can be transmitted by specifying a data element group or alternatively the individual data elements comprising that group. The preferred level of precision to be used for identifying data comprising the message will be specified in other International Standards which take cognizance of medium of communication (i.e. manual or mechanized) and operational requirements of the

systems (i.e. paper forms for selective dissemination of information, visual displays or systems-to-systems communication) used by institutions interchanging these messages.

The following symbols, grouped below into four categories, are used to indicate the need to provide each of the data elements within specific messages. Based on operational experience, participants in the information retrieval process may find it necessary to modify the recommended provision of data elements given in the matrix.

a) Mandatory under all conditions.

   m = mandatory.

b) Choice available for providing mandatory information.

   a = alternative data element.

c) Optional

   p = optional.

d) 00-99 = number which identifies a specific data element value applicable to the particular data element or data element group.

		Access request 01	Identification request 02	Identification response 03	Initialize request 04	Initialize response 05	Welcome herald 06	Suspend 07	Operation approval 08	Terminate 09	Search request 21	Search response 22	Display request 23	Display response 24	Save request 25	Save response 26	Delete request 27	Delete response 28	Application request 29	Application response 30	Change request 41	Resource report 42	Invoice 43	Credit claim 44	Credit response 45	System prompts 61	Confirmation 62	Explain request 63	Explain response 64
001	**Message identification**																												
002	Message name	01	02	03	04	05	06	07	08	09	21	22	23	24	25	26	27	28	29	30	41	42	43	44	45	61	62	63	64
003	Date	p	p	p	p	p	m	p		p	p	p	p	p	p	p	p	p			p	p	p	p	p	p	p	p	p
004	Time stamp	p	p	p	p	p	m	m		p	p	p	p	p	p	p	p	p			p	p	p	p	p	p	p	p	p
010	Transaction number	p	p	p	p	p	m	p		p	p	p	p	p	p	p	p	p			p	p	p	p	p	p	p	p	p
040	**Session details**																												
050	**Transaction participant**																												
060	Participant's function	p	0	3	p	p	p	3	3	p	3	0	3	0	3	0	3	0	3	0	p	0	p	3	0	0	0	3	0
076	Password			m																	p								
077	Password edition																				p								
078	Password type																				p								
080	Session identifier				p	p		m														p				p			
081	Subsession identifier				p	p		m														p				p			
086	Reference identifier	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
087	Continue flag								m																				
088	Suspend flag							m																					
090	Cost constraint																				p								
091	Hit constraint																				p								
092	Session length constraint								p												p								
093	Transmission speed	p																			p	p							
094	Packet size	p																			p	p							
095	Resource type																				p	p	m						
096	System performance																					p							
097	Amount of usage																					p	m						
098	Records returned																					p							
101	User type	p																			p								
110	**Institution identification**		m	m		m															p	m	m	m	m				
111	Name of institution		a	a		a															p	a	a	a	a				
112	Abbreviated name		a	a		a															p	a	a	a	a				
113	Institution identifier		a	a		a															p	a	a	a					
120	**User identification**		m	m																	p	m	m	m	m				
121	User's name		a	a																	p	a	a	a	a				
122	User's identifier		a	a																	p	a	a	a	a				
123	User's affiliation		p	p																	p	p	p	p	p				
130	**Address**		p	p																	p	p	m	p	p				
131	Address instruction		p	p																	p								
132	Post office box		p	p																	p								
133	Street and number		p	p																	p								
134	City		p	p																	p								
135	Region		p	p																	p								
136	Country		p	p																	p								
137	Postal code		p	p																	p								
150	Telecommunications carrier		p	p																	p								
160	**Telenetwork address**	m																			p								
161	Telephone number	a																			p		p	p					
162	Telefacsimile number	a																			p		p	p					
164	Electronic mail identifier	a																			p		p	p					
165	Telenetwork user identifier		p	p																	p		p	p	p				
166	Host system network address	a																			p		p	p					

Item reference numbers (column headings)

- **230 Command expression**
  - 232 Search history
  - 233 Search profile
  - 235 Command identifier
  - 240 Command word
- **250 Command specification**
  - 252 Completeness attribute
  - 253 Term structure attribute
  - 254 Positional attribute
  - 255 Search term
  - 257 Field label
  - 258 Related terms
  - 261 Masking symbol
  - 262 Truncation symbol
  - 263 Connector
  - 264 Separator
  - 265 Restoration symbol
  - 266 Weighting factor
  - 271 Boolean operator
  - 272 Proximity operator
  - 273 Ranging operator
  - 280 Result set identifier
  - 282 Result set size
  - 102 Search type
- **300 Item description**
- **420 Service charge**
  - 428 Cost type
  - 429 Cost
  - 421 Currency code
  - 430 Discount
  - 432 Tax
  - 434 Invoice total
  - 435 Unit cost
  - 437 Value-added tax
  - 450 Account number
  - 470 Credit amount
  - 473 Credit justification
  - 550 Session parameters
- **600 Service profile**
  - 602 Protocol options
  - 603 Language of dialogue
  - 604 Character set
  - 605 Record syntax
  - 860 Record syntax qualifier
  - 606 Record composition
  - 607 Version indicator
  - 608 Record type
  - 610 Database identifier
  - 103 Database type
  - 615 Coverage

Matrix of messages (rows) against items (columns) — entries are *m* (mandatory) / *p* (optional) / *a*

Code	Message	232	235	240	250-group (252–102)	280	282	102	420-group (428–550)	300	602	603	604	605	600-group (860–615)
01	Access request														
02	Identification request														
03	Identification response														
04	Initialize request										m	p	p	m	
05	Initialize response										m	p	p	m	
06	Welcome herald										m	p	p		
07	Suspend					m	p								
08	Operation approval					m	p	p							
09	Terminate					m	p								
21	Search request	a	p	m	p (several)	p	p	p			p				
22	Search response	p	p			m	p								
23	Display request				m p	p	p			p	p	p	p	p	p p p
24	Display response				m m m	p	p			p	p	p	p	p	p p
25	Save request				m p p						p	p	p	m	
26	Save response				m m m										
27	Delete request				m p p						p	p	p	m	
28	Delete response				m m m										
29	Application request				m						p	p	p	p	p p p
30	Application response				m						p			p	p
41	Change request	p									p				p (550)
42	Resource report	m									p				p (550)
43	Invoice								m m m p p m m p p	p	p				
44	Credit claim								p p m m m p p m m	p	p				
45	Credit response								p p m m p p p m	p	p				
61	System prompts														
62	Confirmation										m				
63	Explain request					m	p				p				
64	Explain response						p				p				

Code	Name	01 Access request	02 Identification request	03 Identification response	04 Initialize request	05 Initialize response	06 Welcome herald	07 Suspend	08 Operation approval	09 Terminate	21 Search request	22 Search response	23 Display request	24 Display response	25 Save request	26 Save response	27 Delete request	28 Delete response	29 Application request	30 Application response	41 Change request	42 Resource report	43 Invoice	44 Credit claim	45 Credit response	61 System prompts	62 Confirmation	63 Explain request	64 Explain response
616	Database size						p																						
620	Database producer						m																						
621	Information service provider						m																p						
630	Hardware profile																						p						
640	Software profile						m																						
645	Terminal profile						m																						
650	Index identifier												p	p															
651	Index entry												p	p															
652	Index display code													p															
653	Stop word																											p	p
654	Postings											m		m								p							
670	Thesaurus identifier										p	p	p	p								p							
671	Classification scheme										p	p	p	p								p							
672	Latest update						m																						
673	Edition of classification scheme												p	p															
200	System prompt		m										m	m		m		m		m	m	p				m			

700	**User profile**																												
710	Search frequency										p		p								p		p						
715	Mode of interaction				m	p															p							p	p
720	Output medium										p		p		p								p						
722	Display constraints												p																
724	Access privileges	m																			p								
725	Resource limitation				p	p															p		p						
727	Operation confirmation								m									m											
735	Sort option												p																
810	Related application																		m	m			p						

830	**Protocol control information**																												
831	Query type										m																		
832	Preferred message size				m	m																							
833	Maximum record size				m	m	m																						
834	Initialization status						m																						
835	Replace indicator														m	m													
836	Diagnostic record code											m		m		m													
837	Search status											m																	
838	Result set status											m																	
839	Present status											m		m															
840	Number of records requested												m																
841	Next result set position													m															
842	Result set start position													m															
843	Delete operation status																	m											
844	Small-set-upper-bound										m																		
845	Large-set-lower-bound										m																		
846	Medium-set-present-number										m																		
847	Number-not-deleted																						p						
848	Security violation			m																									
849	Security level		m																										
855	Extent of deletion																p												
900	Remarks																						p	p	p	p	p		
905	Date/time qualifier						2,3			11												p	m	m	m	m			
910	Help topic																												m

Annex A

(normative)

Selected data element values

This annex provides values, in coded and textual form, for a limited number of data elements identified in this part of ISO 8459. These values illustrate the information that is conveyed by particular data elements within the information retrieval application.

Descriptions or definitions are given to clarify the meaning of certain values, if necessary.

A.1　Message name (002)

The messages pertinent to information retrieval represent four discrete aspects of this application. These aspects are:

a)　initiating and terminating an information retrieval session;

b)　controlling the information retrieval process;

c)　managing the information retrieval service; and

d)　providing user assistance.

INITIATING AND TERMINATING A SESSION		
Code	**Name**	**Description**
01	Access request	A user request to access a system, database or service.
02	Identification request	A system request to a user for the user's identity.
03	Identification response	A user response to an identification request.
04	Initialize request	A system proposal of a set of capabilities such as search/present requests, delete requests, to be executed within a given session.
05	Initialize response	A system response giving the capabilities that are available to support a given session.
06	Welcome herald	A system, database or service response to an access request.
07	Suspend	A user request to stop a process or session with the intent that the process or session will be resumed later.
08	Operation approval	A user confirmation to a target system that a given transaction should continue to termination.
09	Terminate	A user or system request to end the session.