

ISO/IEC 8211:1994-10 (E)

Information technology - Specification for a data descriptive file for information interchange

Contents		Page
Foreword		vii
Introduction		viii
1	Scope	1
2	Normative references	1
3	Conformance	2
4	Definitions and abbreviations	2
4.1	Definitions	2
4.2	Abbreviations	5
5	Interchange file and logical record structure	6
5.1	File and logical record structure	7
5.1.1	Interchange logical records	7
5.1.2	Padding of records and media blocks	7
5.2	Logical records - leaders and directories	7
5.2.1	Logical record leader	8
5.2.1.1	record length field (LR RP 0-4)	8
5.2.1.2	leader identifier field (LR RP 6)	8
5.2.1.3	ISO/IEC 8211 Version number (LR RP 8)	8
5.2.1.4	Base address of field area (LR RP 12-16)	8
5.2.1.5	Entry map field (LR RP 20-23)	9
5.2.1.5.1	Size of field length field (LR RP 20)	9
5.2.1.5.2	Size of field position field (LR RP 21)	9
5.2.1.5.3	Reserved for future standardization (LR RP 22)	9
5.2.1.5.4	Size of field tag field (LR RP 23)	9
5.2.	1 6 Alternate forms of counts and field positions	9
5.2.2	Logical record directory	10
5.2.2.1	Field tag field	10
5.2.2.2	Field length field	10
5.2.2.3	Field position field	10
5.3	Logical record field areas	10
5.3.1	Field area of the DDR	10
5.3.2	The field areas of the DRs 1	1
5.3.2.	1 User data fields	11
5.3.2.1.1	Elementary data fields	11
5.3.2.1.2	Compound data fields	11
6	Description of user data types and structures	11
6.1	DDR leader fields related to data description	11
6.1.1	Interchange level field (DDR RP 5)	11
6.1.2	Inline code extension indicator (DDR RP 7)	12
6.1.3	Application indicator field (DDR RP 9)	12
6.1.3.1	Reference to other Standards	12
6.1.4	Field control length field (DDR RP 10-11)	12
6.1.5	Extended character set indicator field (DDR RP 17-19)	12
6.2	Special field tags (tags = 0.0 to 0.9)	12
6.2.1	File control field (tag = 0.0)	12
6.2.1.1	Field control field	13
6.2.1.2	External file title field	13
6.2.1.3	List of Field tag pairs	13
6.2.2	Record identifier field (tag = 0.1)	13
6.2.3	User application field (tag 0.2)	13

6.2.4	Announcer sequence or feature identifier field (tag 0.3)	13
6.2.5	Fields reserved for future standardization	13
6.2.6	Recursive tree LINKS field (tag = 0.9)	14
6.2.7	Order of special field tags in the DDR	14
6.3	Data descriptive fields in level 1 files	14
6.4	Data descriptive fields in level 2 and 3 files	14
6.4.1	Tabular summary of data descriptive fields of level 2 and 3 files	14
6.4.2	Field controls	15
6.4.2.1	Data structure Code (RP 0)	16
6.4.2.2	Data type code (RP 1)	16
6.4.2.3	Auxiliary controls (RP 2-3)	16
6.4.2.4	Printable graphics (RP 4-5)	16
6.4.2.5	Truncated escape sequence (RP 6-8)	16
6.4.3	Data field names, array descriptors and format controls	16
6.4.3.1	Data field name	16
6.4.3.2	Array descriptors	16
6.4.3.2.1	Numeric array descriptor	17
6.4.3.2.2	Subfield labels	17
6.4.3.2.3	Vector labels	17
6.4.3.2.4	Cartesian label	17
6.4.3.2.5	Description of concatenated structures	17
6.4.3.3	Format controls	19
6.4.4	Order of array descriptors, labels and arrays	21
6.4.4.1	Order of numeric array descriptors	21
6.4.4.2	Order of cartesian labels	21
6.4.4.3	Storage order of array elements	21
7	Use of coded character sets	22
7.1	Announcement of coded character set extension	22
7.1.1	Scope of active character sets	22
7.1.2	Length of fields and subfields	22
7.1.3	Use of multiple octet character sets	23
7.2	ISO 2022 coded character set extension	23
7.2.1	Designation of ISO 2022 coded character sets	23
7.2.1.1	Use in the 7-bit environment	23
7.2.2	Designation of default code set for file	23
7.2.3	Designation of default code sets for fields	23
7.2.4	ISO 2022 announcer sequence field (tag 0.3)	24
7.3	ISO/IEC 10646 coded character sets	24
7.3.1	Announcement of filewise default character set	24
7.3.2	Announcement of fieldwise default character set	24
7.3.3	ISO/IEC 10646 feature identifier field (tag 0.3)	24
Annex AASN.1 and FTAM Registrations		26
A.1	Abstract syntax identifier	26
A.2	Transfer syntax identifier	26
A.3	FTAM document type definitions	26
A.3.1	ISO DDF unstructured document type	26
A.3.1.1	Entry number: DDF-1	26
A.3.1.2	Information objects	26
A.3.1.3	Scope and field of application	26
A.3.1.4	References	26
A.3.1.5	Definitions	26
A.3.1.6	Abbreviations	27
A.3.1.7	Document semantics	27
A.3.1.8	Abstract syntactic structure	27
A.3.1.9	Definition of transfer	27
A.3.1.9.1	Datatype definition	27
A.3.1.9.2	Presentation data values	27
A.3.1.9.3	Sequence of presentation data values	27
A.3.1.10	Transfer syntax	27
A.3.1.11	ASE specific specifications	27
A.3.1.11.1	ISO 8571 - FTAM	27

A.3. 1.1 1.2 ISO/IEC 8211 implementation support	27
A.3.1. 11. 2.1 The EXTEND operation	27
A.3. 1.1 1.2.2 The REPLACE operation	28
A.3.1. 11. 2.3 Relaxations !.....	28
A.3.2 ISO DDF Structured document type	28
A.3.2.1 Entry number: DDF-2.....	28
A.3.2.2 Information objects.....	28
A.3.2.3 Scope and field of application.....	28
A. 3.2.4 References.....	28
A.3.2.5 Definitions	28
A.3.2.6 Abbreviations	28
A.3.2.7 Document semantics ;	29
A.3.2.8 Abstract syntactic structure	29
A.3.2.9 Definition of transfer	29
A.3.2.9.1 Datatype definition	29
A.3.2.9.2 Presentation data values	29
A.3.2.9.3 Sequence of presentation data values	29
A.3.2.10 Transfer Syntax.....	29
A.3.2,11 ASE specific specifications	30
A.3.2.11.1 ISO 8571 -FTAM.....	30
A.3.2.11.2 ISO/IEC 8211 implementation support	30
A.3.2.1 1.2.1 The EXTEND Operation.....	30
A.3.2.11.2.2 The REPLACE Operation	30
A.3.2.11.2.3 Relaxations.....	30
Annex B ISO/IEC 8211 Application Specifications	31
B.1 Specification of ISO/IEC 8211 Exchange File Sets	31
B.2 ISO/IEC 8211 data field description	33
B.2.1 General specifications.....	33
B.2.1.1 End of line.....	33
B.2.1.2 White space	33
B.2.1.3 Comments	33
B.2.1.4 Quoted strings	33
B.2.1.5 Notation	34
B.2.1.6 The INCLUDE construct	34
B.2.1.7 Order of Constructs.....	34
B.2.2 File Identification	34
B.2.3 DDR leader specifications	35
B.2.4 Global default specification.....	35
B.2.5 Data field specifications.....	35
B.2.6 Special forms of field constructs	37
B.2.6.1 Null first vector label	37
B.2.6.2 Correspondence of format and last vector label.....	37
B.2.6.3 Special DDR tagged fields	37
B.2.7 Special constructs	38
B.3 Examples of exchange set specification.....	38
Annex C Informal Introduction to ISO/IEC 8211	42
C.1 ISO/IEC 8211 File, logical record and field constructs	42
C.1.1 Media record constructs	42
C.1.2 Logical record constructs.....	42
C.1.3 Logical record structure	43
C.1.3.1 Leader (RP 0 - 23).....	43
C.1.3.2 Directory	43
C.1.3.3 Field area	44
C.1.4 File characteristics and processing.....	44
C.1.5 Variant logical records	45
C.1.5.1 Long ISO/IEC 8211 records.....	45
C.1.5.2 Fixed-formats - repeating leaders and directories	45
C.1.6 ISO/IEC 8211 End-of-data conditions	45
C.1.7 Summary of the logical record and field constructs.....	46
C.2 Data description and Identification.....	46

C.2.1 Components of data description	46
C.2.1.1 Data extent	46
C.2.1.2 Data position	46
C.2.1.3 Data structure	46
C.2.1.4 Data type and syntax	46
C.2.1.5 Intra-field tree structure	46
C.2.2 Data Identification	47
C.2.2.1 Application semantics	47
C.3 File and record contents	47
C.4 Binary directories	47
Annex D Introduction to ISO/IEC 8211 Data Description	48
D.1 Data description - user data	48
D.2 Consistency of data description and data - Validation	48
D.2.1 Complexity of data description	48
D.2.2 Level 1 data description	49
D.2.3 Level 2 and 3 data description	49
D.3 Data description constructs	50
D.3.1 Subfield extents	50
D.3.2 Data types	50
D.3.3 Field Identification	50
D.3.4 Data structure without subfield Identification	50
D.3.5 Data structure with subfield Identification	51
D.4 Large application data structures	51
D.5 Intra-record tree structures	51
D.6 Coded character set extensions	51
Annex E Examples of Data Description	53
E.1 Leader and file title field	53
E.2 Examples of formats	54
E.2.1 Elementary data fields	54
E.2.2 Linear structures	54
E.2.3 Multi-dimensioned arrays	54
E.3 Examples of bit fields	55
E.4 Examples of binary forms	56
E.5 Examples of subfield labelling	56
E.5.1 Redundant elementary field label	56
E.5.2 Vector labels	56
E.5.3 Cartesian labels	57
E.5.4 Concatenated data structures	57
Annex F DDF Hierarchical and Network Data Structures	58
F.1 DDF hierarchical data structures	58
F.1.1 Forests	58
F.2 Conversion to corresponding binary tree	58
F.3 Network data structures	61
Annex G Database Data Transfer	62
G.1 Essential features of data base management systems	62
G.1.1 Relational data base management systems	62
G.1.2 Hierarchical data base management systems	63
G.1.3 Network data base management systems	63
G.2 Reduction to relational forms	63
Annex H Relationship to Other OSI Work	64
H.1 OSI basic reference model	64
H.1.1 Other presentation layer considerations	64
H.1.2 Remote versus local processing considerations	65
H.2 Relationship to FTAM Virtual filestore model	65
H.2.1 Correspondence of ISO/IEC 821 1 file constructs to FTAM	66
H.2.2 ISO/IEC 8211 access methodology	67
H.2.3 Relationship of documents to files	67

H.2.4 File naming	67
H.3 Relationship to other syntax notations	67
H.3.1 Abstract syntax notation one	67
H.3.2 Transfer Syntax Description Notation	68
H.4 Relationship to data base management models	68
H.5 Bibliography	68
H.6 Summary of data types in other projects	69

List of figures

Figure 1 - Schematic of ISO/IEC 8211 File and Logical Records	6
Figure 2 - File Schematic Representation	7
Figure 3 - Logical Record Schematic	7
Figure 4 - LR Leader Schematic	8
Figure 5 - LR Entry Map Schematic	9
Figure 6 - LR Directory Entry Schematic	10
Figure 7 - File Control Field Schematic	13
Figure 8 - Schematic of Level 2 and 3 Data Descriptive Fields	15
Figure F.1 - Examples of Ordered Rooted Trees	59
Figure F.2 - Generic Structure of a Logical Record	59
Figure F.3 - Instance of a User Data Tree based on F.2	60
Figure F.4 - Corresponding Binary Tree to the Tree of F.2	61

List of tables

Table 1 - Delimiters and Their Uses	15
Table 2 - Data Descriptive Field Components	15
Table 3 - Extensions of Bitfield Data Descriptions	20
Table A.1 Information Objects in the Unstructured Text Document Type	26
Table A.2 Information Objects In the Structured Text Document Type	28