

ISO 9660:1988-04 (E)

Information processing; volume and file structure of CD-ROM for information interchange

Contents

Page

Section one : General

1 Scope and field of application	1
2 Conformance	1
2.1 Conformance of a CD-ROM	1
2.2 Conformance of an information processing system	1
3 References	1
4 Definitions	1
4.1 application program	1
4.2 byte	1
4.3 Data Field of a sector	2
4.4 data preparer	2
4.5 descriptor	2
4.6 Extent	2
4.7 file	2
4.8 File Section	2
4.9 implementation	2
4.10 Logical Block	2
4.11 originating system	2
4.12 receiving system	2
4.13 record	2
4.14 sector	2
4.15 standard for recording	2
4.16 user	2
4.17 volume	2
4.18 Volume Set	2
5 Notation	2
5.1 Decimal and hexadecimal notations	2
5.2 Other notation	2
Section two : Requirements for the medium	
6 Volume structure	3
6.1 Arrangement of data on a CD-ROM	3
6.1.1 Physical Addresses	3
6.1.2 Logical Sector	3
6.1.3 Volume Space	3
6.2 Arrangement of the Volume Space	3
6.2.1 System Area and Data Area	3
6.2.2 Logical Block	3
6.3 Arrangement of the Data Area	3
6.4 Arrangement of Extents	4
6.4.1 Extent	4
6.4.2 Mode of recording a File Section	4
6.4.3 Interleaved mode	4
6.4.4 Non-interleaved mode	4
6.4.5 Data length of a File Section	5
6.4.6 Relation of Extended Attribute Record to File Section	5
6.4.7 Recording of a Volume Partition	5
6.5 File structure	5
6.5.1 Relation to File Sections	5
6.5.2 Numbering of bytes in a file	5
6.5.3 Contents of a file	5
6.5.4 Associated File	6
6.6 Volume Set	6

6.7 Volume Descriptors	6
6.7.1 Volume Descriptor Set	6
6.8 Directory structure	6
6.8.1 Directory	6
6.8.2 Directory Hierarchy	7
6.8.3 Relation of Directory Hierarchies	7
6.9 Path Table	8
6.9.1 Order of Path Table Records	8
6.9.2 Path Table Group	8
6.9.3 Recorded Occurrences of the Path Table	8
6.9.4 Consistency of Path Tables between volumes of a Volume Group	8
6.10 Record structure	8
6.10.1 Characteristics	8
6.10.2 Measured Data Units (MDU)	9
6.10.3 Fixed-length records	9
6.10.4 Variable-length records	9
7 Recording of descriptor fields	9
7.1 8-bit numerical values	9
7.1.1 8-bit unsigned numerical values	9
7.1.2 8-bit signed numerical values	9
7.2 16-bit numerical value	9
7.2.1 Least significant byte first	9
7.2.2 Most significant byte first	9
7.2.3 Both-byte orders	9
7.3 32-bit numerical values	9
7.3.1 Least significant byte first	10
7.3.2 Most significant byte first	10
7.3.3 Both-byte orders	10
7.4 Character sets and coding	10
7.4.1 d-characters and a-characters	10
7.4.2 c-characters	10
7.4.2.1 a 1 -characters	10
7.4.2.2 d1 -characters	10
7.4.3 Separators	10
7.4.4 Use of characters in descriptor fields	10
7.4.5 Justification of characters	10
7.5 File Identifier	10
7.5.1 File Identifier format	10
7.5.2 File Identifier length	11
7.6 Directory Identifier	11
7.6.1 Directory Identifier format	11
7.6.2 Reserved Directory Identifiers	11
7.6.3 Directory Identifier length	11
8 Volume Descriptors	11
8.1 Format of a Volume Descriptor	11
8.1.1 Volume Descriptor Type (BP 1)	11
8.1.2 Standard Identifier (BP 2 to 6)	11
8.1.3 Volume Descriptor Version (BP 7)	11
8.1.4 Depends on Volume Descriptor Type (BP 8 to 2 048)	11
8.2 Boot Record	12
8.2.1 Volume Descriptor Type (BP 1)	12
8.2.2 Standard Identifier (BP 2 to 6)	12
8.2.3 Volume Descriptor Version (BP 7)	12
8.2.4 Boot System Identifier (BP 8 to 39)	12
8.2.5 Boot Identifier (BP 40 to 71)	12
8.2.6 Boot System Use (BP 72 to 2 048)	12
8.3 Volume Descriptor Set Terminator	12
8.3.1 Volume Descriptor Type (BP 1)	12
8.3.2 Standard Identifier (BP 2 to 6)	12
8.3.3 Volume Descriptor Version (BP 7)	12
8.3.4 Reserved for future standardization (BP 8 to 2 048)	12
8.4 Primary Volume Descriptor	12

8.4.1	Volume Descriptor type (BP 1)	12
8.4.2	Standard Identifier (BP 2 to 6)	13
8.4.3	Volume Descriptor Version (BP 7)	13
8.4.4	Unused Field (BP 8)	13
8.4.5	System Identifier (BP 9 to 40)	13
8.4.6	Volume Identifier (BP 41 to 72)	13
8.4.7	Unused field (BP 73 to 80)	13
8.4.8	Volume Space Size (BP 81 to 88)	13
8.4.9	Unused Field (BP 89 to 120)	14
8.4.10	Volume Set Size (BP 121 to 124)	14
8.4.11	Volume Sequence Number (BP 125 to 128)	14
8.4.12	Logical Block Size (BP 129 to 132)	14
8.4.13	Path Table Size (BP 133 to 140)	14
8.4.14	Location of Occurrence of Type L Path Table (BP 141 to 144)	14
8.4.15	Location of Optional Occurrence of Type L Path Table (BP 145 to 148)	14
8.4.16	Location of Occurrence of Type M Path Table (BP 149 to 152)	14
8.4.17	Location of Optional Occurrence of Type M Path Table (BP 153 to 156)	14
8.4.18	Directory Record for Root Directory (BP 157 to 190)	14
8.4.19	Volume Set Identifier (BP 191 to 318)	14
8.4.20	Publisher Identifier (BP 319 to 446)	14
8.4.21	Data Preparer Identifier (BP 447 to 574)	14
8.4.22	Application Identifier (BP 575 to 702)	15
8.4.23	Copyright File Identifier (BP 703 to 739)	15
8.4.24	Abstract File Identifier (BP 740 to 776)	15
8.4.25	Bibliographic File Identifier (BP 777 to 813)	15
8.4.26	Volume Creation Date and Time (BP 814 to 830)	15
8.4.27	Volume Modification Date and Time (BP 831 to 847)	15
8.4.28	Volume Expiration Date and Time (BP 848 to 864)	16
8.4.29	Volume Effective Date and Time (BP 865 to 881)	16
8.4.30	File Structure Version (BP 882)	16
8.4.31	Reserved for future standardization (BP 883)	16
8.4.32	Application Use (BP 884 to 1 395)	16
8.4.33	Reserved for future standardization (BP 1 396 to 2 048)	16
8.5	Supplementary Volume Descriptor	16
8.5.1	Volume Descriptor Type (BP 1)	17
8.5.2	Volume Descriptor Version (BP 7)	17
8.5.3	Volume Flags (BP 8)	17
8.5.4	System Identifier (BP 9 to 40)	17
8.5.5	Volume Identifier (BP 41 to 72)	17
8.5.6	Escape Sequences (BP 89 to 120)	17
8.5.7	Path Table Size (BP 133 to 140)	17
8.5.8	Location of Occurrence of Type L Path Table (BP 141 to 144)	17
8.5.9	Location of Optional Occurrence of Type L Path Table (BP 145 to 148)	17
8.5.10	Location of Occurrence of Type M Path Table (BP 149 to 152)	17
8.5.11	Location of Optional Occurrence of Type M Path Table (BP 153 to 156)	18
8.5.12	Directory Record for Root Directory (BP 157 to 190)	18
8.5.13	Volume Set Identifier (BP 191 to 318)	18
8.5.14	Publisher Identifier (BP 319 to 446)	18
8.5.15	Data Preparer Identifier (BP 447 to 574)	18
8.5.16	Application Identifier (BP 575 to 702)	18
8.5.17	Copyright File Identifier (BP 703 to 739)	18
8.5.18	Abstract File Identifier (BP 740 to 776)	18
8.5.19	Bibliographic File Identifier (BP 777 to 813)	18
8.5.20	Application Use (BP 884 to 1 395)	18
8.6	Volume Partition Descriptor	18
8.6.1	Volume Descriptor Type (BP 1)	19
8.6.2	Standard Identifier (BP 2 to 6)	19
8.6.3	Volume Descriptor Version (BP 7)	19
8.6.4	Unused Field (BP 8)	19
8.6.5	System Identifier (BP 9 to 40)	19
8.6.6	Volume Partition Identifier (BP 41 to 72)	19
8.6.7	Volume Partition Location (BP 73 to 80)	19

8.6.8 Volume Partition Size (BP 81 to 88)	19
8.6.9 System Use (BP 89 to 2 048)	19
9 File and Directory Descriptors	19
9.1 Format of a Directory Record	19
9.1.1 Length of Directory Record (LEN_DR) (BP 1)	19
9.1.2 Extended Attribute Record Length (BP 2)	20
9.1.3 Location of Extent (BP 3 to 10)	20
9.1.4 Data length (BP 11 to 18)	20
9.1.5 Recording Date and Time (BP 19 to 25)	20
9.1.6 File Flags (BP 26)	20
9.1.7 File Unit Size (BP 27)	21
9.1.8 Interleave Gap Size (BP 28)	21
9.1.9 Volume Sequence Number (BP 29 to 32)	21
9.1.10 Length of File Identifier (LEN_FI)(BP 33)	21
9.1.11 File Identifier [BP 34 to (33 + LEN_FI)]	21
9.1.12 Padding Field [BP (34+ LEN_FI)]	21
9.1.13 System Use [BP (LEN_DR-LEN_SU +1) to LEN_DR]	21
9.2 Consistency of File Attributes between Directory Records of a File	21
9.3 Order of Directory Records	21
9.4 Format of a Path Table Record	22
9.4.1 Length of Directory Identifier (LEN_DI) (BP 1)	22
9.4.2 Extended Attribute Record Length (BP 2)	22
9.4.3 Location of Extent (BP 3 to 6)	22
9.4.4 Parent Directory Number (BP 7 to 8)	22
9.4.5 Directory Identifier [B P 9 to (8 + LEN_DI)]	22
9.4.6 Padding Field [BP (9 + LEN_DI)]	22
9.5 Format of an Extended Attribute Record	23
9.5.1 Owner Identification (BP 1 to 4)	23
9.5.2 Group Identification (BP 5 to 8)	23
9.5.3 Permissions (BP 9 to 10)	23
9.5.4 File Creation Date and Time (BP 11 to 27)	24
9.5.5 File Modification Date and Time (BP 28 to 44)	24
9.5.6 File Expiration Date and Time (BP 45 to 61)	24
9.5.7 File Effective Date and Time (BP 62 to 78)	24
9.5.8 Record Format (BP 79)	24
9.5.9 Record Attributes (BP 80)	25
9.5.10 Record Length (BP 81 to 841)	25
9.5.11 System Identifier (BP 85 to 116)	25
9.5.12 System Use (BP 117 to 180)	25
9.5.13 Extended Attribute Record Version (BP 181)	25
9.5.14 Length of Escape Sequences (BP 182)	25
9.5.15 Reserved for future standardization (BP 183 to 246)	25
9.5.16 Length of Application Use (BP 247 to 250)	25
9.5.17 Application Use [BP 251 to (250 + LEN_AU)]	25
9.5.18 Escape Sequences [BP(251 + LEN_AU)] to (250 + LEN_ESC + LEN_AU)]	25
9.6 Consistency of File Attributes between Extended Attribute Records of a File	25
10 Levels of interchange	26
10.1 Level 1	26
10.2 Level 2	26
10.3 Level 3	26
Section three: Requirements for systems	
11 Requirement for the description of systems	27
12 Requirements for an originating system	27
12.1 General	27
12.2 Files	27
12.3 Descriptors	27
12.4 System Area	28
13 Requirements for a receiving system	28
13.1 General	28
13.2 Files	28
13.3 Descriptors	28
13.4 Restrictions	29

13.5 Levels of implementation 29
13.5.1 Level 1 29
13.5.2 Level 2 29
Annex A: ISO 646: International Reference Version (IR V) 30