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**Information technology — Database  
languages — SQL —**

Part 9:  
**Management of External Data (SQL/  
MED)**

*Technologies de l'information — Langages de base de données —  
SQL —*

*Partie 9: Gestion des données externes (SQL/MED)*



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<b>Contents</b>	<b>Page</b>
Foreword.....	xiii
Introduction.....	xiv
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>3</b>
2.1 ISO and IEC standards.....	3
2.2 Other international standards.....	3
<b>3 Definitions, notations, and conventions.....</b>	<b>5</b>
3.1 Definitions.....	5
3.1.1 Definitions taken from XML.....	5
3.1.2 Definitions provided in Part 9.....	5
<b>4 Concepts.....</b>	<b>7</b>
4.1 Data types.....	7
4.1.1 Naming of predefined types.....	7
4.1.2 Data type terminology.....	7
4.2 Foreign servers.....	7
4.3 Foreign-data wrappers.....	8
4.4 User mappings.....	9
4.5 Routine mappings.....	9
4.6 Generic options.....	10
4.7 Capabilities and options information.....	10
4.8 Datalinks.....	11
4.8.1 Operations involving datalinks.....	15
4.8.1.1 Operators that operate on datalinks.....	15
4.8.1.2 Other operators involving datalinks.....	15
4.9 Columns, fields, and attributes.....	16
4.10 Tables.....	16
4.10.1 Introduction to tables.....	16
4.10.2 Base tables.....	16
4.10.2.1 Foreign tables.....	17
4.10.3 Unique identification of tables.....	17
4.10.4 Table descriptors.....	17
4.10.5 Syntactic analysis of derived tables and cursors.....	17
4.11 Functional dependencies.....	17
4.11.1 Overview of functional dependency rules and notations.....	18
4.11.2 Known functional dependencies in a foreign table.....	18

4.12	SQL-schemas. . . . .	18
4.13	SQL-statements. . . . .	18
4.13.1	SQL-statements classified by function. . . . .	18
4.13.1.1	SQL-schema statements. . . . .	18
4.13.1.2	SQL-session statements. . . . .	19
4.14	Basic security model. . . . .	19
4.14.1	Privileges. . . . .	19
4.15	SQL-transactions. . . . .	20
4.15.1	Properties of SQL-transactions. . . . .	20
4.16	SQL-sessions. . . . .	20
4.16.1	SQL-session properties. . . . .	20
4.17	Foreign-data wrapper interface. . . . .	21
4.17.1	Handles. . . . .	21
4.17.2	Foreign server sessions. . . . .	23
4.17.3	Foreign-data wrapper interface routines. . . . .	23
4.17.3.1	Handle routines. . . . .	23
4.17.3.2	Initialization routines. . . . .	27
4.17.3.3	Access routines. . . . .	28
4.17.3.4	Termination routines. . . . .	29
4.17.3.5	Decomposition and pass-through modes. . . . .	29
4.17.3.6	Sequence of actions during the execution of foreign server requests. . . . .	29
4.17.4	Return codes. . . . .	41
4.17.5	Foreign-data wrapper diagnostics areas. . . . .	42
4.17.6	Null pointers. . . . .	44
4.17.7	Foreign-data wrapper descriptor areas. . . . .	44
4.18	Introduction to SQL/CLI. . . . .	47
<b>5</b>	<b>Lexical elements. . . . .</b>	<b>49</b>
5.1	<token> and <separator>. . . . .	49
5.2	Names and identifiers. . . . .	51
<b>6</b>	<b>Scalar expressions. . . . .</b>	<b>53</b>
6.1	<data type>. . . . .	53
6.2	<cast specification>. . . . .	56
6.3	<value expression>. . . . .	58
6.4	<string value function>. . . . .	59
6.5	<datalink value expression>. . . . .	63
6.6	<datalink value function>. . . . .	64
<b>7</b>	<b>Query expressions. . . . .</b>	<b>67</b>
7.1	<table reference>. . . . .	67
<b>8</b>	<b>URLs. . . . .</b>	<b>77</b>
8.1	URL format. . . . .	77
<b>9</b>	<b>Additional common rules. . . . .</b>	<b>81</b>
9.1	Retrieval assignment. . . . .	81

9.2	Store assignment. . . . .	82
9.3	Result of data type combinations. . . . .	83
9.4	Type precedence list determination. . . . .	84
9.5	Determination of identical values. . . . .	85
9.6	Equality operations. . . . .	86
9.7	Grouping operations. . . . .	87
9.8	Multiset element grouping operations. . . . .	88
9.9	Ordering operations. . . . .	89
<b>10</b>	<b>Additional common elements. . . . .</b>	<b>91</b>
10.1	<generic options>. . . . .	91
10.2	<alter generic options>. . . . .	93
<b>11</b>	<b>Schema definition and manipulation. . . . .</b>	<b>95</b>
11.1	<schema definition>. . . . .	95
11.2	<drop schema statement>. . . . .	96
11.3	<table definition>. . . . .	97
11.4	<unique constraint definition>. . . . .	98
11.5	<check constraint definition>. . . . .	99
11.6	<alter column data type clause>. . . . .	100
11.7	<drop column definition>. . . . .	101
11.8	<domain definition>. . . . .	102
11.9	<assertion definition>. . . . .	103
11.10	<user-defined type definition>. . . . .	104
11.11	<SQL-invoked routine>. . . . .	105
11.12	<drop routine statement>. . . . .	106
11.13	<user-defined cast definition>. . . . .	107
11.14	<user-defined ordering definition>. . . . .	108
11.15	<foreign table definition>. . . . .	109
11.16	<alter foreign table statement>. . . . .	112
11.17	<add basic column definition>. . . . .	114
11.18	<alter basic column definition>. . . . .	116
11.19	<drop basic column definition>. . . . .	117
11.20	<drop foreign table statement>. . . . .	119
<b>12</b>	<b>Catalog manipulation. . . . .</b>	<b>121</b>
12.1	<foreign server definition>. . . . .	121
12.2	<alter foreign server statement>. . . . .	123
12.3	<drop foreign server statement>. . . . .	124
12.4	<foreign-data wrapper definition>. . . . .	126
12.5	<alter foreign-data wrapper statement>. . . . .	128
12.6	<drop foreign-data wrapper statement>. . . . .	129
12.7	<import foreign schema statement>. . . . .	130
12.8	<routine mapping definition>. . . . .	132
12.9	<alter routine mapping statement>. . . . .	134
12.10	<drop routine mapping statement>. . . . .	135

<b>13</b>	<b>Access control</b> .....	<b>137</b>
13.1	<privileges>.....	137
13.2	<revoke statement>.....	138
13.3	<user mapping definition>.....	139
13.4	<alter user mapping statement>.....	141
13.5	<drop user mapping statement>.....	142
<b>14</b>	<b>SQL-client modules</b> .....	<b>143</b>
14.1	<SQL-client module definition>.....	143
14.2	<externally-invoked procedure>.....	145
14.3	<SQL procedure statement>.....	148
14.4	Data type correspondences.....	150
<b>15</b>	<b>Additional data manipulation rules</b> .....	<b>153</b>
15.1	Effect of deleting rows from base tables.....	153
15.2	Effect of inserting tables into base tables.....	155
15.3	Effect of replacing rows in base tables.....	157
<b>16</b>	<b>Session management</b> .....	<b>159</b>
16.1	<set passthrough statement>.....	159
<b>17</b>	<b>Dynamic SQL</b> .....	<b>161</b>
17.1	Description of SQL descriptor areas.....	161
17.2	<prepare statement>.....	163
17.3	<deallocate prepared statement>.....	165
17.4	<describe statement>.....	166
17.5	<input using clause>.....	168
17.6	<output using clause>.....	172
17.7	<execute statement>.....	176
17.8	<dynamic declare cursor>.....	177
17.9	<allocate extended dynamic cursor statement>.....	178
17.10	<allocate received cursor statement>.....	179
17.11	<dynamic open statement>.....	180
17.12	<dynamic fetch statement>.....	181
17.13	<dynamic close statement>.....	182
<b>18</b>	<b>Embedded SQL</b> .....	<b>183</b>
18.1	<embedded SQL Ada program>.....	183
18.2	<embedded SQL C program>.....	185
18.3	<embedded SQL COBOL program>.....	186
18.4	<embedded SQL Fortran program>.....	187
18.5	<embedded SQL MUMPS program>.....	188
18.6	<embedded SQL Pascal program>.....	189
18.7	<embedded SQL PL/I program>.....	190
<b>19</b>	<b>Call-Level Interface specifications</b> .....	<b>191</b>
19.1	<CLI routine>.....	191
19.2	Implicit DESCRIBE USING clause.....	192

19.3	Description of CLI item descriptor areas. . . . .	192
19.4	Other tables associated with CLI. . . . .	193
19.5	SQL/CLI data type correspondences. . . . .	196
<b>20</b>	<b>SQL/CLI routines. . . . .</b>	<b>199</b>
20.1	BuildDataLink. . . . .	199
20.2	GetDataLinkAttr. . . . .	201
20.3	GetInfo. . . . .	203
<b>21</b>	<b>SQL/MED common specifications. . . . .</b>	<b>205</b>
21.1	Description of foreign-data wrapper item descriptor areas. . . . .	205
21.2	Implicit foreign-data wrapper cursor. . . . .	209
21.3	Implicit DESCRIBE INPUT USING clause. . . . .	211
21.4	Implicit DESCRIBE OUTPUT USING clause. . . . .	214
21.5	Implicit EXECUTE USING and OPEN USING clauses. . . . .	217
21.6	Implicit FETCH USING clause. . . . .	220
21.7	Character string retrieval. . . . .	224
21.8	Binary string retrieval. . . . .	225
21.9	Tables used with SQL/MED. . . . .	226
<b>22</b>	<b>Foreign-data wrapper interface routines. . . . .</b>	<b>239</b>
22.1	<foreign-data wrapper interface routine>. . . . .	239
22.2	<foreign-data wrapper interface routine> invocation. . . . .	244
22.3	Foreign-data wrapper interface wrapper routines. . . . .	246
22.3.1	AdvanceInitRequest. . . . .	246
22.3.2	AllocQueryContext. . . . .	248
22.3.3	AllocWrapperEnv. . . . .	249
22.3.4	Close. . . . .	251
22.3.5	ConnectServer. . . . .	252
22.3.6	FreeExecutionHandle. . . . .	254
22.3.7	FreeFSConnection. . . . .	256
22.3.8	FreeQueryContext. . . . .	257
22.3.9	FreeReplyHandle. . . . .	258
22.3.10	FreeWrapperEnv. . . . .	259
22.3.11	GetNextReply. . . . .	260
22.3.12	GetNumReplyBoolVE. . . . .	261
22.3.13	GetNumReplyOrderBy. . . . .	262
22.3.14	GetNumReplySelectElems. . . . .	263
22.3.15	GetNumReplyTableRefs. . . . .	264
22.3.16	GetOpts. . . . .	265
22.3.17	GetReplyBoolVE. . . . .	267
22.3.18	GetReplyCardinality. . . . .	268
22.3.19	GetReplyDistinct. . . . .	269
22.3.20	GetReplyExecCost. . . . .	270
22.3.21	GetReplyFirstCost. . . . .	271
22.3.22	GetReplyOrderElem. . . . .	272

22.3.23	GetReplyReExecCost. . . . .	273
22.3.24	GetReplySelectElem. . . . .	274
22.3.25	GetReplyTableRef. . . . .	275
22.3.26	GetSPDHandle. . . . .	276
22.3.27	GetSRDHandle. . . . .	277
22.3.28	GetStatistics. . . . .	278
22.3.29	GetWPDHandle. . . . .	280
22.3.30	GetWRDHandle. . . . .	281
22.3.31	InitRequest. . . . .	282
22.3.32	Iterate. . . . .	286
22.3.33	Open. . . . .	288
22.3.34	ReOpen. . . . .	292
22.3.35	TransmitRequest. . . . .	293
22.4	Foreign-data wrapper interface SQL-server routines. . . . .	296
22.4.1	AllocDescriptor. . . . .	296
22.4.2	FreeDescriptor. . . . .	297
22.4.3	GetAuthorizationId. . . . .	298
22.4.4	GetBoolVE. . . . .	299
22.4.5	GetDescriptor. . . . .	300
22.4.6	GetDistinct. . . . .	302
22.4.7	GetNumBoolVE. . . . .	303
22.4.8	GetNumChildren. . . . .	304
22.4.9	GetNumOrderByElems. . . . .	305
22.4.10	GetNumRoutMapOpts. . . . .	306
22.4.11	GetNumSelectElems. . . . .	307
22.4.12	GetNumServerOpts. . . . .	308
22.4.13	GetNumTableColOpts. . . . .	309
22.4.14	GetNumTableOpts. . . . .	311
22.4.15	GetNumTableRefElems. . . . .	312
22.4.16	GetNumUserOpts. . . . .	313
22.4.17	GetNumWrapperOpts. . . . .	314
22.4.18	GetOrderByElem. . . . .	315
22.4.19	GetRoutMapOpt. . . . .	316
22.4.20	GetRoutMapOptName. . . . .	318
22.4.21	GetRoutineMapping. . . . .	320
22.4.22	GetSelectElem. . . . .	321
22.4.23	GetSelectElemType. . . . .	322
22.4.24	GetServerName. . . . .	323
22.4.25	GetServerOpt. . . . .	324
22.4.26	GetServerOptByName. . . . .	326
22.4.27	GetServerType. . . . .	328
22.4.28	GetServerVersion. . . . .	329
22.4.29	GetSQLString. . . . .	330
22.4.30	GetTableColOpt. . . . .	331



22.4.31	GetTableColOptByName. . . . .	333
22.4.32	GetTableOpt. . . . .	335
22.4.33	GetTableOptByName. . . . .	337
22.4.34	GetTableRefElem. . . . .	339
22.4.35	GetTableRefElemType. . . . .	340
22.4.36	GetTableRefTableName. . . . .	341
22.4.37	GetTableServerName. . . . .	342
22.4.38	GetTRDHandle. . . . .	343
22.4.39	GetUserOpt. . . . .	344
22.4.40	GetUserOptByName. . . . .	346
22.4.41	GetValExprColName. . . . .	348
22.4.42	GetValueExpDesc. . . . .	349
22.4.43	GetValueExpKind. . . . .	350
22.4.44	GetValueExpName. . . . .	351
22.4.45	GetValueExpTable. . . . .	352
22.4.46	GetVEChild. . . . .	353
22.4.47	GetWrapperLibraryName. . . . .	354
22.4.48	GetWrapperName. . . . .	355
22.4.49	GetWrapperOpt. . . . .	356
22.4.50	GetWrapperOptByName. . . . .	358
22.4.51	SetDescriptor. . . . .	360
22.5	Foreign-data wrapper interface general routines. . . . .	365
22.5.1	GetDiagnostics. . . . .	365
<b>23</b>	<b>Diagnostics management. . . . .</b>	<b>369</b>
23.1	<get diagnostics statement>. . . . .	369
<b>24</b>	<b>Information Schema. . . . .</b>	<b>371</b>
24.1	ATTRIBUTES view. . . . .	371
24.2	COLUMN_OPTIONS view. . . . .	372
24.3	COLUMNS view. . . . .	373
24.4	FOREIGN_DATA_WRAPPER_OPTIONS view. . . . .	374
24.5	FOREIGN_DATA_WRAPPERS view. . . . .	375
24.6	FOREIGN_SERVER_OPTIONS view. . . . .	376
24.7	FOREIGN_SERVERS view. . . . .	377
24.8	FOREIGN_TABLE_OPTIONS view. . . . .	378
24.9	FOREIGN_TABLES view. . . . .	379
24.10	ROUTINE_MAPPING_OPTIONS view. . . . .	380
24.11	ROUTINE_MAPPINGS view. . . . .	381
24.12	USER_MAPPING_OPTIONS view. . . . .	382
24.13	USER_MAPPINGS view. . . . .	383
24.14	Short name views. . . . .	384
<b>25</b>	<b>Definition Schema. . . . .</b>	<b>389</b>
25.1	COLUMN_OPTIONS base table. . . . .	389
25.2	DATA_TYPE_DESCRIPTOR base table. . . . .	390

25.3	FOREIGN_DATA_WRAPPER_OPTIONS base table.....	394
25.4	FOREIGN_DATA_WRAPPERS base table.....	395
25.5	FOREIGN_SERVER_OPTIONS base table.....	396
25.6	FOREIGN_SERVERS base table.....	397
25.7	FOREIGN_TABLE_OPTIONS base table.....	398
25.8	FOREIGN_TABLES base table.....	399
25.9	ROUTINE_MAPPING_OPTIONS base table.....	400
25.10	ROUTINE_MAPPINGS base table.....	401
25.11	SQL_CONFORMANCE base table.....	401
25.12	SQL_SIZING base table.....	403
25.13	TABLES base table.....	404
25.14	USAGE_PRIVILEGES base table.....	405
25.15	USER_MAPPING_OPTIONS base table.....	406
25.16	USER_MAPPINGS base table.....	407
<b>26</b>	<b>Status codes.....</b>	<b>409</b>
26.1	SQLSTATE.....	409
<b>27</b>	<b>Conformance.....</b>	<b>413</b>
27.1	Claims of conformance to SQL/MED.....	413
27.2	Additional conformance requirements for SQL/MED.....	413
<b>Annex A</b>	<b>(informative) SQL Conformance Summary.....</b>	<b>417</b>
<b>Annex B</b>	<b>(informative) Implementation-defined elements.....</b>	<b>437</b>
<b>Annex C</b>	<b>(informative) Implementation-dependent elements.....</b>	<b>445</b>
<b>Annex D</b>	<b>(informative) Deprecated features.....</b>	<b>449</b>
<b>Annex E</b>	<b>(informative) Incompatibilities with ISO/IEC 9075:2008.....</b>	<b>451</b>
<b>Annex F</b>	<b>(informative) SQL feature taxonomy.....</b>	<b>453</b>
<b>Annex G</b>	<b>(informative) Defect reports not addressed in this edition of this part of ISO/IEC 9075... 455</b>	<b>455</b>
<b>Annex H</b>	<b>(informative) Typical header files.....</b>	<b>457</b>
H.1	C Header File SQLCLI.H.....	457
H.2	COBOL Library Item SQLCLI.....	457
<b>Annex I</b>	<b>(informative) SQL/MED model.....</b>	<b>459</b>
<b>Index.....</b>		<b>463</b>

## Tables

<b>Table</b>	<b>Page</b>
1 Valid datalink file control options. . . . .	14
2 Sequence of actions during the execution of foreign server requests. . . . .	30
3 Fields used in foreign-data wrapper diagnostics areas. . . . .	43
4 Fields in foreign-data wrapper descriptor areas. . . . .	45
5 Data type correspondences for Ada. . . . .	150
6 Data type correspondences for C. . . . .	150
7 Data type correspondences for COBOL. . . . .	151
8 Data type correspondences for Fortran. . . . .	151
9 Data type correspondences for M. . . . .	151
10 Data type correspondences for Pascal. . . . .	152
11 Data type correspondences for PL/I. . . . .	152
12 Codes used for SQL data types in Dynamic SQL. . . . .	161
13 Abbreviated SQL/CLI generic names. . . . .	191
14 Codes used for implementation data types in SQL/CLI. . . . .	193
15 Codes used for application data types in SQL/CLI. . . . .	193
16 Codes used to identify SQL/CLI routines. . . . .	193
17 Codes and data types for implementation information. . . . .	194
18 Codes used for datalink attributes. . . . .	194
19 Data types of attributes. . . . .	194
20 SQL/CLI data type correspondences for Ada. . . . .	196
21 SQL/CLI data type correspondences for C. . . . .	196
22 SQL/CLI data type correspondences for COBOL. . . . .	196
23 SQL/CLI data type correspondences for Fortran. . . . .	197
24 SQL/CLI data type correspondences for M. . . . .	197
25 SQL/CLI data type correspondences for Pascal. . . . .	197
26 SQL/CLI data type correspondences for PL/I. . . . .	198
27 Codes used for <table reference> types. . . . .	226
28 Codes used for <value expression> kinds. . . . .	226
29 Codes used for foreign-data wrapper diagnostic fields. . . . .	226
30 Codes used for foreign-data wrapper descriptor fields. . . . .	227
31 Codes used for foreign-data wrapper handle types. . . . .	229
32 Ability to retrieve foreign-data wrapper descriptor fields. . . . .	230
33 Ability to set foreign-data wrapper descriptor fields. . . . .	232
34 Foreign-data wrapper descriptor field default values. . . . .	234
35 Codes used for the format of the character string transmitted by GetSQLString(). . . . .	236
36 SQL-statement codes. . . . .	369
37 SQLSTATE class and subclass codes. . . . .	409
38 Implied feature relationships of SQL/MED. . . . .	415
39 Feature taxonomy for optional features. . . . .	453
40 Legend for SQL/MED interfaces. . . . .	459
41 Legend for SQL/MED information flow. . . . .	461

# Figures

Figure	Page
1 SQL/MED interfaces.....	459
2 SQL/MED information flow.....	460

## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 32, *Data management and interchange*.

This fourth edition of ISO/IEC 9075-9 cancels and replaces the third edition (ISO/IEC 9075-9:2008), which has been technically revised. It also incorporates Technical Corrigendum ISO/IEC 9075-9:2008/Cor.1:2010.

A list of all parts in the ISO/IEC 9075 series, published under the general title *Information technology — Database languages — SQL*, can be found on the ISO website.

NOTE The individual parts of multi-part standards are not necessarily published together. New editions of one or more parts can be published without publication of new editions of other parts.

## Introduction

The organization of this part of ISO/IEC 9075 is as follows:

- 1) Clause 1, “Scope”, specifies the scope of this part of ISO/IEC 9075.
- 2) Clause 2, “Normative references”, identifies additional standards that, through reference in this part of ISO/IEC 9075, constitute provisions of this part of ISO/IEC 9075.
- 3) Clause 3, “Definitions, notations, and conventions”, defines the notations and conventions used in this part of ISO/IEC 9075.
- 4) Clause 4, “Concepts”, presents concepts related to this part of ISO/IEC 9075.
- 5) Clause 5, “Lexical elements”, defines the lexical elements of the language specified in this part of ISO/IEC 9075.
- 6) Clause 6, “Scalar expressions”, defines the elements of the language that produce scalar values.
- 7) Clause 7, “Query expressions”, defines the elements of the language that produce rows and tables of data.
- 8) Clause 8, “URLs”, specifies the format of URLs used in this part of ISO/IEC 9075.
- 9) Clause 9, “Additional common rules”, specifies the rules for assignments that retrieve data from or store data into SQL-data, and formation rules for set operations.
- 10) Clause 10, “Additional common elements”, defines additional common elements used in the definition of foreign tables, foreign servers, and foreign-data wrappers.
- 11) Clause 11, “Schema definition and manipulation”, defines facilities related to foreign tables and datalink type support for creating and managing a schema.
- 12) Clause 12, “Catalog manipulation”, defines facilities for creating, altering, and dropping foreign servers and foreign-data wrappers.
- 13) Clause 13, “Access control”, defines facilities for controlling access to SQL-data.
- 14) Clause 14, “SQL-client modules”, defines SQL-client modules and externally-invoked procedures.
- 15) Clause 15, “Additional data manipulation rules”, defines additional rules for data manipulation.
- 16) Clause 16, “Session management”, defines the SQL-session management statements.
- 17) Clause 17, “Dynamic SQL”, defines the dynamic SQL statements.
- 18) Clause 18, “Embedded SQL”, defines the embedded SQL statements.
- 19) Clause 19, “Call-Level Interface specifications”, defines facilities for using SQL through a Call-Level Interface.
- 20) Clause 20, “SQL/CLI routines”, defines each of the routines that comprise the Call-Level Interface.
- 21) Clause 21, “SQL/MED common specifications”, specifies common facilities used by SQL/MED.
- 22) Clause 22, “Foreign-data wrapper interface routines”, specifies the interaction between an SQL-server and a foreign-data wrapper.

- 23) **Clause 23, “Diagnostics management”**, defines the diagnostics management facilities.
- 24) **Clause 24, “Information Schema”**, defines viewed tables that contain schema information.
- 25) **Clause 25, “Definition Schema”**, defines base tables on which the viewed tables containing schema information depend.
- 26) **Clause 26, “Status codes”**, defines values that identify the status of the execution of SQL-statements and the mechanisms by which those values are returned.
- 27) **Clause 27, “Conformance”**, specifies the way in which conformance to this part of ISO/IEC 9075 may be claimed.
- 28) **Annex A, “SQL Conformance Summary”**, is an informative Annex. It summarizes the conformance requirements of the SQL language.
- 29) **Annex B, “Implementation-defined elements”**, is an informative Annex. It lists those features for which the body of this part of ISO/IEC 9075 states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or any other behavior is partly or wholly implementation-defined.
- 30) **Annex C, “Implementation-dependent elements”**, is an informative Annex. It lists those features for which the body of this part of ISO/IEC 9075 states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or any other behavior is partly or wholly implementation-dependent.
- 31) **Annex D, “Deprecated features”**, is an informative Annex. It lists features that the responsible Technical Committee intend will not appear in a future revised version of this part of ISO/IEC 9075.
- 32) **Annex E, “Incompatibilities with ISO/IEC 9075:2008”**, is an informative Annex. It lists incompatibilities with the previous version of this part of ISO/IEC 9075.
- 33) **Annex F, “SQL feature taxonomy”**, is an informative Annex. It identifies features of the SQL language specified in this part of ISO/IEC 9075 by an identifier and a short descriptive name. This taxonomy is used to specify conformance.
- 34) **Annex G, “Defect reports not addressed in this edition of this part of ISO/IEC 9075”**, is an informative Annex. It describes the Defect Reports that were known at the time of publication of this part of this International Standard. Each of these problems is a problem carried forward from the previous edition of ISO/IEC 9075. No new problems have been created in the drafting of this edition of this International Standard.
- 35) **Annex H, “Typical header files”**, is an informative Annex. It provides examples of typical definition files for application programs using the SQL Call-Level Interface.
- 36) **Annex I, “SQL/MED model”**, is an informative Annex. It uses annotated diagrams to illustrate the more important concepts of the model of SQL/MED, including the relationships between the SQL-server, foreign-data wrappers, and foreign servers.

In the text of this part of ISO/IEC 9075, Clauses and Annexes begin new odd-numbered pages, and in **Clause 5, “Lexical elements”**, through **Clause 27, “Conformance”**, Subclauses begin new pages. Any resulting blank space is not significant.

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**Information technology — Database languages — SQL —****Part 9:****Management of External Data (SQL/MED)****1 Scope**

This part of ISO/IEC 9075 defines extensions to Database Language SQL to support management of external data through the use of foreign-data wrappers and datalink types.

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## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

### 2.1 ISO and IEC standards

[ISO9075-1] ISO/IEC 9075-1:2016, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*.

[ISO9075-2] ISO/IEC 9075-2:2016, *Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)*.

[ISO9075-3] ISO/IEC 9075-3:2016, *Information technology — Database languages — SQL — Part 3: Call-Level Interface (SQL/CLI)*.

[ISO9075-11] ISO/IEC 9075-11:2016, *Information technology — Database languages — SQL — Part 11: Information and Definition Schemas (SQL/Schemata)*.

### 2.2 Other international standards

[RFC2368] RFC 2368, *The mailto URL scheme*, R. Hoffman, L. Masinter, J. Zawinski.  
<http://www.ietf.org/rfc/rfc2368.txt>

[RFC3986] RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*, T. Berners-Lee, R. Fielding, L. Masinter.  
<http://www.ietf.org/rfc/rfc3986.txt>

[XML] is used to reference either [XML 1.0] or [XML 1.1] when there is no significant difference between the two for the purposes of a given citation.

[XML 1.0] (*Recommendation*) *Extensible Markup Language (XML) Version 1.0*.  
<http://www.w3.org/TR/xml>

[XML 1.1] (*Recommendation*) *Extensible Markup Language (XML) Version 1.1*.  
<http://www.w3.org/TR/xml11>