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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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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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`