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*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.

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 or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This fifth edition cancels and replaces the fourth edition (ISO/IEC 9075-9:2016), which has been technically revised. It also incorporates the Technical Corrigenda ISO/IEC 9075-9:2016/Cor.1:2019 and ISO/IEC 9075-9:2016/Cor.2:2022.

The main changes are as follows:

— improve the presentation and accuracy of the summaries of implementation-defined and implementation-dependent aspects of this document;

— introduction of several digital artifacts;

— alignment with updated ISO house style and other guidelines for creating standards.

This fifth edition of ISO/IEC 9075-9 is designed to be used in conjunction with the following editions of other parts of the ISO/IEC 9075 series, all published in 2023:

— ISO/IEC 9075-1, sixth edition;

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— ISO/IEC 9075-10, fifth edition;

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A list of all parts in the ISO/IEC 9075 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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# Introduction

The organization of this document is as follows:

1) Clause 1, "Scope", specifies the scope of this document.

2) Clause 2, "Normative references", identifies additional standards that, through reference in this document, constitute provisions of this document.

3) Clause 3, "Terms and definitions", defines the terms and definitions used in this document.

4) Clause 4, "Concepts", presents concepts related to this document.

5) Clause 5, "Lexical elements", defines the lexical elements of the language specified in this document.

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, "Additional common rules", specifies the rules for assignments that retrieve data from or store data into SQL-data, and formation rules for set operations.

9) Clause 9, "Additional common elements", defines additional common elements used in the definition of foreign tables, foreign servers, and foreign-data wrappers.

10) Clause 10, "Schema definition and manipulation", defines facilities related to foreign tables and datalink type support for creating and managing a schema.

11) Clause 11, "Access control", defines facilities for controlling access to SQL-data.

12) Clause 12, "SQL-client modules", defines SQL-client modules and externally-invoked procedures.

13) Clause 13, "Additional data manipulation rules", defines additional rules for data manipulation.

14) Clause 14, "Session management", defines the SQL-session management statements.

15) Clause 15, "Dynamic SQL", defines the dynamic SQL statements.

16) Clause 16, "Embedded SQL", defines the embedded SQL statements.

17) Clause 17, "Diagnostics management", defines the diagnostics management facilities.

18) Clause 18, "Call-Level Interface specifications", defines facilities for using SQL through a Call-Level Interface.

19) Clause 19, "SQL/CLI routines", defines each of the routines that comprise the Call-Level Interface.

20) Clause 20, "URLs", specifies the format of URLs used in this document.

21) Clause 21, "Catalog manipulation", defines facilities for creating, altering, and dropping foreign servers and foreign-data wrappers.

22) Clause 22, "SQL/MED common specifications", specifies common facilities used by SQL/MED.

23) Clause 23, "Foreign-data wrapper interface routines", specifies the interaction between an SQL-server and a foreign-data wrapper.

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.

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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 document 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 document states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or other aspect 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 document states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or other aspect is partly or wholly implementation-dependent.

31) Annex D, "SQL optional feature taxonomy", is an informative Annex. It identifies the optional features of the SQL language specified in this document by an identifier and a short descriptive name. This taxonomy is used to specify conformance.

32) Annex E, "Deprecated features", is an informative Annex. It lists features that the responsible Technical Committee intends not to include in a future edition of this document.

33) Annex F, "Incompatibilities with ISO/IEC 9075:2016", is an informative Annex. It lists incompatibilities with the previous edition of this document.

34) Annex G, "Defect Reports not addressed in this edition of this document", is an informative Annex. It describes the Defect Reports that were known at the time of publication of this document. Each of these problems is a problem carried forward from the previous edition of this document. No new problems have been created in the drafting of this edition of this document.

35) Annex H, "Example 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 document, 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 language SQL —

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

## 1 Scope

This document 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 documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO/IEC 9075-1, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*

ISO/IEC 9075-2, *Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)*

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

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

W3C XML 1.0 *Extensible Markup Language (XML) Version 1.0, W3C Recommendation*. Edited by: Bray, Tim et al. 26 November 2008, revised 7 February 2013
Available at: `https://www.w3.org/TR/xml`

W3C XML 1.1 *Extensible Markup Language (XML) Version 1.1, W3C Recommendation*. Edited by: Bray, Tim et al. 16 August 2006, revised 29 September 2006
Available at: `https://www.w3.org/TR/xml11`


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