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

**Part 1:
Framework (SQL/Framework)**

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

Partie 1: Charpente (SQL/Charpente)

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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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For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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

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

The main changes are as follows:

- addition and refinement of the terms and concepts to support new data types required by incremental parts;
- clarification and correction of the merge instructions for Technical Corrigenda and incremental parts;
- 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 sixth edition of ISO/IEC 9075-1 is designed to be used in conjunction with the following editions of other parts of the ISO/IEC 9075 series, all published 2023:

- ISO/IEC 9075-2, sixth edition;
- ISO/IEC 9075-3, sixth edition;
- ISO/IEC 9075-4, seventh edition;
- ISO/IEC 9075-9, fifth edition;
- ISO/IEC 9075-10, fifth edition;
- ISO/IEC 9075-11, fifth edition;
- ISO/IEC 9075-13, fifth edition;
- ISO/IEC 9075-14, sixth edition;
- ISO/IEC 9075-15, second edition;
- ISO/IEC 9075-16, first edition.

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.

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 the ISO/IEC 9075 series.
- 3) **Clause 3, “Terms and definitions”**, defines terms and definitions used in this document and in other parts of the ISO/IEC 9075 series.
- 4) **Clause 4, “Concepts”**, describes the concepts used in the ISO/IEC 9075 series.
- 5) **Clause 5, “Parts of the ISO/IEC 9075 series”**, summarizes the content of each of the parts of the ISO/IEC 9075 series, in terms of the concepts described in **Clause 4, “Concepts”**.
- 6) **Clause 6, “Notation and conventions used in other parts of the ISO/IEC 9075 series”**, defines notation and conventions used in other parts of the ISO/IEC 9075 series.
- 7) **Clause 7, “Annexes to the parts of the ISO/IEC 9075 series”**, describes the content of annexes of other parts of the ISO/IEC 9075 series.
- 8) **Clause 8, “Status codes”**, defines values that identify the status of the execution of SQL-statements and the mechanisms by which those values are returned.
- 9) **Clause 9, “Conformance”**, specifies requirements that apply to claims of conformance to all or some of the parts of the ISO/IEC 9075 series.
- 10) **Annex A, “SQL conformance summary”**, is an informative Annex. It summarizes the conformance requirements of the SQL language.
- 11) **Annex B, “Implementation-defined 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-defined.
- 12) **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.
- 13) **Annex D, “SQL optional feature taxonomy”**, is an informative Annex. It identifies features of the SQL language specified in this document by an identifier and a short descriptive name. This taxonomy is used to specify conformance.
- 14) **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.
- 15) **Annex F, “Incompatibilities with ISO/IEC 9075:2016”**, is an informative Annex. It lists incompatibilities with the previous edition of this document.
- 16) **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.
- 17) **Annex H, “Maintenance and interpretation of SQL”**, is an informative Annex. It describes the formal procedures for maintenance and interpretation of the ISO/IEC 9075 series.

- 18) [Annex I, “Support for the use of inter-document links in the ISO/IEC 9075 series”](#), is an informative Annex. It describes conventions that users of the ISO/IEC 9075 series use in order to maximize the facilities provided in the parts of the ISO/IEC 9075 series.

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Information technology — Database language SQL —

Part 1:

Framework (SQL/Framework)

1 Scope

This document describes the conceptual framework used in other parts of the ISO/IEC 9075 series to specify the grammar of SQL and the result of processing statements in that language by an SQL-implementation.

This document also defines terms and notation used in the other parts of the ISO/IEC 9075 series.

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 646, *Information technology — ISO 7-bit coded character set for information interchange*

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 9075-4, *Information technology — Database languages — SQL — Part 4: Persistent Stored Modules (SQL/PSM)*

ISO/IEC 9075-9, *Information technology — Database languages — SQL — Part 9: Management of External Data (SQL/MED)*

ISO/IEC 9075-10, *Information technology — Database languages — SQL — Part 10: Object Language Bindings (SQL/OLB)*

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

ISO/IEC 9075-13, *Information technology — Database languages — SQL — Part 13: SQL Routines and Types Using the Java™ Programming Language (SQL/JRT)*

ISO/IEC 9075-14, *Information technology — Database languages — SQL — Part 14: XML-Related Specifications (SQL/XML)*

ISO/IEC 9075-15, *Information technology — Database languages — SQL — Part 15: Multidimensional Arrays (SQL/MDA)*

ISO/IEC 9075-16, *Information technology — Database languages — SQL — Part 16: Property Graph Queries (SQL/PGQ)*

ISO/IEC 10646:2020, *Information technology — Universal Multi-Octet Coded Character Set (UCS)*

ISO/IEC 14651, *Information technology — International string ordering and comparison — Method for comparing character strings and description of the common template tailorable ordering*