
**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. 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).

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 fifth edition of ISO/IEC 9075-1 cancels and replaces the fourth edition (ISO/IEC 9075-1:2011), which has been technically revised. It also incorporates Technical Corrigendum ISO/IEC 9075-1:2011/Cor.1:2013.

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 ISO/IEC 9075.
- 3) **Clause 3, “Definitions and use of terms”**, defines terms used in this and other parts of ISO/IEC 9075.
- 4) **Clause 4, “Concepts”**, describes the concepts used in ISO/IEC 9075.
- 5) **Clause 5, “The parts of ISO/IEC 9075”**, summarises the content of each of the parts of ISO/IEC 9075, in terms of the concepts described in **Clause 4, “Concepts”**.
- 6) **Clause 6, “Notation and conventions used in other parts of ISO/IEC 9075”**, defines notation and conventions used in other parts of ISO/IEC 9075.
- 7) **Clause 7, “Annexes to the parts of ISO/IEC 9075”**, describes the content of annexes of other parts of ISO/IEC 9075.
- 8) **Clause 8, “Conformance”**, specifies requirements that apply to claims of conformance to all or some of the parts of ISO/IEC 9075.
- 9) **Annex A, “Maintenance and interpretation of SQL”**, is an informative Annex. It describes the formal procedures for maintenance and interpretation of ISO/IEC 9075.
- 10) **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.
- 11) **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.
- 12) **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.
- 13) **Annex E, “Incompatibilities with ISO/IEC 9075:2011”**, is an informative Annex. It lists incompatibilities with the previous version of this part of ISO/IEC 9075.
- 14) **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.
- 15) **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 this part of ISO/IEC 9075. No new problems have been created in the drafting of this edition of this International Standard.

In the text of this part of ISO/IEC 9075, Clauses and Annexes begin new odd-numbered pages. Any resulting blank space is not significant.

Information technology — Database languages — SQL —**Part 1:****Framework (SQL/Framework)****1 Scope**

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

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

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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

[ISO9075-2] 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)*

[ISO9075-4] ISO/IEC 9075-4:2016, *Information technology — Database languages — SQL — Part 4: Persistent Stored Modules (SQL/PSM)*

[ISO9075-9] ISO/IEC 9075-9:2016, *Information technology — Database languages — SQL — Part 9: Management of External Data (SQL/MED)*

[ISO9075-10] ISO/IEC 9075-10:2016, *Information technology — Database languages — SQL — Part 10: Object Language Bindings (SQL/OLB)*

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

[ISO9075-13] ISO/IEC 9075-13:2016, *Information technology — Database languages — SQL — Part 13: SQL Routines and Types Using the Java™ Programming Language (SQL/JRT)*

[ISO9075-14] ISO/IEC 9075-14:2016, *Information technology — Database languages — SQL — Part 14: XML-Related Specifications (SQL/XML)*

[ISO10646] ISO/IEC 10646, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*.

[ISO14651] ISO/IEC 14651, *Information technology — International string ordering and comparison — Method for comparing character strings and description of the common template tailorable ordering*.

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3 Definitions and use of terms

3.1 Definitions

3.1.1 Definitions provided in this standard

In this document, the definition of a verb defines every voice, mood, and tense of that verb.

For the purposes of this document and other parts of ISO/IEC 9075, the following definitions apply:

3.1.1.1 atomic
incapable of being subdivided

3.1.1.2 column
field of the row type of a table

3.1.1.3 compilation unit
segment of executable code, possibly consisting of one or more subprograms

3.1.1.4 data type
set of representable values

3.1.1.5 descriptor
coded description of an SQL object

NOTE 2 — It includes all of the information about the object that a conforming SQL-implementation requires.

3.1.1.6 field
(field name, data type) pair

NOTE 3 — A value of a field is a value of its data type.

3.1.1.7 fully qualified (of a name of some SQL object)
with all optional components specified explicitly

NOTE 4 — A fully qualified name does not necessarily identify an object uniquely. For example, although a fully qualified specific name, consisting of a catalog name, a schema name and a specific name, uniquely identifies a routine, a fully qualified routine name doesn't necessarily do so.

3.1.1.8 identifier
object by which something is identified

3.1.1.9 identify
to reference something without ambiguity

3.1.1.10 implementation-defined
possibly differing between SQL-implementations, but specified by the implementor for each particular SQL-implementation

3.1.1.11 implementation-dependent