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Australian Standard™

Information technology—Database languages—SQL

Part 2: Foundation (SQL/Foundation)

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee IT-027, Data Management and Interchange. It was approved on behalf of the Council of Standards Australia on 16 May 2005. This Standard was published on 16 June 2005.

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Data Management Association Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-027, Data Management and Interchange.

This Standard is identical with, and has been reproduced from ISO/IEC 9075-2:2003, *Information technology—Database languages—SQL*—Part 2: *Foundation (SQL/Foundation)*.

The objective of this Standard is to provide database designers, administrators and developers with the syntax and semantics of a database language.

This Standard is Part 2 of AS 9075, *Information technology—Database languages—SQL*, which is published in parts as follows:

Part 1: Framework (SQL/Framework)
Part 2: Foundation (SQL/Foundation) (this Standard)
Part 3: Call-Level Interface (SQL/CLI)
Part 4: Persistent Stored Modules (SQL/PSM)
Part 5: Host Language Bindings (SQL/Bindings)
Part 9: Management of External Data (SQL/MED)
Part 10: Object Language Bindings (SQL/OLB)
Part 11: Information and Definition Schemas (SQL/Schemata)
Part 13: SQL Routines and Types Using the Java™ Programming Language (SQL/JRT)
Part 14: XML-Related Specifications (SQL/XML)

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this part of ISO/IEC 9075' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
8601	Data elements and interchange formats—Information interchange—Representation of dates and times	8601	Data elements and interchange formats—Information interchange—Representation of dates and times
ISO/IEC		AS	
7185	Information technology—Programming languages—Pascal	2580	Programming languages—Pascal
9075	Information technology—Database languages—SQL	9075	Information technology—Database languages—SQL
9075-1	Part 1: Framework (SQL/Framework)	9075.1	Part 1: Framework (SQL/Framework)
9075-11	Part 11: Information and Definition Schemas (SQL/Schemas)	9075.11	Part 11: Information and Definition Schemas (SQL/Schemas)

Only referenced documents that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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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 used in the definition of SQL.

5) Clause 5, “Lexical elements”, defines the lexical elements of the language.

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, “Predicates”, defines the predicates of the language.

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 language elements that are used in various parts of the language.

11) Clause 11, “Schema definition and manipulation”, defines facilities for creating and managing a schema.

12) Clause 12, “Access control”, defines facilities for controlling access to SQL-data.

13) Clause 13, “SQL-client modules”, defines SQL-client modules and externally-invoked procedures.

14) Clause 14, “Data manipulation”, defines the data manipulation statements.

15) Clause 15, “Control statements”, defines the SQL-control statements.

16) Clause 16, “Transaction management”, defines the SQL-transaction management statements.

17) Clause 17, “Connection management” defines the SQL-connection management statements.

18) Clause 18, “Session management”, defines the SQL-session management statements.

19) Clause 19, “Dynamic SQL”, defines the SQL dynamic statements.

20) Clause 20, “Embedded SQL”, defines the host language embeddings.

21) Clause 21, “Direct invocation of SQL”, defines direct invocation of SQL language.

22) Clause 22, “Diagnostics management”, defines the diagnostics management facilities.

23) Clause 23, “Status codes”, defines values that identify the status of the execution of SQL-statements and the mechanisms by which those values are returned.

24) Clause 24, “Conformance”, defines the criteria for conformance to this part of ISO/IEC 9075.

25) Annex A, “SQL Conformance Summary”, is an informative Annex. It summarizes the conformance requirements of the SQL language.

26) 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.

27) 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.

28) 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.

29) Annex E, “Incompatibilities with ISO/IEC 9075:1999”, is an informative Annex. It lists incompatibilities with the previous version of this part of ISO/IEC 9075.

30) 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 and may be used to develop other profiles involving the SQL language.

31) Annex G, “Defect Reports not addressed in this edition 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 9075-2. 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 begin a new odd-numbered page, and in Clause 5, “Lexical elements”, through Clause 23, “Status codes”, Subclauses begin a new page. Any resulting blank space is not significant.

NOTES

AUSTRALIAN STANDARD

Information technology — Database languages — SQL —

Part 2:
Foundation (SQL/Foundation)

1 Scope

This part of ISO/IEC 9075 defines the data structures and basic operations on SQL-data. It provides functional capabilities for creating, accessing, maintaining, controlling, and protecting SQL-data.

This part of ISO/IEC 9075 specifies the syntax and semantics of a database language:

— For specifying and modifying the structure and the integrity constraints of SQL-data.

— For declaring and invoking operations on SQL-data and cursors.

— For declaring database language procedures.

— For embedding SQL-statements in a compilation unit that otherwise conforms to the standard for a particular programming language (host language).

— For deriving an equivalent compilation unit that conforms to the particular programming language standard. In that equivalent compilation unit, each embedded SQL-statement has been replaced by one or more statements in the host language, some of which invoke an SQL externally-invoked procedure that, when executed, has an effect equivalent to executing the SQL-statement.

— For direct invocation of SQL-statements.

— To support dynamic preparation and execution of SQL-statements.

This part of ISO/IEC 9075 provides a vehicle for portability of data definitions and compilation units between SQL-implementations.

This part of ISO/IEC 9075 provides a vehicle for interconnection of SQL-implementations.

Implementations of this part of ISO/IEC 9075 may exist in environments that also support application programming languages, end-user query languages, report generator systems, data dictionary systems, program library systems, and distributed communication systems, as well as various tools for database design, data administration, and performance optimization.