

Australian Standard™

**Information technology—Database  
languages—SQL**

**Part 2: Foundation (SQL/Foundation)**

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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Australian Standard™

**Information technology—Database  
languages—SQL**

**Part 2: Foundation (SQL/Foundation)**

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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)

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- (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:

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
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.

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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.