CANADIAN STANDARDS ASSOCIATION

National Standard of Canada
CAN/CSA-ISO/IEC 9075-2:04
(ISO/IEC 9075-2:2003)

International Standard **ISO/IEC 9075-2:2003 (second edition, 2003-12-15)** has been adopted without modification (IDT) as CSA Standard **CAN/CSA-ISO/IEC 9075-2:04**, which has been approved as a National Standard of Canada by the Standards Council of Canada.
ISBN 1-55397-800-5 *December 2004*

Information technology — Database languages — SQL —

Part 2: Foundation (SQL/Foundation)

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

Partie 2: Fondations (SQL/Foundation)

Reference number
ISO/IEC 9075-2:2003(E)

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CANADIAN STANDARDS ASSOCIATION

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Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users to judge its suitability for their particular purpose.
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CAN/CSA-ISO/IEC 9075-2:04 Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)

CSA Preface

Standards development within the Information Technology sector is harmonized with international standards development. Through the CSA Technical Committee on Information Technology (TCIT, Canadians serve as the Canadian Advisory Committee (CAC) on ISO/IEC Joint Technical Committee 1 on Information Technology (ISO/IEC JTC1) for the Standards Council of Canada (SCC), the ISO member body for Canada and sponsor of the Canadian National Committee of the IEC. Also, as a member of the International Telecommunication Union (ITU), Canada participates in the International Telegraph and Telephone Consultative Committee (ITU-T).

This Standard supersedes CAN/CSA-ISO/IEC 9075-2:01 (adoption of ISO/IEC 9075-2:1999).

This International Standard was reviewed by the CSA TCIT under the jurisdiction of the Strategic Steering Committee on Information Technology and deemed acceptable for use in Canada. (A committee membership list is available on request from the CSA Project Manager.) From time to time, ISO/IEC may publish addenda, corrigenda, etc. The CSA TCIT will review these documents for approval and publication. For a listing, refer to the CSA Information Products catalogue or CSA *Info Update* or contact a CSA Sales representative. This Standard has been formally approved as a National Standard of Canada by the Standards Council of Canada.

December 2004

Inquiries regarding this National Standard of Canada should be addressed to
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INTERNATIONAL STANDARD

ISO/IEC 9075-2

Second edition
2003-12-15

Information technology — Database languages — SQL —

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 9075-2 was prepared by Joint Technical Committee JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange.*

This second edition cancels and replaces the first edition (ISO/IEC 9075-2:1999), which has been technically revised.

ISO/IEC 9075 consists of the following parts, under the general title *Information technology — Database languages — SQL*:

— *Part 1: Framework (SQL/Framework)*

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

— *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)*

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.