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Part 10: SQL model (Guide/Model)

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Contents

Page

Foreword . . . ix
Introduction . . . xi
1 Scope . . . 1
2 Normative references . . . 2
3 Terms and definitions . . . 3
4 SQL model: origin and components . . . 4
4.1 Relational model . . . 4
4.2 The SQL model . . . 5
4.3 The name "SQL" . . . 7
4.4 Syntax conventions in SQL . . . 7
5 Data integrity . . . 9
5.1 Introduction to integrity . . . 9
5.2 Transactions . . . 9
5.3 Constraints . . . 9
5.4 Predicates . . . 10
5.5 Functional dependencies . . . 11
6 Queries, expressions, and statements . . . 12
6.1 Sets and multisets . . . 12
6.2 Queries . . . 12
6.3 Query expressions and query specifications . . . 12
6.4 Table "shapes" . . . 18
6.5 Subqueries . . . 18
6.6 Views . . . 18
6.7 SQL-statements . . . 19
7 Data structure and metadata . . . 20
7.1 Metadata . . . 20
7.2 Metadata and SQL . . . 20
7.3 SQL descriptors . . . 20
7.4 Definition schema . . . 20
7.5 Information schema . . . 21
8 The SQL-environment and its components . . . 22
8.1 Nomenclature of the components of the SQL model . . . 22
8.2 Components of the SQL model . . . 22
8.3 SQL-environment . . . 22
8.4 SQL-agents . . . 23
8.5 SQL-implementations . . . 23
8.6 SQL-clients . . . 24

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8.7 SQL-servers. . . . 24
8.8 SQL-connections. . . . 25
8.9 SQL-sessions. . . . 25
8.10 SQL-client modules, externally-invoked procedures, and embedded SQL. . . . 25
8.11 Declarative and procedural statements. . . . 27
8.12 Client-server model. . . . 28
8.12.1 Introduction to the client-server model. . . . 28
8.12.2 SQL-server modules. . . . 28
8.13 SQL-statements. . . . 29
8.14 Cursors. . . . 30
9 Accessing SQL-data. . . . 31
9.1 Introduction to SQL-data access. . . . 31
9.2 “Interactive” SQL. . . . 31
9.3 Module language. . . . 31
9.4 Embedded SQL. . . . 34
9.5 Dynamic SQL. . . . 35
9.6 Other mechanisms to access SQL-data: Call-Level Interface (CLI). . . . 36
9.7 Foreign servers and foreign-data wrappers. . . . 36
10 Active databases and SQL. . . . 37
10.1 Introduction to active databases. . . . 37
10.2 Referential integrity and referential actions. . . . 37
10.3 Triggers. . . . 38
11 Transaction model. . . . 39
12 Security model. . . . 43
12.1 User identification. . . . 43
12.2 Ownership of SQL-data. . . . 43
12.3 Privileges and privileged objects. . . . 43
12.4 Special considerations for views. . . . 44
12.5 Definer’s and invoker’s rights. . . . 44
13 Diagnostics model. . . . 45
13.1 SQLSTATE. . . . 45
13.2 Diagnostics area. . . . 45
14 Data types. . . . 47
14.1 Built-in data types. . . . 47
14.1.1 Atomic data types. . . . 47
14.1.2 Constructed data types. . . . 48
14.2 User-defined types. . . . 48
15 Schema creation and manipulation. . . . 50
16 Other data models. . . . 52
17 Conformance to ISO/IEC 9075. . . . 53
Annex A (informative) **History of the SQL standard. . . . 54**
A.1 Background. . . . 54
A.2 Further development. . . . 56
Bibliography. . . . 57

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Index **59**

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Tables

Table

Page

1 Dirty read. 39
2 Non-repeatable read. 40
3 Phantom read. 40

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Figures

Figure

Page

1 Illustration of an SQL table. . . . 6
2 Primary key — Foreign key relationships. . . . 10
3 Cartesian product. . . . 13
4 Filtering. . . . 15
5 Grouping. . . . 16
6 Projection. . . . 17
7 First approximation of SQL-environment. . . . 24
8 Second approximation of SQL-environment. . . . 25
9 Relationship between SQL-client, SQL-client module, and SQL-statement. . . . 26
10 Transformation from embedded SQL to externally-invoked procedure. . . . 27
11 Minimizing client-server context changes. . . . 29

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Examples

Example

Page

1 Search condition. . . . 11
2 Query specification. . . . 12
3 Join based on equality. . . . 14
4 Subquery use. . . . 18
5 Example of direct invocation. . . . 31
6 Module language example: SQL code fragment. . . . 32
7 Module language example: COBOL code fragment. . . . 32
8 Embedded SQL example. . . . 34

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Foreword

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— ISO/IEC 9075-10, fifth edition or later;

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Introduction

This document describes the model of database language SQL, as defined primarily in ISO/IEC 9075-1 and ISO/IEC 9075-2. It supplies some background in the form of a brief history of the relational data model, plus a brief overview of some SQL features relevant to the SQL model.

The SQL model, of course, existed from the initial definition of the language, but was not explicitly recognized until the language became sufficiently complex that appropriate vocabulary and definitions were required to accurately specify all capabilities required.

This document summarizes the result of hundreds of hours of discussion and analysis that were required in order to create a coherent and useful definition of the SQL model of operation. This document briefly outlines the Relational model popularized by E.F. Codd. However, the fundamental structure and content of this document addresses SQL language facilities such as tables, column, relationships, and operations, not the Relational model itself.

Since SQL's adoption in 1986 as a database language standard, many extensions have been proposed, defined, reviewed, modified, and adopted by members of SQL-related standards committees across the world. While the SQL model herein addresses only a small subset of the SQL language's data management facilities, SQL's overall scope includes non-relational data types, object classes, multi-level data structures, and even DBMS-generated pointers to rows that appear as if they were user-based values. Supporting all all these SQL capabilities, there exists extensive and formally-defined language constructs that (when correctly implemented by SQL database implementers) provide a data definition and processing environment that is reliable and repeatable across all SQL standard-adherent implementations.

NOTE 1 — In this document, the terms "SQL" and "SQL language" are used as synonyms. The terms "SQL standard", "ISO/IEC 9075", and "the ISO/IEC 9075 series" are used as synonyms and refer to the standard for SQL [language], which is the ISO/IEC 9075 series of standards.

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Information technology — Guidance for the use of database language SQL —

Part 10:
SQL model (Guide/Model)

1 Scope

This document describes the model of database language SQL as defined in ISO/IEC 9075-1, ISO/IEC 9075-2, and ISO/IEC 9075-11. The meanings of and the relationships between various concepts of that model are described in text and illustrated graphically. Background in the form of some historical review and a brief overview of key SQL features is included.

NOTE 2 — In spite of the fact that the names of the ISO/IEC 9075 series of standards contain the phrase "database language", the standards do not use the word "database" to describe the *thing* that SQL creates and on which it operates. The word "database" is used in many different contexts and has meanings wholly unrelated to the intent of the ISO/IEC 9075 series. Consequently, a variety of other terms are defined and used by the ISO/IEC 9075 series. The word "database" is frequently used in this document informally to mean "a collection of data managed by an SQL-implementation at any given time."

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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 9075-1, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*

ISO/IEC 9075-2, *Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)*

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

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