
**Information technology — Database
languages — SQL Multimedia and
Application Packages —**

**Part 3:
Spatial**

iTeh STANDARD PREVIEW

*Technologies de l'information — Langages de bases de données —
Multimédia SQL et paquets d'application —*

Partie 3: Spatial

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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 part of ISO/IEC 13249 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 13249-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

ISO/IEC 13249 consists of the following parts, under the general title *Information technology — Database languages — SQL Multimedia and Application Packages*:

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- *Part 1: Framework*
 - *Part 2: Full text*
 - *Part 3: Spatial*
 - *Part 4: General purpose facilities*
 - *Part 5: Still image*

Annexes A to C of this part of ISO/IEC 13249 are for information only.

Introduction

The purpose of this International Standard is to define multimedia and application specific types and their associated routines using the user-defined features in ISO/IEC 9075.

SQL/MM is structured as a multi-part standard. At present it consists of the following parts:

- Part 1: Framework
- Part 2: Full text
- Part 3: Spatial
- Part 4: General purpose facilities
- Part 5: Still image

The organization of this part of ISO/IEC 13249 is as follows:

- 1) Clause 1, "Scope", specifies the scope of this part of ISO/IEC 13249.
- 2) Clause 2, "Normative references", identifies additional standards that, through reference in this part of ISO/IEC 13249, constitute provisions of this part of ISO/IEC 13249.
- 3) Clause 3, "Definitions, notations, and conventions", defines the notations and conventions used in this part of ISO/IEC 13249.
- 4) Clause 4, "Concepts", presents concepts used in the definition of this part of ISO/IEC 13249.
- 5) Clause 5, "Geometry Types", defines the geometry supertype.
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- 6) Clause 6, "Point Types", defines primitive 0-dimensional geometry types.
- 7) Clause 7, "Curve Types", defines primitive 1-dimensional geometry types.
- 8) Clause 8, "Surface Types", defines primitive 2-dimensional geometry types.
- 9) Clause 9, "Geometry Collection Types", defines the geometry collection types.
- 10) Clause 10, "Spatial Reference System Types", defines the user-defined type to manage spatial referencing systems.
- 11) Clause 11, "Support Routines", defines supporting functions and procedures used by this part of ISO/IEC 13249.
- 12) Clause 12, "Conformance", defines the criteria for conformance to this part of ISO/IEC 13249.
- 13) Clause 13, "Status Codes", defines the SQLSTATE codes used in this part of ISO/IEC 13249.
- 14) Annex A, "Implementation-defined elements", is an informative Annex. It lists those features for which the body of this part of ISO/IEC 13249 states that the syntax or meaning or effect on the database is partly or wholly implementation-defined, and describes the defining information that an implementor shall provide in each case.
- 15) Annex B, "Implementation-dependent elements", is an informative Annex. It lists those features for which the body of this part of ISO/IEC 13249 states explicitly that the meaning or effect on the database is implementation-dependent.

16) Annex C, "ST_Geometry Type Hierarchy", is an informative Annex. It visually describes the inheritance relationship between user-defined type in this part of ISO/IEC 13249.

17) Bibliography is the last informative Annex. It is a list of selective reading relating to this part of ISO/IEC 13249.

In the text of this part of ISO/IEC 13249, Clauses begin a new odd-numbered page, and in Clause 5, "Geometry Types", through Clause 11, "Support Routines", subclauses begin a new page. Any resulting blank space is not significant.

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Information technology — Database languages — SQL Multimedia and Application Packages —

Part 3: Spatial

1 Scope

This part of ISO/IEC 13249:

- a) introduces the Spatial part of ISO/IEC 13249,
- b) gives the references necessary for this part of ISO/IEC 13249,
- c) defines notations and conventions specific to this part of ISO/IEC 13249,
- d) defines concepts specific to this part of ISO/IEC 13249,
- e) defines spatial user-defined types and their associated routines.

The spatial user-defined types defined in this part adhere to the following:

- A spatial user-defined type is generic to spatial data handling. It addresses the need to store, manage and retrieve information based on aspects of spatial data such as geometry, location, and topology.
- A spatial user-defined type does not redefine the database language SQL directly or in combination with another spatial data type.

Implementations of this part of ISO/IEC 13249 may exist in environments that also support geographic information, decision support, data mining, and data warehousing systems.

Application areas addressed by implementations of this part of ISO/IEC 13249 include, but are not restricted to, automated mapping, desktop mapping, facilities management, geoenvironment, graphics, multimedia, and resource management applications.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 13249. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 13249 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative documents referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 9075-1:1999, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*.

ISO/IEC 9075-2:1999, *Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)*.

ISO/IEC 9075-4:1999, *Information technology — Database languages — SQL — Part 4: Persistent Stored Modules (SQL/PSM)*.

ISO/IEC 13249-1, *Information technology — Database languages — SQL Multimedia and Application*.

IEC 559:1989, *Binary floating-point arithmetic for microprocessor systems*.

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