
**Information technology — Database
languages — SQL —**

**Part 13:
SQL Routines and types using the Java
TM programming language (SQL/JRT)**

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

*Partie 13: Routines et types de SQL utilisant le langage de
programmation Java TM (SQL/JRT)*



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Contents	Page
Foreword.	vii
Introduction.	viii
1 Scope.	1
2 Normative references.	3
2.1 ISO and IEC standards.	3
2.2 Other international standards.	3
3 Definitions, notations, and conventions.	5
3.1 Definitions.	5
3.1.1 Definitions taken from [JLS].	5
3.1.2 Definitions taken from [JVM].	5
3.1.3 Definitions provided in Part 13.	6
3.2 Conventions.	7
3.2.1 Specification of built-in procedures.	7
3.2.2 Specification of deployment descriptor files.	7
4 Concepts.	9
4.1 The Java programming language.	9
4.2 SQL-invoked routines.	10
4.2.1 Overview of SQL-invoked routines.	10
4.2.2 Characteristics of SQL-invoked routines.	10
4.3 Java class name resolution.	11
4.4 SQL result sets.	12
4.5 Parameter mapping.	13
4.6 Unhandled Java exceptions.	14
4.7 Data types.	14
4.7.1 Host language data types.	14
4.8 User-defined types.	15
4.8.1 Introduction to user-defined types.	15
4.8.2 User-defined type comparison and assignment.	16
4.8.3 User-defined type descriptor.	16
4.8.4 Accessing static fields.	18
4.8.5 Converting objects between SQL and Java.	18
4.8.5.1 SERIALIZABLE.	19
4.8.5.2 SQLDATA.	19
4.8.5.3 Developing for portability.	19
4.9 Built-in procedures.	20

4.10	Basic security model	20
4.10.1	Privileges	20
4.11	JARs	21
4.11.1	Deployment descriptor files	21
5	Lexical elements	23
5.1	<token> and <separator>	23
5.2	Names and identifiers	25
6	Scalar expressions	27
6.1	<method invocation>	27
6.2	<new specification>	28
7	Predicates	29
7.1	<comparison predicate>	29
8	Additional common rules	31
8.1	Execution of array-returning functions	32
9	Additional common elements	39
9.1	<language clause>	40
9.2	<Java parameter declaration list>	40
9.3	<SQL Java path>	42
9.4	<routine invocation>	44
9.5	Java routine signature determination	54
10	Schema definition and manipulation	63
10.1	<drop schema statement>	63
10.2	<table definition>	65
10.3	<view definition>	66
10.4	<user-defined type definition>	67
10.5	<attribute definition>	71
10.6	<alter type statement>	75
10.7	<drop data type statement>	76
10.8	<SQL-invoked routine>	77
10.9	<alter routine statement>	81
10.10	<drop routine statement>	82
10.11	<user-defined ordering definition>	83
10.12	<drop user-defined ordering statement>	84
11	Access control	85
11.1	<grant privilege statement>	85
11.2	<privileges>	86
11.3	<revoke statement>	87
12	Built-in procedures	89
12.1	SQLJ.INSTALL_JAR procedure	89
12.2	SQLJ.REPLACE_JAR procedure	91
12.3	SQLJ.REMOVE_JAR procedure	93

12.4	SQLJ.ALTER_JAVA_PATH procedure.....	95
13	Java topics.....	97
13.1	Java facilities supported by this part of ISO/IEC 9075.....	97
13.1.1	Package java.sql.....	97
13.1.2	System properties.....	97
13.2	Deployment descriptor files.....	98
14	Information Schema.....	101
14.1	JAR_JAR_USAGE view.....	101
14.2	JARS view.....	102
14.3	METHOD_SPECIFICATIONS view.....	103
14.4	ROUTINE_JAR_USAGE view.....	104
14.5	TYPE_JAR_USAGE view.....	105
14.6	USER_DEFINED_TYPES view.....	106
14.7	Short name views.....	107
15	Definition Schema.....	109
15.1	JAR_JAR_USAGE base table.....	109
15.2	JARS base table.....	111
15.3	METHOD_SPECIFICATIONS base table.....	112
15.4	ROUTINE_JAR_USAGE base table.....	114
15.5	ROUTINES base table.....	115
15.6	SQL_CONFORMANCE base table.....	115
15.7	TYPE_JAR_USAGE base table.....	117
15.8	USAGE_PRIVILEGES base table.....	118
15.9	USER_DEFINED_TYPES base table.....	119
16	Status codes.....	121
16.1	SQLSTATE.....	121
17	Conformance.....	123
17.1	Claims of conformance to SQL/JRT.....	123
17.2	Additional conformance requirements for SQL/JRT.....	123
17.3	Implied feature relationships of SQL/JRT.....	123
Annex A	(informative) SQL Conformance Summary.....	125
Annex B	(informative) Implementation-defined elements.....	131
Annex C	(informative) Implementation-dependent elements.....	135
Annex D	(informative) Deprecated features.....	137
Annex E	(informative) Incompatibilities with ISO/IEC 9075:2011 and 9075:2008.....	139
Annex F	(informative) SQL feature taxonomy.....	141
Annex G	(informative) Defect reports not addressed in this edition of this part of ISO/IEC 9075... 143	
	Bibliography.....	145
	Index.....	147

Tables

Table		Page
1	Standard programming languages.	40
2	System properties.	97
3	SQLSTATE class and subclass codes.	121
4	Implied feature relationships of SQL/JRT.	123
5	Feature taxonomy for optional features.	141

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, Information technology, SC 32, *Data management and interchange*.

This fourth edition of ISO/IEC 9075-13 cancels and replaces the third edition (ISO/IEC 9075-13:2008), which has been technically revised. It also incorporates Technical Corrigendum ISO/IEC 9075-13:2008/Cor.1:2010.

A list of all parts in the ISO/IEC 9075 series, published under the general title *Information technology — Database languages — SQL*, can be found on the ISO website.

NOTE The individual parts of multi-part standards are not necessarily published together. New editions of one or more parts can be published without publication of new editions of other parts.

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 Java routines and types.
- 5) **Clause 5, “Lexical elements”**, defines a number of lexical elements used in the definition of Java routines and types.
- 6) **Clause 6, “Scalar expressions”**, defines the elements of the language that produce scalar values.
- 7) **Clause 7, “Predicates”**, defines the predicates of the language.
- 8) **Clause 9, “Additional common elements”**, defines additional language elements that are used in various parts of the language.
- 9) **Clause 10, “Schema definition and manipulation”**, defines the schema definition and manipulation statements associated with the definition of Java routines and types.
- 10) **Clause 11, “Access control”**, defines facilities for controlling access to SQL-data.
- 11) **Clause 12, “Built-in procedures”**, defines new built-in procedures used in the definition of Java routines and types.
- 12) **Clause 13, “Java topics”**, defines the facilities supported by implementations of this part of ISO/IEC 9075 and the conventions used in deployment descriptor files.
- 13) **Clause 14, “Information Schema”**, defines viewed tables that contain schema information.
- 14) **Clause 15, “Definition Schema”**, defines base tables on which the viewed tables containing schema information depend.
- 15) **Clause 16, “Status codes”**, defines SQLSTATE values related to Java routines and types.
- 16) **Clause 17, “Conformance”**, defines the criteria for conformance to this part of ISO/IEC 9075.
- 17) **Annex A, “SQL Conformance Summary”**, is an informative Annex. It summarizes the conformance requirements of the SQL language.
- 18) **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.
- 19) **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.

- 20) **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.
- 21) **Annex E, “Incompatibilities with ISO/IEC 9075:2011 and 9075:2008”**, is an informative Annex. It lists incompatibilities with the previous version of this part of ISO/IEC 9075.
- 22) **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.
- 23) **Annex G, “Defect reports not addressed in this edition of this part 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. 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 17, “Conformance”**, Subclauses begin a new page. Any resulting blank space is not significant.

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Information technology — Database languages — SQL —**Part 13:****SQL Routines and Types Using the Java™ Programming Language (SQL/JRT)****1 Scope**

This part of ISO/IEC 9075 specifies the ability to invoke static methods written in the Java™ programming language as SQL-invoked routines and to use classes defined in the Java programming language as SQL structured user-defined types. (Java is a registered trademark of Oracle Corporation and/or its affiliates.)

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2 Normative references

The following referenced documents are indispensable for the application 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.

2.1 ISO and IEC standards

[ISO9075-1] ISO/IEC 9075-1:2016, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*.

[ISO9075-2] ISO/IEC 9075-2:2016, *Information technology — Database languages — SQL — Part 2: Foundation (SQL/Foundation)*.

[ISO9075-10] ISO/IEC 9075-10:2016, *Information technology — Database languages — SQL — Part 10: Object Language Bindings (SQL/OLB)*.

[ISO9075-11] ISO/IEC 9075-11:2016, *Information technology — Database languages — SQL — Part 11: Information and Definition Schemas (SQL/Schemata)*.

2.2 Other international standards

[JLS] *The Java™ Language Specification, Java SE 7 Edition*.
<http://docs.oracle.com/javase/specs/jls/se7/jls7.pdf>.

[JVM] *The Java™ Virtual Machine Specification, Java SE 7 Edition*.
<http://docs.oracle.com/javase/specs/jvms/se7/jvms7.pdf>.

[JavaAPI] *Java™ Platform Standard Edition 7 API Specification*,
<http://docs.oracle.com/javase/7/docs/api/index.html>.

[JavaSerialization] *Java™ Object Serialization Specification*.
<http://docs.oracle.com/javase/7/docs/platform/serialization/spec/serialTOC.html>.

[JDBC] *JDBC™ 4.1 Specification*
http://download.oracle.com/otn-pub/jcp/jdbc-4_1-mrel-spec/jdbc4.1-fr-spec.pdf.