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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

Tables

Table

Page

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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`.

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3 Definitions, notations, and conventions

This Clause modifies Clause 3, "Definitions, notations, and conventions", in ISO/IEC 9075-2.

3.1 Definitions

This Subclause modifies Subclause 3.1, "Definitions", in ISO/IEC 9075-2.

3.1.1 Definitions taken from [JLS]

For the purposes of this document, the definitions of the following terms given in [JLS] apply.

3.1.1.1 block

3.1.1.2 class declaration

3.1.1.3 class instance

3.1.1.4 class variable

3.1.1.5 field

3.1.1.6 instance initializer

3.1.1.7 instance variable

3.1.1.8 interface

3.1.1.9 local variable

3.1.1.10 nested class

3.1.1.11 package

3.1.1.12 static initializer

3.1.1.13 subpackage

3.1.2 Definitions taken from [JVM]

For the purposes of this document, the definitions of the following terms given in [JVM] apply.

3.1.2.1 class file

3.1.2.2 Java Virtual Machine