INTERNATIONAL STANDARD ISO/IEC 9075-4:2016
TECHNICAL CORRIGENDUM 2

Published 2022-06

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — Database languages — SQL — Part 4: Persistent stored modules (SQL/PSM)

TECHNICAL CORRIGENDUM 2

Technologies de l'information — Langages de base de données — SQL — Partie 4: Modules stockés persistants (SQL/PSM)

RECTIFICATIF TECHNIQUE 2

Technical Corrigendum 2 to ISO/IEC 9075-4:2016 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

ICS 35.060 **Ref. No. ISO/IEC 9075-4:2016/Cor.2:2022(E)**

Published in Switzerland

4 Concepts

4.1 SQL-server modules

1. *Rationale: Clarify the precision of timestamps.*

   Replace the 9th bullet of the 5th paragraph with:

   — The creation timestamp, of an implementation-defined timestamp type.

5 Lexical elements

5.2 Names and identifiers

1. *Rationale: Add missing condition.*

   Replace the lead text of Syntax Rule 5) b) with:

   5) ...

      b) If *UDTN* is simply contained in <schema-resolved user-defined type name> and *UDTN* does not contain a <schema name>, then

         Case:

9 Additional common elements

9.1 <routine invocation>

1. *Rationale: Supply the correct arguments.*

   Replace Syntax Rule 4) with:

   4) Replace SR 9)h)iii)5) If XA_i is an <SQL variable reference>, an <SQL parameter reference>, a <column reference>, or a <target array element specification>, then the Syntax Rules of Subclause 9.2, "Store assignment", in ISO/IEC 9075-2, are applied with XA_i as *TARGET* and P_i as *VALUE*.

      NOTE 11 — The <column reference> can only be a new transition variable column reference.

11 Access control

11.2 <privileges>

1. *Rationale: Replace the use of "may" and clarify.*

   Replace Syntax Rule 1) with:

1) Insert after SR 4)d) If the object identified by *ON* is an SQL-server module, then *AC* shall specify EXECUTE.

NOTE 2 — The Rule number above is the one after the application of the TC for SQL/Foundation.

11.3 <revoke statement>

1. *Rationale: Add missing containers of subject routines.*

Replace General Rule 8) with:

8) Insert after GR 29)a) EXECUTE privilege on every SQL-server module that includes one or more SQL-invoked routines that are among the subject routines of a <routine invocation>, <method invocation>, <static method invocation>, or <method reference> that is contained in the <SQL routine body> of *RD* or in the <parameter default> of any SQL parameter of *RD*.

2. *Rationale: Add missing containers of subject routines.*

Replace General Rules 9) a) and b) with:

9) ...

a) EXECUTE privilege on every schema-level routine that is among the subject routines of a <routine invocation>, <method invocation>, <static method invocation>, or <method reference> that is contained in the <SQL routine body> of any SQL-invoked routine included in *SSM*.

b) EXECUTE privilege on every SQL-server module that includes one or more SQL-invoked routines that are among the subject routines of a <routine invocation>, <method invocation>, <static method invocation>, or <method reference> that is contained in the <SQL routine body> of any SQL-invoked routine included in *SSM*.

3. *Rationale: Use the correct BNF terms.*

Replace General Rule 9) e) with:

9) ...

e) SELECT privilege on at least one column of each table identified by a <table reference> contained in a <search condition> contained in a <delete statement: searched>, an <update statement: searched>, or a <merge statement> contained in the <SQL routine body> of any SQL-invoked routine with an SQL security characteristic of DEFINER included in *SSM*.

12 SQL-client modules

12.2 <SQL procedure statement>

1. *Rationale: Address the case where there is no most appropriate handler.*

Replace General Rule 3) with:

3) Insert before GR 21) If *S* did not execute successfully, then

   a) Let *SST* be the value of the SQLSTATE associated with the unsuccessful execution of *S*.

   b) If a handler *MAH* is the most appropriate handler for *SST*, then then the General Rules of Subclause 8.1, "Handler execution", are applied with *MAH* as *MOST APPROPRIATE HANDLER*.

   c) If no handler is activated and *SST* identifies an SQLSTATE value associated with an exception condition *EC*, then this is an unhandled exception condition and the <SQL procedure statement> that resulted in execution of *S* is terminated with the exception condition *EC*.

NOTE 3 — The General Rules of Subclause 15.2, "<handler declaration>" determine which handler will be invoked for the current condition.

15 Control statements

15.10 <loop statement>

1. *Rationale: Reinstate the repetition.*

   Replace General Rule 1) with:

   1) Let *SSL* be the <SQL statement list> and let *CCS* be the <compound statement>

      ```
      BEGIN NOT ATOMIC SSL END
      ```

      The General Rules of Subclause 13.4, "<SQL procedure statement>", in ISO/IEC 9075-2, are applied with *CCS* as *EXECUTING STATEMENT*, repeatedly.

NOTE 26 — The occurrence of an exception condition or the execution of a <leave statement> may also cause execution of *LS* to be terminated; see Subclause 6.3.3.7, "Exceptions", in ISO/IEC 9075-1, and Subclause 15.9, "<leave statement>", respectively. Some actions taken by a condition handler might also cause execution of *LS* to be terminated; see Subclause 15.2, "<handler declaration>".

19 Information Schema

19.4 MODULES view

1. *Rationale: Correct column name.*

   Replace Conformance Rule 3) with:

   3) Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall not reference INFORMATION_SCHEMA.MODULES.CREATED.

2. *Rationale: Delete reference to non-existent column.*

   Delete Conformance Rule 4).

