
**Information technology — Database
languages SQL —**

**Part 14:
XML-Related Specifications (SQL/
XML)**

*Technologies de l'information — Langages de base de données SQL —
Partie 14: Spécifications relatives au XML (SQL/XML)*





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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Contents	Page
Foreword.....	ix
Introduction.....	xi
1 Scope.....	1
2 Normative references.....	2
3 Terms and definitions.....	4
4 Concepts.....	14
4.1 Notations and conventions.....	14
4.1.1 Notations.....	14
4.1.2 XML-related notations.....	14
4.2 Data types.....	15
4.2.1 Naming of predefined types.....	15
4.2.2 Data type terminology.....	16
4.3 XML.....	16
4.3.1 Introduction.....	16
4.3.2 XML types.....	16
4.3.3 Characteristics of XML values.....	17
4.3.4 XML comparison and assignment.....	18
4.3.5 Operations involving XML values.....	18
4.3.6 Registered XML schemas.....	20
4.4 Data conversions.....	21
4.5 Data analysis operations.....	22
4.5.1 Aggregate functions.....	22
4.6 SQL-invoked routines.....	22
4.6.1 Routine descriptors.....	22
4.7 SQL-statements.....	23
4.7.1 SQL-statements classified by function.....	23
4.7.1.1 SQL-session statements.....	23
4.8 Basic security model.....	23
4.8.1 Privileges.....	23
4.9 SQL-sessions.....	23
4.9.1 SQL-session properties.....	23
4.10 XML namespaces.....	24
4.11 Overview of mappings.....	24
4.11.1 Introduction to mappings.....	24
4.11.2 Mapping SQL character sets to Unicode.....	25
4.11.3 Mapping Unicode to SQL character sets.....	25
4.11.4 Mapping SQL <identifier>s to XML.....	25
4.11.5 Mapping XML names to SQL.....	25

4.11.6	Mapping SQL data types to XML	26
4.11.7	Mapping values of SQL data types to XML	27
4.11.8	Mapping XQuery atomic values to SQL values	28
4.11.9	Visibility of columns, tables, and schemas in mappings from SQL to XML	29
4.11.10	Mapping an SQL table to XML	29
4.11.11	Mapping an SQL schema to XML	30
4.11.12	Mapping an SQL catalog to XML	30
5	Lexical elements	32
5.1	<token> and <separator>	32
5.2	<literal>	34
5.3	Names and identifiers	35
6	Scalar expressions	36
6.1	<data type>	36
6.2	<field definition>	39
6.3	<value expression primary>	40
6.4	<value specification> and <target specification>	41
6.5	<case expression>	42
6.6	<cast specification>	43
6.7	<XML cast specification>	46
6.8	<value expression>	54
6.9	<string value function>	55
6.10	<XML value expression>	60
6.11	<XML value function>	61
6.12	<XML comment>	62
6.13	<XML concatenation>	64
6.14	<XML document>	66
6.15	<XML element>	68
6.16	<XML forest>	72
6.17	<XML parse>	75
6.18	<XML PI>	77
6.19	<XML query>	80
6.20	<XML text>	86
6.21	<XML validate>	88
7	Query expressions	93
7.1	<table reference>	93
7.2	<query expression>	97
8	Predicates	98
8.1	<predicate>	98
8.2	<XML content predicate>	99
8.3	<XML document predicate>	100
8.4	<XML exists predicate>	102
8.5	<XML valid predicate>	103
9	Mappings	108
9.1	Mapping SQL <identifier>s to XML names	108
9.2	Mapping a multi-part SQL name to an XML name	111
9.3	Mapping XML names to SQL <identifier>s	113

9.4	Mapping an SQL data type to an XML name.	115
9.5	Mapping SQL data types to XML schema data types.	120
9.6	Mapping an SQL data type to a named XML schema data type.	139
9.7	Mapping a collection of SQL data types to XML schema data types.	142
9.8	Mapping values of SQL data types to values of XML schema data types.	144
9.9	Mapping an SQL table to XML schema data types.	150
9.10	Mapping an SQL table to an XML element or a sequence of XML elements.	154
9.11	Mapping an SQL table to XML and an XML schema document.	158
9.12	Mapping an SQL schema to XML schema data types.	163
9.13	Mapping an SQL schema to an XML element.	166
9.14	Mapping an SQL schema to an XML document and an XML schema document.	169
9.15	Mapping an SQL catalog to XML schema data types.	174
9.16	Mapping an SQL catalog to an XML element.	176
9.17	Mapping an SQL catalog to an XML document and an XML schema document.	179
10	Additional common rules.	184
10.1	Retrieval assignment.	184
10.2	Store assignment.	186
10.3	Result of data type combinations.	188
10.4	Type precedence list determination.	190
10.5	Type name determination.	191
10.6	Determination of identical values.	192
10.7	Determination of equivalent XML values.	193
10.8	Equality operations.	196
10.9	Grouping operations.	197
10.10	Multiset element grouping operations.	198
10.11	Ordering operations.	199
10.12	Potential sources of non-determinism.	200
10.13	Invoking an SQL-invoked routine.	202
10.14	Determination of namespace URI.	205
10.15	Construction of an XML element.	207
10.16	Concatenation of two XML values.	210
10.17	Serialization of an XML value.	211
10.18	Parsing a string as an XML value.	216
10.19	Removing XQuery document nodes from an XQuery sequence.	220
10.20	Constructing a copy of an XML value.	222
10.21	Constructing an unvalidated XQuery document node.	223
10.22	Creation of an XQuery expression context.	224
10.23	Determination of an XQuery formal type notation.	227
10.24	Validating an XQuery document or element node.	230
11	Additional common elements.	232
11.1	<aggregate function>.	232
11.2	<XML lexically scoped options>.	235
11.3	<XML returning clause>.	237
11.4	<XML passing mechanism>.	238
11.5	<XML valid according to clause>.	239
12	Schema definition and manipulation.	242

12.1	<column definition>.....	242
12.2	<check constraint definition>.....	244
12.3	<alter column data type clause>.....	245
12.4	<view definition>.....	246
12.5	<assertion definition>.....	248
12.6	<user-defined type definition>.....	249
12.7	<attribute definition>.....	250
12.8	<SQL-invoked routine>.....	251
12.9	<user-defined cast definition>.....	255
13	SQL-client modules.....	256
13.1	<externally-invoked procedure>.....	256
13.2	<SQL procedure statement>.....	258
13.3	Data type correspondences.....	259
14	Data manipulation.....	261
14.1	<fetch statement>.....	261
14.2	<select statement: single row>.....	263
14.3	<delete statement: searched>.....	265
14.4	<insert statement>.....	266
14.5	<merge statement>.....	267
14.6	<update statement: positioned>.....	268
14.7	<update statement: searched>.....	269
15	Control statements.....	270
15.1	<compound statement>.....	270
15.2	<assignment statement>.....	272
16	Session management.....	274
16.1	<set XML option statement>.....	274
17	Dynamic SQL.....	275
17.1	Description of SQL descriptor areas.....	275
17.2	<input using clause>.....	276
17.3	<output using clause>.....	277
17.4	<prepare statement>.....	278
18	Embedded SQL.....	279
18.1	<embedded SQL host program>.....	279
18.2	<embedded SQL Ada program>.....	284
18.3	<embedded SQL C program>.....	287
18.4	<embedded SQL COBOL program>.....	291
18.5	<embedded SQL Fortran program>.....	294
18.6	<embedded SQL Pascal program>.....	297
18.7	<embedded SQL PL/I program>.....	300
19	Call-Level Interface specifications.....	304
19.1	SQL/CLI data type correspondences.....	304
20	Diagnostics management.....	306
20.1	<get diagnostics statement>.....	306
21	Information Schema.....	307
21.1	Information Schema digital artifact.....	307

21.2	NCNAME domain.....	307
21.3	URI domain.....	308
21.4	ATTRIBUTES view.....	309
21.5	COLUMNS view.....	310
21.6	DOMAINS view.....	311
21.7	ELEMENT_TYPES view.....	312
21.8	FIELDS view.....	313
21.9	METHOD_SPECIFICATION_PARAMETERS view.....	314
21.10	METHOD_SPECIFICATIONS view.....	315
21.11	PARAMETERS view.....	316
21.12	ROUTINES view.....	318
21.13	XML_SCHEMA_ELEMENTS view.....	320
21.14	XML_SCHEMA_NAMESPACES view.....	321
21.15	XML_SCHEMAS view.....	322
21.16	Short name views.....	323
22	Definition Schema.....	333
22.1	Definition Schema digital artifact.....	333
22.2	DATA_TYPE_DESCRIPTOR base table.....	333
22.3	PARAMETERS base table.....	339
22.4	ROUTINES base table.....	341
22.5	USAGE_PRIVILEGES base table.....	343
22.6	XML_SCHEMA_ELEMENTS base table.....	344
22.7	XML_SCHEMA_NAMESPACES base table.....	346
22.8	XML_SCHEMAS base table.....	347
23	SQL/XML XML schema.....	349
24	Status codes.....	353
24.1	SQLSTATE.....	353
25	Conformance.....	355
25.1	Claims of conformance to SQL/XML.....	355
25.2	Additional conformance requirements for SQL/XML.....	356
25.3	Implied feature relationships of SQL/XML.....	357
Annex A	(informative) SQL conformance summary.....	365
Annex B	(informative) Implementation-defined elements.....	402
Annex C	(informative) Implementation-dependent elements.....	417
Annex D	(informative) SQL optional feature taxonomy.....	419
Annex E	(informative) Deprecated features.....	425
Annex F	(informative) Incompatibilities with ISO/IEC 9075:2016.....	426
Annex G	(informative) Defect Reports not addressed in this document.....	427
Bibliography	428
Index	429

Tables

Table	Page	
1	Permanently registered XML schemas.	21
2	XML namespace prefixes and their URIs.	24
3	Constraining facets of XML schema integer types.	126
4	XQuery node properties.	194
5	Data type correspondences for Ada.	259
6	Data type correspondences for C.	259
7	Data type correspondences for COBOL.	259
8	Data type correspondences for Fortran.	259
9	Data type correspondences for M.	260
10	Data type correspondences for Pascal.	260
11	Data type correspondences for PL/I.	260
12	Codes used for SQL data types in Dynamic SQL.	275
13	SQL/CLI data type correspondences for Ada.	304
14	SQL/CLI data type correspondences for C.	304
15	SQL/CLI data type correspondences for COBOL.	304
16	SQL/CLI data type correspondences for Fortran.	305
17	SQL/CLI data type correspondences for M.	305
18	SQL/CLI data type correspondences for Pascal.	305
19	SQL/CLI data type correspondences for PL/I.	305
20	SQL-statement codes.	306
21	SQLSTATE class and subclass codes.	353
22	Implied feature relationships of SQL/XML.	357
A.1	Feature definitions outside of Conformance Rules.	365
D.1	Feature taxonomy for optional features.	419

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.

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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC have not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This sixth edition cancels and replaces the fifth edition (ISO/IEC 9075-14:2016), which has been technically revised. It also incorporates the Technical Corrigenda ISO/IEC 9075-14:2016/Cor.1:2019 and ISO/IEC 9075-14:2016/Cor.2:2022.

The main changes are as follows:

- improve the presentation and accuracy of the summaries of implementation-defined and implementation-dependent aspects of this document;
- introduction of several digital artifacts;
- alignment with updated ISO house style and other guidelines for creating standards.

ISO/IEC 9075-14:2023(E)

This sixth edition of ISO/IEC 9075-14 is designed to be used in conjunction with the following editions of other parts of the ISO/IEC 9075 series, all published in 2023:

- ISO/IEC 9075-1, sixth edition;
- ISO/IEC 9075-2, sixth edition;
- ISO/IEC 9075-3, sixth edition;
- ISO/IEC 9075-4, seventh edition;
- ISO/IEC 9075-9, fifth edition;
- ISO/IEC 9075-10, fifth edition;
- ISO/IEC 9075-11, fifth edition;
- ISO/IEC 9075-13, fifth edition;
- ISO/IEC 9075-15, second edition;
- ISO/IEC 9075-16, first edition.

A list of all parts in the ISO/IEC 9075 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

The organization of this document is as follows:

- 1) Clause 1, “Scope”, specifies the scope of this document.
- 2) Clause 2, “Normative references”, identifies additional standards that, through reference in this document, constitute provisions of this document.
- 3) Clause 3, “Terms and definitions”, defines the terms and definitions used in this document.
- 4) Clause 4, “Concepts”, presents concepts related to this document.
- 5) Clause 5, “Lexical elements”, defines the lexical elements of the language.
- 6) Clause 6, “Scalar expressions”, defines the elements of the language that produce scalar values.
- 7) Clause 7, “Query expressions”, defines the elements of the language that produce rows and tables of data.
- 8) Clause 8, “Predicates”, defines the predicates of the language.
- 9) Clause 9, “Mappings”, defines the ways in which certain SQL information can be mapped into XML and certain XML information can be mapped into SQL.
- 10) Clause 10, “Additional common rules”, specifies the rules for assignments that retrieve data from or store data into SQL-data, and formation rules for set operations.
- 11) Clause 11, “Additional common elements”, defines additional language elements that are used in various parts of the language.
- 12) Clause 12, “Schema definition and manipulation”, defines facilities for creating and managing a schema.
- 13) Clause 13, “SQL-client modules”, defines SQL-client modules and externally-invoked procedures.
- 14) Clause 14, “Data manipulation”, defines the data manipulation statements.
- 15) Clause 15, “Control statements”, defines the SQL-control statements.
- 16) Clause 16, “Session management”, defines the SQL-session management statements.
- 17) Clause 17, “Dynamic SQL”, defines the SQL dynamic statements.
- 18) Clause 18, “Embedded SQL”, defines the host language embeddings.
- 19) Clause 19, “Call-Level Interface specifications”,
- 20) Clause 20, “Diagnostics management”, defines the diagnostics management facilities.
- 21) Clause 21, “Information Schema”, defines viewed tables that contain schema information.
- 22) Clause 22, “Definition Schema”, defines base tables on which the viewed tables containing schema information depend.
- 23) Clause 23, “SQL/XML XML schema”, defines the content of an XML namespace that is used when SQL and XML are utilized together.
- 24) Clause 24, “Status codes”, defines values that identify the status of the execution of SQL-statements and the mechanisms by which those values are returned.
- 25) Clause 25, “Conformance”, specifies the way in which conformance to this document may be claimed.

- 26) [Annex A, “SQL conformance summary”](#), is an informative Annex. It summarizes the conformance requirements of the SQL language.
- 27) [Annex B, “Implementation-defined elements”](#), is an informative Annex. It lists those features for which the body of this document states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or other aspect is partly or wholly implementation-defined.
- 28) [Annex C, “Implementation-dependent elements”](#), is an informative Annex. It lists those features for which the body of this document states that the syntax, the meaning, the returned results, the effect on SQL-data and/or schemas, or other aspect is partly or wholly implementation-dependent.
- 29) [Annex D, “SQL optional feature taxonomy”](#), is an informative Annex. It identifies the optional features of the SQL language specified in this document by an identifier and a short descriptive name. This taxonomy is used to specify conformance.
- 30) [Annex E, “Deprecated features”](#), is an informative Annex. It lists features that the responsible Technical Committee intends not to include in a future edition of this document.
- 31) [Annex F, “Incompatibilities with ISO/IEC 9075:2016”](#), is an informative Annex. It lists incompatibilities with the previous edition of this document.
- 32) [Annex G, “Defect Reports not addressed in this document”](#), is an informative Annex. It describes the Defect Reports that were known at the time of publication of this document. Each of these problems is a problem carried forward from the previous edition of the ISO/IEC 9075 series. No new problems have been created in the drafting of this edition of this document.

In the text of this document, in [Clause 5, “Lexical elements”](#), through [Clause 25, “Conformance”](#), Subclauses begin new pages. Any resulting blank space is not significant.

Information technology — Database language SQL —

Part 14:

XML-Related Specifications (SQL/XML)

1 Scope

This document defines ways in which Database Language SQL can be used in conjunction with XML.

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.^{1 2}

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 9075-3, *Information technology — Database languages — SQL — Part 3: Call-Level Interface (SQL/CLI)*

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

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

W3C Canonical XML 1.1 *Canonical XML, W3C Recommendation*. Edited by: Boyer, John; Marcy, Glenn
2 May 2008

Available at: <https://www.w3.org/TR/xml-c14n>

W3C XML Information Set *XML Information Set, W3C Recommendation*.. Edited by: Cowan, John; Tobin, Richard
4 February 2004

Available at: <https://www.w3.org/TR/xml-infoset>

W3C XML Namespaces *XML Namespaces is used to reference either Namespaces in XML 1.0 or Namespaces in XML 1.1 when there is no significant difference between the two for the purposes of a given citation*

W3C Namespaces in XML 1.0 *Namespaces in XML 1.0, W3C Recommendation*. Edited by: Bray, Tim, et al.
8 December 2009

Available at: <https://www.w3.org/TR/xml-names>

W3C Namespaces in XML 1.1 *Namespaces in XML 1.1, W3C Recommendation*. Edited by: Bray, Tim, et al.
16 August 2006

Available at: <https://www.w3.org/TR/xml-names11>

Internet Engineering Task Force (IETF) RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*. Edited by: Berners-Lee, T., Fielding, R., Masinter, L.
January 2005

Available at: <https://www.ietf.org/rfc/rfc3986.txt>

W3C XML Schema Part 1: Structures *XML Schema Part 1: Structures, W3C Recommendation*. Edited by: Thompson, Henry S et al.
28 October 2004

Available at: <https://www.w3.org/TR/xmlschema-1/>

W3C XML Schema Part 2: Datatypes *XML Schema Part 2: Datatypes, W3C Recommendation*. Edited by: Biron, Paul V.; Malhotra, Ashok
28 October 2004

Available at: <https://www.w3.org/TR/xmlschema-2/>

¹ XML Namespaces is used to reference either [Namespaces in XML 1.0](#) or [Namespaces in XML 1.1](#) when there is no significant difference between the two for the purposes of a given citation.

² XML is used to reference either [XML 1.0](#) or [XML 1.1](#) when there is no significant difference between the two for the purposes of a given citation.

W3C XSLT and XQuery Serialization 3.1 *XSLT and XQuery Serialization 3.1, W3C Recommendation*. Edited by: Coleman Andrew; Sperberg-McQueen, C M. 21 March 2017
Available at: <https://www.w3.org/TR/xslt-xquery-serialization-31/>

The Unicode Consortium. *The Unicode Standard (Information about the latest version of the Unicode standard can be found by using the "Latest Version" link on the "Enumerated Versions of The Unicode Standard" page.)* [online]. Mountain View, California, USA: The Unicode Consortium, Available at <https://www.unicode.org/versions/enumeratedversions.html>

W3C Unicode in XML and Other Markup Languages *Unicode in XML and Other Markup Languages, W3C Working Group Note*. Edited by: Phillips, Addison 13 July 2017
Available at: <https://www.w3.org/TR/unicode-xml/>

XML is used to reference either XML 1.0 or XML 1.1 when there is no significant difference between the two for the purposes of a given citation . [Place of publication unknown]:

W3C XML 1.0 *Extensible Markup Language (XML) Version 1.0, W3C Recommendation*. Edited by: Bray, Tim et al. 26 November 2008, revised 7 February 2013
Available at: <https://www.w3.org/TR/xml>

W3C XML 1.1 *Extensible Markup Language (XML) Version 1.1, W3C Recommendation*. Edited by: Bray, Tim et al. 16 August 2006, revised 29 September 2006
Available at: <https://www.w3.org/TR/xml11>

W3C XML Path Language (XPath) 3.1 *XML Path Language (XPath) 3.1, W3C Recommendation*. Edited by: Robie, J; Dyck, M; & Spiegel, J. 21 March 2017
Available at: <https://www.w3.org/TR/xpath-31/>

W3C XQuery 3.1: an XML Query Language *XQuery 3.1: an XML Query Language, W3C Recommendation*. Edited by: Robie, J; Dyck, M; & Spiegel, J. 21 March 2017
Available at: <https://www.w3.org/TR/xquery-31/>

W3C XQuery and XPath Data Model 3.1 *XQuery and XPath Data Model 3.1, W3C Recommendation*. Edited by: Walsh, N.; Snelson, J.; & Coleman, A. 21 March 2017
Available at: <https://www.w3.org/TR/xpath-datamodel/>

W3C XQuery and XPath Functions and Operators 3.1 *XQuery and XPath Functions and Operators 3.1, W3C Recommendation*. Edited by: Malhotra, Ashok et al. 21 March 2017
Available at: <https://www.w3.org/TR/xpath-functions/>

W3C XQuery 1.0 and XPath 2.0 Formal Semantics *XQuery 1.0 and XPath 2.0 Formal Semantics, W3C Recommendation*. Edited by: Draper, Denise, et al. 14 December 2010, revised 7 September 2015
Available at: <https://www.w3.org/TR/xquery-semantics/>

W3C XQuery Update Facility 1.0 *XQuery Update Facility 1.0, W3C Recommendation*. Edited by: Robie, Jonathan et al. 17 March 2011
Available at: <https://www.w3.org/TR/xquery-update-10/>