

[MS-TSQLISO03]:

SQL Server Transact-SQL ISO/IEC 9075-3 Standards Support Document

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1 Introduction

SQL Server Transact-SQL ISO/IEC 9075-3 Standards Support Document describes the level of support that is provided by Transact-SQL in both Microsoft SQL Server 2008 R2 and Microsoft SQL Server 2012 for Part 3: Call-Level Interface (SQL/CLI) of the 2008 version of the SQL language ISO/IEC 9075 international standard specification.

The **Transact-SQL** language is a procedural extension of the SQL database programming language as implemented by Microsoft [\[MSDN-Transact-SQLRef\]](#). Transact-SQL supports and extends ANSI SQL. The Transact-SQL dialect is based on International Standard ISO/IEC 9075.

At the time of first release of [MS-TSQLISO03], ISO/IEC 9075-3:2008 was the most current version of Part 3.

1.1 Glossary

This document uses the following terms:

Transact-SQL: The Microsoft proprietary version of SQL, the structured query language.

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as defined in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

[ISO/IEC9075-3:2008] ISO/IEC, "Information technology — Database languages — SQL — Part 3: Call-Level Interface (SQL/CLI)", ISO/IEC 9075-3:2008, July 2008, <https://webstore.iec.ch/publication/11780>

Note There is a charge to download the specification.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <https://www.rfc-editor.org/rfc/rfc2119.html>

1.2.2 Informative References

[MSDN-Transact-SQLRef] Microsoft Corporation, "Transact-SQL Reference (Database Engine)", <https://learn.microsoft.com/en-us/sql/t-sql/language-reference>

1.3 Microsoft Implementations

SQL Server 2008 R2

SQL Server 2012

1.4 Standards Support Requirements

An SQL implementation that is fully compliant with the SQL standards implements all mandatory features and optionally implements any optional features. For Part 3 of the standards (International Standard ISO/IEC 9075), the normative variations from mandatory features are listed in [Mandatory Features \(section 2.1.1\)](#) and the normative variations from optional features are listed in [Optional Features \(section 2.1.2\)](#).

This document covers Transact-SQL alignment with normative statements in the ISO/IEC standard. This document does not include:

- Clarifications of ambiguity in the target specification.
- Intended points of variability in the target specification, such as the use of MAY, SHOULD, or RECOMMENDED.
- The use of extensibility points, such as optional implementation-specific data.

The following table lists the sections of [\[ISO/IEC9075-3:2008\]](#) that are considered normative and that are considered informative.

Section	Normative/Informative
1 - 3	Informative
4 - 10	Normative
Appendices A - I	Informative

1.5 Notation

The following notations are used to identify clarifications in the [Standards Support Statements \(section 2\)](#).

Notation	Explanation
C####	This notation identifies a clarification of ambiguity in the target specification. This includes imprecise statements, omitted information, discrepancies, and errata. This does not include data formatting clarifications.
V####	This notation identifies an intended point of variability in the target specification, such as the use of MAY, SHOULD, or RECOMMENDED. This does not include extensibility points.
E####	Because the use of extensibility points (such as optional implementation-specific data) could impair interoperability, this notation identifies such points in the target specification.

2 Standards Support Statements

2.1 Normative Variations

The following subsections detail the normative variations in **Transact-SQL** from [\[ISO/IEC9075-3:2008\]](#).

2.1.1 Mandatory Features

2.1.1.1 C011, All facilities defined by this part of ISO/IEC 9075

V0001:

The specification states the following:

```
Subclause 5.1, "<CLI routine>":

<CLI routine> ::=
  <CLI routine name> <CLI parameter list> [ <CLI returns clause> ]

<CLI routine name> ::=
  <CLI name prefix><CLI generic name>

<CLI name prefix> ::=
  <CLI by-reference prefix>
  | <CLI by-value prefix>

<CLI by-reference prefix> ::=
  SQLR

<CLI by-value prefix> ::=
  SQL

<CLI generic name> ::=
  AllocConnect
  | AllocEnv
  | AllocHandle
  | AllocStmt
  | BindCol
  | BindParameter
  | Cancel
  | CloseCursor
  | ColAttribute
  | ColumnPrivileges
  | Columns
  | Connect
  | CopyDesc
  | DataSources
  | DescribeCol
  | Disconnect
  | EndTran
  | Error
  | ExecDirect
  | Execute
  | Fetch
  | FetchScroll
  | ForeignKeys
  | FreeConnect
  | FreeEnv
  | FreeHandle
  | FreeStmt
  | GetConnectAttr
  | GetCursorName
```

```

| GetData
| GetDescField
| GetDescRec
| GetDiagField
| GetDiagRec
| GetEnvAttr
| GetFeatureInfo
| GetFunctions
| GetInfo
| GetLength
| GetParamData
| GetPosition
| GetSessionInfo
| GetStmtAttr
| GetSubString
| GetTypeInfo
| MoreResults
| NextResult
| NumResultCols
| ParamData
| Prepare
| PrimaryKeys
| PutData
| RowCount
| SetConnectAttr
| SetCursorName
| SetDescField
| SetDescRec
| SetEnvAttr
| SetStmtAttr
| SpecialColumns
| StartTran
| TablePrivileges
| Tables
| <implementation-defined CLI generic name>

<CLI parameter list> ::=
  <left paren> <CLI parameter declaration>
    [ { <comma> <CLI parameter declaration> }... ] <right paren>

<CLI parameter declaration> ::=
  <CLI parameter name> <CLI parameter mode> <CLI parameter data type>

<CLI parameter name> ::=
  !! See the individual CLI routine definitions

<CLI parameter mode> ::=
  IN
| OUT
| DEFIN
| DEFOUT
| DEF

<CLI parameter data type> ::=
  INTEGER
| SMALLINT
| ANY
| CHARACTER <left paren> <length> <right paren>

<CLI returns clause> ::=
  RETURNS SMALLINT

<implementation-defined CLI generic name> ::=
  !! See the Syntax Rules

```

Microsoft SQL Server 2008 R2 and Microsoft SQL Server 2012 vary as follows:

Transact-SQL partially supports this feature. Transact-SQL supports feature C002, "CLI routine invocation in C", but does not support any other feature in the range C001 through C007.

2.1.2 Optional Features

The standard [\[ISO/IEC9075-3:2008\]](#) does not specify any optional features.

2.2 Clarifications

Unless otherwise specified, the specified product conforms to all SHOULD and RECOMMENDED behavior in [\[ISO/IEC9075-3:2008\]](#).

2.3 Error Handling

None.

2.4 Security

None.

3 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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