[MS-TSQLISO11]:
SQL Server Transact-SQL ISO/IEC 9075-11 Standards Support Document

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Revision Summary

Date	Revision History	Revision Class	Comments
06/29/2012	1.0	New	Released new document.
07/16/2012	1.0	No change	No changes to the meaning, language, or formatting of the technical content.

Contents

1 Introduction

The SQL Server Transact-SQL ISO/IEC 9075-11 Standards Support Document provides a statement of standards support. It is intended for use in conjunction with the Microsoft technical specifications, publicly available standards specifications, network programming art, and Microsoft distributed systems concepts. It assumes that the reader is either familiar with the aforementioned material or has immediate access to it.

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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 the SQL language specification (International Standard ISO/IEC 9075).

The SQL Server Transact-SQL ISO/IEC 9075-11 Standards Support Document describes the level of support that is provided by Transact-SQL in both SQL Server 2008 R2 and SQL Server 2012 for Part 11: Information and Definition Schemas (SQL/Schemata) of both the [ISO/IEC9075-11:2008] and [ISO/IEC9075-11:2011] specifications. Unless otherwise stated, the specification excerpts are quoted from [ISO/IEC9075-11:2011]. Differences between the [ISO/IEC9075-11:2008] and [ISO/IEC9075-11:2011] excerpts are called out where they occur, unless the difference is minor, such as in subclause renumbering.

1.1 Glossary

The following terms are defined in [MS-RDL]:

join

The following terms are specific to this document:

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

1.2 References

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

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. Please check the archive site, http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624, as an additional source.

[ISO/IEC9075-11:2008] International Organization for Standardization, "Information technology -- Database languages -- SQL -- Part 11: Information and Definition Schemas (SQL/Schemata)", INCITS/ISO/IEC 9075-11:2008, January 2009, http://webstore.ansi.org/RecordDetail.aspx?sku=INCITS%2fISO%2fIEC+9075-11-2008

Note There is a charge to download the specification.

[ISO/IEC9075-11:2011] International Organization for Standardization, "Information technology -- Database languages -- SQL -- Part 11: Information and Definition Schemas (SQL/Schemata)", ISO/IEC 9075-11:2008, December 2011, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=53685

Note There is a charge to download the specification.

[ISO/IEC9075-14:2008] International Organization for Standardization, "Information technology -- Database languages -- SQL -- Part 14: XML-Related Specifications (SQL/XML)", INCITS/ISO/IEC 9075-14:2008, http://webstore.ansi.org/RecordDetail.aspx?sku=INCITS%2fISO%2fIEC+9075-14-2008

Note There is a charge to download the specification.

[ISO/IEC9075-14:2011] International Organization for Standardization, "Information technology -- Database languages -- SQL -- Part 14: XML-Related Specifications (SQL/XML)", ISO/IEC 9075-14:2011, December 2011, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=53686

Note There is a charge to download the specification.

1.2.2 Informative References

[ISO/IEC9075-1:2011] International Organization for Standardization, "Information technology -- Database languages -- SQL -- Part 1: Framework (SQL/Framework)", ISO/IEC 9075-1:2011, December 2011, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=53681

Note There is a charge to download the specification.

[MSDN-Transact-SQLRef] Microsoft Corporation, "Transact-SQL Reference (Database Engine)", http://msdn.microsoft.com/en-us/library/bb510741.aspx

1.3 Microsoft Implementations

Microsoft® SQL Server® 2008 R2

Microsoft® SQL Server® 2012

Transact-SQL

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 11 of the standards (International Standard IS0/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/IEC9075-11:2011] that are considered normative and that are considered informative.

Section(s)	Normative/Informative
1 - 3	Informative
4 - 7	Normative
Appendices A - G	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

This document addresses individual subclauses related to SQL features, not the features themselves. For example, Transact-SQL supports updatable joins, unions, and columns as an SQL feature. However, Transact-SQL does not support this information in the COLUMNS view. Therefore, section 2.1.2.20, T111, Updatable **joins**, unions, and columns, of this document, identifies and describes only the COLUMNS view of Feature T111 ([ISO/IEC9075-11:2011] subclause 5.21) as not supported by Transact-SQL.

See [ISO/IEC9075-1:2011] for the definition of "column".

For more information about how Transact-SQL complies with the SQL features that are detailed in International Standard 9075, consult the corresponding sections in [MS-TSQLISO02].

2.1 Normative Variations

The following subsections detail the normative variations in Transact-SQL from [ISO/IEC9075-11:2008] and [ISO/IEC9075-11:2011], as applicable. .

2.1.1 Mandatory Features

2.1.1.1 F501, Features and conformance views

V0001:

The specification states the following:

```
Subclause 5.56, "SQL_FEATURES view":

Function

List the features and subfeatures of this standard, and indicate which of these the SQL-
implementation supports.

Subclause 5.59, "SQL_SIZING view":

Function

List the sizing items defined in this standard and, for each of these, indicate the size
supported by the SQL-implementation.
```

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

Transact-SQL does not support this feature.

2.1.1.2 F501-01, SQL_FEATURES view

V0002:

The specification states the following:

```
Subclause 5.56, "SQL_FEATURES view":
```

```
Function

List the features and subfeatures of this standard, and indicate which of these the SQL-
implementation supports.
```

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

Transact-SQL does not support this feature.

2.1.1.3 F501-02, SQL_SIZING view

V0003:

The specification states the following:

```
Subclause 5.59, "SQL_SIZING view":

Function

List the sizing items defined in this standard and, for each of these, indicate the size
supported by the SQL-implementation.
```

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

Transact-SQL does not support this feature.

2.1.1.4 S011, Distinct data types

V0004:

The [ISO/IEC 9075-14:2011] specification states the following:

```
Subclause 12.6, "<user-defined type definition>": When <representation> is <predefined type>

Format

<user-defined type definition> ::=
CREATE TYPE <user-defined type body>

<user-defined type body> ::=
<schema-resolved user-defined type name>
[ <subtype clause> ]
[ AS <representation> ]
[ <user-defined type option list> ]
[ <method specification list> ]

...

<representation> ::=
<predefined type>
| <member list>
```

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

Transact-SQL does not support this feature.

2.1.1.5 S011-01, USER_DEFINED_TYPES view

V0005:

The [ISO/IEC9075-14:2008] specification states the following:

```
Subclause 12.8, "<SQL-invoked routine>": If Feature T041, "Basic LOB data type support", is
supported, then the <locator indication> clause shall also be supported

Format

<SQL-invoked routine> ::=
<schema routine>

<schema routine> ::=
<schema procedure>
| <schema function>

<schema procedure> ::=
CREATE <SQL-invoked procedure>

<schema function> ::=
CREATE <SQL-invoked function>

<SQL-invoked procedure> ::=
PROCEDURE <schema qualified routine name> <SQL parameter declaration list>
<routine characteristics>
<routine body>

<SQL-invoked function> ::=
{ <function specification> | <method specification designator> } <routine body>

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

<SQL parameter declaration> ::=
[ <parameter mode> ]
[ <SQL parameter name> ]
<parameter type> [ RESULT ]

...

<parameter mode> ::=
IN
| OUT
| INOUT

<parameter type> ::=
<data type> [ <locator indication> ]

<locator indication> ::=
AS LOCATOR
```

Microsoft® SQL Server® 2008 R2 varies as follows:

Transact-SQL partially supports this feature. Only the ROUTINES and PARAMETERS views are supported.

Microsoft® SQL Server® 2012 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2011] specification.

2.1.1.6 T321, Basic SQL-invoked routines

V0006:

The [ISO/IEC9075-14:2008] specification states the following:

```
Subclause 12.8, "<SQL-invoked routine>": If Feature T041, "Basic LOB data type support", is
supported, then the <locator indication> clause shall also be supported

Format

<SQL-invoked routine> ::=
<schema routine>

<schema routine> ::=
<schema procedure>
| <schema function>

<schema procedure> ::=
CREATE <SQL-invoked procedure>

<schema function> ::=
CREATE <SQL-invoked function>

<SQL-invoked procedure> ::=
PROCEDURE <schema qualified routine name> <SQL parameter declaration list>
<routine characteristics>
<routine body>

<SQL-invoked function> ::=
{ <function specification> | <method specification designator> } <routine body>

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

<SQL parameter declaration> ::=
[ <parameter mode> ]
[ <SQL parameter name> ]
<parameter type> [ RESULT ]

...

<parameter mode> ::=
IN
| OUT
| INOUT

<parameter type> ::=
<data type> [ <locator indication> ]
```

```
<locator indication> ::=
AS LOCATOR
```

Microsoft® SQL Server® 2008 R2 varies as follows:

Transact-SQL partially supports this feature. Only the ROUTINES and PARAMETERS views are supported.

Microsoft® SQL Server® 2012 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2011] specification.

2.1.2 Optional Features

2.1.2.1 F231, Privilege tables

V0007:

The specification states the following:

```
Subclause 5.19, "COLUMN_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_PRIVILEGES.

Function

Identify the privileges on columns of tables defined in this catalog that are available to or
granted by a given user or role.

Subclause 5.25, "DATA_TYPE_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.DATA_TYPE_PRIVILEGES.

Function

Identify those schema objects whose included data type descriptors are accessible to a given
user or role.

Subclause 5.41, "ROLE_COLUMN_GRANTS view":

Without Feature F231, "Privilege tables", and Feature T331, "Basic roles", conforming SQL
language shall not reference INFORMATION_SCHEMA.ROLE_COLUMN_GRANTS.

Function

Identifies the privileges on columns defined in this catalog that are available to or granted
by the currently enabled roles.

Subclause 5.42, "ROLE_ROUTINE_GRANTS view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_ROUTINE_GRANTS.
```

Function

Identify the privileges on SQL-invoked routines defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.43, "ROLE_TABLE_GRANTS view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_TABLE_GRANTS.

Function

Identifies the privileges on tables defined in this catalog that are available to or granted by the currently applicable roles.

Subclause 5.46, "ROLE_UDT_GRANTS view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_UDT_GRANTS.

Function

Identify the privileges on user-defined types defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.49, "ROUTINE_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_PRIVILEGES.

Function

Identify the privileges on SQL-invoked routines defined in this catalog that are available to or granted by a given user or role.

Subclause 5.62, "TABLE_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TABLE_PRIVILEGES.

Function

Identify the privileges on tables defined in this catalog that are available to or granted by a given user or role.

Subclause 5.73, "UDT_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.UDT_PRIVILEGES.

Function

Identify the privileges on user-defined types defined in this catalog that are accessible to or granted by a given user or role.

Subclause 5.74, "USAGE_PRIVILEGES view":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference INFORMATION_SCHEMA.USAGE_PRIVILEGES.

```
Function

Identify the USAGE privileges on objects defined in this catalog that are available to or
granted by a given user or role.

Subclause 5.81, "Short name views":

Without Feature F231, "Privilege tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_ROUT_GRANTS.
Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL partially supports this feature. Only the TABLE_PRIVILEGES and COLUMN_PRIVILEGES views are supported.

See [ISO/IEC9075-1:2011] for the definition of "view".

2.1.2.2 F251, Domain support

V0008:

The specification states the following:

```
Subclause 5.3, "CARDINAL_NUMBER domain":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.CARDINAL_NUMBER.

Function

Define a domain that contains a non-negative number.

Subclause 5.4, CHARACTER_DATA domain:

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.CHARACTER_DATA.

Function

Define a domain that contains any character data.

Subclause 5.5, "SQL_IDENTIFIER domain":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.SQL_IDENTIFIER.

Function

Define a domain that contains all valid <identifier body>s and <delimited identifier body>s.

Subclause 5.6, "TIME_STAMP domain":

Without Feature F251, "Domain support", and Feature T011, "Timestamp in Information Schema",
conforming SQL language shall not reference INFORMATION_SCHEMA.TIME_STAMP.
```

```
Function

Define a domain that contains a timestamp.

Subclause 5.7, "YES_OR_NO domain":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.YES_OR_NO.

Function

Define a domain that is a character string value, but allows only two possible strings, YES
or NO.

Subclause 5.18, "COLUMN_DOMAIN_USAGE view":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_DOMAIN_USAGE.

Function

Identify the columns defined that are dependent on a domain defined in this catalog and owned
by a user or role.

Subclause 5.28, "DOMAIN_CONSTRAINTS view":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.DOMAIN_CONSTRAINTS.

Function

Identify the domain constraints of domains in this catalog that are accessible to a given
user or role.

Subclause 5.29, "DOMAINS view":

Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.DOMAINS.

Function

Identify the domains defined in this catalog that are accessible to a given user or role.

Subclause 5.81, "Short name views":

i) Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.DOMAINS_S.

ii) Without Feature F251, "Domain support", conforming SQL language shall not reference
INFORMATION_SCHEMA.COL_DOMAINS_USAGE.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.3 F341, Usage tables

V0009:

The specification states the following:

```
Subclause 5.13, "CHECK_CONSTRAINT_ROUTINE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.CHECK_CONSTRAINT_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which a domain constraint,
table check constraint or assertion defined in this catalog is dependent.

Subclause 5.17, "COLUMN_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_COLUMN_USAGE.

Function

Identify each case where a generated column depends on a base column in a base table owned by
a given user or role.

Subclause 5.18, "COLUMN_DOMAIN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_DOMAIN_USAGE.

Function

Identify the columns defined that are dependent on a domain defined in this catalog and owned
by a user or role.

Subclause 5.20, "COLUMN_UDT_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_UDT_USAGE.

Function

Identify the columns defined that are dependent on a user-defined type defined in this
catalog and owned by a given user or role.

Subclause 5.22, "CONSTRAINT_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.CONSTRAINT_COLUMN_USAGE.

Function

Identify the columns used by referential constraints, unique constraints, check constraints,
and assertions defined in this catalog and owned by a given user or role.

Subclause 5.24, "CONSTRAINT_TABLE_USAGE view":
```

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.CONSTRAINT_TABLE_USAGE.

Function

Identify the tables that are used by referential constraints, unique constraints, check constraints, and assertions defined in this catalog and owned by a given user or role.

Subclause 5.33, "KEY_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.KEY_COLUMN_USAGE.

Function

Identify the columns defined in this catalog that are constrained as keys and that are accessible by a given user or role.

Subclause 5.45, "ROLE_USAGE_GRANTS view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_USAGE_GRANTS.

Function

Identify the USAGE privileges on objects defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.47, "ROUTINE_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_COLUMN_USAGE.

Function

Identify the columns owned by a given user or role on which SQL routines defined in this catalog are dependent.

Subclause 5.50, "ROUTINE_ROUTINE_USAGE view":
i) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which an SQL routine defined in this catalog is dependent.

Subclause 5.51, "ROUTINE_SEQUENCE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some SQL routine defined in this catalog is dependent.

Subclause 5.52, "ROUTINE_TABLE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_TABLE_USAGE.

Function

Identify the tables owned by a given user or role on which SQL routines defined in this catalog are dependent.

Subclause 5.67, "TRIGGER_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_COLUMN_USAGE.

Function

Identify the columns on which triggers defined in this catalog and owned by a given user are dependent because of their reference by the search condition or in their appearance in a triggered SQL statement of a trigger owned by a given user or role.

Subclause 5.69, "TRIGGER_ROUTINE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which some trigger defined in this catalog is dependent.

Subclause 5.70, "TRIGGER_SEQUENCE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some trigger defined in this catalog is dependent.

Subclause 5.71, "TRIGGER_TABLE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_TABLE_USAGE.

Function

Identify the tables on which triggers defined in this catalog and owned by a given user or role are dependent.

Subclause 5.76, "VIEW_COLUMN_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.VIEW_COLUMN_USAGE.

Function

Identify the columns on which viewed tables defined in this catalog and owned by a given user or role are dependent.

Subclause 5.78, "VIEW_ROUTINE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.VIEW_ROUTINE_USAGE.

Function

Identify each routine owned by a given user or role on which a view defined in this catalog is dependent.

Subclause 5.79, "VIEW_TABLE_USAGE view":

Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.VIEW_TABLE_USAGE.

Function

Identify the tables on which viewed tables defined in this catalog and owned by a given user or role are dependent.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long identifiers".

i) Without Feature F341, "Usage tables", conforming SQL language shall not reference the INFORMATION_SCHEMA.TRIG_TABLE_USAGE view.

ii) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIG_UPDATE_COLS.

iii) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.COL_DOMAIN_USAGE.

iv) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.CONST_COL_USAGE.

v) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.CONST_TABLE_USAGE.

vi) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.KEY_COLUMN_USAGE_S.

vii) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_COL_USAGE.

viii) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUT_TABLE_USAGE.

ix) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUT_ROUT_USAGE_S.

x) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.CONSTR_ROUT_USE_S.

xi) Without Feature F341, "Usage tables", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIG_ROUT_USAGE_S.

```
xii) Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROUT_SEQ_USAGE_S.

xiii) Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIG_COLUMN_USAGE.

xiv) Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIG_SEQ_USAGE_S.

xv) Without Feature F341, "Usage tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.COL_COL_USAGE.
```

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

Transact-SQL partially supports this feature. Only the COLUMN_DOMAIN_USAGE, CONSTRAINT_COLUMN_USAGE, CONSTRAINT_TABLE_USAGE, KEY_COLUMN_USAGE, VIEW_COLUMN_USAGE, and VIEW_TABLE_USAGE views are supported.

2.1.2.4 F391, Long identifiers

V0010:

The specification states the following:

```
Subclause 5.2, "INFORMATION_SCHEMA_CATALOG_NAME base table":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.INFORMATION_SCHEMA_CATALOG_NAME.

Function

Identify the catalog that contains the Information Schema.

Subclause 5.8, "ADMINISTRABLE_ROLE_AUTHORIZATIONS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.ADMINISTRABLE_ROLE_AUTHORIZATIONS.

Function

Identify role authorizations for which the current user or role has WITH ADMIN OPTION.

Subclause 5.11, "ATTRIBUTES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.ATTRIBUTES.

Function

Identify the attributes of user-defined types defined in this catalog that are accessible to
a given user or role.

Subclause 5.12, "CHARACTER_SETS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.CHARACTER_SETS.
```

Function

Identify the character sets defined in this catalog that are accessible to a given user or role.

Subclause 5.13, "CHECK_CONSTRAINT_ROUTINE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.CHECK_CONSTRAINT_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which a domain constraint, table check constraint or assertion defined in this catalog is dependent.

Subclause 5.15, "COLLATIONS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.COLLATIONS.

Function

Identify the character collations defined in this catalog that are accessible to a given user or role.

Subclause 5.16, "COLLATION_CHARACTER_SET_APPLICABILITY view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.COLLATION_CHARACTER_SET_APPLICABILITY.

Function

Identify the character sets to which each collation is applicable.

Subclause 5.17, "COLUMN_COLUMN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.COLUMN_COLUMN_USAGE.

Function

Identify each case where a generated column depends on a base column in a base table owned by a given user or role.

Subclause 5.18, "COLUMN_DOMAIN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.COLUMN_DOMAIN_USAGE.

Function

Identify the columns defined that are dependent on a domain defined in this catalog and owned by a user or role.

Subclause 5.21, "COLUMNS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.COLUMNS.

Function

Identify the columns of tables defined in this catalog that are accessible to a given user or role.

Subclause 5.22, "CONSTRAINT_COLUMN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.CONSTRAINT_COLUMN_USAGE.

Function

Identify the columns used by referential constraints, unique constraints, check constraints, and assertions defined in this catalog and owned by a given user or role.

Subclause 5.24, "CONSTRAINT_TABLE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.CONSTRAINT_TABLE_USAGE.

Function

Identify the tables that are used by referential constraints, unique constraints, check constraints, and assertions defined in this catalog and owned by a given user or role.

Subclause 5.29, "DOMAINS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.DOMAINS.

Function

Identify the domains defined in this catalog that are accessible to a given user or role.

Subclause 5.30, "ELEMENT_TYPES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ELEMENT_TYPES.

Function

Identify the collection element types defined in this catalog that are accessible to a given user or role.

Subclause 5.32, "FIELDS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.FIELDS.

Function

Identify the field types defined in this catalog that are accessible to a given user or role.

Subclause 5.33, "KEY_COLUMN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.KEY_COLUMN_USAGE.

Function

Identify the columns defined in this catalog that are constrained as keys and that are accessible by a given user or role.

Subclause 5.35, "METHOD_SPECIFICATION_PARAMETERS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.METHOD_SPECIFICATION_PARAMETERS.

Function

Identify the SQL parameters of method specifications described in the METHOD_SPECIFICATIONS view that are accessible to a given user or role.

Subclause 5.36, "METHOD_SPECIFICATIONS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.METHOD_SPECIFICATIONS.

Function

Identify the SQL-invoked methods in the catalog that are accessible to a given user or role.

Subclause 5.37, "PARAMETERS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.PARAMETERS.

Function

Identify the SQL parameters of SQL-invoked routines defined in this catalog that are accessible to a given user or role.

Subclause 5.39, "REFERENCED_TYPES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.REFERENCED_TYPES.

Function

Identify the referenced types of reference types defined in this catalog that are accessible to a given user or role.

Subclause 5.40, "REFERENTIAL_CONSTRAINTS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.REFERENTIAL_CONSTRAINTS.

Function

Identify the referential constraints defined on tables in this catalog that are accssible to a given user or role.

Subclause 5.42, "ROLE_ROUTINE_GRANTS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_ROUTINE_GRANTS.

Function

Identify the privileges on SQL-invoked routines defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.44, "ROLE_TABLE_METHOD_GRANTS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_TABLE_METHOD_GRANTS.

Function

Identify the privileges on methods of tables of structured types defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.47, "ROUTINE_COLUMN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_COLUMN_USAGE.

Function

Identify the columns owned by a given user or role on which SQL routines defined in this catalog are dependent.

Subclause 5.50, "ROUTINE_ROUTINE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which an SQL routine defined in this catalog is dependent.

Subclause 5.51, "ROUTINE_SEQUENCE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some SQL routine defined in this catalog is dependent.

Subclause 5.52, "ROUTINE_TABLE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINE_TABLE_USAGE.

Function

Identify the tables owned by a given user or role on which SQL routines defined in this catalog are dependent.

Subclause 5.53, "ROUTINES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.ROUTINES.

Function

Identify the SQL-invoked routines in this catalog that are accessible to a given user or role.

Subclause 5.54, "SCHEMATA view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.SCHEMATA.

Function

Identify the schemata in a catalog that are owned by a given user or role.

Subclause 5.55, "SEQUENCES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.SEQUENCES.

Function

Identify the external sequence generators defined in this catalog that are accessible to a given user or role.

Subclause 5.57, "SQL_IMPLEMENTATION_INFO view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.SQL_IMPLEMENTATION_INFO.

Function

List the SQL-implementation information items defined in this standard and, for each of these, indicate the value supported by the SQL-implementation.

Subclause 5.61, "TABLE_METHOD_PRIVILEGES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TABLE_METHOD_PRIVILEGES.

Function

Identify the privileges on methods of tables of structured type defined in those catalogs that are available to or granted by a given user or role.

Subclause 5.63, "TABLES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TABLES.

Function

Identify the tables defined in this catalog that are accessible to a given user or role.

Subclause 5.65, "TRANSLATIONS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRANSLATIONS.

Function

Identify the character transliterations defined in this catalog that are accessible to a given user or role.

Subclause 5.66, "TRIGGERED_UPDATE_COLUMNS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGERED_UPDATE_COLUMNS.

Function

Identify the columns in this catalog that are identified by the explicit UPDATE trigger event columns of a trigger defined in this catalog that are accessible to a given user or role.

Subclause 5.67, "TRIGGER_COLUMN_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGERED_COLUMN_USAGE.

Function

Identify the columns on which triggers defined in this catalog and owned by a given user are dependent because of their reference by the search condition or in their appearance in a triggered SQL statement of a trigger owned by a given user or role.

Subclause 5.69, "TRIGGER_ROUTINE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which some trigger defined in this catalog is dependent.

Subclause 5.70, "TRIGGER_SEQUENCE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some trigger defined in this catalog is dependent.

Subclause 5.71, "TRIGGER_TABLE_USAGE view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGER_TABLE_USAGE.

Function

Identify the tables on which triggers defined in this catalog and owned by a given user or role are dependent.

Subclause 5.72, "TRIGGERS view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference INFORMATION_SCHEMA.TRIGGERS.

Function

```
Identify the triggers defined on tables in this catalog that are accessible to a given user
or role.

Subclause 5.75, "USER_DEFINED_TYPES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.USER_DEFINED_TYPES.

Function

Identify the user-defined types defined in this catalog that are accessible to a given user
or role.
```

The following additional subclause is present in the [ISO/IEC9075-11:2008] specification:

```
Subclause 5.57, "SQL_SIZING_PROFILES view":

Without Feature F391, "Long identifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.SQL_SIZING_PROFILES.

Function

List the sizing items defined in this standard and, for each of these, indicate the size
required by one or more profiles of the standard.
```

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

Transact-SQL partially supports this feature. Only the COLUMN_DOMAIN_USAGE, COLUMNS, CONSTRAINT_COLUMN_USAGE, CONSTRAINT_TABLE_USAGE, DOMAINS, KEY_COLUMN_USAGE, PARAMETERS, REFERENTIAL CONSTRAINTS, ROUTINES, SCHEMATA, and TABLES views are supported.

2.1.2.5 F502, Enhanced documentation tables

V0011:

The specification states the following:

```
Subclause 5.537, "SQL_IMPLEMENTATION_INFO view":

Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_IMPLEMENTATION_INFO.

Function

List the SQL-implementation information items defined in this standard and, for each of
these, indicate the value supported by the SQL-implementation.

Subclause 5.58, "SQL_PARTS view":

Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_PARTS.

Function
```

```
List the parts of this standard, and indicate which of these the SQL-implementation supports.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".

i) Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_IMPL_INFO.

ii) Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_SIZING_PROFS.
```

The following additional subclauses are present in the [ISO/IEC9075-11:2008] specification:

```
Subclause 5.54, "SQL_PACKAGES view":

Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_PACKAGES.

Function

List the packages of this standard, and indicate which of these the SQL-implementation
supports.

Subclause 5.57, "SQL_SIZING_PROFILES view":
Without Feature F502, "Enhanced documentation tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.SQL_SIZING_PROFILES.

Function

List the sizing items defined in this standard and, for each of these, indicate the size
required by one or more profiles of the standard.
```

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

Transact-SQL does not support this feature.

2.1.2.6 F521, Assertions

V0012:

The specification states the following:

```
Subclause 5.10, "ASSERTIONS view":

Without Feature F521, "Assertions", conforming SQL language shall not reference
INFORMATION_SCHEMA.ASSERTIONS.

Function

Identify the assertions defined in this catalog that are owned by a given user or role.
```

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

Transact-SQL does not support this feature.

2.1.2.7 F651, Catalog name qualifiers

V0013:

The specification states the following:

```
Subclause 5.2, "INFORMATION_SCHEMA_CATALOG_NAME base table":

Without Feature F651, "Catalog name qualifiers", conforming SQL language shall not reference
INFORMATION_SCHEMA.INFORMATION_SCHEMA_CATALOG_NAME.

Function

Identify the catalog that contains the Information Schema.
```

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

Transact-SQL does not support this feature.

2.1.2.8 F690, Collation support

V0014:

The specification states the following:

```
Subclause 5.15, "COLLATIONS view":

Without Feature F690, "Collation support", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLLATIONS.

Function

Identify the character collations defined in this catalog that are accessible to a given user
or role.

Subclause 5.16, "COLLATION_CHARACTER_SET_APPLICABILITY view":

Without Feature F690, "Collation support ", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLLATION_CHARACTER_SET_APPLICABILITY.

Function

Identify the character sets to which each collation is applicable.

Subclause 5.81, "Short name views":

Without Feature F690, "Collation support", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLLATIONS_S.
```

```
Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.9 F695, Translation support

V0015:

The specification states the following:

```
Subclause 5.65, "TRANSLATIONS view":

Without Feature F695, "Translation support", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRANSLATIONS.

Function

Identify the character transliterations defined in this catalog that are accessible to a
given user or role.

Subclause 5.81, "Short name views":

Without Feature F695, "Translation support", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRANSLATIONS_S.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.10 F696, Additional translation documentation

V0016:

The specification states the following:

```
Subclause 5.65, "TRANSLATIONS view":

Without Feature F696, "Additional translation documentation", conforming SQL language shall
not reference TRANSLATION_SOURCE_CATALOG, TRANSLATION_SOURCE_SCHEMA, TRANSLATION_SOURCE_NAME.

Function

Identify the character transliterations defined in this catalog that are accessible to a
given user or role.
```

```
Subclause 5.81, "Short name views":

Without Feature F696, "Additional translation documentation", conforming SQL language shall
not reference TRANSLATIONS_S.TRANS_SRC_CATALOG, TRANSLATIONS_S.TRANS_SRC_SCHEMA, or
TRANSLATIONS_S.TRANS_SRC_NAME.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.11 S023, Basic structured types

V0017:

The specification states the following:

```
Subclause 5.11, "ATTRIBUTES view":

Without Feature S023, "Basic structured types", conforming SQL language shall not reference
INFORMATION_SCHEMA.ATTRIBUTES.

Function

Identify the attributes of user-defined types defined in this catalog that are accessible to
a given user or role.

Subclause 5.35, "METHOD_SPECIFICATION_PARAMETERS view":

Without Feature S023, "Basic structured types", conforming SQL language shall not reference
INFORMATION_SCHEMA.METHOD_SPECIFICATION_PARAMETERS.

Function

Identify the SQL parameters of method specifications described in the METHOD_SPECIFICATIONS
view that are accessible to a given user or role.

Subclause 5.36, "METHOD_SPECIFICATIONS view":

Without Feature S023, "Basic structured types", conforming SQL language shall not reference
INFORMATION_SCHEMA.METHOD_SPECIFICATIONS.

Function

Identify the SQL-invoked methods in the catalog that are accessible to a given user or role.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

```
i) Without Feature S023, "Basic structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.ATTRIBUTES_S.

ii) Without Feature S023, "Basic structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.METHOD_SPECS.

iii) Without Feature S023, "Basic structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.METHOD_SPEC_PARAMS.
```

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

Transact-SQL does not support this feature.

2.1.2.12 S024, Enhanced structured types

V0018:

The specification states the following:

```
Subclause 5.27, "DIRECT_SUPERTYPES view":

Without Feature S024, "Enhanced structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.DIRECT_SUPERTYPES.

Function

Identify the direct supertypes related to a user-defined type that are defined in this
catalog and owned by a given user or role.

Subclause 5.44, "ROLE_TABLE_METHOD_GRANTS view":

Without Feature S024, "Enhanced structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROLE_TABLE_METHOD_GRANTS.

Function

Identify the privileges on methods of tables of structured types defined in this catalog that
are available to or granted by the currently enabled roles.

Subclause 5.61, "TABLE_METHOD_PRIVILEGES view":

Without Feature S024, "Enhanced structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.TABLE_METHOD_PRIVILEGES.

Function

Identify the privileges on methods of tables of structured type defined in those catalogs
that are available to or granted by a given user or role.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

```
i) Without Feature S024, "Enhanced structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.TABLE_METHOD_PRIVS.

ii) Without Feature S024, "Enhanced structured types", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROL_TAB_METH_GRNTS.
```

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

Transact-SQL does not support this feature.

2.1.2.13 S041, Basic reference types

V0019:

The specification states the following:

```
Subclause 5.39, "REFERENCED_TYPES view":

Without Feature S041, "Basic reference types", conforming SQL language shall not reference
INFORMATION_SCHEMA.REFERENCED_TYPES.

Function

Identify the referenced types of reference types defined in this catalog that are accessible
to a given user or role.

Subclause 5.81, "Short name views":

Without Feature S041, "Basic reference types", conforming SQL language shall not reference
INFORMATION_SCHEMA.REFERENCED_TYPES_S.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.14 S081, Subtables

V0014:

The specification states the following:

```
Subclause 5.26, "DIRECT_SUPERTABLES view":

Without Feature S081, "Subtables", conforming SQL language shall not reference
INFORMATION_SCHEMA.DIRECT_SUPERTABLES.

Function
```

```
Identify the direct supertables related to a table that are defined in this catalog and owned
by a given user or role.
```

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

Transact-SQL does not support this feature.

2.1.2.15 S091, Basic array support

V0021:

The specification states the following:

```
Subclause 5.30, "ELEMENT_TYPES view":

Without Feature S091, "Basic array support", or Feature S271, "Basic multiset support",
conforming SQL language shall not reference
INFORMATION_SCHEMA.ELEMENT_TYPES.

Function

Identify the collection element types defined in this catalog that are accessible to a given
user or role.

Subclause 5.81, "Short name views":

Without Feature S091, "Basic array support" or Feature S271, "Basic multiset support" ,
conforming SQL language shall not reference INFORMATION_SCHEMA.ELEMENT_TYPES_S.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.16 S241, Transform functions

V0022:

The specification states the following:

```
Subclause 5.64, "TRANSFORMS view":

Without Feature S241, "Transform functions", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRANSFORMS.

Function

Identify the transforms on user-defined types defined in this catalog that are accessible to
a given user or role.
```

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

Transact-SQL does not support this feature.

2.1.2.17 S271, Basic multiset support

V0023:

The specification states the following:

```
Subclause 5.30, "ELEMENT_TYPES view":

Without Feature S091, "Basic array support", or Feature S271, "Basic multiset support",
conforming SQL language shall not reference
INFORMATION_SCHEMA.ELEMENT_TYPES.

Function

Identify the collection element types defined in this catalog that are accessible to a given
user or role.

Subclause 5.81, "Short name views":

Without Feature S091, "Basic array support" or Feature S271, "Basic multiset support" ,
conforming SQL language shall not reference
INFORMATION_SCHEMA.ELEMENT_TYPES_S.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.18 S401, Distinct types based on array types

V0024:

The specification states the following:

```
Subclause 5.75, "USER_DEFINED_TYPES view":

Without Feature S401, "Distinct types based on array types", conforming SQL language shall
not reference INFORMATION_SCHEMA.USER_DEFINED_TYPES.MAXIMUM_CARDINALITY.

Function

Identify the user-defined types defined in this catalog that are accessible to a given user
or role.

Subclause 5.81, "Short name views":
```

```
Without Feature S401, "Distinct types based on array types", conforming SQL language shall
not reference INFORMATION_SCHEMA.UDT_S.MAX_CARDINALITY

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.19 T011, Timestamp in Information Schema

V0025:

The specification states the following:

```
Subclause 5.6, "TIME_STAMP domain":

Without Feature F251, "Domain support", and Feature T011, "Timestamp in Information Schema",
conforming SQL language shall not reference INFORMATION_SCHEMA.TIME_STAMP.

Function

Define a domain that contains a timestamp.

Subclause 5.36, "METHOD_SPECIFICATIONS view":

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

ii) Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall
not reference INFORMATION_SCHEMA.METHOD_SPECIFICATIONS.LAST_ALTERED.

Function

Identify the SQL-invoked methods in the catalog that are accessible to a given user or role.

Subclause 5.53, "ROUTINES view":

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

ii) Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall
not reference INFORMATION_SCHEMA.ROUTINES.LAST_ALTERED.

Function

Identify the SQL-invoked routines in this catalog that are accessible to a given user or
role.

Subclause 5.72, "TRIGGERS view":

Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIGGERS.TRIGGER_CREATED.
```

```
Function

Identify the triggers defined on tables in this catalog that are accessible to a given user
or role.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".

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

ii) Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall
not reference INFORMATION_SCHEMA.METHOD_SPEC.LAST_ALTERED.

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

iv) Without Feature T011, "Timestamp in Information Schema", conforming SQL language shall
not reference INFORMATION_SCHEMA.ROUTINES_S.LAST_ALTERED.
```

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

Transact-SQL does not support this feature.

2.1.2.20 T051, Row types

V0026:

The specification states the following:

```
Subclause 5.32, "FIELDS view":

Without Feature T051, "Row types", conforming SQL language shall not reference
INFORMATION_SCHEMA.FIELDS.

Function

Identify the field types defined in this catalog that are accessible to a given user or role.

Subclause 5.81, "Short name views":

Without Feature T051, "Row types", conforming SQL language shall not reference
INFORMATION_SCHEMA.FIELDS_S.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.21 T111, Updatable joins, unions, and columns

V0027:

The specification states the following:

```
Subclause 5.21, "COLUMNS view":

Without Feature T111, "Updatable joins, unions, and columns", conforming SQL language shall
not reference INFORMATION_SCHEMA.COLUMNS.IS_UPDATABLE.

Function

Identify the columns of tables defined in this catalog that are accessible to a given user or
role.
```

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

Transact-SQL does not support this feature.

2.1.2.22 T175, Generated columns

V0028:

The specification states the following:

```
Subclause 5.17, "COLUMN_COLUMN_USAGE view":

Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMN_COLUMN_USAGE.

Function

Identify each case where a generated column depends on a base column in a base table owned by
a given user or role.

Subclause 5.21, "COLUMNS view":

i) Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMNS.IS_GENERATED.

ii) Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMNS.GENERATION_EXPRESSION.

Function

Identify the columns of tables defined in this catalog that are accessible to a given user or
role.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

```
i) Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COL_COL_USAGE.

ii) Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMNS.IS_GENERATED

iii) Without Feature T175, "Generated columns", conforming SQL language shall not reference
INFORMATION_SCHEMA.COLUMNS_S.GENERATION_EXPR.
```

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

Transact-SQL does not support this feature.

2.1.2.23 T176, Sequence generator support

V0029:

The specification states the following:

```
Subclause 5.51, "ROUTINE_SEQUENCE_USAGE view":

Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROUTINE_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some SQL
routine defined in this catalog is dependent.

Subclause 5.55, "SEQUENCES view":

Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.SEQUENCES.

Function

Identify the external sequence generators defined in this catalog that are accessible to a
given user or role.

Subclause 5.70, "TRIGGER_SEQUENCE_USAGE view":

Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIGGER_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some trigger
defined in this catalog is dependent.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

```
i) Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROUT_SEQ_USAGE_S.

ii) Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.SEQUENCES_S.

iii) Without Feature T176, "Sequence generator support", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIGGER_SEQ_USAGE_S.
```

Microsoft® SQL Server® 2008 R2 varies as follows:

Transact-SQL does not support this feature.

Microsoft® SQL Server® 2012 varies as follows:

Transact-SQL partially supports this feature. Only the INFORMATION_SCHEMA.SEQUENCES view is supported.

2.1.2.24 T180, System-versioned tables

V0030:

The specification states the following:

```
Subclause 5.21, "COLUMNS view":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
any of the columns IS_SYSTEM_TIME_PERIOD_START, IS_SYSTEM_TIME_PERIOD_END,and
SYSTEM_TIME_PERIOD_TIMESTAMP_GENERATION.

Function

Identify the columns of tables defined in this catalog that are accessible to a given user or
role.

Subclause 5.38, "PERIODS view":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.PERIODS.

Function

Identify the periods of tables defined in this catalog that are accessible to a given user or
role.


Subclause 5.48, "ROUTINE_PERIOD_USAGE view":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROUTINE_PERIOD_USAGE.

Function

Identify the periods of tables owned by a given user or role on which SQL routines defined in
this catalog are dependent.
```

```
Subclause 5.68, "TRIGGER_PERIOD_USAGE view":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGER_PERIOD_USAGE.

Function

Identify the periods in which triggers defined in this catalog and owned by a given user or
role are dependent because of their reference by the search condition or in their appearance
in a triggered SQL statement of a trigger owned by a given user or role.


Subclause 5.77, "VIEW_PERIOD_USAGE view":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
INFORMATION_SCHEMA.VIEW_PERIOD_USAGE.

Function

Identify the periods on which viewed tables defined in this catalog and owned by a given user
or role are dependent.

Subclause 5.81, "Short name views":

Without Feature T180, "System-versioned tables", conforming SQL language shall not reference
any of the columns COLUMNS_S.IS_SYSPER_START, COLUMNS_S.IS_SYSPER_END, and
COLUMNS_S.SYSPER_TSTMP_GEN.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

Microsoft® SQL Server® 2008 R2 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2008] specification.

Microsoft® SQL Server® 2012 varies as follows:

Transact-SQL does not support this feature.

2.1.2.25 T181, Application-time period tables

V0031:

The specification states the following:

```
Subclause 5.23, "CONSTRAINT_PERIOD_USAGE view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.CONSTRAINT_PERIOD_USAGE.

Function

Identify the periods used by referential constraints, unique constraints, check constraints,
and assertions defined in this catalog and owned by a given user or role.
```

```
Subclause 5.34, "KEY_PERIOD_USAGE view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.KEY_PERIOD_USAGE.

Function

Identify the periods defined in this catalog that participate in the definition of unique,
primary, and foreign keys
and that are accessible by a given user or role.


Subclause 5.38, "PERIODS view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.PERIODS.

Function

Identify the periods of tables defined in this catalog that are accessible to a given user or
role.


Subclause 5.48, "ROUTINE_PERIOD_USAGE view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROUTINE_PERIOD_USAGE.

Function

Identify the periods of tables owned by a given user or role on which SQL routines defined in
this catalog are dependent.


Subclause 5.68, "TRIGGER_PERIOD_USAGE view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIGGER_PERIOD_USAGE.

Function

Identify the periods in which triggers defined in this catalog and owned by a given user or
role are dependent because of their reference by the search condition or in their appearance
in a triggered SQL statement of a trigger owned by a given user or role.


Subclause 5.77, "VIEW_PERIOD_USAGE view":

Without Feature T181, "Application-time period tables", conforming SQL language shall not
reference INFORMATION_SCHEMA.VIEW_PERIOD_USAGE.

Function

Identify the periods on which viewed tables defined in this catalog and owned by a given user
or role are dependent.
```

Microsoft® SQL Server® 2008 R2 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2008] specification.

Microsoft® SQL Server® 2012 varies as follows:

Transact-SQL does not support this feature.

2.1.2.26 T211, Basic trigger capability

V0032:

The specification states the following:

```
Subclause 5.66, "TRIGGERED_UPDATE_COLUMNS view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGERED_UPDATE_COLUMNS.

Function

Identify the columns in this catalog that are identified by the explicit UPDATE trigger event
columns of a trigger defined in this catalog that are accessible to a given user or role.

Subclause 5.667, "TRIGGER_COLUMN_USAGE view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGER_COLUMN_USAGE.

Function

Identify the columns on which triggers defined in this catalog and owned by a given user are
dependent because of their reference by the search condition or in their appearance in a
triggered SQL statement of a trigger owned by a given user or role.

Subclause 5.69, "TRIGGER_ROUTINE_USAGE view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGER_ROUTINE_USAGE.

Function

Identify each SQL-invoked routine owned by a given user or role on which some trigger defined
in this catalog is dependent.

Subclause 5.70, "TRIGGER_SEQUENCE_USAGE view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGER_SEQUENCE_USAGE.

Function

Identify each external sequence generator owned by a given user or role on which some trigger
defined in this catalog is dependent.

Subclause 5.71, "TRIGGER_TABLE_USAGE view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGER_TABLE_USAGE.

Function

Identify the tables on which triggers defined in this catalog and owned by a given user or
role are dependent.
```

```
Subclause 5.72, "TRIGGERS view":

Without Feature T211, "Basic trigger capability", conforming SQL language shall not reference
INFORMATION_SCHEMA.TRIGGERS.

Function

Identify the triggers defined on tables in this catalog that are accessible to a given user
or role.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".

i) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIG_UPDATE_COLS

ii) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference the INFORMATION_SCHEMA.TRIG_TABLE_USAGE view.

iii) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIG_ROUT_USAGE_S.

iv) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIG_SEQ_USAGE_S.

v) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIGGERS_S.

vi) Without Feature T211, "Basic trigger capability", conforming SQL language shall not
reference INFORMATION_SCHEMA.TRIG_COLUMN_USAGE.
```

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

Transact-SQL does not support this feature.

2.1.2.27 T213, INSTEAD OF triggers

V0033:

The specification states the following:

```
Subclause 5.80, "VIEWS view":

Without Feature T213, "INSTEAD OF triggers", conforming SQL language shall not reference any
of the columns IS_TRIGGER_UPDATABLE, IS_TRIGGER_DELETABLE,
IS_TRIGGER_INSERTABLE_INTO.

Function

Identify the viewed tables defined in this catalog that are accessible to a given user or
role.
```

```
Subclause 5.81, "Short name views":

Without Feature T213, "INSTEAD OF triggers", conforming SQL language shall not reference any
of IS_TRIG_UPDATABLE, IS_TRIG_DELETABLE, IS_TRIG_INS_INTO.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.28 T272, Enhanced savepoint management

V0034:

The specification states the following:

```
Subclause 5.53, "ROUTINES view":

Without Feature T272, "Enhanced savepoint management", conforming SQL-language shall not
reference INFORMATION_SCHEMA.ROUTINES.NEW_SAVEPOINT_LEVEL.

Function

Identify the SQL-invoked routines in this catalog that are accessible to a given user or
role.

Subclause 5.81, "Short name views":

Without Feature T272, "Enhanced savepoint management", conforming SQL language shall not
reference INFORMATION_SCHEMA.ROUTINES_S.NEW_SAVEPOINT_LEVEL.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

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

Transact-SQL does not support this feature.

2.1.2.29 T331, Basic Roles

V0035:

The specification states the following:

```
Subclause 5.8, "ADMINISTRABLE_ROLE_AUTHORIZATIONS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ADMINISTRABLE_ROLE_AUTHORIZATIONS.
```

Function

Identify role authorizations for which the current user or role has WITH ADMIN OPTION.

Subclause 5.9, "APPLICABLE_ROLES view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.APPLICABLE_ROLES.

Function

Identifies the applicable roles for the current user.

Subclause 5.31, "ENABLED_ROLES view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.ENABLED_ROLES.

Function

Identify the enabled roles for the current SQL-session.

Subclause 5.41, "ROLE_COLUMN_GRANTS view":

Without Feature F231, "Privilege tables", and Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_COLUMN_GRANTS.

Function

Identifies the privileges on columns defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.42, "ROLE_ROUTINE_GRANTS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_ROUTINE_GRANTS.

Function

Identify the privileges on SQL-invoked routines defined in this catalog that are available to or granted by the currently enabled roles.

Subclause 5.43, "ROLE_TABLE_GRANTS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_TABLE_GRANTS.

Function

Identifies the privileges on tables defined in this catalog that are available to or granted by the currently applicable roles.

Subclause 5.44, "ROLE_TABLE_METHOD_GRANTS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference INFORMATION_SCHEMA.ROLE_TABLE_METHOD_GRANTS.

Function

```
Identify the privileges on methods of tables of structured types defined in this catalog that
are available to or granted by the currently enabled roles.

Subclause 5.45, "ROLE_USAGE_GRANTS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_USAGE_GRANTS.

Function

Identify the USAGE privileges on objects defined in this catalog that are available to or
granted by the currently enabled roles.

Subclause 5.46 "ROLE_UDT_GRANTS view":

Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_UDT_GRANTS.

Function

Identify the privileges on user-defined types defined in this catalog that are available to
or granted by the currently enabled roles.

Subclause 5.81, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".

i) Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ADMIN_ROLE_AUTHS.

ii) Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_ROUT_GRANTS.

iii) Without Feature T331, "Basic roles", conforming SQL language shall not reference
INFORMATION_SCHEMA.ROLE_TAB_METH_GRNTS.
```

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

Transact-SQL does not support this feature.

2.1.2.30 T332, Declared data type attributes

V0036:

The [ISO/IEC9075-11:2008] specification states the following:

```
Subclause 5.11, "ATTRIBUTES view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of the columns DECLARED_DATA_TYPE,
DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function
```

Identify the attributes of user-defined types defined in this catalog that are accessible to a given user or role.

Subclause 5.21, "COLUMNS view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the columns of tables defined in this catalog that are accessible to a given user or role.

Subclause 5.28, "DOMAINS view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the domains defined in this catalog that are accessible to a given user or role.

Subclause 5.29, "ELEMENT_TYPES view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the collection element types defined in this catalog that are accessible to a given user or role.

Subclause 5.31, "FIELDS view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the field types defined in this catalog that are accessible to a given user or role.

Subclause 5.33, "METHOD_SPECIFICATION_PARAMETERS view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the SQL parameters of method specifications described in the METHOD_SPECIFICATIONS view that are accessible to a given user or role.

Subclause 5.35, "PARAMETERS view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE,

DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the SQL parameters of SQL-invoked routines defined in this catalog that are accessible to a given user or role.

Subclause 5.36, "REFERENCED_TYPES view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the referenced types of reference types defined in this catalog that are accessible to a given user or role.

Subclause 5.49, "ROUTINES view":

Without Feature T332, "Declared data type attributes", conforming SQL-language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION, DECLARED_NUMERIC_SCALE, RESULT_CAST_FROM_DECLARED_DATA_TYPE, RESULT_CAST_DECLARED_NUMERIC_PRECISION and RESULT_CAST_DECLARED_NUMERIC_SCALE.

Function

Identify the SQL-invoked routines in this catalog that are accessible to a given user or role.

Subclause 5.51, "SEQUENCES view":
Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the external sequence generators defined in this catalog that are accessible to a given user or role.

Subclause 5.72, "USER_DEFINED_TYPES view":

Without Feature T332, "Declared data type attributes", conforming SQL language shall not reference any of the columns DECLARED_DATA_TYPE, DECLARED_NUMERIC_PRECISION and DECLARED_NUMERIC_SCALE.

Function

Identify the user-defined types defined in this catalog that are accessible to a given user or role.

Subclause 5.77, "Short name views":

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long identifiers".

```
i) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of ATTRIBUTES_S.DECLARED_DATA_TYPE,
ATTRIBUTES_S.DEC_NUMERIC_PREC and ATTRIBUTES_S.DEC_NUM_SCALE.

ii) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of COLUMNS_S.DECLARED_DATA_TYPE,
COLUMNS_S.DEC_NUMERIC_PREC and COLUMNS_S.DEC_NUM_SCALE.

iii) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of DOMAINS_S.DECLARED_DATA_TYPE,
DOMAINS_S.DEC_NUMERIC_PREC and DOMAINS_S.DEC_NUM_SCALE.

iv) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of ELEMENT_TYPES_S.DECLARED_DATA_TYPE,
ELEMENT_TYPES_S.DEC_NUMERIC_PREC and ELEMENT_TYPES_S.DEC_NUM_SCALE.

v) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of FIELDS_S.DECLARED_DATA_TYPE, FIELDS_S.DEC_NUMERIC_PREC and
FIELDS_S.DEC_NUM_SCALE.

vi) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of METHOD_SPECS.DECLARED_DATA_TYPE,
METHOD_SPECS.DEC_NUMERIC_PREC and METHOD_SPECS.DEC_NUM_SCALE.

vii) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of METHOD_SPEC_PARAMS.DECLARED_DATA_TYPE,
METHOD_SPEC_PARAMS.DEC_NUMERIC_PREC and METHOD_SPEC_PARAMS.DEC_NUM_SCALE.

viii) Without Feature T332, "Declared data type attributes", conforming SQL language shall
not reference any of PARAMETERS_S.DECLARED_DATA_TYPE,
PARAMETERS_S.DEC_NUMERIC_PREC and PARAMETERS_S.DEC_NUM_SCALE.

ix) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of REFERENCED_TYPES_S.DECLARED_DATA_TYPE,
REFERENCED_TYPES_S.DEC_NUMERIC_PREC and REFERENCED_TYPES_S.DEC_NUM_SCALE.

x) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of ROUTINES_S.DECLARED_DATA_TYPE,
ROUTINES_S.DEC_NUMERIC_PREC and ROUTINES_S.DEC_NUM_SCALE.

xi) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of SEQUENCES_S.DECLARED_DATA_TYPE,
SEQUENCES_S.DEC_NUMERIC_PREC and SEQUENCES_S.DEC_NUM_SCALE.

xii) Without Feature T332, "Declared data type attributes", conforming SQL language shall not
reference any of UDT_S.DECLARED_DATA_TYPE, UDT_S.DEC_NUMERIC_PREC and UDT_S.DEC_NUM_SCALE.
```

Microsoft® SQL Server® 2008 R2 varies as follows:

Transact-SQL does not support this feature.

Microsoft® SQL Server® 2012 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2011] specification.

2.1.2.31 T522, Default values for IN parameters of SQL-invoked procedures

V0037:

The specification states the following:

```
Subclause 5.37, "PARAMETERS view":

Without Feature T522, "Default values for IN parameters of SQL-invoked procedures",
conforming SQL language shall not reference INFORMATION_SCHEMA.PARAMETERS.PARAMETER_DEFAULT.

Function

Identify the SQL parameters of SQL-invoked routines defined in this catalog that are
accessible to a given user or role.


Subclause 5.81, "Short name views":

Without Feature T522, "Default values for IN parameters of SQL-invoked procedures",
conforming SQL language shall not reference
INFORMATION_SCHEMA.PARAMETERS_S.PARAMETER_DEFAULT.

Function

Provide alternative views that use only identifiers that do not require Feature F391, "Long
identifiers".
```

Microsoft® SQL Server® 2008 R2 varies as follows:

This feature is absent in the [ISO/IEC9075-11:2008] specification.

Microsoft® SQL Server® 2012 varies as follows:

Transact-SQL does not support this feature.

3 Change Tracking

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

4 Index