BS ISO/IEC 19075-2:2021

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# Information technology — Guidance for the use of database language SQL

Part 2: Time-related information

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# National foreword

This British Standard is the UK implementation of ISO/IEC 19075-2:2021. It supersedes PD ISO/IEC TR 19075-2:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/40, Data management and interchange.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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# Information technology — Guidance for the use of database language SQL —

## Part 2: Time-related information

*Technologies de l'information — Recommandations pour l'utilisation du langage de base de données SQL —*

*Partie 2: Informations d'horodatage*

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# Foreword

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents), or the IEC list of patent declarations received (see patents.iec.ch).

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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 Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This first edition of ISO/IEC 19075-2 cancels and replaces ISO/IEC TR 19075-2:2015.

This document is intended to be used in conjunction with the following editions of the parts of the ISO/IEC 9075 series:

— ISO/IEC 9075-1, sixth edition or later;

— ISO/IEC 9075-2, sixth edition or later;

— ISO/IEC 9075-3, sixth edition or later;

— ISO/IEC 9075-4, seventh edition or later;

— ISO/IEC 9075-9, fifth edition or later;

— ISO/IEC 9075-10, fifth edition or later;

— ISO/IEC 9075-11, fifth edition or later;

— ISO/IEC 9075-13, fifth edition or later;

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# 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, "Time-related data types, constructs, operators, and predicates", explains time-related data types, operators, and predicates in SQL.

5) Clause 5, "Time-related tables", explains how time-related tables are used.


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# Information technology — Guidance for the use of database language SQL —

Part 2:
**Time-related information**

## 1 Scope

This document describes the support in SQL for time-related information.

This document discusses the following features of the SQL language:

— Time-related data types

— Operations on time-related data

— Time-related Predicates

— Application-time period tables

— System-versioned tables

— Bi-temporal tables

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## 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.

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)*


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# 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 9075-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

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# 4 Time-related data types, constructs, operators, and predicates

## 4.1 Context of time-related specifications

The requirements for the material discussed in this document shall be as specified in ISO/IEC 9075-1 and ISO/IEC 9075-2.

## 4.2 Datetime types

ISO/IEC 9075-2 defines the time-related data types, constructs, operators, and predicates described in this document. ISO/IEC 9075-2 specifies requirements for the material discussed in this document.

There are three *datetime types*, each of which is made up of different datetime fields.

A value of data type TIMESTAMP is made up of the datetime fields YEAR, MONTH, DAY, HOUR, MINUTE, and SECOND. It is always a valid time at a valid Gregorian date.

A value of data type TIME comprises values of the datetime fields HOUR, MINUTE and SECOND. It is always a valid time of day.

A value of data type DATE is made up of the datetime fields YEAR, MONTH, and DAY. It is always a valid Gregorian date.

TIMESTAMP and TIME may be specified with a number of (decimal) digits of fractional seconds precision.

TIMESTAMP and TIME may also be specified as being WITH TIME ZONE, in which case every value has associated with it a time zone displacement (the offset of the TIMESTAMP or TIME from Coördinated Universal Time, UTC). In comparing values of a data type WITH TIME ZONE, the value of the time zone displacement is disregarded.

Table 1, "Fields in datetime values", specifies the fields that can make up a datetime value.

**Table 1 — Fields in datetime values**

| Keyword | Meaning |
|---|---|
| YEAR | Year, between 0001 and 9999 |
| MONTH | Month within year, between 01 and 12 |
| DAY | Day within month, between 1 and 31, but further constrained by the value of MONTH and YEAR fields, according to the rules for well-formed dates in the Gregorian calendar. |
| HOUR | Hour within day, between 00 and 23 |
| MINUTE | Minute within hour, between 00 and 59 |


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