

# SVENSK STANDARD

## SS-ISO 8601:2011

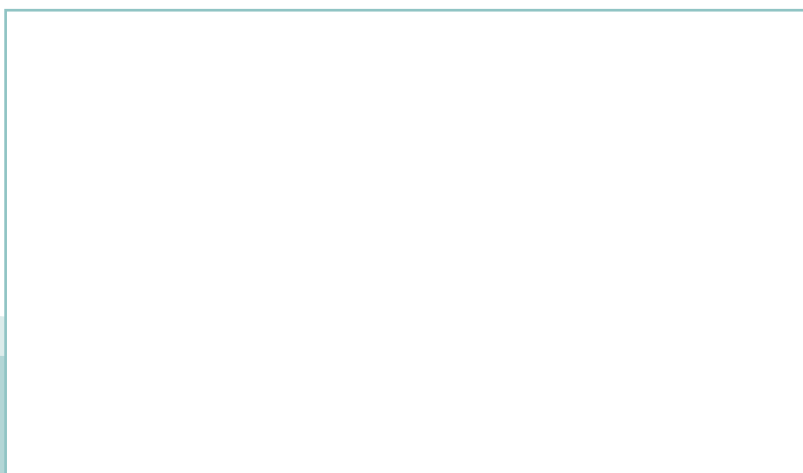


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### **Dataelement och datautväxling – Skrivsätt för datum och tid (ISO 8601:2004, IDT)**

### **Data elements and interchange formats – Information interchange – Representation of dates and times (ISO 8601:2004, IDT)**



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Den internationella standarden ISO 8601:2004 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 8601:2004.

Denna standard ersätter SS-ISO 8601, utgåva 1.

The International Standard ISO 8601:2004 has the status of a Swedish Standard. This document contains the official version of ISO 8601:2004.

This standard supersedes the Swedish Standard SS-ISO 8601, edition 1.

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Denna standard är framtagen av kommittén för Datahantering, SIS/TK 449.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8601 was prepared by Technical Committee ISO/TC 154, *Processes, data elements and documents in commerce, industry and administration*.

This third edition cancels and replaces the second edition (ISO 8601:2000), of which it constitutes a minor revision.

## Introduction

Although ISO Recommendations and Standards in this field have been available since 1971, different forms of numeric representation of dates and times have been in common use in different countries. Where such representations are interchanged across national boundaries misinterpretation of the significance of the numerals can occur, resulting in confusion and other consequential errors or losses. The purpose of this International Standard is to eliminate the risk of misinterpretation and to avoid the confusion and its consequences.

This International Standard includes specifications for a numeric representation of information regarding date and time of day. In addition this International Standard includes specifications for representation of the formats of these numeric representations.

In order to achieve similar formats for the representations of calendar dates, ordinal dates, dates identified by week number, time intervals, recurring time intervals, combined date and time of day, and differences between local time and UTC of day, and to avoid ambiguities between these representations, it has been necessary to use, apart from numeric characters, either single alphabetic characters or other graphic characters or a combination of alphabetic and other characters in some of the representations.

The above action has had the benefit of enhancing the versatility and general applicability of previous International Standards in this field, and provides for the unique representation of any date or time expression or combination of these. Each representation can be easily recognized, which is beneficial when human interpretation is required.

This International Standard retains the most commonly used expressions for date and time of day and their representations from the earlier International Standards and provides unique representations for some new expressions used in practice. Its application in information interchange, especially between data processing systems and associated equipment will eliminate errors arising from misinterpretation and the costs these generate. The promotion of this International Standard will not only facilitate interchange across international boundaries, but will also improve the portability of software, and will ease problems of communication within an organization, as well as between organizations.

Several of the alphabetic and graphic characters used in the text of this International Standard are common both to the representations specified and to normal typographical presentation. Note that for units of time in plain text the symbols given in ISO 31-1 should be used.

To avoid confusion between the representations and the actual text, its punctuation marks and associated graphic characters, all the representations are contained in brackets [ ]. The brackets are not part of the representation, and should be omitted when implementing the representations. All matter outside the brackets is normal text, and not part of the representation. In the associated examples, the brackets and typographical markings are omitted.





# Data elements and interchange formats — Information interchange — Representation of dates and times

## 1 Scope

This International Standard is applicable whenever representation of dates in the Gregorian calendar, times in the 24-hour timekeeping system, time intervals and recurring time intervals or of the formats of these representations are included in information interchange. It includes

- calendar dates expressed in terms of calendar year, calendar month and calendar day of the month;
- ordinal dates expressed in terms of calendar year and calendar day of the year;
- week dates expressed in terms of calendar year, calendar week number and calendar day of the week;
- local time based upon the 24-hour timekeeping system;
- Coordinated Universal Time of day;
- local time and the difference from Coordinated Universal Time;
- combination of date and time of day;
- time intervals;
- recurring time intervals.

This International Standard does not cover dates and times where words are used in the representation and dates and times where characters are not used in the representation.

This International Standard does not assign any particular meaning or interpretation to any data element that uses representations in accordance with this International Standard. Such meaning will be determined by the context of the application.

## 2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 2.1 Basic concepts

#### 2.1.1

##### **time axis**

mathematical representation of the succession in time of instantaneous events along a unique axis

[IEC 60050-111]

#### 2.1.2

##### **instant**

point on the time axis

[IEC 60050-111]

NOTE An instantaneous event occurs at a specific instant.

**2.1.3****time interval**

part of the time axis limited by two instants

[IEC 60050-111]

NOTE A time interval comprises all instants between the two limiting instants and, unless otherwise stated, the limiting instants themselves.

**2.1.4****time scale**

system of ordered marks which can be attributed to instants on the time axis, one instant being chosen as the origin

[IEC 60050-111]

NOTE 1 A time scale may amongst others be chosen as:

- continuous, e.g. international atomic time (TAI) (see IEC 60050-713, item 713-05-18);
- continuous with discontinuities, e.g. Coordinated Universal Time (UTC) due to leap seconds, standard time due to summer time and winter time;
- successive steps, e.g. usual calendars, where the time axis is split up into a succession of consecutive time intervals and the same mark is attributed to all instants of each time interval;
- discrete, e.g. in digital techniques.

NOTE 2 For physical and technical applications, a time scale with quantitative marks is preferred, based on a chosen initial instant together with a unit of measurement.

NOTE 3 Customary time scales use various units of measurement in combination, such as second, minute, hour, or various time intervals of the calendar such as calendar day, calendar month and calendar year.

NOTE 4 A time scale has a reference point which attributes one of the marks of the time scale to one of the instants, thus determining the attribution of marks to instants for the time scale.

**2.1.5****time point**

date

time

mark attributed to an instant by means of a specified time scale

[IEC 60050-111]

NOTE 1 On a time scale consisting of successive steps, two distinct instants may be expressed by the same time point (see Note 1 of the term “time scale”).

NOTE 2 For many time scales with quantitative marks, the numerical value of the time point of an instant may also be considered to be equal to the duration between the origin of the time scale and the considered instant.

NOTE 3 In IEC 60050-111 this definition corresponds with the term “date”.

NOTE 4 The term “time” is often used in common language. However, it should only be used if the meaning is clearly visible from the context, since the term “time” is also used with other meanings.

**2.1.6****duration**

non-negative quantity attributed to a time interval, the value of which is equal to the difference between the time points of the final instant and the initial instant of the time interval, when the time points are quantitative marks

[IEC 60050-111]

NOTE 1 In the case of discontinuities in the time scale, such as a leap second or the change from winter time to summer time and back, the computation of the duration requires the subtraction or addition of the change of duration of the discontinuity.

NOTE 2 Duration is one of the base quantities in the International System of Quantities (ISQ) on which the International System of Units (SI) is based. The term “time” instead of “duration” is often used in this context.

NOTE 3 For the term “duration”, expressions such as “time” or “time interval” are often used. The term “time” is not recommended in this sense and the term “time interval” is deprecated in this sense to avoid confusion with the concept “time interval”.

NOTE 4 The SI unit of duration is the second.

### 2.1.7

#### **nominal duration**

duration expressed amongst others in years, months, weeks or days

NOTE The duration of a calendar year, a calendar month, a calendar week or a calendar day depends on its position in the calendar. Therefore, the exact duration of a nominal duration can only be evaluated if the duration of the calendar years, calendar months, calendar weeks or calendar days used are known.

### 2.1.8

#### **date**

time point representing a calendar day on a time scale consisting of an origin and a succession of calendar days

NOTE In IEC 60050-111 this definition corresponds with the term “calendar date”.

### 2.1.9

#### **calendar date**

date representing a particular calendar day by its calendar year, its calendar month and its ordinal number within its calendar month

### 2.1.10

#### **ordinal date**

date representing a particular calendar day by its calendar year and its ordinal number within its calendar year

### 2.1.11

#### **week date**

date representing a particular calendar day by the calendar year to which its calendar week belongs, the ordinal number of its calendar week within that calendar year and its ordinal number within its calendar week

### 2.1.12

#### **Coordinated Universal Time**

#### **UTC**

time scale which forms the basis of a coordinated radio dissemination of standard frequencies and time signals; it corresponds exactly in rate with international atomic time, but differs from it by an integral number of seconds

[IEC 60050-713]

NOTE 1 UTC is established by the International Bureau of Weights and Measures (BIPM, i.e. Bureau International des Poids et Mesures) and the International Earth Rotation Service (IERS). UTC provides the basis of standard time, the use of which is legal in most countries. The 15th Conférence Générale des Poids et Mesures (CGPM) (1975) judged in its Resolution 5 that this usage can be strongly recommended.

NOTE 2 UTC is adjusted to UT1 by the insertion or deletion of seconds, known as “leap seconds”.

NOTE 3 Greenwich Mean Time (GMT) is internationally replaced by UTC. UTC is often (incorrectly) referred to as GMT. UTC is generally used by aviation and maritime navigation that also uses local apparent time and local mean time for celestial navigation (see ISO 19018).