

ISO 8601-2:2019 (E)

Date and time — Representations for information interchange — Part 2: Extensions

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms, definitions, symbols and abbreviated terms
3.1	Terms and definitions
3.1.1	Basic concepts
3.1.2	Feature description
3.1.3	Seasons
3.2	Symbols and abbreviated terms
3.2.1	General
3.2.2	Time scale component symbols
3.2.3	Composite component symbols
3.2.4	Symbols used to represent time scale component features
3.2.5	Symbols used in date and time representations
3.2.6	Designator symbols used in date and time expressions
3.2.7	Component symbols, representations and expressions
4	Extensions to time scale components and units
4.1	General
4.2	Order of time scale units
4.3	Additional explicit forms
4.3.1	General
4.3.2	Value prefixing
4.3.3	Calendar day of week
4.3.4	Calendar day of year
4.3.5	Decade
4.3.6	Century
4.4	Numerical extensions
4.4.1	Negative values
4.4.1.1	General
4.4.1.2	Calendar year
4.4.1.3	Calendar week of year
4.4.1.4	Calendar day of month
4.4.1.5	Calendar day of year
4.4.1.6	Calendar year before year one (1)
4.4.1.7	Calendar decade before year one (1)
4.4.1.8	Calendar century before year one (1)
4.4.1.9	Duration
4.4.2	Exponential values
4.4.3	Significant digits
4.5	Qualification of uncertainty and approximation
4.6	Unspecified digits
4.6.1	General
4.6.2	Unspecified time component value in explicit forms
4.6.3	Unspecified time component digits in implicit forms
4.7	Expanded calendar year
4.7.1	General
4.7.2	Letter-prefixed calendar year

- 4.7.3 Exponential calendar year
- 4.7.4 Significant digits
- 4.8 Sub-year groupings
- 4.8.1 Listing of seasons and common sub-year groupings
- 4.8.2 Groupings represented as time scale components
- 4.8.3 Groupings represented as months
- 5 Grouped time scale units
 - 5.1 General
 - 5.2 Unit definition
 - 5.3 Unit value
 - 5.4 Application within representations
 - 5.4.1 General
 - 5.4.2 Use of grouped units
 - 5.4.3 Adherence to grouped unit boundaries
 - 5.4.4 Representation with time shift
 - 5.4.5 Conversion to basic time scale units
 - 5.4.5.1 General
 - 5.4.5.2 Truncation of partial units
 - 5.4.5.3 Spanning grouped unit boundaries
- 6 Set representation
 - 6.1 Set of date and time expressions
 - 6.2 Single element amongst set
 - 6.3 Range element expansion
 - 6.4 Set representations and expansion
 - 6.5 Expressions with time scale components
 - 6.6 Integer expressions
- 7 Explicit representation for date and time
 - 7.1 General
 - 7.2 Date
 - 7.2.1 General
 - 7.2.2 Calendar date
 - 7.2.3 Ordinal date
 - 7.2.4 Week date
 - 7.3 Time of day
 - 7.3.1 Local time of day
 - 7.3.2 Beginning of the day
 - 7.4 Time shift
 - 7.5 Date with shift
 - 7.6 Time of day with time shift
 - 7.7 Date and time of day
 - 7.7.1 General
 - 7.7.2 Date and time only
 - 7.7.3 Date and time with shift
 - 7.8 Decade
 - 7.9 Century
 - 7.10 Omission of zero-valued components
 - 7.11 Indication of precision
 - 7.12 Decimal fractions for time
 - 7.13 Representations other than complete
 - 7.14 Time intervals
 - 7.14.1 General
 - 7.14.2 Time scale component order
 - 7.14.3 Time shift indication
 - 7.15 Recurring time intervals
- 8 Qualification of date and time expressions
 - 8.1 General
 - 8.2 Principles
 - 8.2.1 Complete qualification
 - 8.2.2 Group qualification
 - 8.2.3 Individual qualification

- 8.2.4 Preferred representations for resolving ambiguity
- 8.3 Time scale components allowing qualification
 - 8.3.1 General
 - 8.3.2 Calendar year, left qualified:
 - 8.3.3 Calendar month, left qualified
 - 8.3.4 Calendar week of year, left qualified
 - 8.3.5 Calendar day of month, left qualified
 - 8.3.6 Calendar day of week, left qualified
 - 8.3.7 Calendar day of year, left qualified
 - 8.3.8 Clock hour, left qualified
 - 8.3.9 Clock minute, left qualified
 - 8.3.10 Clock second, left qualified
 - 8.3.11 Decade, left qualified
 - 8.3.12 Century, left qualified
- 8.4 Calendar date representations with qualification
 - 8.4.1 Complete representation of a calendar date
 - 8.4.2 Representations of calendar dates with reduced precision
 - 8.4.3 Expanded representations of calendar dates
 - 8.4.4 Qualification of a group of time scale components from the right
 - 8.4.5 Qualification of individual time scale components
 - 8.4.6 Allowing group and individual qualifications of time scale components
- 8.5 Date and time expressions with qualification
- 9 Unspecified digits
 - 9.1 General
 - 9.2 Calendar date representations with unspecified digits
 - 9.2.1 Unspecified time scale component values from the right
 - 9.2.1.1 Within complete representations
 - 9.2.1.2 Within reduced precision dates
 - 9.2.2 Unspecified digit anywhere in time scale component
 - 9.3 Date and time expressions with unspecified digits
- 10 Extended time interval representations
 - 10.1 General
 - 10.2 Unknown or open start or end time intervals
 - 10.3 Qualification of dates in time intervals
 - 10.3.1 General
 - 10.3.2 Complete qualification
 - 10.3.3 Partial qualification
 - 10.4 Unspecified portions of dates in time intervals
 - 10.5 Uncertain and approximate dates in unknown or open time intervals
 - 10.6 Before and after with qualified time scale components
- 11 Explicit duration and extensions
 - 11.1 General
 - 11.2 Durational units
 - 11.3 Representations
 - 11.3.1 General
 - 11.3.2 Composite representation
 - 11.3.3 Precedence representation
 - 11.4 Fractional duration
- 12 Selection of date and time
 - 12.1 General
 - 12.2 Selection rules
 - 12.2.1 Selection of calendar month of year
 - 12.2.2 Selection of calendar week of year
 - 12.3 Selection of calendar day of month
 - 12.4 Selection of week days
 - 12.5 Selection of ordinal days in calendar year
 - 12.6 Selection of hours
 - 12.7 Selection of minutes
 - 12.8 Selection of seconds
 - 12.9 Selection of position

- 12.10 Selection with time interval
 - 12.11 Application within representations
 - 12.11.1 General
 - 12.11.2 Context set by selection
 - 12.11.3 Within time intervals
 - 13 Recurring time intervals with repeat rules
 - 13.1 General
 - 13.2 Method of specification
 - 13.3 Specification of time interval
 - 13.4 Repeat rule
 - 13.4.1 General
 - 13.4.2 Eligibility part and eligible time intervals
 - 13.4.3 Selection part and selection rules
 - 13.5 Representations
 - 13.6 Evaluation of a repeat rule
 - 13.6.1 General
 - 13.6.2 Time scale unit precision
 - 13.6.3 Inheritance of component values from time interval start
 - 14 Date and time arithmetic
 - 14.1 General
 - 14.2 Addition and subtraction
 - 14.3 Multiplication
 - 14.4 Date time modified by duration
 - 15 Profiles
 - 15.1 General
 - 15.2 Requirements
- Annex A (informative) Profile: Extended Date/Time Format**
- A.1 General
 - A.2 Compliance
 - A.3 Extended format
 - A.4 Level 0
 - A.4.1 General
 - A.4.2 Date
 - A.4.3 Date and Time
 - A.4.4 Time interval
 - A.5 Level 1
 - A.5.1 General
 - A.5.2 Extended Year
 - A.5.3 Seasons
 - A.5.4 Qualification
 - A.5.5 Unspecified digits
 - A.5.6 Extended interval
 - A.6 Level 2
 - A.6.1 General
 - A.6.2 Exponential calendar year
 - A.6.3 Significant digits (as applied to year component)
 - A.6.4 Seasons
 - A.6.5 Set representation
 - A.6.6 Qualification
 - A.6.7 Unspecified digits
- Annex B (informative) Interactions between eligible time intervals with the selection part**
- B.1 General
 - B.2 Special case when the repeating cycle uses value 1
 - B.3 Orders of the repeating cycle and selection rules
 - B.3.1 Repeating cycle of higher order than selection rules
 - B.3.2 Repeating cycle of same order with selection rules
 - B.3.3 Repeating cycle of lower order than selection rules
- Annex C (informative) Compatibility considerations of repeat rules with IETF RFC 5545 recurrences**

- C.1 Evaluation of repeat rules
- C.2 Inheritance of time scale component information
- C.3 Implicit selection rules of RFC 5545
- C.4 Achieving equivalent selection rules in this document

Annex D (informative) Evaluation of date time formulas and duration considerations

- D.1 General
- D.2 Calculation of exact duration
 - D.2.1 General
 - D.2.2 Context-dependent duration
 - D.2.3 Speculative duration
- D.3 Prerequisite mechanisms for date and time calculations
 - D.3.1 Carry-over of overflow in time scale components
 - D.3.2 Truncation at time scale component boundaries
- D.4 Evaluation of date and time with duration
 - D.4.1 Simple duration
 - D.4.2 Composite duration
 - D.4.3 Precedence duration
 - D.4.4 Involving fractional duration
 - D.4.5 Involving speculative duration

Page count: 75