
**Information technology — Abstract
Syntax Notation One (ASN.1):
Specification of basic notation**

AMENDMENT 3: Time type support

*Technologies de l'information — Notation de syntaxe abstraite numéro
un (ASN.1): Spécification de la notation de base
AMENDEMENT 3: Support type de temps*

[ISO/IEC 8824-1:2002/Amd 3:2006](https://standards.iso.org/standards/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006>

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/IEC 8824-1:2002/Amd 3:2006](https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006>

© ISO/IEC 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

CONTENTS

	<i>Page</i>
1) Contents	1
2) Introduction	2
3) Subclause 2.2	2
4) New subclause 3.5 <i>bis</i>	2
5) Subclause 3.6	3
6) Subclause 8.4	3
7) New subclauses 11.15 <i>bis</i> , 11.15 <i>ter</i> , 11.15 <i>quat</i> and 11.15 <i>quin</i>	4
8) Subclause 11.27	4
9) Subclause 16.2	4
10) Subclause 16.2	5
11) Subclause 16.9	5
12) Subclause 16.10	5
13) New clause 34 <i>bis</i>	5
14) Clause 42	14
15) Subclause 47.1	16
16) Subclause 47.1	16
17) Table 9	16
18) Table 9	16
19) New Table 9 <i>bis</i>	17
20) New clauses 47.10, 47.11, 47.12, and 47.13	17
21) New Annex A <i>bis</i>	19
22) New clause E.2 <i>bis</i>	23
23) New clause E.4.8	26
24) New Annexes G <i>bis</i> and G <i>ter</i>	27
25) Annex H	35
26) Annex H	35

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national 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 and IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 3 to ISO/IEC 8824-1:2002 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.680:2002/Amd.3.

[ISO/IEC 8824-1:2002/Amd.3:2006](https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006)

<https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006>

INTERNATIONAL STANDARD
ITU-T RECOMMENDATIONInformation technology – Abstract Syntax Notation One (ASN.1):
Specification of basic notation

Amendment 3

Time type support

1) Contents

Update the Contents as follows:

3.5 <i>bis</i>	Representation of dates and times
11.15 <i>bis</i>	The simple character string lexical item
11.15 <i>ter</i>	The time value character string lexical item
11.15 <i>quat</i>	XML time value character string item
11.15 <i>quin</i>	The property and setting names lexical item
34 <i>bis</i>	The time type
34 <i>bis.1</i>	General
34 <i>bis.2</i>	Time properties and settings of time abstract values
34 <i>bis.3</i>	Basic value notation and XML value notation for time abstract values with specified property settings
34 <i>bis.4</i>	Useful time types
47.10	Property settings
47.11	Duration range
47.12	Time point range
47.13	Recurrence range
Annex A <i>bis</i>	The defined time types
A <i>bis.1</i>	General
A <i>bis.2</i>	The ASN.1 defined types module
E.2 <i>bis</i>	Value notation and property settings (TIME type and useful time types)
E.2 <i>bis.1</i>	Date
E.2 <i>bis.2</i>	Time of day
E.2 <i>bis.3</i>	Date and time of day
E.2 <i>bis.4</i>	Time interval
E.2 <i>bis.5</i>	Recurring interval
Annex G <i>bis</i>	Tutorial annex on the TIME type
G <i>bis.1</i>	The collections of ASN.1 types for times and dates
G <i>bis.2</i>	ISO 8601 key concepts
G <i>bis.3</i>	Abstract values of the TIME type
G <i>bis.4</i>	Time properties of the time abstract values
G <i>bis.5</i>	Value notation

ISO/IEC 8824-1:2002/Amd.3:2006 (E)

- G *bis*.6 Use of the ASN.1 subtype notation
- G *bis*.7 The property settings subtype notation
- Annex G *ter* Analysing **TIME** type value notation
- G *ter*.1 General
- G *ter*.2 Analysing the full string
- G *ter*.3 Analysis of a string containing an interval
- G *ter*.4 Analysis of a string containing a date
- G *ter*.5 Analysis of a string containing a year
- G *ter*.6 Analysis of a string containing a century
- G *ter*.7 Analysis of a string containing a time
- G *ter*.8 Analysis of a string containing a simple time

2) Introduction

Insert before "Clauses 35 to 40 ...":

Clause 34 *bis* and Annex A *bis* define the types that provide support for ISO 8601.

Insert before "Annex B ..."

Annex A *bis* forms an integral part of this Recommendation | International Standard, and defines an ASN.1 module containing the definition of a set of time types providing the full functionality of ISO 8601. These types can be imported from this ASN.1 module by an application designer if the useful time types specified in clause 34 *bis* are not adequate for the application.

Insert before "Annex H ..."

Annex G *bis* does not form an integral part of this Recommendation | International Standard and provides a tutorial introduction to ISO 8601 and to the **TIME** type. It is recommended that this be read before the normative text.

Annex G *ter* does not form an integral part of this Recommendation | International Standard and provides information on how to identify the time properties of an abstract value from an instance of value notation.

3) Subclause 2.2

Replace ISO 8601:2000 *with* ISO 8601:2004.

4) New subclause 3.5 *bis*

Insert the following after 3.5:

3.5 *bis* Representation of dates and times

This Recommendation | International Standard uses the following terms defined in ISO 8601:

- a) basic format;
- b) calendar date;
- c) common year;
- d) duration;
- e) extended format;
- f) Gregorian calendar;
- g) instant;
- h) leap second;
- i) leap year;

- j) local time;
- k) ordinal date;
- l) recurring time interval
- m) time axis;
- n) time interval;
- o) time point;
- p) time-scale;
- q) UTC;
- r) week date.

5) Subclause 3.6

Add the following definitions to 3.6, in the appropriate position:

3.6.2 bis additional time type: A type defined as a subtype of the time type (see 3.6.71 *quin*) by applying the property setting subtype notation to the time type or to a useful or defined time type.

3.6.18 ter defined time type: A type defined in Annex A *bis* as a subtype of the time type (see 3.6.71 *quin*) that is intended for importation by application designers when needed for their application.

3.6.63 bis setting (of a time property): One of a number of values that can be associated with a given time property (see 3.6.71 *quat* and the note in G *bis*.4.2).

NOTE – Any time property that applies to a particular time abstract value has only a single setting.

3.6.71 bis time abstract value: An abstract value of the time type.

3.6.71 ter time component: Part of the definition of a time abstract value that specifies a part of that abstract value.

NOTE – Examples of time components are a date component (that would have a year component), a time-of-day component, or a time difference component.

3.6.71 quat time property (of a time abstract value): One of a number of terms used to describe a time abstract value (see 3.6.71 *bis*).

NOTE – The time properties that can be used to describe a time abstract value often depend on the setting of some other time property of that abstract value. The time properties are listed in Table 5 *bis*, column 1.

3.6.71 quin time type: The **TIME** type that supports all the abstract values implicitly defined by ISO 8601.

3.6.76 bis useful time type: A built-in type defined as a subtype of the time type (see 3.6.71 *quin*) that is intended for direct use by application designers.

6) Subclause 8.4

In clause 8.4, modify Table 1 as follows:

Replace UNIVERSAL 14-15 with:

UNIVERSAL 14 The time type

UNIVERSAL 15 Reserved for future editions of this Recommendation | International Standard

Replace UNIVERSAL 23-24 with:

UNIVERSAL 23-24 **UTCTime** and **GeneralizedTime**

Replace UNIVERSAL 31-... with:

UNIVERSAL 31-34 **DATE**, **TIME-OF-DAY**, **DATE-TIME** and **DURATION** respectively.

UNIVERSAL 35-... Reserved for future editions of this Recommendation | International Standard

7) **New subclauses 11.15 bis, 11.15 ter, 11.15 quat and 11.15 quin**

Insert new 11.15 bis, 11.15 ter, 11.15 quat and 11.15 quin after 11.15 as follows:

11.15 bis The simple character string lexical item

Name of item – simplestring

A "simplestring" shall consist of one or more ISO/IEC 10646-1 characters whose character code is in the range 32 to 126, preceded and followed by a QUOTATION MARK (34) character ("). It shall not contain a QUOTATION MARK (34) character ("). The "simplestring" may span more than one line of text, in which case any characters representing end-of-line shall be treated as spacing characters. In analysing an instance of use of this notation, a "simplestring" is distinguished from a "cstring" by the context in which it appears.

NOTE – The "simplestring" lexical item is only used in the subtype notation of the time type.

11.15 ter Time value character strings

Name of item – tstring

A "tstring" shall consist of one or more of the characters:

0 1 2 3 4 5 6 7 8 9 + - : . , / C D H M R P S T W Y Z

preceded and followed by a QUOTATION MARK (34) character (").

NOTE – The "tstring" lexical item is only used in the value notation for the time type.

11.15 quat XML time value character string item

Name of item – xmltstring

An "xmltstring" shall consist of one or more of the characters:

0 1 2 3 4 5 6 7 8 9 + - : . , / C D H M R P S T W Y Z

NOTE – The "xmltstring" lexical item is only used in the XML value notation of the time type.

11.15 quin The property and setting names lexical item

Name of item – psname

A "psname" shall consist of an arbitrary number (one or more) of letters, digits and hyphens. The initial character shall be an upper-case letter. A hyphen shall not be the last character. A hyphen shall not be immediately followed by another hyphen.

NOTE – The "psname" lexical item is only used in the contents of the "simplestring" used in the subtype notation for the time type.

8) **Subclause 11.27**

Add the following reserved words to 11.27, in their alphabetical position:

DATE DATE-TIME DURATION SETTINGS TIME TIME-OF-DAY

9) **Subclause 16.2**

In 16.2, add the following lines to the production "BuiltinType":

After "ChoiceType":

| **DateType**
| **DateTimeType**
| **DurationType**

After "PrefixedType":

| **TimeType**
| **TimeOfDayType**

10) Subclause 16.2

In 16.2, add the following lines to the references to defining clauses:

After "ChoiceType":

DateType	34 bis.4.1
DateTimeType	34 bis.4.3
DurationType	34 bis.4.4

After "PrefixedType":

TimeType	34 bis.1.1
TimeOfDayType	34 bis.4.2

11) Subclause 16.9

In 16.9, add the following line to the production "BuiltinValue":

After "PrefixedValue":

| TimeValue

12) Subclause 16.10

In 16.10, add the following line to the production "XMLBuiltinValue":

After "XMLPrefixedValue":

| XMLTimeValue

STANDARD PREVIEW
(standards.iteh.ai)

13) New clause 34 bis

Insert a new 34 bis after clause 34 as follows:

<https://standards.iteh.ai/catalog/standards/sist/2121dea2-3ab1-416f-88c9-5401a4ff1bd5/iso-iec-8824-1-2002-amd-3-2006>

34 bis The time type**34 bis.1 General**

34 bis.1.1 The time type (see 3.6.71 *quin*) shall be referenced by the notation "TimeType":

TimeType ::= TIME

34 bis.1.2 The tag for types defined by this notation is universal class, number 14.

34 bis.1.3 The value of a time type shall be defined by the notation "TimeValue", or when used as an "XMLValue", by the notation "XMLTimeValue". The syntax of these notations is defined in 34 bis.3 as the contents of a "simplestring", using notation defined in ISO 8601, 3.4.

34 bis.2 Time properties and settings of time abstract values

34 bis.2.1 Table 5 bis specifies in column 1 the description and names of the time properties of time abstract values. In column 2, it specifies the names of the possible time property settings for the column 1 time property. Column 3 specifies (generally by reference to ISO 8601) the abstract values to which the time property is applicable, and that have the corresponding time property settings.

NOTE 1 – ASN.1 does not specify abstract values that are not supported by ISO 8601 representations.

NOTE 2 – The names of time properties and of their settings appear in the property assertions of the property settings subtype notation (see clause 47).

Table 5 bis – Properties and settings for time abstract values

Time property	Names of property settings	Abstract values that have this property setting
<p>Basic nature of the abstract value Name: Basic Comment: The setting of this property identifies the basic nature of the abstract value. All time abstract values have this property.</p>	Date	See ISO 8601, 4.1. All abstract values that are dates only.
	Time	See ISO 8601, 4.2. All abstract values that are a time-of-day only.
	Date-Time	See ISO 8601, 4.3. All abstract values that are a date and a time-of-day.
	Interval	See ISO 8601, 4.4. All the time interval abstract values.
	Rec-Interval	See ISO 8601, 4.5. All the recurring interval abstract values.
<p>Time-scale and accuracy for a date Name: Date Comment: This applies only to an abstract value that includes identification of a date. It identifies the time-scale and accuracy of that date. NOTE – Any abstract value identifying more than one date (for example, an interval) has a single setting for Date that applies to both dates.</p>	C (Century)	See ISO 8601, 4.1.2.3 c). All abstract values containing a date that represents only a century.
	Y (Year only)	See ISO 8601, 4.1.2.3 b). All abstract values containing a date that represents only a year.
	YM (Year-Month)	See ISO 8601, 4.1.2.3 a). All abstract values containing a date that uses the year-month time-scale.
	YMD (Year-Month-Day)	See ISO 8601, 4.1.2.2. All abstract values containing a date that uses the year-month-day time-scale.
	YD (Year-Day)	See ISO 8601, 4.1.3.2. All abstract values containing a date that uses the year-day time-scale.
	YW (Year-Week)	See ISO 8601, 4.1.4.3. All abstract values containing a date that uses the year-week time-scale.
	YWD (Year-Week-Day)	See ISO 8601, 4.1.4.2. All abstract values containing a date that uses the year-week-day time-scale.

Table 5 bis – Properties and settings for time abstract values

Time property	Names of property settings	Abstract values that have this property setting
<p>Type of associated year</p> <p>Name: Year</p> <p>Comment: This applies only to an abstract value that includes identification of one or more years or centuries. Its setting identifies whether the year (or century) identification is a "normal" year, a year in the proleptic Gregorian Calendar (see G bis.2.2), a year that is negative, or a year that requires more than four digits to represent it.</p> <p>NOTE – Any abstract value involving more than one year (for example, an interval) has a single setting for Year that applies to both years.</p>	Basic	All abstract values containing a year in the range 1582 to 9999 (or a century in the range 15 to 99).
	Proleptic	All abstract values containing a year in the range 0 to 1581 (or a century in the range 00 to 14). NOTE – In the proleptic Gregorian calendar, a year value of zero has a meaning which roughly corresponds to the year 1 BC (see G bis.2.2).
	Negative	All abstract values containing a year in the range –9999 to –0001 (or a century in the range –99 to –01).
	L5, L6, L7, etc., to infinity (Large)	All abstract values containing a year whose decimal representation requires 5, 6, 7, etc., digits (or a century whose decimal representation requires 3, 4, 5, etc., digits) respectively, whether positive or negative.
<p>Accuracy for a time</p> <p>Name: Time</p> <p>Comment: This applies only to an abstract value that includes identification of a time-of-day. It identifies the accuracy of that time-of-day.</p> <p>NOTE – Any abstract value identifying more than one time-of-day (for example, an interval) has a single setting for Time that applies to both the time-of-days.</p>	H (Hour)	See ISO 8601, 4.2.2.3 b). All abstract values containing a time-of-day to an accuracy of hours.
	HM (Hour-Minute)	See ISO 8601, 4.2.2.3 a). All abstract values containing a time-of-day to an accuracy of minutes.
	HMS (Hour-Minute-Second)	See ISO 8601, 4.2.2.2. All abstract values containing a time-of-day to an accuracy of seconds.
	HF1, HF2, HF3, etc., to infinity (Hour-decimal-fraction)	See ISO 8601, 4.2.2.4 c). All abstract values containing a time-of-day to an accuracy of hours to 1, 2, 3, etc., decimal places.
	HMF1, HMF2, HMF3, etc., to infinity (Hour-Minute-fraction)	See ISO 8601, 4.2.2.4 b). All abstract values containing a time-of-day to an accuracy of minutes to 1, 2, 3, etc., decimal places.
	HMSF1, HMSF2, HMSF3, etc., to infinity (Hour-Minute-Second-Fraction)	See ISO 8601, 4.2.2.4 a). All abstract values containing a time-of-day to an accuracy of seconds to 1, 2, 3, etc., decimal places.

Table 5 bis – Properties and settings for time abstract values

Time property	Names of property settings	Abstract values that have this property setting
<p>Local or UTC time-scale for a time Name: Local-or-UTC Comment: This applies only to an abstract value that includes identification of a time. It identifies the time-scale of that time (local time, UTC, or local time plus the difference from UTC). Time differences are determined by local administrations. ASN.1 supports time differences in the range –15 hours to +16 hours. The difference is positive if the local time is ahead of or equal to UTC (see ISO 8601, 5.2.4.1). See also G bis.2.11. NOTE – Any abstract value identifying more than one time (for example, an interval) has a single setting for Local-or-UTC that applies to both times.</p>	L (Local time only)	See 34 bis.2.2 and ISO 8601, 4.2.2 and 4.2.3. All abstract values containing a time-of-day that specifies local time only.
	Z (UTC only)	See ISO 8601, 4.2.4. All abstract values containing a time-of-day that specifies UTC and not local time.
	LD (Local time and the difference from UTC)	See ISO 8601, 4.2.5. All abstract values containing a time-of-day that specifies local time and the time (which may be negative) added to UTC to obtain local time.
<p>Form of interval specification Name: Interval-type Comment: This applies only to an abstract value that is an interval or a recurring interval. It identifies the form of interval specification (a start and an end point, a duration, a start point and a duration, or a duration with an end point).</p>	SE (Start and end points)	See ISO 8601, 4.4.1 a). All abstract values that specify an interval using a start and an end point.
	D (Duration only)	See ISO 8601, 4.4.1 b) and 4.4.3. All abstract values that specify an interval using only a duration.
	SD (Start point and duration)	See ISO 8601, 4.4.1 c). All abstract values that specify an interval using a start point and a duration.
	DE (Duration and end point)	See ISO 8601, 4.4.1 d). All abstract values that specify an interval using a duration and an end point.
<p>Nature of the start and/or end point specification Name: SE-point Comment: This applies only to intervals or recurring intervals using a start point or an end point or both. The setting of this property identifies the nature of the start point and/or end point that forms part of this abstract value. NOTE – All interval abstract values with both a start point and an end point have a single setting for this property, and for any associated properties related to date or time-of-day. There are no interval abstract values that have different forms of start point and end point. Thus all abstract values with both an interval start point and an interval end point have the same set of time components for the start point and the end point (but see Table 5 ter for value notation for the end-point). This is a difference from ISO 8601.</p>	Date	See ISO 8601, 4.1. All abstract values that specify start and/or end points using dates only.
	Time	See ISO 8601, 4.2. All abstract values that specify start and/or end points using time-of-day only.
	Date-Time	See ISO 8601, 4.3. All abstract values that specify start and/or end points using a date and a time-of-day.
<p>Recurrence specification Name: Recurrence Comment: This applies only to an abstract value that is a recurring interval. It identifies the agreed limits on the number of recurrences (or unlimited).</p>	Unlimited (No limit on the number of recurrences, expressed with an empty string for the number of recurrences)	See ISO 8601, 4.5. All abstract values representing an unlimited number of recurrences of an interval.
	R1, R2, R3, etc., to infinity (Number of recurrence digits)	See ISO 8601, 4.5. All abstract values representing recurrences of an interval that can be expressed in 1, 2, 3, etc., digits respectively.

Table 5 bis – Properties and settings for time abstract values

Time property	Names of property settings	Abstract values that have this property setting
Midnight start or end of a day Name: <i>Midnight</i> Comment: This applies only to an abstract value that contains a time that represents midnight. It identifies whether this midnight value is the start of a day (often represented as 00:00:00) or the end of a day (often represented as 24:00:00).	Start (Start-of-day)	See ISO 8601, 4.2.3 a). An abstract value containing a time that represents midnight at the start of a day.
	End (End-of-day)	See ISO 8601, 4.2.3 b). An abstract value containing a time that represents midnight at the end of a day.
NOTE – ASN.1 does not support the use of start and end points of intervals that have different time properties, as there is only a single SE-point setting that governs the syntax of both the start point and the end-point. The start and end points are required to use the same time format. This is a difference from ISO 8601.		

34 bis.2.2 ISO 8601 provides two basic representations for midnight: "2400" for midnight at the end of a day and "0000" for midnight at the start of a day (with any second or fractional part of a second containing only zero digits). These are not considered different representations for a single abstract value, but as distinct abstract values.

NOTE 1 – This is because as a stand-alone time, they are clearly distinct and represent start of a day and end of a day. When used in conjunction with a day, "2400" on day x should be considered less than "0000" on day x+1, despite having exactly the same position on the time axis.

NOTE 2 – They have, respectively, the time property setting "**Midnight=End**" and "**Midnight=Start**".

NOTE 3 – As with other time points, there are infinitely many distinct abstract values that are midnight at the start and end of any particular day, depending on the accuracy of the seconds and fractional part of seconds. There are also further infinite sets of midnight abstract values based on the use of fractions of an hour or of a minute rather than of seconds. (All these fractional parts will be zero to various different accuracies if the abstract value is a midnight value.)

34 bis.2.3 ISO 8601 provides two basic representations for duration (either weeks, or some combination of years, months, days, hours, minutes and seconds) as a component of time intervals and recurring time intervals. Different strings representing durations in ISO 8601 are considered to represent different abstract values in ASN.1, except where the only difference is the omission or inclusion of a zero time component that does not change the duration (including the accuracy of the duration) being represented. Inclusion or omission of zero time components is fully specified in canonical encoding rules, and in all the encoding rules of ITU-T Rec. X.691 | ISO/IEC 8825-2. There are no time properties (other than "**Basic=Interval Interval-type=D**") associated with a duration, but restrictions can be applied to the time components of a duration, requiring them to be absent or limiting their value (see 34 bis.4.4).

NOTE 1 – There is an ISO 8601 requirement for prior agreement on the size of components (and particularly of fractional parts). This is normally handled by property settings for the different accuracies. However, in the case of **DURATION**, for simplicity, property settings were not introduced to determine the accuracy of the components. Instead, inner subtyping constraints on the equivalent sequence type can be applied, as specified in 34 bis.4.4, to record prior agreements on the components of a **DURATION**.

NOTE 2 – ISO 8601 requires that use of a weeks component shall not be combined with the use of any other date component (years, months, days), nor with the use of an hours, minutes, or seconds time component. This restriction is also applied in ASN.1 for consistency with ISO 8601.

34 bis.2.4 There is no defined order relation between the different **DURATION** abstract values unless they are expressed using a single time element (for example, weeks or months or days only), as there is no agreed international definition of a duration of one month or one year in terms of seconds.

34 bis.3 Basic value notation and XML value notation for time abstract values with specified property settings

34 bis.3.1 All time abstract values with the same time property settings have the same value notation, varied only by the values of year, month, week, day, hour, minute, second, etc. (on the associated time-scale) that are used to distinguish that abstract value from others with the same property settings.

34 bis.3.2 The value notations for the time type shall be "TimeValue" and "XMLTimeValue":

TimeValue ::= tstring

XMLTimeValue ::= xmltstring

The content of the "tstring" and of the "xmltstring" is defined in 34 bis.3.4 using the time component syntax that is defined in column 3 of Table 5 ter. Table 5 ter defines a number of possible notations for the different components (for example, the year component). The precise notation to be used depends on the property settings of the abstract value specified in column 2. Properties not listed in column 2 have no effect on the notation to be used for the component.