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Standard coding of dates and periods

Codification unifiée des dates et des périodes

Einheitliche Codierung des Datums und der Zeitabschnitte



UNION INTERNATIONALE DES CHEMINS DE FER
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Summary

This leaflet sets out the coding system for dates and periods that must be used by all UIC members in electronic data interchange.

The leaflet contains two coding systems:

1. A system based on *ISO Standard 8601* that must be used for all new message development. It offers railway companies the possibility to exchange date and period data with non-UIC parties.
2. A proprietary UIC system. This system is kept in the leaflet only to enable railway companies to continue to use existing messages and, as such, to avoid main changes in their systems. In the long term, it will be abolished.

In addition, the leaflet lists some UIC proprietary provisions which have no equivalent in *ISO Standard 8601*. They may be used together with the *ISO Standard 8601* coding system.

1 - Introduction

Electronic data interchange (EDI) facilitates communication between railway companies. However, one of the main requirements to achieve smooth communication is the use of a common codification system for the coded data elements contained in electronic messages.

The aim of this leaflet is to set forth the principles of a uniform coding system for the representation of dates and periods based on the Gregorian calendar. It contains the following main parts:

1. **A coding system based on *ISO Standard 8601* (see Bibliography - page 25).**

It enables UIC members to exchange date and period data not only within the UIC community, but also with third parties. The use of this coding system is mandatory for all newly developed messages.

2. **A proprietary UIC coding system.**

In order to allow railway companies to continue to use existing messages and, as such, to prevent the need for changes in these messages and in the computer systems that use them, the old, proprietary coding system of UIC is temporarily kept in the leaflet. This system is no longer allowed for new message development and should be abolished in the long term.

3. **Additional UIC proprietary provisions.**

Some cases of period representations provided by the UIC proprietary coding system are not covered by *ISO Standard 8601*. These cases are included as a separate part in the leaflet and adapted to the *ISO Standard 8601* formats.

2 - ISO Standard 8601 based coding system

2.1 - General remarks

This point sets forth the principles of uniform date and time period coding, in accordance with *ISO Standard 8601*.

To avoid any ambiguity in representations of dates, times and periods of time, single letter designators are employed in certain cases.

This point only includes the parts of the *ISO Standard 8601*, which are of mandatory use for date, time and period representation in UIC-based messages. UIC members may use other parts of that standard in bilateral agreement.

2.2 - Coding principles

2.2.1 - *ISO Standard 8601* deals with the coding of dates (i.e. the stipulation of a point in time according to the Gregorian calendar) and of time periods (i.e. intervals between two points in time).

The structure and structural principles of the code are explained in points **2.3** (dates) - [page 4](#), **2.4** (time of the day) and **2.5** (date/time combined) - [page 6](#) and **2.6** (time periods) - [page 8](#).

For certain applications with special requirements and under precise conditions established by the competent Commission, non-significant characters may be omitted as a means of reducing costs. Blanks should not be used in the representations either.

2.2.2 - Uniform date and time period coding in accordance with *ISO Standard 8601* requires the use of appropriate (written) characters (figures, letters and punctuation marks).

2.2.3 - Where necessary, the following characters are used for separation purposes:

- [-] (hyphen) to separate the elements of a date (year, month, day, or sometimes week),
- [:] (colon) to separate the elements of a time (hour, minute, second),
- [/] (slash) to separate the two components in the representation of periods of time.

For UIC messages, the use of these separators is not recommended.

2.2.4 - Characters used as designators:

- [P] is used as time interval (period) designator, preceding a data element which represents a given duration of a time interval,
- [T] is used as time designator to indicate the start of the representation of the time of the day in combined date and time of day expressions,
- [W] is used as week designator, preceding a data element that represents the ordinal number of a calendar week within the year.

In representations of duration (see point 2.6.1.2 - page 8), the following characters are also used as a part of the representation when required: [Y] year, [M] month or minutes, [W] week, [D] day, [H] hour and [S] second.

ISO Standard 8601 contains other designators that may be used in representations of periods of time. They are not recommended for use in UIC messages.

o 2.3 - Uniform coding of dates

2.3.1 - Code structure

2.3.1.1 - Calendar date (basic code)

The full basic code (calendar date) has 8 numeric positions.

The positions are divided up into 3 groups, each of which represents a time unit.

Year	Month	Day
XXXX	XX	XX

Example: 18 February 1998

Basic code: 19980218

Extended format: 1998-02-18

2.3.1.2 - Variant 1 (ordinal dates)

This variant allows for the use of ordinal day numbers in a given year.

The full code has 7 numeric positions.

The positions are divided up into 2 groups, each of which represents a time unit.

The ordinal day number in the year is represented using three digits (the first day of the year being [001] and subsequently days shall be numbered in ascending sequence).

Year	Day
XXXX	XXX

Example: the 49th day of 1998

Basic code: 1998049

Extended format: 1998-049

2.3.1.3 - Variant 2 (week dates)

This variant allows for the use of the week date (calendar week and day of the week) in a given year.

The full code has 7 numeric and 1 alphabetic positions.

The numeric positions are divided up into 3 groups, each of which represents a time unit.

The calendar week in the year is represented using two digits (the first calendar week of the year being [01] and subsequently weeks shall be numbered in ascending sequence).

The day of the week is represented by one digit. Monday shall be identified as day [1] of any calendar week, and subsequent days of the same week shall be numbered in ascending sequence to Sunday (day [7]).

The week date is preceded by a designator [W].

Year	Separator	Calendar week	Day of the week
XXXX	W	XX	X

Example: Tuesday in the 37th week of 2000

Basic code: 2000W372

Extended format: 2000-W37-2

2.3.2 - Rules for composition of the uniform code

2.3.2.1 - Only four-digit year codes should be used.

2.3.2.2 - Representations may be truncated in order to avoid the obligation to specify unnecessary trailing elements such as days and months.

Example:

2001 the year 2001

200101 January 2001

2001W13 13th week of 2001