

Solaris Date Notation

A standardised notation for Calendarium Solaris dates and moments

SDN v2.0.2 · companion document to Full Specification v3.09.1

Trial period commences: Equinox 0°, 2026 · official epoch: Equinox 0°, Year 0, 2028

1. Introduction

The Solaris Date Notation, SDN, is the standard format for writing dates and moments in the Calendarium Solaris. It follows the structural logic of ISO 8601, the international standard for date and time representation, and is explicitly distinct from it. It is not a profile of ISO 8601: that standard is defined for the Gregorian calendar only and expressly excludes other systems.

What the notation has to do

- **Unambiguous**, so that a Solaris date cannot be mistaken for a Gregorian one.
- **Consistent**, so that the same structure covers every kind of date.
- **Sortable**, so that dates fall in chronological order under a plain alphanumeric sort.
- **Machine readable**, with no words and no dependence on language.
- **Human readable**, so that anyone who knows ISO 8601 recognises the shape at once.
- **Self contained**, so that recording a moment requires no time standard outside the calendar.

2. What changed in version 2.0

Version 1.0 recorded a moment as a timestamp in Coordinated Universal Time, in the manner of ISO 8601. That made the notation depend on a time standard outside the calendar, so a system that wanted to use nothing but the Calendarium Solaris still had to reach for UTC in order to record anything at all.

Version 2.0 records a moment as the minute of the day, on a scale that begins on the first day of the calendar. Section 6 sets it out.

The date fields are unchanged. Every date written under version 1.0 is a valid date under version 2.0. Only the time component is replaced, and a version 1.0 timestamp converts to a version 2.0 moment without loss.

3. General structure

Every SDN representation begins with the prefix **CS**, for Calendarium Solaris, which distinguishes it from any other date format at a glance. Elements are separated by a full stop, where ISO 8601 uses a hyphen.

General format

CS . [ERA+YEAR] . [MONTH or OUTSIDE DAY CODE] . [DAY]

The era is a single letter immediately before the year.

Era	Letter	Meaning
Post Originem	P	Years from Year 0 onward
Ante Originem	A	Years before Year 0

The year is always five digits, padded with leading zeros. Year 0 is the official epoch, Equinox 0° of 2028. Five digits cover the full sixteen thousand year operational horizon of the calendar.

4. Ordinary calendar dates

An ordinary date carries a year, a two digit month number from 01 to 12, and a two digit day number from 01 to 30.

Format

CS . [ERA] [YYYYY] . [MM] . [DD]

Date	SDN	Note
Primisol 1, Year 0	CS . P00000 . 01 . 01	First day of the official epoch
Sextisol 15, Year 2 P.O.	CS . P00002 . 06 . 15	Ordinary date, Post Originem
Duodesisol 30, Year 2 A.O.	CS . A00002 . 12 . 30	Ordinary date, Ante Originem
Quartisol 8, Year 100 P.O.	CS . P00100 . 04 . 08	Three digit year, padded to five

5. Outside days and weekdays

An outside day carries no month and no day number, so in SDN it takes a three character code in place of both fields.

Format

CS . [ERA] [YYYYY] . [CODE]

Outside day	Code	Example	Note
Equinox 0°	EQ0	CS . P00002 . EQ0	Annual epoch, start of the year
Solstice 90°	SS1	CS . P00002 . SS1	First solstice of the year
Equinox 180°	EQ2	CS . P00002 . EQ2	Mid year equinox
Solstice 270°	SS3	CS . P00002 . SS3	Final solstice of the year
Yearday	YRD	CS . P00002 . YRD	Closing day of every standard year
Intercalary Day	ICD	CS . P00004 . ICD	Leap years only, follows Yearday

EQ derives from Equinox and SS from Solstice; the digit is the ecliptic longitude of the Sun at that moment. YRD and ICD are direct abbreviations.

Optional weekday

The weekday may be appended as an optional suffix, separated by a single space and prefixed with the letter D. Every Calendarium Solaris date falls on a permanent and invariant weekday, so the weekday can always be derived from the date; the suffix is for convenience only.

Format

CS. [ERA] [YYYYYY] . [MM] . [DD] D[N]

Code	Weekday	Meaning
D1	Solcycli	Initiation
D2	Luxcycli	Growth
D3	Maxcycli	Apex
D4	Descycli	Descent
D5	Paxcycli	Rest

Outside days carry no weekday and therefore never receive a D suffix.

6. Moments: the minute of the day

A date says which day of the year it is. A moment says which minute of the day it is, and it is built on the same principle.

The notation writes no hours. An hour of the sun is a reading taken at a place: the fourth hour after sunrise in Porto and the fourth hour after sunrise in Sydney are not the same moment. A record that cannot be compared is not a record, so what is written down is the minute, counted from the start of the day, and the hour is left to the reading.

6.1 The scale

- A minute is sixty seconds and never varies.
- A day is exactly 1440 minutes and never varies.
- Minute 0 of the first day of Year 0 is the start of the whole day in which Equinox 0°, Year 0, the epoch of the calendar, falls: 0:00 UTC on 20 March 2028. Every later day begins a whole number of days after it.

The day is rounded to a whole day, just as a Gregorian date begins at 0:00 and not at the moment of the equinox that falls on it. The definition names no place and no meridian. A time standard is used once, to fix the instant at which the count begins; after that instant the scale rests on the second alone.

6.2 How a moment is written

Format

CS. [ERA+YEAR] . [MONTH or OUTSIDE DAY CODE] . [DAY] .M[MINUTE]

Moment	SDN
Tertisol 15, Year 3, minute 872	CS.P00003.03.15.M0872
The same moment, to the second	CS.P00003.03.15.M0872:34
Yearday, Year 2, minute 100	CS.P00002.YRD.M0100
The start of Year 0	CS.P00000.EQ0.M0000
Equinox 0°, Year 0, the epoch itself	CS.P00000.EQ0.M0137

The minute is always four digits, from M0000 to M1439, padded with leading zeros so that a plain text sort keeps the order of the clock. A second, where one is needed, follows a colon.

6.3 Why the minute and not the hour

An hour of the sun is twelve to a half day, so it stretches and shrinks with the place and the day of the year. A minute does not: inside an hour of the sun the minutes are ordinary minutes, and only the number of them that fits into an hour changes. The minute is therefore the largest unit of the system that is the same everywhere, which makes it the unit a record can be built on.

6.4 What an implementation holds

The count of minutes since the epoch is a single whole number. Comparing two moments, subtracting them, adding a span and sorting a column are then arithmetic, and none of them asks where the sun is. The written form above is for exchange and for reading; what a system stores is the count.

Two requirements hold for any implementation.

1. The stored value is the number, not the text.
2. The minute is sixty seconds, never a fourteen hundred and fortieth of the day as it actually ran. A minute that stretches makes two implementations disagree about which of two moments came first.

6.5 The hour of the sun is the reading

A moment is shown to a person as an hour of the sun at the place they are: 4:16 DT, 5:65 NT. That reading follows from the minute together with the position. It is never the record. The relation is the same one an ordinary local time has to a timestamp.

6.6 Where the day turns over

The day of a record turns over at the boundary the epoch sets. The day a person lives turns over at sunrise where they stand. The same instant can therefore carry one day number in a record and another one on a screen, in the same way that a date today differs from one time zone to the next. Both are right; they answer different questions. The day that begins at sunrise is defined in Section 9 of the Full Specification.

Equinox 0° opens each year, and in every year, Year 0 included, the astronomical moment falls inside its Anchor Day rather than exactly at the start of it. That is the same behaviour the Anchor Days already have: they follow the solar event rather than a numeral.

7. Sorting

SDN moments fall in chronological order under a plain alphanumeric string sort, because every field has a fixed width and the fields run from the largest to the smallest: era, year, month, day, minute.

Two exceptions require handling.

1. **Ante Originem years count backwards.** CS . A00002 comes before CS . A00001 in time but after it in an alphanumeric sort. Where strict chronological ordering of A.O. dates is required, the year value has to be negated before sorting.
2. **Outside days carry a letter code** where an ordinary date carries a month number, and a letter sorts after a digit. CS . P00002 . EQ0 is the first day of its year but sorts behind CS . P00002 . 12 . 30, the last ordinary date in it. Where outside days and ordinary dates are sorted together, the sort has to be done on the day number of the year, or on the count of minutes since the epoch, rather than on the text.

8. The bridge to Gregorian time

For as long as both systems are in use, a Gregorian date and time may be carried alongside an SDN moment, in the way the Gregorian date is carried behind the Solaris date: small, in brackets, and never as the record. It is written in ISO 8601, the standard the rest of the world uses.

Moment	SDN	Alongside it
The epoch	CS . P00000 . EQ0 . M0137	20 March 2028, 02:17 UTC
Start of the trial period	CS . A00002 . EQ0 . M0886	20 March 2026, 14:46 UTC

The two columns are not two notations for the same thing. The left one is what the moment is; the right one is where it falls in a system that is being left behind, and it can be dropped without anything being lost.

9. Version history

Version	Change
1.0	First publication. Dates as described here; moments as an ISO 8601 timestamp in UTC.
2.0	Moments as the minute of the day on a scale anchored to the epoch of the calendar. No dependence on UTC, on a meridian or on any other time standard. Date fields unchanged.
2.0.1	Corrected the Gregorian date of the epoch to 20 March 2028. Reference to Full Specification v3.09, which defines the day that begins at sunrise.
2.0.2	Minute 0 is the start of the whole day in which the epoch falls, 0:00 UTC on 20 March 2028, rather than the moment of the equinox itself. The epoch is therefore minute 137 of its day, and the start of the trial period minute 886 of its day. Reference to Full Specification v3.09.1.