

# srfi-19 egg

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Provides SRFI-19.  
Extension for Chicken Scheme  
Version 1.6

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## Table of Contents

<b>1</b>	<b>About this egg .....</b>	<b>1</b>
1.1	Version history .....	1
1.2	Requirements .....	1
1.3	Usage .....	1
<b>2</b>	<b>Documentation .....</b>	<b>2</b>
2.1	Extensions to SRFI-19 .....	2
2.1.1	Notes .....	2
2.1.2	Procedures .....	2
<b>3</b>	<b>Issues .....</b>	<b>5</b>
<b>4</b>	<b>License .....</b>	<b>6</b>
	<b>Index .....</b>	<b>7</b>

# 1 About this egg

## 1.1 Version history

- 1.6 Bug fix for inexact seconds in time->date [thanks to Peter Bex]
- 1.5 Bug fix for compiled use
- 1.4 Exports
- 1.3 Bug fix
- 1.2 Slightly smaller and faster
- 1.1 Some srfi-18 conflict reduction
- 1.0 Initial release

## 1.2 Requirements

This egg requires the following extensions:

`locale`, `srfi-29`, `vector-lib`, `numbers`

## 1.3 Usage

Load this egg like so:

```
(require-extension srfi-19)
```

## 2 Documentation

srfi-19 is a CHICKEN port of SRFI-19.

This package largely follows the specification of SRFI-19. For more information see the documentation for [SRFI-19](#).

### 2.1 Extensions to SRFI-19

#### 2.1.1 Notes

The `nanosecond` time object element is an integer between 0 and 999,999,999 inclusive. (Not an extension, the srfi document is just wrong.)

The procedure `srfi-19:current-time` is a synonym for the `current-time` procedure.

The procedure `srfi-19:time?` is a synonym for the `time?` procedure.

The `string->date` procedure allows the template-name argument to be optional. When missing the locale's date-time-format string is used. The supplied locale bundle's strings are invertible.

The `make-date` procedure allows an optional timezone abbreviation name as the last argument.

Where the srfi document states a `tz-offset` argument a timezone-locale structure is allowed, in addition to an offset value. A timezone-locale structure is a pair where the car is a boolean stating whether daylight saving time (summer time) is in effect, and the cdr is a timezone-components object.

Be careful using the procedures that return some form of 'julian-day.' These are implemented using the full numeric tower and *will* return rational numbers. Performing arithmetic with such a result will require the "numbers" egg. See the file "srfi-19-test.scm" in this egg for an example.

#### 2.1.2 Procedures

`read-leap-second-table` [procedure]

(`read-leap-second-table` [FILENAME])

Sets the leap second table from the specified FILENAME. When missing the (repository-path) "tai-utc.dat" filename is used. (Missing from the srfi document.)

`leap-year?` [procedure]

(`leap-year?` DATE)

Is the specified DATE year a leap year? (Not an extension, just missing from the srfi document.)

`time->srfi-18-time` [procedure]

(`time->srfi-18-time` TIME)

Converts a srfi-19 time object to a srfi-18 time object. The conversion is really only meaningful for time-duration, but any time-type is accepted.

**srfi-18-time->time** [procedure]  
 (srfi-18-time->time TIME)

Converts a srfi-18 time object into a srfi-19 time-duration object.

**seconds->time/type** [procedure]  
 (seconds->time/type SECONDS [TIME-TYPE])

Converts a SECONDS value, may be fractional, into a TIME-TYPE time object. The default time-type is time-duration.

**seconds->date/type** [procedure]  
 (seconds->date/type SECONDS [DATE-TYPE])

Converts a SECONDS value, may be fractional, into a date object. The DATE-TYPE is #t for the local timezone or #f for the utc timezone. The default date-type is #f.

**format-date** [procedure]  
 (format-date DESTINATION DATE-FORMAT-STRING [DATE])

Displays a text form of the DATE on the DESTINATION using the DATE-FORMAT-STRING. When the destination is #t the current-output-port is used, and the date object must be specified. When the destination is a string the date-format-string value must be a date object, the destination value is used as the date-format-string, and the result is returned as a string. When the destination is a port it must be an output-port, and the date object must be specified. When the destination is a number the current-error-port is the destination, and the date object must be specified. When the destination is #f the result is returned as a string, and the date object must be specified.

**scan-date** [procedure]  
 (scan-date SOURCE TEMPLATE-STRING)

Reads a text form of a date from the SOURCE, following the TEMPLATE-STRING, and returns a date object. When the source is #t the current-input-port is used. When the source is a port it must be an input-port. When the source is string it should be a date text form.

**copy-date** [procedure]  
 (copy-date DATE)

Returns an exact copy of the specified DATE object.

**date-zone-name** [procedure]  
 (date-zone-name DATE)

Returns the timezone abbreviation of the specified DATE object. The result is either a string or #f.

**time->nanoseconds** [procedure]  
 (time->nanoseconds TIME)

Returns the TIME object value as a nanoseconds value.

**nanoseconds->time** [procedure]  
 (nanoseconds->time NANOSECONDS [TIME-TYPE])

Returns the NANOSECONDS value as a time TIME-TYPE object. The default time-type is time-duration.

`nanoseconds->seconds` [procedure]

`(nanoseconds->seconds NANOSECONDS)`

Returns the NANOSECONDS value as an inexact seconds value.

`milliseconds->time` [procedure]

`(milliseconds->time MILLISECONDS [TIME-TYPE])`

Returns the MILLISECONDS value as a time TIME-TYPE object. The default time-type is `time-duration`.

`time->date` [procedure]

`(time->date TIME)`

Returns the TIME object value as a date. A shorthand for the `(time-->date ...)` procedures.

### 3 Issues

The SRFI-18 `current-time` and `time?` procedures conflict with this srfi's procedures.

The SRFI-18 time object is not accepted except by the conversion procedures.

On a non-GNU (`build-platform`) there is no default local timezone abbreviation. I hope to rectify this in the future.

The expression `(time=? (seconds->time/type (nanoseconds->seconds (time->nanoseconds a-time-duration))) a-time-duration)` might be `#f`, due to the use of inexact arithmetic.

While it is possible to coerce 'julian-day' results to an inexact number the "numbers" egg bindings will be active/loaded anyway. This can be a problem with a file compiled using 'generic-arithmetic'. I suggest an intermediate file that wraps any 'julian-day' calls and coerces to an inexact number. Use the wrapped 'julian-day' call in your 'generic-arithmetic' source.

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# Index

## C

copy-date ..... 3

## D

date-zone-name ..... 3

## F

format-date ..... 3

## L

leap-year? ..... 2

## M

milliseconds->time ..... 4

## N

nanoseconds->seconds ..... 4

nanoseconds->time ..... 3

## R

read-leap-second-table ..... 2

## S

scan-date ..... 3

seconds->date/type ..... 3

seconds->time/type ..... 3

srfi-18-time->time ..... 3

## T

time->date ..... 4

time->nanoseconds ..... 3

time->srfi-18-time ..... 2