Package 'dttr2'

October 13, 2022

Title Manipulate Date, POSIXct and hms Vectors

Version 0.4.2

Description Manipulates date ('Date'), date time ('POSIXct') and time ('hms') vectors. Date/times are considered discrete and are floored whenever encountered. Times are wrapped and time zones are maintained unless explicitly altered by the user.

License MIT + file LICENSE

URL https://github.com/poissonconsulting/dttr2

BugReports https://github.com/poissonconsulting/dttr2/issues

Depends R (>= 3.4)

Imports chk, hms, lifecycle

Suggests covr, rlang, testthat (>= 3.0.0)

RdMacros lifecycle

Config/testthat/edition 3

Encoding UTF-8

Language en-US

RoxygenNote 7.2.1

NeedsCompilation no

Author Joe Thorley [aut] (<https://orcid.org/0000-0002-7683-4592>), Ayla Pearson [aut, cre] (<https://orcid.org/0000-0001-7388-1222>), Poisson Consulting [cph, fnd]

Maintainer Ayla Pearson <ayla@poissonconsulting.ca>

Repository CRAN

Date/Publication 2022-09-26 21:00:07 UTC

R topics documented:

`check_tz` *Check Time Zone*

Description

Checks an object's time zone as returned by `dtt_tz()`.

Usage

```
check_tz(x, tz = dtt_tz(x), x_name = substitute(x), error = TRUE)
```

Arguments

`x`	The object to check.
`tz`	A string of the time zone to check that x's matches.
`x_name`	A string of the name of the object.
`error`	A flag indicating whether to throw an informative error or immediately generate an informative message if the check fails.

Value

An invisible copy of x (if it doesn't throw an error).

See Also

`dtt_tz()`

Other check: `chk_time()`

Examples

```
check_tz(Sys.time(), "UTC", error = FALSE)
```

chk_time *Check Time*

Description

Checks if scalar hms object using `vld_time()`.

Usage

```
chk_time(x, x_name = NULL)
```

Arguments

x	The object to check.
x_name	A string of the name of object x or NULL.

Value

`NULL`, invisibly. Called for the side effect of throwing an error if the condition is not met.

See Also

Other check: `check_tz()`

Examples

```
chk_time(hms::as_hms("10:00:10"))
try(chk_time(1))
```

dtt *dtt Object*

Description

A dtt (short for date time) object is an object of class Date (date), POSIXct (datetime) or hms (time).

dtt_add_units *Add Time Units*

Description

Add time units to a date time vector.

Usage

```
dtt_add_units(x, units, n = 1L)

dtt_add_years(x, n = 1L, ...)

dtt_add_months(x, n = 1L, ...)

dtt_add_days(x, n = 1L, ...)

dtt_add_hours(x, n = 1L, ...)

dtt_add_minutes(x, n = 1L, ...)

dtt_add_seconds(x, n = 1L, ...)
```

Arguments

x	A date/time vector.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
n	An integer of the number of units.
...	Unused.

Value

The modified date time vector.

See Also

dtt_subtract_units()

Other add: dtt_date_add_time()

Examples

```
dtt_add_units(as.Date("1999-12-31"), "days")
```

dtt_adjust_tz *Adjust Time Zone*

Description

Adjusts the time zone so that clock (but not the actual) time is altered for a date time vector. Equivalent to `lubridate::with_tz()`.

Usage

```
dtt_adjust_tz(x, tz = dtt_default_tz(), ...)

## S3 method for class 'POSIXct'
dtt_adjust_tz(x, tz = dtt_default_tz(), ...)
```

Arguments

`x`	A POSIXct vector.
`tz`	A string of the time zone.
`...`	Unused.

Value

The date time vector with the new time zone and time.

Methods (by class)

- `dtt_adjust_tz(POSIXct)`: Adjust the time zone for a POSIXct vector

See Also

`dtt_set_tz()`

Other tz: `dtt_set_tz()`, `dtt_sys_tz()`, `dtt_tz()`

Examples

```
dtt_adjust_tz(as.POSIXct("1970-01-01", tz = "Etc/GMT+8"), tz = "UTC")
```

dtt_adjust_units *Adjust Units*

Description

Adjust Units

Usage

```
dtt_adjust_units(x, from = "seconds", to = "seconds")
```

Arguments

x	An integer or numeric vector
from	A string of the original units.
to	A string of the new units.

Value

A numeric vector.

See Also

dtt_add_units()

dtt_subtract_units()

Other units: dtt_units_per_unit(), dtt_units()

Examples

```
dtt_adjust_units(60, to = "minutes")
```

dtt_aggregate *Aggregate Date/Time*

Description

Aggregates a date/time vector

Usage

```
dtt_aggregate(x, units, ...)

## S3 method for class 'Date'
dtt_aggregate(x, units = "days", ...)

## S3 method for class 'POSIXct'
dtt_aggregate(x, units = "seconds", ...)

## S3 method for class 'hms'
dtt_aggregate(x, units = "seconds", ...)
```

Arguments

x	A date/time vector.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
...	Unused.

Details

The possible units values are 'seconds', 'minutes', 'hours', 'days', 'months' or 'years'.

Value

The floored date/time vector.

Methods (by class)

- `dtt_aggregate(Date)`: Aggregate a Date vector
- `dtt_aggregate(POSIXct)`: Aggregate a POSIXct vector
- `dtt_aggregate(hms)`: Aggregate a hms vector

Examples

```
dtt_aggregate(as.Date(c("1992-01-01", "1991-02-02", "1991-03-03")), "years")
```

---

dtt_complete *Complete*

Description

Completes date/time vector.

Usage

```
dtt_complete(x, ...)

## S3 method for class 'Date'
dtt_complete(
  x,
  from = min(x),
  to = max(x),
  units = "days",
  unique = TRUE,
  sort = TRUE,
  ...
)

## S3 method for class 'POSIXct'
dtt_complete(
  x,
  from = min(x),
  to = max(x),
  units = "seconds",
  unique = TRUE,
  sort = TRUE,
  ...
)

## S3 method for class 'hms'
dtt_complete(
  x,
  from = min(x),
  to = max(x),
  units = "seconds",
  unique = TRUE,
  sort = TRUE,
  ...
)
```

Arguments

x	A date/time vector.
...	Unused.
from	A date/time scalar of the start.
to	A date/time scalar of the end.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
unique	A flag specifying whether to only return unique values.
sort	A flag specifying whether to sort the vector.

Value

The completed date/time vector.

Methods (by class)

- `dtt_complete(Date)`: Complete a Date sequence vector
- `dtt_complete(POSIXct)`: Complete a POSIXct sequence vector
- `dtt_complete(hms)`: Complete a hms sequence vector

See Also

Other complete: `dtt_completed()`

Examples

```
dtt_complete(as.Date(c("2001-01-01", "2001-01-03", "2001-01-01")))
```

---

dtt_completed *Completed*

Description

Tests whether a date time is complete.

Usage

```
dtt_completed(x, ...)

## S3 method for class 'Date'
dtt_completed(x, units = "days", unique = TRUE, sorted = TRUE, ...)

## S3 method for class 'POSIXct'
dtt_completed(x, units = "seconds", unique = TRUE, sorted = TRUE, ...)

## S3 method for class 'hms'
dtt_completed(x, units = "seconds", unique = TRUE, sorted = TRUE, ...)
```

Arguments

`x`	A date/time vector.
`...`	Unused.
`units`	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
`unique`	A flag indicating whether the values must be unique.
`sorted`	A flag indicating whether the values must be sorted.

Value

A flag indicating whether complete.

Methods (by class)

- `dtt_completed(Date)`: Test if Date vector is complete
- `dtt_completed(POSIXct)`: Test if POSIXct vector is complete
- `dtt_completed(hms)`: Test if POSIXct vector is complete

See Also

Other complete: `dtt_complete()`

`dtt_date` *Floor Date*

Description

Coerces vectors to floored Date vectors.

Usage

```
dtt_date(x, ...)

dtt_date(x) <- value

## S3 method for class 'integer'
dtt_date(x, origin = as.Date("1970-01-01"), ...)

## S3 method for class 'double'
dtt_date(x, origin = as.Date("1970-01-01"), ...)

## S3 method for class 'character'
dtt_date(x, ...)

## S3 method for class 'Date'
dtt_date(x, ...)

## S3 method for class 'POSIXct'
dtt_date(x, ...)

## S3 method for class 'hms'
dtt_date(x, ...)

## S3 replacement method for class 'Date'
dtt_date(x) <- value
```

```
## S3 replacement method for class 'POSIXct'
dtt_date(x) <- value

dtt_set_date(x, value)
```

Arguments

x	A vector.
...	Unused.
value	A date vector.
origin	Origin date.

Value

A floored Date vector.

Methods (by class)

- `dtt_date(integer)`: Coerce integer vector to a floored Date vector
- `dtt_date(double)`: Coerce double vector to a floored Date vector
- `dtt_date(character)`: Coerce character vector to a floored Date vector
- `dtt_date(Date)`: Coerce Date vector to a floored Date vector
- `dtt_date(POSIXct)`: Coerce POSIXct vector to a floored Date vector
- `dtt_date(hms)`: Coerce hms vector to a floored Date vector

Functions

- `dtt_date(Date) <- value`: Set date values for a Date vector
- `dtt_date(POSIXct) <- value`: Set date values for a POSIXct vector

See Also

Other floor: `dtt_date_time()`, `dtt_excel_to_date()`, `dtt_floored()`, `dtt_floor()`, `dtt_set_time()`

Examples

```
dtt_date(1L)
dtt_date(-1)
dtt_date("2000-01-01")
as.Date(as.POSIXct("2019-05-01", tz = "Etc/GMT-8"))
dtt_date(as.POSIXct("2019-05-01", tz = "Etc/GMT-8"))
dtt_date(hms::as_hms("23:59:59"))
dtt_date(hms::as_hms("24:00:00"))
```

dtt_date_add_time *Add Time to Date*

Description

Adds times to Dates vector and sets timezone in a single function.

Usage

```
dtt_date_add_time(x, time, tz = dtt_default_tz())
```

Arguments

x	A Date vector.
time	A hms vector of the time.
tz	A string of the time zone.

Value

A POSIXct vector.

See Also

Other add: dtt_add_units()

Examples

```
dtt_date_add_time(as.Date("2001-03-05"), hms::as_hms("06:07:08"), tz = "Etc/GMT+9")
```

dtt_date_time *Floor Date/Time*

Description

Coerces vectors to floored POSIXct vectors.

Usage

```
dtt_date_time(x, ...)

## S3 method for class 'integer'
dtt_date_time(x, tz = dtt_default_tz(), ...)

## S3 method for class 'double'
dtt_date_time(x, tz = dtt_default_tz(), ...)
```

```
## S3 method for class 'character'
dtt_date_time(x, tz = dtt_default_tz(), ...)

## S3 method for class 'Date'
dtt_date_time(x, time = hms::as_hms("00:00:00"), tz = dtt_default_tz(), ...)

## S3 method for class 'POSIXct'
dtt_date_time(x, tz = dtt_tz(x), ...)

## S3 method for class 'hms'
dtt_date_time(x, date = dtt_date("1970-01-01"), tz = dtt_default_tz(), ...)
```

Arguments

x	A vector.
...	Unused.
tz	A string of the time zone.
time	A hms vector of the time.
date	A Date vector of the date.

Value

A floored POSIXct vector.

Methods (by class)

- dtt_date_time(integer): Coerce integer vector to a floored POSIXct vector
- dtt_date_time(double): Coerce double vector to a floored POSIXct vector
- dtt_date_time(character): Coerce character vector to a floored POSIXct vector
- dtt_date_time(Date): Coerce Date vector to a floored POSIXct vector
- dtt_date_time(POSIXct): Coerce POSIXct vector to a floored POSIXct vector
- dtt_date_time(hms): Coerce hms vector to a floored POSIXct vector

See Also

Other floor: dtt_date(), dtt_excel_to_date(), dtt_floored(), dtt_floor(), dtt_set_time()

Examples

```
dtt_date_time(1L)
dtt_date_time(-1)
dtt_date_time(1, tz = "Etc/GMT+8")
dtt_date_time(as.Date("2000-01-02"))
dtt_date_time(as.Date("2000-01-02"), time = hms::as_hms("04:05:06"))
```

dtt_day *Get and Set Day Values*

Description

Gets and sets day values for date/time vectors.

Usage

```
dtt_day(x, ...)

dtt_day(x) <- value

## S3 method for class 'Date'
dtt_day(x, ...)

## S3 method for class 'POSIXct'
dtt_day(x, ...)

## S3 replacement method for class 'Date'
dtt_day(x) <- value

## S3 replacement method for class 'POSIXct'
dtt_day(x) <- value

dtt_days(x, ...)

dtt_days(x) <- value

dtt_set_day(x, value)
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the day value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_day(Date)`: Get integer vector of day values for a Date vector
- `dtt_day(POSIXct)`: Get integer vector of day values for a POSIXct vector

Functions

- `dtt_day(Date) <- value`: Set day values for a Date vector
- `dtt_day(POSIXct) <- value`: Set day values for a POSIXct vector

See Also

`dtt_day_decimal()`

Other set date: `dtt_months()`, `dtt_years()`

Examples

```
x <- as.Date("1990-01-02")
dtt_day(x)
dtt_day(x) <- 27L
x

x <- as.POSIXct("1990-01-02 23:40:51")
dtt_day(x)
dtt_day(x) <- 27L
x
```

---

dtt_days_in_month *Days in the Month*

Description

Days in the Month

Usage

```
dtt_days_in_month(x)
```

Arguments

x	A Date or POSIXct vector.

Value

A integer vector of 28 to 31 indicating the days in the month.

See Also

Other days: `dtt_days_in_year()`, `dtt_doy_to_date()`, `dtt_doy()`

Examples

```
dtt_days_in_month(as.Date(c("2000-02-11", "2001-02-01")))
```

dtt_days_in_year *Days in the Year*

Description

Days in the Year

Usage

```
dtt_days_in_year(x)
```

Arguments

x	A Date or POSIXct vector.

Value

A integer vector of 365 and 366 indicates the days of the year.

See Also

Other days: `dtt_days_in_month()`, `dtt_doy_to_date()`, `dtt_doy()`

Examples

```
dtt_days_in_year(as.Date(c("2000-10-11", "2001-01-01")))
```

dtt_dayte *Dayte*

Description

Dayte

Usage

```
dtt_dayte(x, ...)

## S3 method for class 'Date'
dtt_dayte(x, start = 1L, ...)

## S3 method for class 'POSIXct'
dtt_dayte(x, start = 1L, ...)
```

Arguments

x	A date/time vector.
...	Unused.
start	An integer scalar of the starting month or a Date scalar of the starting date.

Value

A Date vector with the year set to year.

A Date vector of the daytes.

Methods (by class)

- dtt_dayte(Date): Dayte a Date vector
- dtt_dayte(POSIXct): Dayte a POSIXct vector

See Also

Other dayte: dtt_dayte_time(), dtt_daytt()

Examples

```
dtt_dayte(as.Date(c("2001-01-01", "2015-12-13")))
```

---

dtt_dayte_time *Dayte Time*

Description

Dayte Time

Usage

```
dtt_dayte_time(x, ...)

## S3 method for class 'Date'
dtt_dayte_time(x, start = 1L, tz = dtt_default_tz(), ...)

## S3 method for class 'POSIXct'
dtt_dayte_time(x, start = 1L, ...)
```

Arguments

x	A date/time vector.
...	Unused.
start	An integer scalar of the starting month or a Date scalar of the starting date.
tz	A string of the time zone.

Value

A Date vector with the year set to year.

A POSIXct vector of the dayte times.

Methods (by class)

- `dtt_dayte_time(Date)`: Dayte Time a Date vector
- `dtt_dayte_time(POSIXct)`: Dayte Time a POSIXct vector

See Also

Other dayte: `dtt_dayte()`, `dtt_daytt()`

Examples

```
dtt_dayte_time(as.POSIXct(c("2001-01-01 12:13:14", "2015-12-13"), tz = "Etc/GMT+10"))
```

---

dtt_daytt *Dayte Time*

Description

Dayte Time

Usage

```
dtt_daytt(x, start = 1L)
```

Arguments

x	A Date or POSIXct vector.
start	An integer vector of the starting month or a Date vector of the starting date.

Value

A Date or POSIXct vector with the year for February 29th as 1972.

See Also

Other dayte: `dtt_dayte_time()`, `dtt_dayte()`

`dtt_day_decimal` *Get Decimal Day Values*

Description

Gets decimal day values for date/time vectors.

Usage

```
dtt_day_decimal(x, ...)

## S3 method for class 'Date'
dtt_day_decimal(x, ...)

## S3 method for class 'POSIXct'
dtt_day_decimal(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Value

A numeric vector.

Methods (by class)

- `dtt_day_decimal(Date)`: Get numeric vector of decimal year values for a Date vector
- `dtt_day_decimal(POSIXct)`: Get numeric vector of decimal year values for a POSIXct vector

See Also

`dtt_day()`

Other decimal: `dtt_doy_decimal()`, `dtt_hour_decimal()`, `dtt_minute_decimal()`, `dtt_month_decimal()`, `dtt_year_decimal()`

Examples

```
x <- as.POSIXct("1990-01-03 10:00:01")
dtt_day_decimal(x)
```

dtt_decade *Decade*

Description

Decade

Usage

```
dtt_decade(x, ...)

## S3 method for class 'Date'
dtt_decade(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Value

A integer vector of the decade.

Methods (by class)

- `dtt_decade(Date)`: Decade a Date vector

Examples

```
dtt_decade(as.Date(c("2001-01-01", "2015-12-13")))
```

dtt_diff *Time Difference*

Description

Gets the time difference in secs, minutes, hours, days or weeks. Uses difftime() but floors x and y first after coercing to POSIXct and adjusts the timezone of y to match that of x.

Usage

```
dtt_diff(x, y, units = "secs", as_difftime = FALSE)
```

Arguments

x	An object that can be coerced to a POSIXct using dtt_date_time().
y	An object that can be coerced to a POSIXct using dtt_date_time().
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
as_difftime	A flag specifying whether to return a difftime vector.

Value

A numeric vector of the time difference.

Examples

```
dtt_diff(as.Date(c("2001-01-02", "2000-12-31")), as.Date("2001-01-01"), "hours")
dtt_diff(as.Date("2001-01-02"), as.Date("2001-01-01"), "weeks")
```

---

dtt_doy *Day of the Year*

Description

Day of the Year

Usage

```
dtt_doy(x, ...)
```

Arguments

x	A Date or POSIXct vector.
...	Unused.

Value

A integer vector between 1 and 366 of the day of the year.

See Also

dtt_doy_decimal()

Other days: dtt_days_in_month(), dtt_days_in_year(), dtt_doy_to_date()

Examples

```
dtt_doy(Sys.Date())
```

dtt_doy_decimal *Day of the Year Decimal*

Description

Day of the Year Decimal

Usage

```
dtt_doy_decimal(x, ...)
```

Arguments

x	A Date or POSIXct vector.
...	Unused.

Value

A numeric vector between 0 and 366 of the day of the year.

See Also

dtt_doy()

Other decimal: dtt_day_decimal(), dtt_hour_decimal(), dtt_minute_decimal(), dtt_month_decimal(), dtt_year_decimal()

Examples

```
dtt_doy_decimal(Sys.Date())
```

dtt_doy_to_date *Day of the Year to Date*

Description

Day of the Year to Date

Usage

```
dtt_doy_to_date(x, year = 1972L)
```

Arguments

x	An integer vector of the Day of the Year.
year	An integer scalar or vector of the year.

Value

A Date vector.

See Also

Other days: `dtt_days_in_month()`, `dtt_days_in_year()`, `dtt_doy()`

Examples

```
dtt_doy_to_date(3)
```

`dtt_excel_to_date` *Convert Excel dates to dates.*

Description

Converts Excel dates encoded as serial numbers to date class.

Usage

```
dtt_excel_to_date(x, modern = TRUE, ...)
```

Arguments

`x`	A vector of numbers to convert.
`modern`	A flag specifying whether to use the modern or old Excel date system.
`...`	Unused.

Details

Defaults to the modern Excel date encoding system. Excel for Mac 2008 and earlier Mac versions of Excel use a different date system. If the date 2016-01-01 is represented by 42370, it's the modern system. If it's 40908, it's the old system.

Value

A floored Date vector.

See Also

Other floor: `dtt_date_time()`, `dtt_date()`, `dtt_floored()`, `dtt_floor()`, `dtt_set_time()`

Examples

```
dtt_excel_to_date(42370)
dtt_excel_to_date(40908, modern = FALSE)
```

dtt_feb29_to_28 *Convert Feb 29 to Feb 28*

Description

Converts Feb 29 to Feb 28th

Usage

```
dtt_feb29_to_28(x)
```

Arguments

x	A Date or POSIXct vector.

Value

The modified Date or POSIXct vector.

See Also

Other leap year: `dtt_leap_year()`

Examples

```
dtt_feb29_to_28(as.Date("2004-02-29"))
```

dtt_floor *Floor Date/Time*

Description

Floors a date/time vector

Usage

```
dtt_floor(x, units, ...)

## S3 method for class 'Date'
dtt_floor(x, units = "days", ...)

## S3 method for class 'POSIXct'
dtt_floor(x, units = "seconds", ...)

## S3 method for class 'hms'
dtt_floor(x, units = "seconds", ...)
```

Arguments

x	A date/time vector.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
...	Unused.

Value

The floored date/time vector.

Methods (by class)

- dtt_floor(Date): Floor a Date vector
- dtt_floor(POSIXct): Floor a POSIXct vector
- dtt_floor(hms): Floor a hms vector

See Also

Other floor: dtt_date_time(), dtt_date(), dtt_excel_to_date(), dtt_floored(), dtt_set_time()

Examples

```
dtt_floor(hms::as_hms("23:59:59"), "hours")
```

---

dtt_floored *Test Floored*

Description

Test whether a date time vector is floored.

Usage

```
dtt_floored(x, ...)

## S3 method for class 'Date'
dtt_floored(x, units = "days", ...)

## S3 method for class 'POSIXct'
dtt_floored(x, units = "seconds", ...)

## S3 method for class 'hms'
dtt_floored(x, units = "seconds", ...)
```

Arguments

x	A Date, POSIXct or hms vector.
...	Unused.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".

Value

A flag indicating whether floored.

Methods (by class)

- dtt_floored(Date): Test if Date vector is floored
- dtt_floored(POSIXct): Test if POSIXct vector is floored
- dtt_floored(hms): Test if hms vector is floored

See Also

Other floor: dtt_date_time(), dtt_date(), dtt_excel_to_date(), dtt_floor(), dtt_set_time()

Examples

```
dtt_floored(as.Date("2002-02-01"))
```

---

dtt_hours *Get and Set Hour Values*

Description

Gets and sets hour values for date/time vectors.

Usage

```
dtt_hours(x, ...)

dtt_hours(x) <- value

dtt_hour(x, ...)

dtt_hour(x) <- value

## S3 method for class 'Date'
dtt_hour(x, ...)

## S3 method for class 'POSIXct'
dtt_hour(x, ...)
```

```
## S3 method for class 'hms'
dtt_hour(x, ...)

## S3 replacement method for class 'POSIXct'
dtt_hour(x) <- value

## S3 replacement method for class 'hms'
dtt_hour(x) <- value

dtt_set_hour(x, value)
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the hour value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_hour(Date)`: Get integer vector of hour values for a Date vector
- `dtt_hour(POSIXct)`: Get integer vector of hour values for a POSIXct vector
- `dtt_hour(hms)`: Get integer vector of hour values for a hms vector

Functions

- `dtt_hour(POSIXct) <- value`: Set hour values for a POSIXct vector
- `dtt_hour(hms) <- value`: Set hour values for a hms vector

See Also

`dtt_hour_decimal()`

Other set time: `dtt_minutes()`, `dtt_seconds()`

Examples

```
x <- as.POSIXct("1990-01-02 23:40:51")
dtt_hour(x)
dtt_hour(x) <- 01L
x

x <- hms::as_hms("23:40:51")
dtt_hour(x)
dtt_hour(x) <- 01L
x
```

`dtt_hour_decimal` *Get Decimal Hour Values*

Description

Gets decimal hour values for date/time vectors.

Usage

```
dtt_hour_decimal(x, ...)

## S3 method for class 'Date'
dtt_hour_decimal(x, ...)

## S3 method for class 'POSIXct'
dtt_hour_decimal(x, ...)

## S3 method for class 'hms'
dtt_hour_decimal(x, ...)
```

Arguments

`x`	A date/time vector.
`...`	Unused.

Value

A numeric vector.

Methods (by class)

- `dtt_hour_decimal(Date)`: Get numeric vector of decimal hour values for a Date vector
- `dtt_hour_decimal(POSIXct)`: Get numeric vector of decimal hour values for a POSIXct vector
- `dtt_hour_decimal(hms)`: Get numeric vector of decimal hour values for a hms vector

See Also

`dtt_hour()`

Other decimal: `dtt_day_decimal()`, `dtt_doy_decimal()`, `dtt_minute_decimal()`, `dtt_month_decimal()`, `dtt_year_decimal()`

Examples

```
x <- as.POSIXct("1990-01-02 23:40:51")
dtt_hour_decimal(x)
x <- hms::as_hms("23:40:51")
dtt_hour_decimal(x)
```

dtt_is_date *Is Date*

Description

Is Date

Usage

```
dtt_is_date(x)
```

Arguments

x	An R object.

Value

A flag indicating whether R is a Date vector.

See Also

Other is: `dtt_is_date_time()`, `is_date_time()`

dtt_is_date_time *Is Date Time*

Description

Is Date Time

Usage

```
dtt_is_date_time(x)
```

Arguments

x	An R object.

Value

A flag indicating whether R is a POSIXct vector.

See Also

Other is: `dtt_is_date()`, `is_date_time()`

dtt_is_dtt *Is Date or DateTime Object*

Description

Is Date or DateTime Object

Usage

```
dtt_is_dtt(x)
```

Arguments

x	An R object.

Value

A flag indicating whether R is a Date or POSIXct vector.

dtt_leap_year *Test for Leap Year*

Description

Tests whether each year is a leap year.

Usage

```
dtt_leap_year(x)
```

Arguments

x	A date/time vector.

Value

A logical vector indicating whether each year is a leap year.

See Also

Other leap year: `dtt_feb29_to_28()`

Examples

```
dtt_leap_year(as.Date("1999-03-04", "2000-02-01"))
```

dtt_minutes *Get and Set Minute Values*

Description

Gets and sets minute values for date/time vectors.

Usage

```
dtt_minutes(x, ...)

dtt_minutes(x) <- value

dtt_minute(x, ...)

dtt_minute(x) <- value

## S3 method for class 'Date'
dtt_minute(x, ...)

## S3 method for class 'POSIXct'
dtt_minute(x, ...)

## S3 method for class 'hms'
dtt_minute(x, ...)

## S3 replacement method for class 'POSIXct'
dtt_minute(x) <- value

## S3 replacement method for class 'hms'
dtt_minute(x) <- value

dtt_set_minute(x, value)
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the minute value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_minute(Date)`: Get integer vector of minute values for a Date vector
- `dtt_minute(POSIXct)`: Get integer vector of minute values for a POSIXct vector
- `dtt_minute(hms)`: Get integer vector of minute values for a hms vector

Functions

- `dtt_minute(POSIXct) <- value`: Set minute values for a POSIXct vector
- `dtt_minute(hms) <- value`: Set minute values for a hms vector

See Also

`dtt_minute_decimal()`

Other set time: `dtt_hours()`, `dtt_seconds()`

Examples

```
x <- as.POSIXct("1990-01-02 23:40:51")
dtt_minute(x)
dtt_minute(x) <- 27L
x

x <- hms::as_hms("23:40:51")
dtt_minute(x)
dtt_minute(x) <- 27L
x
```

---

dtt_minute_decimal *Get Decimal Minute Values*

Description

Gets decimal minute values for date/time vectors.

Usage

```
dtt_minute_decimal(x, ...)

## S3 method for class 'Date'
dtt_minute_decimal(x, ...)

## S3 method for class 'POSIXct'
dtt_minute_decimal(x, ...)

## S3 method for class 'hms'
dtt_minute_decimal(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Value

A numeric vector.

Methods (by class)

- `dtt_minute_decimal(Date)`: Get numeric vector of decimal minute values for a Date vector
- `dtt_minute_decimal(POSIXct)`: Get numeric vector of decimal minute values for a POSIXct vector
- `dtt_minute_decimal(hms)`: Get numeric vector of decimal minute values for a hms vector

See Also

`dtt_minute()`

Other decimal: `dtt_day_decimal()`, `dtt_doy_decimal()`, `dtt_hour_decimal()`, `dtt_month_decimal()`, `dtt_year_decimal()`

Examples

```
x <- as.POSIXct("1990-01-02 23:40:51")
dtt_minute_decimal(x)
x <- hms::as_hms("23:40:51")
dtt_minute_decimal(x)
```

---

dtt_months *Get and Set Month Values*

Description

Gets and sets month values for date/time vectors.

Usage

```
dtt_months(x, ...)

dtt_months(x) <- value

dtt_month(x, ...)

dtt_month(x) <- value

## S3 method for class 'Date'
```

```
dtt_month(x, ...)

## S3 method for class 'POSIXct'
dtt_month(x, ...)

## S3 replacement method for class 'Date'
dtt_month(x) <- value

## S3 replacement method for class 'POSIXct'
dtt_month(x) <- value

dtt_set_month(x, value)
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the month value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_month(Date)`: Get integer vector of month values for a Date vector
- `dtt_month(POSIXct)`: Get integer vector of month values for a POSIXct vector

Functions

- `dtt_month(Date) <- value`: Set month values for a Date vector
- `dtt_month(POSIXct) <- value`: Set month values for a POSIXct vector

See Also

`dtt_month_decimal()`

Other set date: `dtt_day()`, `dtt_years()`

Examples

```
x <- as.Date("1990-01-02")
dtt_month(x)
dtt_month(x) <- 11L
x

x <- as.POSIXct("1990-01-02 23:40:51")
dtt_month(x)
dtt_month(x) <- 11L
x
```

`dtt_month_decimal` *Get Decimal Month Values*

Description

Gets decimal month values for date/time vectors.

Usage

```
dtt_month_decimal(x, ...)

## S3 method for class 'Date'
dtt_month_decimal(x, ...)

## S3 method for class 'POSIXct'
dtt_month_decimal(x, ...)
```

Arguments

`x`	A date/time vector.
`...`	Unused.

Value

A numeric vector.

Methods (by class)

- `dtt_month_decimal(Date)`: Get numeric vector of decimal year values for a Date vector
- `dtt_month_decimal(POSIXct)`: Get numeric vector of decimal year values for a POSIXct vector

See Also

`dtt_month()`

Other decimal: `dtt_day_decimal()`, `dtt_doy_decimal()`, `dtt_hour_decimal()`, `dtt_minute_decimal()`, `dtt_year_decimal()`

Examples

```
x <- as.POSIXct("1990-01-03 10:00:01")
dtt_month_decimal(x)
```

dtt_season *Season*

Description

Returns a factor of the user specified seasons.

Usage

```
dtt_season(
  x,
  start = c(Spring = 3L, Summer = 6L, Autumn = 9L, Winter = 12L),
  first = NULL
)
```

Arguments

x	A Date or POSIXct vector
start	A uniquely named integer vector of the first month of each season or a uniquely named Date vector of the first date of each season.
first	A string of the name of first season or NULL in which case the first season is that which includes Jan 1st.

Details

If the first month of the first season isn't January (1L), then the last season is considered to wrap into the following year.

Value

A factor of the seasons.

Examples

```
dates <- as.Date(c("2001-01-01", "2001-02-28", "2012-09-01", "2012-12-01"))
dtt_season(dates)
dtt_season(dates, start = c(Monsoon = 2L, `Dry Period` = 6L))
dtt_season(dates, start = c(First = dtt_date("2000-01-01"), Second = dtt_date("2000-06-01")))
```

dtt_seconds *Get and Set Second Values*

Description

Gets and sets second values for date/time vectors.

Usage

```
dtt_seconds(x, ...)

dtt_seconds(x) <- value

dtt_second(x, ...)

dtt_second(x) <- value

## S3 method for class 'Date'
dtt_second(x, ...)

## S3 method for class 'POSIXct'
dtt_second(x, ...)

## S3 method for class 'hms'
dtt_second(x, ...)

## S3 replacement method for class 'POSIXct'
dtt_second(x) <- value

## S3 replacement method for class 'hms'
dtt_second(x) <- value

dtt_set_second(x, value)
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the second value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_second(Date)`: Get integer vector of second values for a Date vector
- `dtt_second(POSIXct)`: Get integer vector of second values for a POSIXct vector
- `dtt_second(hms)`: Get integer vector of second values for a time vector

Functions

- `dtt_second(POSIXct) <- value`: Set second values for a POSIXct vector
- `dtt_second(hms) <- value`: Set second values for a hms vector

See Also

Other set time: `dtt_hours()`, `dtt_minutes()`

Examples

```
x <- as.POSIXct("1990-01-02 23:40:51")
dtt_second(x)
dtt_second(x) <- 27L
x

x <- hms::as_hms("23:40:51")
dtt_second(x)
dtt_second(x) <- 27L
x
```

---

dtt_seq *Sequence*

Description

Creates a date/time sequence vector. from and to are first floored and then a sequence is created by units. If length_out is defined then that number of units are added to from.

Usage

```
dtt_seq(from, to, units, length_out = NULL, ...)

## S3 method for class 'Date'
dtt_seq(from, to = from, units = "days", length_out = NULL, ...)

## S3 method for class 'POSIXct'
dtt_seq(from, to = from, units = "seconds", length_out = NULL, ...)

## S3 method for class 'hms'
dtt_seq(
  from,
```

```
  to = from,
  units = "seconds",
  length_out = NULL,
  wrap = TRUE,
  ...
)
```

Arguments

from	A date/time scalar of the start.
to	A date/time scalar of the end.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
length_out	An integer of the number of units from from.
...	Unused.
wrap	A flag specifying whether to wrap hms vectors from 23:59:59 to 00:00:00

Value

The date/time vector.

Methods (by class)

- dtt_seq(Date): Create a Date sequence vector
- dtt_seq(POSIXct): Create a POSIXct sequence vector
- dtt_seq(hms): Create a hms sequence vector

Examples

```
dtt_seq(as.Date("2001-01-01"), as.Date("2001-01-05"))
```

---

dtt_set_time *Floor Time*

Description

Coerces vectors to floored (and wrapped) hms vectors.

Usage

```
dtt_set_time(x, value)

dtt_time(x, ...)

dtt_time(x) <- value
```

```
## S3 method for class 'integer'
dtt_time(x, ...)

## S3 method for class 'double'
dtt_time(x, ...)

## S3 method for class 'character'
dtt_time(x, ...)

## S3 method for class 'Date'
dtt_time(x, ...)

## S3 method for class 'hms'
dtt_time(x, ...)

## S3 method for class 'POSIXct'
dtt_time(x, ...)

## S3 method for class 'POSIXlt'
dtt_time(x, ...)

## S3 replacement method for class 'Date'
dtt_time(x) <- value

## S3 replacement method for class 'POSIXct'
dtt_time(x) <- value
```

Arguments

x	A vector.
value	A time vector.
...	Unused.

Value

A floored hms vector.

Methods (by class)

- `dtt_time(integer)`: Coerce integer vector to a floored hms vector
- `dtt_time(double)`: Coerce double vector to a floored hms vector
- `dtt_time(character)`: Coerce character vector to a floored hms vector
- `dtt_time(Date)`: Coerce Date vector to a floored hms vector
- `dtt_time(hms)`: Coerce hms vector to a floored hms vector
- `dtt_time(POSIXct)`: Coerce POSIXct vector to a floored hms vector
- `dtt_time(POSIXlt)`: Coerce POSIXlt vector to a floored hms vector

Functions

- `dtt_time(Date) <- value`: Set time values for a Date vector
- `dtt_time(POSIXct) <- value`: Set time values for a POSIXct vector

See Also

Other floor: `dtt_date_time()`, `dtt_date()`, `dtt_excel_to_date()`, `dtt_floored()`, `dtt_floor()`

Examples

```
dtt_time(1L)
dtt_time(1.999)
dtt_time(-0.001)
dtt_time(Sys.Date())
dtt_time(as.POSIXct("2001-01-01 02:30:40"))
dtt_time(as.POSIXct("2001-01-01 02:30:40", tz = "Etc/GMT-8"))
```

`dtt_set_tz` *Set Time Zone*

Description

Sets the time zone for a date time vector without adjusting the clock time. Equivalent to `lubridate::force_tz()`.

Usage

```
dtt_set_tz(x, tz = dtt_default_tz(), ...)

## S3 method for class 'POSIXct'
dtt_set_tz(x, tz = dtt_default_tz(), ...)
```

Arguments

`x`	A date/time vector.
`tz`	A string of the new time zone.
`...`	Unused.

Value

The date time vector with the new time zone.

Methods (by class)

- `dtt_set_tz(POSIXct)`: Set the time zone for a POSIXct vector

See Also

dtt_adjust_tz()

Other tz: dtt_adjust_tz(), dtt_sys_tz(), dtt_tz()

Examples

```
dtt_set_tz(as.POSIXct("1970-01-01", tz = "Etc/GMT+8"), tz = "UTC")
```

---

dtt_study_year *Study Year*

Description

Study Year

Usage

```
dtt_study_year(x, start = 1L, full = TRUE)
```

Arguments

x	A Date or POSIXct vector.
start	An integer vector of the starting month or a Date vector of the starting date.
full	A flag specifying whether to return a character vector of the study years (or an integer vector of the first year)

Value

A character vector of the study year or an integer vector of the first year.

Examples

```
dtt_study_year(as.Date(c("2000-03-31", "2000-04-01", "2001-04-01")), start = 4L)
dtt_study_year(as.Date(c("2000-03-31", "2000-04-01", "2001-04-01")), start = 4L, full = FALSE)
```

dtt_subtract_units *Subtract Time Units*

Description

Subtract time units from a date time vector.

Usage

```
dtt_subtract_units(x, n = 1L, units = dtt_units(x))

dtt_subtract_years(x, n = 1L)

dtt_subtract_months(x, n = 1L)

dtt_subtract_days(x, n = 1L)

dtt_subtract_hours(x, n = 1L)

dtt_subtract_minutes(x, n = 1L)

dtt_subtract_seconds(x, n = 1L)
```

Arguments

x	A date/time vector.
n	An integer of the number of units.
units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".

Value

The modified date time vector.

See Also

dtt_add_units()

Examples

```
dtt_subtract_units(as.Date("1999-12-31"), 2L, "days")
```

dtt_sys_date *Get System Date*

Description

Get System Date

Usage

```
dtt_sys_date(tz = dtt_default_tz())
```

Arguments

tz	A string of the time zone.

Value

A floored Date scalar.

See Also

Other sys: dtt_sys_date_time(), dtt_sys_time()

Examples

```
## Not run:
dtt_set_default_tz("Etc/GMT+12")
dtt_sys_date()
dtt_set_default_tz("Etc/GMT-12")
dtt_sys_date()
dtt_sys_date(tz = "Etc/GMT+12")

## End(Not run)
```

dtt_sys_date_time *Get System Date Time*

Description

Get System Date Time

Usage

```
dtt_sys_date_time(tz = dtt_default_tz())
```

Arguments

tz	A string of the time zone.

Value

A floored POSIXct scalar.

See Also

Other sys: dtt_sys_date(), dtt_sys_time()

Examples

```
## Not run:
dtt_set_default_tz("UTC")
dtt_sys_date_time()
dtt_set_default_tz("Etc/GMT+8")
dtt_sys_date_time()
dtt_sys_date_time(tz = "UTC")

## End(Not run)
```

---

dtt_sys_time *Get System Time*

Description

Get System Time

Usage

```
dtt_sys_time(tz = dtt_default_tz())
```

Arguments

tz	A string of the time zone.

Value

A floored hms scalar.

See Also

Other sys: dtt_sys_date_time(), dtt_sys_date()

Examples

```
## Not run:
dtt_sys_time()

## End(Not run)
```

`dtt_sys_tz` *Get, Set or Reset Default Time Zone*

Description

Get, Set or Reset Default Time Zone

Usage

```
dtt_sys_tz()

dtt_set_sys_tz(tz = NULL)

dtt_reset_sys_tz()

dtt_default_tz()

dtt_set_default_tz(tz = NULL)

dtt_reset_default_tz()
```

Arguments

`tz`	A string of the time zone.

Value

A string of the current or old time zone.

Functions

- `dtt_set_default_tz()`: Set Default Time Zone
- `dtt_reset_default_tz()`: Reset Default Time Zone

See Also

Other tz: `dtt_adjust_tz()`, `dtt_set_tz()`, `dtt_tz()`

Examples

```
## Not run:
dtt_default_tz()
old <- dtt_set_default_tz("Etc/GMT+8")
dtt_default_tz()
dtt_reset_default_tz()
dtt_default_tz()
dtt_set_default_tz(old)
dtt_default_tz()

## End(Not run)
```

---

dtt_tz *Get, Set or Adjust Time Zone*

Description

Gets, sets or the time zone for a date time vector.

Usage

```
dtt_tz(x, ...)

## S3 method for class 'POSIXct'
dtt_tz(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Value

A string of the time zone.

Methods (by class)

- `dtt_tz(POSIXct)`: Get the time zone for a POSIXct vector.

See Also

Other tz: `dtt_adjust_tz()`, `dtt_set_tz()`, `dtt_sys_tz()`

Examples

```
dtt_tz(as.POSIXct("1970-01-01", tz = "Etc/GMT+8"))
```

`dtt_units` *Get Units*

Description

Gets the smallest units for a date time vector. The possible values are 'seconds', 'minutes', 'hours', 'days', 'months' or 'years'.

Usage

```
dtt_units(x, ...)

## S3 method for class 'Date'
dtt_units(x, ...)

## S3 method for class 'POSIXct'
dtt_units(x, ...)

## S3 method for class 'hms'
dtt_units(x, ...)
```

Arguments

`x`	A Date, POSIXct or hms vector.
`...`	Unused.

Value

A string indicating the date time units.

Methods (by class)

- `dtt_units(Date)`: Get time units for a Date vector
- `dtt_units(POSIXct)`: Get time units for a POSIXct vector
- `dtt_units(hms)`: Get time units for a hms vector

See Also

Other units: `dtt_adjust_units()`, `dtt_units_per_unit()`

Examples

```
dtt_units(as.Date("2000-01-01"))
dtt_units(as.Date("2000-02-01"))
dtt_units(as.Date("2000-01-02"))
```

dtt_units_per_unit *Units per Unit*

Description

Units per Unit

Usage

```
dtt_units_per_unit(units = "seconds", unit = "days")
```

Arguments

units	A string of the time units. The possible values are "secs", "minutes", "hours", "days" or "weeks".
unit	A string of the time unit.

Value

A number of the units per unit

See Also

Other units: dtt_adjust_units(), dtt_units()

Examples

```
dtt_units_per_unit("hours")
```

dtt_wday *Get Week Day*

Description

Gets the week days for the locale.

Usage

```
dtt_wday(x, abbr = FALSE, ...)

## Default S3 method:
dtt_wday(x, abbr = FALSE, ...)
```

Arguments

x	A date/time vector.
abbr	A flag specifying whether to abbreviate the week days.
...	Unused.

Value

An character vector of the week days.

Methods (by class)

- `dtt_wday(default)`: Get character vector of week days for a Date vector

Examples

```
x <- as.Date("1990-01-02")
dtt_wday(x)

x <- as.POSIXct("1990-01-02 23:40:51")
dtt_wday(x, abbr = TRUE)
```

---

dtt_wrap *Wrap*

Description

Wrap

Usage

```
dtt_wrap(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Examples

```
dtt_wrap(hms::as_hms("24:00:00"))
```

dtt_years *Get and Set Year Values*

Description

Gets and sets year values for date/time vectors.

Usage

```
dtt_years(x, ...)

dtt_years(x) <- value

dtt_set_year(x, value)

dtt_year(x, ...)

dtt_year(x) <- value

## S3 method for class 'Date'
dtt_year(x, ...)

## S3 method for class 'POSIXct'
dtt_year(x, ...)

## S3 replacement method for class 'Date'
dtt_year(x) <- value

## S3 replacement method for class 'POSIXct'
dtt_year(x) <- value
```

Arguments

x	A date/time vector.
...	Unused.
value	A integer vector of the year value(s).

Value

An integer vector (or the modified date/time vector).

Methods (by class)

- `dtt_year(Date)`: Get integer vector of year values for a Date vector
- `dtt_year(POSIXct)`: Get integer vector of year values for a POSIXct vector

Functions

- `dtt_year(Date) <- value`: Set year values for a Date vector
- `dtt_year(POSIXct) <- value`: Set year values for a POSIXct vector

See Also

`dtt_year_decimal()`

Other set date: `dtt_day()`, `dtt_months()`

Examples

```
x <- as.Date("1990-01-02")
dtt_year(x)
dtt_year(x) <- 11L
x

x <- as.POSIXct("1990-01-02 23:40:51")
dtt_year(x)
dtt_year(x) <- 2022L
x
```

---

dtt_year_decimal *Get Decimal Year Values*

Description

Gets decimal year values for date/time vectors.

Usage

```
dtt_year_decimal(x, ...)

## S3 method for class 'Date'
dtt_year_decimal(x, ...)

## S3 method for class 'POSIXct'
dtt_year_decimal(x, ...)
```

Arguments

x	A date/time vector.
...	Unused.

Value

A numeric vector.

Methods (by class)

- `dtt_year_decimal(Date)`: Get numeric vector of decimal year values for a Date vector
- `dtt_year_decimal(POSIXct)`: Get numeric vector of decimal year values for a POSIXct vector

See Also

`dtt_year()`

Other decimal: `dtt_day_decimal()`, `dtt_doy_decimal()`, `dtt_hour_decimal()`, `dtt_minute_decimal()`, `dtt_month_decimal()`

Examples

```
x <- as.Date("1990-01-02")
dtt_year_decimal(x)
```

---

is_date_time *Is Date/Time*

Description

Tests whether an object is a Date, POSIXct, or hms vector.

Usage

```
is.POSIXct(x)

is_date_time(x)

is.Date(x)

is_date(x)

is.hms(x)

is_time(x)
```

Arguments

x	An object

Value

A flag indicating whether x inherits from Date, POSIXct or hms.

See Also

Other is: `dtt_is_date_time()`, `dtt_is_date()`

NA_Date_ *Missing Date*

Description

A missing Date object

Usage

```
NA_Date_
```

Format

An object of class `Date` of length 1.

NA_hms_ *Missing hms*

Description

A missing hms object

Usage

```
NA_hms_
```

Format

An object of class `hms` (inherits from `difftime`) of length 1.

NA_POSIXct_ *Missing POSIXct*

Description

A missing POSIXct object

Usage

```
NA_POSIXct_
```

Format

An object of class `POSIXct` (inherits from `POSIXt`) of length 1.

vld_time *Validate Time*

Description

Validates that an object is scalar hms::hms object using `inherits(x, class) && length(x) == 1L && !anyNA(x)`.

Usage

```
vld_time(x)
```

Arguments

x	The object to check.

Value

A flag indicating whether the condition was met.

See Also

`chk_time()`

Examples

```
vld_time(1)
vld_time(hms::as_hms("10:12:59"))
```

Index