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# **tkcalendar Documentation**

***Release 1.3.1***

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tkcalendar is a python module that provides the Calendar and DateEntry widgets for Tkinter. The DateEntry widget is similar to a Combobox, but the drop-down is not a list but a Calendar to select a date. Events can be displayed in the Calendar with custom colors and a tooltip displays the event list for a given day. tkcalendar is compatible with both Python 2 and Python 3. It supports many locale settings (e.g. 'fr\_FR', 'en\_US', ..) and the colors are customizable.

Project page: <https://github.com/j4321/tkcalendar>



# CHAPTER 1

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## Installation

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### Requirements

- Linux, Windows, OSX
- Python 2 or 3 with tkinter + ttk (default for Windows but not for Linux) and babel

### Install

- Ubuntu: use the PPA [ppa:j-4321-i/ppa](#)

```
$ sudo add-apt-repository ppa:j-4321-i/ppa
$ sudo apt-get update
$ sudo apt-get install python(3)-tkcalendar
```

- Archlinux:

The package is available on [AUR](#)

- With pip:

```
$ pip install tkcalendar
```





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**Note:** This documentation only addresses the methods specific to the *Calendar* and *DateEntry* widgets, but these widgets also possess the methods common to all tkinter widgets. and the one common to all ttk widgets. In addition, the *DateEntry* also have all the methods of the Entry widget.

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## 2.1 Calendar

### 2.1.1 Class

**class** tkcalendar.**Calendar** (*master=None*, *\*\*kw*)

Bases: tkinter.ttk.Frame

Calendar widget.

**\_\_init\_\_** (*master=None*, *\*\*kw*)

Construct a *Calendar* with parent master.

#### Standard Options

**cursor** [str] cursor to display when the pointer is in the widget

**font** [str or Tkinter Font instance] font of the calendar

**borderwidth** [int] width of the border around the calendar

**state** [str] “normal” or “disabled” (unresponsive widget)

#### Widget-specific Options

**year** [int] initially displayed year, default is current year.

**month** [int] initially displayed month, default is current month.

**day** [int] initially selected day, if month or year is given but not day, no initial selection, otherwise, default is today.

**firstweekday** [str] first day of the week: “monday” or “sunday”

**showweeknumbers** [bool] whether to display week numbers (default is True).

**showothermonthdays** [bool] whether to display the last days of the previous month and the first of the next month (default is True).

**locale** [str] locale to use, e.g. ‘en\_US’

**selectmode** [str] “none” or “day” (default): whether the user can change the selected day with a mouse click.

**textvariable** [StringVar] connect the currently selected date to the variable.

#### Style Options

**background** [str] background color of calendar border and month/year name

**foreground** [str] foreground color of month/year name

**bordercolor** [str] day border color

**headersbackground** [str] background color of day names and week numbers

**headersforeground** [str] foreground color of day names and week numbers

**selectbackground** [str] background color of selected day

**selectforeground** [str] foreground color of selected day

**disabledselectbackground** [str] background color of selected day in disabled state

**disabledselectforeground** [str] foreground color of selected day in disabled state

**normalbackground** [str] background color of normal week days

**normalforeground** [str] foreground color of normal week days

**weekendbackground** [str] background color of week-end days

**weekendforeground** [str] foreground color of week-end days

**othermonthforeground** [str] foreground color of normal week days belonging to the previous/next month

**othermonthbackground** [str] background color of normal week days belonging to the previous/next month

**othermonthweforeground** [str] foreground color of week-end days belonging to the previous/next month

**othermonthwebackground** [str] background color of week-end days belonging to the previous/next month

**disableddaybackground** [str] background color of days in disabled state

**disableddayforeground** [str] foreground color of days in disabled state

#### Tooltip Options (for calevents)

**tooltipforeground** [str] tooltip text color

**tooltipbackground** [str] tooltip background color

**tooltipalpha** [float] tooltip opacity between 0 and 1

**tooltipdelay** [int] delay in ms before displaying the tooltip

**calevent\_cget** (*ev\_id*, *option*)

Return value of given option for the event *ev\_id*.

**calevent\_configure** (*ev\_id*, *\*\*kw*)

Configure the event *ev\_id*.

Keyword options: *date*, *text*, *tags* (see *calevent\_create* options).

**calevent\_create** (*date*, *text*, *tags=[]*)

Add new event in calendar and return event id.

Options:

**date** [*datetime.date* or *datetime.datetime* instance.] event date

**text** [*str*] text to put in the tooltip associated to date.

**tags** [*list*] list of tags to apply to the event. The last tag determines the way the event is displayed. If there are several events on the same day, the lowest one (on the tooltip list) which has tags determines the colors of the day.

**calevent\_lower** (*ev\_id*, *below=None*)

Lower event *ev\_id* in tooltip event list.

**below** [*str*] put *ev\_id* below given one, if *below* is *None*, put it at the bottom of tooltip event list.

The day's colors are determined by the last tag of the lowest event which has tags.

**calevent\_raise** (*ev\_id*, *above=None*)

Raise event *ev\_id* in tooltip event list.

**above** [*str*] put *ev\_id* above given one, if *above* is *None*, put it on top of tooltip event list.

The day's colors are determined by the last tag of the lowest event which has tags.

**calevent\_remove** (*\*ev\_ids*, *\*\*kw*)

Remove events from calendar.

Arguments: event ids to remove or 'all' to remove them all.

Keyword arguments: *tag*, *date*.

They are taken into account only if no id is given. Remove all events with given tag on given date. If only date is given, remove all events on date and if only tag is given, remove all events with tag.

**format\_date** (*date=None*)

Convert date (*datetime.date*) to a string in the locale (short format).

**get\_calevents** (*date=None*, *tag=None*)

Return event ids of events with given tag and on given date.

If only date is given, return event ids of all events on date. If only tag is given, return event ids of all events with tag. If both options are *None*, return all event ids.

**get\_date** ()

Return selected date as string.

**get\_displayed\_month** ()

Return the currently displayed month in the form of a (month, year) tuple.

**keys** ()

Return a list of all resource names of this widget.

**selection\_get** ()

Return currently selected date (*datetime.date* instance). Always return *None* if selectmode is "none".

**selection\_set** (*date*)

Set the selection to date.

date can be either a datetime.date instance or a string corresponding to the date format “%x” in the Calendar locale.

Do nothing if selectmode is “none”.

**tag\_cget** (*tag, option*)

Return the value of the tag’s option.

**tag\_config** (*tag, \*\*kw*)

Configure tag.

Keyword options: foreground, background (of the day in the calendar)

**tag\_delete** (*tag*)

Delete given tag.

Delete tag properties and remove tag from all events.

**tag\_names** ()

Return tuple of existing tags.

## 2.1.2 Virtual Events

- A <<CalendarSelected>> event is generated each time the user selects a day with the mouse.
- A <<CalendarMonthChanged>> event is generated each time the user changes the displayed month.

## 2.1.3 Calendar Events

Special events (e.g. birthdays, ..) can be managed using the `calevent_...()` methods. The way they are displayed in the calendar is determined with tags. An id is attributed to each event upon creation and can be used to edit the event (*ev\_id* argument).

# 2.2 DateEntry

## 2.2.1 Class

**class** tkcalendar.DateEntry (*master=None, \*\*kw*)

Bases: `tkinter.ttk.Entry`

Date selection entry with drop-down calendar.

**\_\_init\_\_** (*master=None, \*\*kw*)

Create an entry with a drop-down calendar to select a date.

When the entry loses focus, if the user input is not a valid date, the entry content is reset to the last valid date.

### Keyword Options

- `ttk.Entry` options:

class, cursor, style, takefocus, xscrollcommand, exportselection, justify, show, state, textvariable, width.

- *Calendar* options: see the *documentation*.

**cget** (*key*)

Return the resource value for a KEY given as string.

**config** (*\*\*kw*)

Configure resources of a widget.

The values for resources are specified as keyword arguments. To get an overview about the allowed keyword arguments call the method keys.

**configure** (*\*\*kw*)

Configure resources of a widget.

The values for resources are specified as keyword arguments. To get an overview about the allowed keyword arguments call the method keys.

**destroy** ()

Destroy this and all descendants widgets.

**drop\_down** ()

Display or withdraw the drop-down calendar depending on its current state.

**get\_date** ()

Return the content of the DateEntry as a datetime.date instance.

**keys** ()

Return a list of all resource names of this widget.

**set\_date** (*date*)

Set the value of the DateEntry to date.

date can be a datetime.date, a datetime.datetime or a string in locale ‘%x’ format.

**state** (*\*args*)

Modify or inquire widget state.

Widget state is returned if statespec is None, otherwise it is set according to the statespec flags and then a new state spec is returned indicating which flags were changed. statespec is expected to be a sequence.

## 2.2.2 Virtual Events

A <<DateEntrySelected>> event is generated each time the user selects a date.



## CHAPTER 3

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### Example

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```
try:
    import tkinter as tk
    from tkinter import ttk
except ImportError:
    import Tkinter as tk
    import ttk

from tkcalendar import Calendar, DateEntry

def example1():
    def print_sel():
        print(cal.selection_get())

    top = tk.Toplevel(root)

    cal = Calendar(top, font="Arial 14", selectmode='day', locale='en_US',
                    cursor="hand1", year=2018, month=2, day=5)

    cal.pack(fill="both", expand=True)
    ttk.Button(top, text="ok", command=print_sel).pack()

def example2():

    top = tk.Toplevel(root)

    cal = Calendar(top, selectmode='none')
    date = cal.datetime.today() + cal.timedelta(days=2)
    cal.calevent_create(date, 'Hello World', 'message')
    cal.calevent_create(date, 'Reminder 2', 'reminder')
    cal.calevent_create(date + cal.timedelta(days=-2), 'Reminder 1', 'reminder')
    cal.calevent_create(date + cal.timedelta(days=3), 'Message', 'message')

    cal.tag_config('reminder', background='red', foreground='yellow')
```

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```
cal.pack(fill="both", expand=True)
ttk.Label(top, text="Hover over the events.").pack()

def example3():
    top = tk.Toplevel(root)

    ttk.Label(top, text='Choose date').pack(padx=10, pady=10)

    cal = DateEntry(top, width=12, background='darkblue',
                    foreground='white', borderwidth=2, year=2010)
    cal.pack(padx=10, pady=10)

root = tk.Tk()
ttk.Button(root, text='Calendar', command=example1).pack(padx=10, pady=10)
ttk.Button(root, text='Calendar with events', command=example2).pack(padx=10, pady=10)
ttk.Button(root, text='DateEntry', command=example3).pack(padx=10, pady=10)

root.mainloop()
```



## 4.1 Widget styling

### Calendar

All styling is done using options, see the *documentation*.

### DateEntry

`DateEntry` inherits from `ttk.Entry` therefore the styling is done using a `ttk` style:

```
try:
    import tkinter as tk
    from tkinter import ttk
except ImportError:
    import Tkinter as tk
    import ttk

from tkcalendar import DateEntry

style = ttk.Style()
# style.theme_use('clam') # -> uncomment this line if the styling does not work
style.configure('my.DateEntry',
                fieldbackground='light green',
                background='dark green',
                foreground='dark blue',
                arrowcolor='white')

dateentry = DateEntry(style='my.DateEntry')
dateentry.pack()

tk.mainloop()
```

If the style of the `DateEntry` does not change, then it might be because of the used ttk theme. Changing the theme with `style.theme_use('clam')` should solve the issue.

## 4.2 PyInstaller

When bundling an application with `PyInstaller`, there seem to be an issue ([#32](#)) with the detection of the babel dependency of tkcalendar. This can be fixed by using the `--hidden-import` option:

```
$ pyinstaller --hidden-import babel.numbers myscript.py
```

or by editing the `.spec` file:

```
hiddenimports=["babel.numbers"]
```

### 5.1 tkcalendar 1.4.0

#### New features

- `<<CalendarMonthChanged>>` virtual event: event generated each time the user changes the displayed month
- `Calendar.get_displayed_month()` method: return the currently displayed month in the form of a (month, year) tuple.

#### New Calendar options

- `showothermonthdays`: show/hide the last and first days of the previous and next months

#### Bug fixes

- Fix handling of `style` option in `DateEntry`
- Fix display of events for January days showing on December and conversely

### 5.2 tkcalendar 1.3.1

#### Bug fixes

- Fix bug in day selection when `firstweekday` is 'sunday'

## 5.3 tkcalendar 1.3.0

### New feature

- Add possibility to display special events (like birthdays, ..) in the calendar. The events are displayed with colors defined by tags and the event description is displayed in a tooltip (see *Calendar Events*)

### New Calendar options

- *showweeknumbers*: show/hide week numbers
- *firstweekday*: first week day ('monday' or 'sunday')

### Bug fixes

- No longer set locale globally to avoid conflicts between several instances, use babel module instead
- Make *DateEntry* compatible with more ttk themes, especially OSX default theme

## 5.4 tkcalendar 1.2.1

### Bug fix

- Fix `ValueError` in *DateEntry* with Python 3.6.5

## 5.5 tkcalendar 1.2.0

### New Calendar options

- *textvariable*: connect the currently selected date to the given `StringVar`
- *state*: 'normal' or 'disabled'
- *disabledselectbackground*, *disabledselectforeground*, *disableddaybackground* and *disableddayforeground*: configure colors when Calendar is disabled

### Bug fixes

- Fix *DateEntry* behavior in readonly mode
- Make *Calendar.selection\_get()* always return a `datetime.date`

## 5.6 tkcalendar 1.1.5

### Bug fix

- Fix endless triggering of <<ThemeChanged>> event in *DateEntry*

## 5.7 tkcalendar 1.1.4

### Bug fixes

- Fix error in january due to week 53
- Fix *DateEntry* for ttk themes other than 'clam'

## 5.8 tkcalendar 1.1.3

### Bug fixes

- Make *DateEntry* support initialisation with partial dates (e.g. just year=2010)
- Improve handling of wrong year-month-day combinations

## 5.9 tkcalendar 1.1.2

### Bug fixes

- Fix bug after destroying a *DateEntry*
- Fix bug in style and font

## 5.10 tkcalendar 1.1.1

### Bug fixes

- Fix bug when content of *DateEntry* is not a valid date

## 5.11 tkcalendar 1.1.0

### Bug fixes

- Fix display of the first days of the next month
- Increment year when going from December to January

### New widget

- *DateEntry*, date selection entry with drop-down calendar

### New Calendar options

- *borderwidth*: width of the border around the calendar (integer)
- *othermonthbackground*: background color for normal week days belonging to the previous/next month
- *othermonthweforeground*: foreground color for week-end days belonging to the previous/next month
- *othermonthwebackground*: background color for week-end days belonging to the previous/next month

## 5.12 tkcalendar 1.0.0

Initial version

## CHAPTER 6

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tkcalendar - Calendar and DateEntry widgets for Tkinter

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- [arahorn28](#)

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