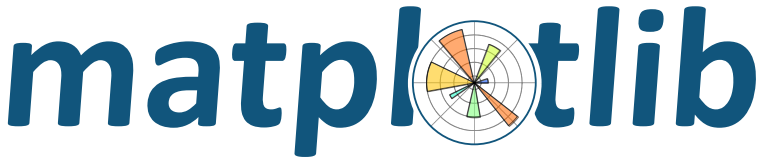


figure

matplotlib.figure

The figure module provides the top-level `Artist`, the `Figure`, which contains all the plot elements. The following classes are defined

`SubplotParams`

control the default spacing of the subplots

`Figure`

top level container for all plot elements

class matplotlib.figure.AxesStack

Bases: `matplotlib.cbook.Stack`

Specialization of the Stack to handle all tracking of Axes in a Figure. This stack stores `key, (ind, axes)` pairs, where:

- **key** should be a hash of the args and kwargs used in generating the Axes.
- **ind** is a serial number for tracking the order in which axes were added.

The AxesStack is a callable, where `ax_stack()` returns the current axes. Alternatively the `current_key_axes()` will return the current key and associated axes.

---

add(*key*, *a*)

Add Axes *a*, with key *key*, to the stack, and return the stack.

If *a* is already on the stack, don't add it again, but return *None*.

---

as_list()

Return a list of the Axes instances that have been added to the figure

---

bubble(*a*)

Move the given axes, which must already exist in the stack, to the top.

---

current_key_axes()

Return a tuple of `(key, axes)` for the active axes.

If no axes exists on the stack, then returns `(None, None)`.

`get`(*key*)

Return the Axes instance that was added with *key*. If it is not present, return None.

`remove`(*a*)

Remove the axes from the stack.

class `matplotlib.figure.Figure`(*figsize=None*, *dpi=None*, *facecolor=None*, *edgecolor=None*, *linewidth=0.0*, *frameon=None*, *subplotpars=None*, *tight_layout=None*)

Bases: `matplotlib.artist.Artist`

The Figure instance supports callbacks through a *callbacks* attribute which is a `matplotlib.cbook.CallbackRegistry` instance. The events you can connect to are 'dpi_changed', and the callback will be called with `func(fig)` where fig is the `Figure` instance.

patch

The figure patch is drawn by a `matplotlib.patches.Rectangle` instance

suppressComposite

For multiple figure images, the figure will make composite images depending on the renderer option_image_nocomposite function. If suppressComposite is True|False, this will override the renderer.

figsize

w,h tuple in inches

dpi

Dots per inch

facecolor

The figure patch facecolor; defaults to rc `figure.facecolor`

edgecolor

The figure patch edge color; defaults to rc `figure.edgecolor`

linewidth

The figure patch edge linewidth; the default linewidth of the frame

frameon

If *False*, suppress drawing the figure frame

subplotpars

A SubplotParams instance, defaults to rc

tight_layout

If *False* use *subplotpars*; if *True* adjust subplot parameters using tight_layout() with default padding. When providing a dict containing the keys pad, w_pad, h_pad and rect, the default tight_layout() paddings will be overridden. Defaults to rc figure.autolayout.

---

add_axes(**args*, ***kwargs*)

Add an axes at position *rect* [*left*, *bottom*, *width*, *height*] where all quantities are in fractions of figure width and height. kwargs are legal Axes kwargs plus *projection* which sets the projection type of the axes. (For backward compatibility, polar=True may also be provided, which is equivalent to projection='polar'). Valid values for *projection* are: ['aitoff', 'hammer', 'lambert', 'mollweide', 'polar', 'rectilinear']. Some of these projections support additional kwargs, which may be provided to add_axes(). Typical usage:

```
rect = l,b,w,h
fig.add_axes(rect)
fig.add_axes(rect, frameon=False, facecolor='g')
fig.add_axes(rect, polar=True)
fig.add_axes(rect, projection='polar')
fig.add_axes(ax)
```

If the figure already has an axes with the same parameters, then it will simply make that axes current and return it. If you do not want this behavior, e.g., you want to force the creation of a new Axes, you must use a unique set of args and kwargs. The axes label attribute has been exposed for this purpose. e.g., if you want two axes that are otherwise identical to be added to the figure, make sure you give them unique labels:

```
fig.add_axes(rect, label='axes1')
fig.add_axes(rect, label='axes2')
```

In rare circumstances, add_axes may be called with a single argument, an Axes instance already created in the present figure but not in the figure's list of axes. For example, if an axes has been removed with delaxes(), it can be restored with:

```
fig.add_axes(ax)
```

In all cases, the Axes instance will be returned.

In addition to *projection*, the following kwargs are supported:

Property	Description
adjustable	['box' | 'datalim' | 'box-forced']
agg_filter	unknown

Property	Description
alpha	float (0.0 transparent through 1.0 opaque)
anchor	unknown
animated	[True | False]
aspect	unknown
autoscale_on	unknown
autoscalex_on	unknown
autoscaley_on	unknown
axes	an Axes instance
axes_locator	unknown
axisbelow	[*True* | *False* | 'line']
clip_box	a matplotlib.transforms.Bbox instance
clip_on	[True | False]
clip_path	[(Path, Transform) | Patch | None]
color_cycle	unknown
contains	a callable function
facecolor	unknown
fc	unknown
figure	unknown
frame_on	[*True* | *False*]
gid	an id string
label	string or anything printable with '%s' conversion.
navigate	[*True* | *False*]
navigate_mode	unknown
path_effects	unknown
picker	[None|float|boolean|callable]
position	unknown
rasterization_zorder	unknown
rasterized	[True | False | None]
sketch_params	unknown
snap	unknown
title	unknown
transform	Transform instance
url	a url string
visible	[True | False]
xbound	unknown
xlabel	unknown
xlim	unknown
xmargin	unknown
xscale	['linear' | 'log' | 'logit' | 'symlog']

Property	Description
xticklabels	sequence of strings
xticks	sequence of floats
ybound	unknown
ylabel	unknown
ylim	unknown
ymargin	unknown
yscale	['linear' | 'log' | 'logit' | 'symlog']
yticklabels	sequence of strings
yticks	sequence of floats
zorder	any number

`add_axobserver(`*`func`*`)`

whenever the axes state change, `func(self)` will be called

`add_subplot(`*`*args`*`, `*`**kwargs`*`)`

Add a subplot. Examples:

```
fig.add_subplot(111)

# equivalent but more general
fig.add_subplot(1,1,1)

# add subplot with red background
fig.add_subplot(212, facecolor='r')

# add a polar subplot
fig.add_subplot(111, projection='polar')

# add Subplot instance sub
fig.add_subplot(sub)
```

`kwargs` are legal `Axes` kwargs plus *`projection`*, which chooses a projection type for the axes. (For backward compatibility, *`polar=True`* may also be provided, which is equivalent to *`projection='polar'`*). Valid values for *`projection`* are: ['aitoff', 'hammer', 'lambert', 'mollweide', 'polar', 'rectilinear']. Some of these projections support additional *`kwargs`*, which may be provided to `add_axes()`.

The `Axes` instance will be returned.

If the figure already has a subplot with key (*`args`*, *`kwargs`*) then it will simply make that subplot current and return it.

See also

`subplot()` for an explanation of the args.

The following kwargs are supported:

Property	Description
adjustable	['box' | 'datalim' | 'box-forced']
agg_filter	unknown

Property	Description
alpha	float (0.0 transparent through 1.0 opaque)
anchor	unknown
animated	[True | False]
aspect	unknown
autoscale_on	unknown
autoscalex_on	unknown
autoscaley_on	unknown
axes	an Axes instance
axes_locator	unknown
axisbelow	[*True* | *False* | 'line']
clip_box	a matplotlib.transforms.Bbox instance
clip_on	[True | False]
clip_path	[(Path, Transform) | Patch | None]
color_cycle	unknown
contains	a callable function
facecolor	unknown
fc	unknown
figure	unknown
frame_on	[*True* | *False*]
gid	an id string
label	string or anything printable with '%s' conversion.
navigate	[*True* | *False*]
navigate_mode	unknown
path_effects	unknown
picker	[None|float|boolean|callable]
position	unknown
rasterization_zorder	unknown
rasterized	[True | False | None]
sketch_params	unknown
snap	unknown
title	unknown
transform	Transform instance
url	a url string
visible	[True | False]
xbound	unknown
xlabel	unknown
xlim	unknown
xmargin	unknown
xscale	['linear' | 'log' | 'logit' | 'symlog']

Property	Description
xticklabels	sequence of strings
xticks	sequence of floats
ybound	unknown
ylabel	unknown
ylim	unknown
ymargin	unknown
yscale	['linear' | 'log' | 'logit' | 'symlog']
yticklabels	sequence of strings
yticks	sequence of floats
zorder	any number

---

autofmt_xdate(*bottom=0.2*, *rotation=30*, *ha='right'*)

Date ticklabels often overlap, so it is useful to rotate them and right align them. Also, a common use case is a number of subplots with shared xaxes where the x-axis is date data. The ticklabels are often long, and it helps to rotate them on the bottom subplot and turn them off on other subplots, as well as turn off xlabels.

bottom

The bottom of the subplots for subplots_adjust()

rotation

The rotation of the xtick labels

ha

The horizontal alignment of the xticklabels

---

axes

Read-only: list of axes in Figure

---

clear()

Clear the figure – synonym for clf().

---

clf(*keep_observers=False*)

Clear the figure.

Set *keep_observers* to True if, for example, a gui widget is tracking the axes in the figure.

---

colorbar(*mappable*, *cax=None*, *ax=None*, *use_gridspec=True*, ***kw*)

Create a colorbar for a ScalarMappable instance, *mappable*.

Documentation for the pylab thin wrapper:

Add a colorbar to a plot.

Function signatures for the `pyplot` interface; all but the first are also method signatures for the `colorbar()` method:

```
colorbar(**kwargs)
colorbar(mappable, **kwargs)
colorbar(mappable, cax=cax, **kwargs)
colorbar(mappable, ax=ax, **kwargs)
```

arguments:

mappable

the `Image`, `ContourSet`, etc. to which the colorbar applies; this argument is mandatory for the `colorbar()` method but optional for the `colorbar()` function, which sets the default to the current image.

keyword arguments:

cax

None | axes object into which the colorbar will be drawn

ax

None | parent axes object(s) from which space for a new colorbar axes will be stolen. If a list of axes is given they will all be resized to make room for the colorbar axes.

use_gridspec

False | If *cax* is None, a new *cax* is created as an instance of Axes. If *ax* is an instance of Subplot and *use_gridspec* is True, *cax* is created as an instance of Subplot using the grid_spec module.

Additional keyword arguments are of two kinds:

axes properties:

Property	Description
orientation	vertical or horizontal
fraction	0.15; fraction of original axes to use for colorbar
pad	0.05 if vertical, 0.15 if horizontal; fraction of original axes between colorbar and new image axes
shrink	1.0; fraction by which to shrink the colorbar
aspect	20; ratio of long to short dimensions

Property	Description
anchor	(0.0, 0.5) if vertical; (0.5, 1.0) if horizontal; the anchor point of the colorbar axes
panchor	(1.0, 0.5) if vertical; (0.5, 0.0) if horizontal; the anchor point of the colorbar parent axes. If False, the parent axes' anchor will be unchanged

colorbar properties:

Property	Description
extend	['neither' | 'both' | 'min' | 'max'] If not 'neither', make pointed end(s) for out-of- range values. These are set for a given colormap using the colormap set_under and set_over methods.
extendfrac	[*None* | 'auto' | length | lengths] If set to *None*, both the minimum and maximum triangular colorbar extensions with have a length of 5% of the interior colorbar length (this is the default setting). If set to 'auto', makes the triangular colorbar extensions the same lengths as the interior boxes (when *spacing* is set to 'uniform') or the same lengths as the respective adjacent interior boxes (when *spacing* is set to 'proportional'). If a scalar, indicates the length of both the minimum and maximum triangular colorbar extensions as a fraction of the interior colorbar length. A two-element sequence of fractions may also be given, indicating the lengths of the minimum and maximum colorbar extensions respectively as a fraction of the interior colorbar length.
extendrect	[*False* | *True*] If *False* the minimum and maximum colorbar extensions will be triangular (the default). If *True* the extensions will be rectangular.
spacing	['uniform' | 'proportional'] Uniform spacing gives each discrete color the same space;

Property	Description
	proportional makes the space proportional to the data interval.
ticks	[None | list of ticks | Locator object] If None, ticks are determined automatically from the input.
format	[None | format string | Formatter object] If None, the ScalarFormatter is used. If a format string is given, e.g., '%.3f', that is used. An alternative Formatter object may be given instead.
drawedges	[False | True] If true, draw lines at color boundaries.

The following will probably be useful only in the context of indexed colors (that is, when the mappable has norm=NoNorm()), or other unusual circumstances.

Property	Description
boundaries	None or a sequence
values	None or a sequence which must be of length 1 less than the sequence of *boundaries*. For each region delimited by adjacent entries in *boundaries*, the color mapped to the corresponding value in values will be used.

If *mappable* is a ContourSet, its *extend* kwarg is included automatically.

Note that the *shrink* kwarg provides a simple way to keep a vertical colorbar, for example, from being taller than the axes of the mappable to which the colorbar is attached; but it is a manual method requiring some trial and error. If the colorbar is too tall (or a horizontal colorbar is too wide) use a smaller value of *shrink*.

For more precise control, you can manually specify the positions of the axes objects in which the mappable and the colorbar are drawn. In this case, do not use any of the axes properties kwargs.

It is known that some vector graphics viewer (svg and pdf) renders white gaps between segments of the colorbar. This is due to bugs in the viewers not matplotlib. As a workaround the colorbar can be rendered with overlapping segments:

```
cbar = colorbar()
cbar.solids.set_edgecolor("face")
draw()
```

However this has negative consequences in other circumstances. Particularly with semi transparent images (alpha < 1) and colorbar extensions and is not enabled by default see (issue #1188).

returns:

`Colorbar` instance; see also its base class, `ColorbarBase`. Call the `set_label()` method to label the colorbar.

`contains`(*mouseevent*)

Test whether the mouse event occurred on the figure.

Returns True,{}

`delaxes`(*a*)

remove a from the figure and update the current axes

`dpi`

`draw`(*artist*, *renderer*, **args*, ***kwargs*)

Render the figure using `matplotlib.backend_bases.RendererBase` instance *renderer*.

`draw_artist`(*a*)

draw `matplotlib.artist.Artist` instance *a* only – this is available only after the figure is drawn

---

`figimage`(*X*, *xo=0*, *yo=0*, *alpha=None*, *norm=None*, *cmap=None*, *vmin=None*, *vmax=None*, *origin=None*, *resize=False*, ***kwargs*)

Adds a non-resampled image to the figure.

call signatures:

```
figimage(X, **kwargs)
```

adds a non-resampled array *X* to the figure.

```
figimage(X, xo, yo)
```

with pixel offsets *xo*, *yo*,

X must be a float array:

- If *X* is MxN, assume luminance (grayscale)
- If *X* is MxNx3, assume RGB
- If *X* is MxNx4, assume RGBA

Optional keyword arguments:

Keyword	Description
resize	a boolean, True or False. If “True”, then re-size the Figure to match the given image size.

Keyword	Description
xo or yo	An integer, the *x* and *y* image offset in pixels
cmap	a `matplotlib.colors.Colormap` instance, e.g., cm.jet. If *None*, default to the rc `image.cmap` value
norm	a `matplotlib.colors.Normalize` instance. The default is normalization(). This scales luminance -> 0-1
vmin|vmax	are used to scale a luminance image to 0-1. If either is *None*, the min and max of the luminance values will be used. Note if you pass a norm instance, the settings for *vmin* and *vmax* will be ignored.
alpha	the alpha blending value, default is *None*
origin	['upper' | 'lower'] Indicates where the [0,0] index of the array is in the upper left or lower left corner of the axes. Defaults to the rc image.origin value

figimage complements the axes image (`imshow()`) which will be resampled to fit the current axes. If you want a resampled image to fill the entire figure, you can define an `Axes` with extent [0,0,1,1].

An `matplotlib.image.FigureImage` instance is returned.

(Source code, png, pdf)

Additional kwargs are Artist kwargs passed on to `FigureImage`

`gca(**kwargs)`

Get the current axes, creating one if necessary

The following kwargs are supported for ensuring the returned axes adheres to the given projection etc., and for axes creation if the active axes does not

exist:

Property	Description
adjustable	['box' | 'datalim' | 'box-forced']
agg_filter	unknown
alpha	float (0.0 transparent through 1.0 opaque)
anchor	unknown
animated	[True | False]
aspect	unknown
autoscale_on	unknown
autoscalex_on	unknown
autoscaley_on	unknown
axes	an Axes instance
axes_locator	unknown
axisbelow	[*True* | *False* | 'line']
clip_box	a matplotlib.transforms.Bbox instance
clip_on	[True | False]
clip_path	[(Path, Transform) | Patch | None]
color_cycle	unknown
contains	a callable function
facecolor	unknown
fc	unknown
figure	unknown
frame_on	[*True* | *False*]
gid	an id string
label	string or anything printable with '%s' conversion.
navigate	[*True* | *False*]
navigate_mode	unknown
path_effects	unknown
picker	[None|float|boolean|callable]
position	unknown
rasterization_zorder	unknown
rasterized	[True | False | None]
sketch_params	unknown
snap	unknown
title	unknown
transform	Transform instance
url	a url string
visible	[True | False]
xbound	unknown
xlabel	unknown

Property	Description
xlim	unknown
xmargin	unknown
xscale	['linear' | 'log' | 'logit' | 'symlog']
xticklabels	sequence of strings
xticks	sequence of floats
ybound	unknown
ylabel	unknown
ylim	unknown
ymargin	unknown
yscale	['linear' | 'log' | 'logit' | 'symlog']
yticklabels	sequence of strings
yticks	sequence of floats
zorder	any number

---

get_axes()

---

get_children()

get a list of artists contained in the figure

---

get_default_bbox_extra_artists()

---

get_dpi()

Return the dpi as a float

---

get_edgecolor()

Get the edge color of the Figure rectangle

---

get_facecolor()

Get the face color of the Figure rectangle

---

get_figheight()

Return the figheight as a float

---

get_figwidth()

Return the figwidth as a float

---

get_frameon()

get the boolean indicating frameon

`get_size_inches`()

Returns the current size of the figure in inches (1in == 2.54cm) as an numpy array.

Returns: **size** : ndarray

The size of the figure in inches

See also

`matplotlib.Figure.set_size_inches`

`get_tight_layout`()

Return the Boolean flag, True to use :meth`tight_layout` when drawing.

`get_tightbbox`(*renderer*)

Return a (tight) bounding box of the figure in inches.

It only accounts axes title, axis labels, and axis ticklabels. Needs improvement.

`get_window_extent`(**args*, ***kwargs*)

get the figure bounding box in display space; kwargs are void

---

`ginput`(*n=1*, *timeout=30*, *show_clicks=True*, *mouse_add=1*, *mouse_pop=3*, *mouse_stop=2*)

Blocking call to interact with the figure.

This will wait for *n* clicks from the user and return a list of the coordinates of each click.

If *timeout* is zero or negative, does not timeout.

If *n* is zero or negative, accumulate clicks until a middle click (or potentially both mouse buttons at once) terminates the input.

Right clicking cancels last input.

The buttons used for the various actions (adding points, removing points, terminating the inputs) can be overriden via the arguments *mouse_add*, *mouse_pop* and *mouse_stop*, that give the associated mouse button: 1 for left, 2 for middle, 3 for right.

The keyboard can also be used to select points in case your mouse does not have one or more of the buttons. The delete and backspace keys act like right clicking (i.e., remove last point), the enter key terminates input and any other key (not already used by the window manager) selects a point.

`hold`(*b=None*)

Deprecated since version 2.0: The hold function was deprecated in version 2.0.

Set the hold state. If hold is None (default), toggle the hold state. Else set the hold state to boolean value b.

e.g.:

```
hold()      # toggle hold
hold(True)  # hold is on
hold(False) # hold is off
```

All “hold” machinery is deprecated.

`legend`(*handles*, *labels*, **args*, ***kwargs*)

Place a legend in the figure. Labels are a sequence of strings, handles is a sequence of `Line2D` or `Patch` instances, and loc can be a string or an integer specifying the legend location

USAGE:

```
legend( (line1, line2, line3),
        ('label1', 'label2', 'label3'),
        'upper right')
```

The *loc* location codes are:

```
'best' : 0,          (currently not supported for figure lege
'upper right'  : 1,
'upper left'   : 2,
'lower left'   : 3,
'lower right'  : 4,
'right'        : 5,
'center left'  : 6,
'center right' : 7,
'lower center' : 8,
'upper center' : 9,
'center'       : 10,
```

loc can also be an (x,y) tuple in figure coords, which specifies the lower left of the legend box. figure coords are (0,0) is the left, bottom of the figure and 1,1 is the right, top.

Keyword arguments:

prop: [*None* | FontProperties | dict]

A `matplotlib.font_manager.FontProperties` instance. If *prop* is a dictionary, a new instance will be created with *prop*. If *None*, use rc settings.

numpoints: integer

The number of points in the legend line, default is 4

scatterpoints: integer

The number of points in the legend line, default is 4

scatteryoffsets: list of floats

a list of yoffsets for scatter symbols in legend

markerscale: [*None* | scalar]

The relative size of legend markers vs. original. If *None*, use rc settings.

markerfirst: [*True* | *False*]

if *True*, legend marker is placed to the left of the legend label if *False*, legend marker is placed to the right of the legend label

frameon: [*None* | bool]

Control whether the legend should be drawn on a patch (frame). Default is *None* which will take the value from the `legend.frameon` rcParam.

fancybox: [*None* | *False* | *True*]

if *True*, draw a frame with a round fancybox. If *None*, use rc

shadow: [*None* | *False* | *True*]

If *True*, draw a shadow behind legend. If *None*, use rc settings.

framealpha: [*None* | float]

Control the alpha transparency of the legend's background. Default is *None* which will take the value from the `legend.framealpha` rcParam.

facecolor: [*None* | "inherit" | a color spec]

Control the legend's background color. Default is *None* which will take the value from the `legend.facecolor` rcParam. If `"inherit"`, it will take the `axes.facecolor` rcParam.

edgecolor: [*None* | "inherit" | a color spec]

Control the legend's background patch edge color. Default is *None* which will take the value from the `legend.edgecolor` rcParam. If `"inherit"`, it will take the `axes.edgecolor` rcParam.

ncol : integer

number of columns. default is 1

mode : ["expand" | *None*]

if mode is "expand", the legend will be horizontally expanded to fill the axes area (or *bbox_to_anchor*)

title : string

the legend title

Padding and spacing between various elements use following keywords parameters. The dimensions of these values are given as a fraction of the fontsize. Values from rcParams will be used if None.

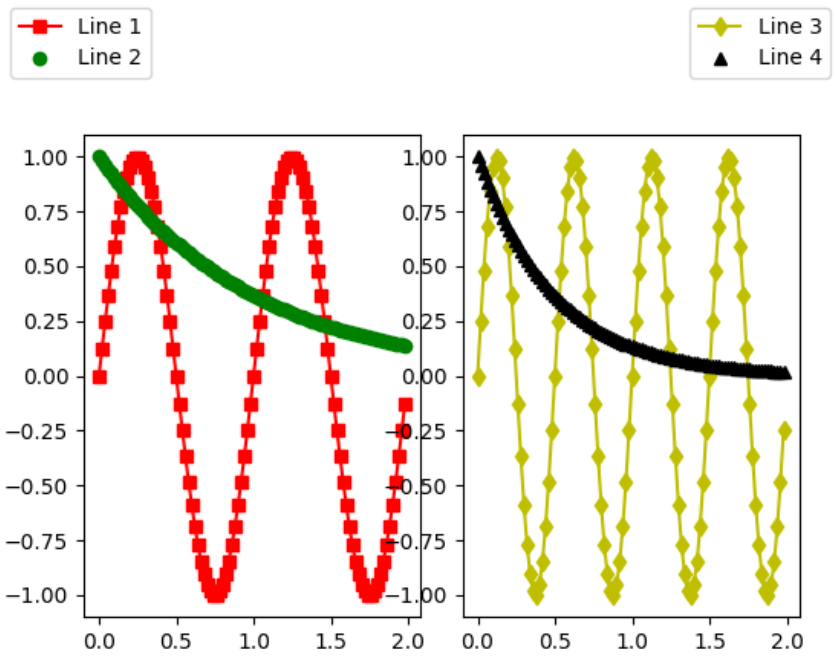
Keyword	Description
borderpad	the fractional whitespace inside the legend border
labelspacing	the vertical space between the legend entries
handlelength	the length of the legend handles
handletextpad	the pad between the legend handle and text
borderaxespad	the pad between the axes and legend border
columnspacing	the spacing between columns

Note

Not all kinds of artist are supported by the legend. See LINK (FIXME) for details.

Example:

(Source code, png, pdf)



`savefig(*args, **kwargs)`

Save the current figure.

Call signature:

```
savefig(fname, dpi=None, facecolor='w', edgecolor='w',
        orientation='portrait', papertype=None, format=None,
        transparent=False, bbox_inches=None, pad_inches=0.1,
        frameon=None)
```

The output formats available depend on the backend being used.

Arguments:

fname:

A string containing a path to a filename, or a Python file-like object, or possibly some backend-dependent object such as `PdfPages`.

If *format* is *None* and *fname* is a string, the output format is deduced from the extension of the filename. If the filename has no extension, the value of the rc parameter `savefig.format` is used.

If *fname* is not a string, remember to specify *format* to ensure that the correct backend is used.

Keyword arguments:

dpi: [*None* | `scalar > 0` | 'figure']

The resolution in dots per inch. If *None* it will default to the value `savefig.dpi` in the matplotlibrc file. If 'figure' it will set the dpi to be the value of the figure.

facecolor, *edgecolor*:

the colors of the figure rectangle

orientation: ['landscape' | 'portrait']

not supported on all backends; currently only on postscript output

papertype:

One of 'letter', 'legal', 'executive', 'ledger', 'a0' through 'a10', 'b0' through 'b10'. Only supported for postscript output.

format:

One of the file extensions supported by the active backend. Most backends support png, pdf, ps, eps and svg.

transparent:

If *True*, the axes patches will all be transparent; the figure patch will also be transparent unless facecolor and/or edgecolor are specified via kwargs. This is useful, for example, for displaying a plot on top of a colored background on a web page. The transparency of these patches will be restored to their original values upon exit of this function.

frameon:

If *True*, the figure patch will be colored, if *False*, the figure background will be transparent. If not provided, the rcParam 'savefig.frameon' will be used.

bbox_inches:

Bbox in inches. Only the given portion of the figure is saved. If 'tight', try to figure out the tight bbox of the figure.

pad_inches:

Amount of padding around the figure when bbox_inches is 'tight'.

bbox_extra_artists:

A list of extra artists that will be considered when the tight bbox is calculated.

---

sca(*a*)

Set the current axes to be a and return a

---

set_canvas(*canvas*)

Set the canvas that contains the figure

ACCEPTS: a FigureCanvas instance

---

set_dpi(*val*)

Set the dots-per-inch of the figure

ACCEPTS: float

---

set_edgecolor(*color*)

Set the edge color of the Figure rectangle

ACCEPTS: any matplotlib color - see help(colors)

---

set_facecolor(*color*)

Set the face color of the Figure rectangle

ACCEPTS: any matplotlib color - see help(colors)

---

set_figheight(*val*, *forward=False*)

Set the height of the figure in inches

ACCEPTS: float

---

set_figwidth(*val*, *forward=False*)

Set the width of the figure in inches

ACCEPTS: float

`set_frameon`(*b*)

Set whether the figure frame (background) is displayed or invisible

ACCEPTS: boolean

`set_size_inches`(*w*, *h=None*, *forward=True*)

Set the figure size in inches (1in == 2.54cm)

Usage

```
fig.set_size_inches(w,h)  # OR
fig.set_size_inches((w,h))
```

optional kwarg *forward=True* will cause the canvas size to be automatically updated; e.g., you can resize the figure window from the shell

ACCEPTS: a w,h tuple with w,h in inches

See also

`matplotlib.Figure.get_size_inches`

`set_tight_layout`(*tight*)

Set whether `tight_layout()` is used upon drawing. If None, the rcParams['figure.autolayout'] value will be set.

When providing a dict containing the keys `pad`, `w_pad`, `h_pad` and `rect`, the default `tight_layout()` paddings will be overridden.

ACCEPTS: [True | False | dict | None]

`show`(*warn=True*)

If using a GUI backend with pyplot, display the figure window.

If the figure was not created using `figure()`, it will lack a `FigureManagerBase`, and will raise an AttributeError.

For non-GUI backends, this does nothing, in which case a warning will be issued if *warn* is True (default).

`subplots_adjust`(**args*, ***kwargs*)

Call signature:

```
subplots_adjust(left=None, bottom=None, right=None, top=None,
                wspace=None, hspace=None)
```

Update the `SubplotParams` with *kwargs* (defaulting to rc when *None*) and update the subplot locations

`suptitle`(*t*, ***kwargs*)

Add a centered title to the figure.

kwargs are `matplotlib.text.Text` properties. Using figure coordinates, the defaults are:

x : 0.5

The x location of the text in figure coords

y : 0.98

The y location of the text in figure coords

horizontalalignment : 'center'

The horizontal alignment of the text

verticalalignment : 'top'

The vertical alignment of the text

If the `fontproperties` keyword argument is given then the rcParams defaults for `fontsize` (`figure.titlesize`) and `fontweight` (`figure.titleweight`) will be ignored in favour of the `FontProperties` defaults.

A `matplotlib.text.Text` instance is returned.

Example:

```
fig.suptitle('this is the figure title', fontsize=12)
```

`text(`*x*, *y*, *s*, **args*, ***kwargs*`)`

Add text to figure.

Call signature:

```
text(x, y, s, fontdict=None, **kwargs)
```

Add text to figure at location *x*, *y* (relative 0-1 coords). See `text()` for the meaning of the other arguments.

kwargs control the `Text` properties:

Property	Description
`agg_filter`	unknown
`alpha`	float (0.0 transparent through 1.0 opaque)
`animated`	[True | False]
`axes`	an `Axes` instance
`backgroundcolor`	any matplotlib color
`bbox`	FancyBboxPatch prop dict
`clip_box`	a `matplotlib.transforms.Bbox` instance
`clip_on`	[True | False]
`clip_path`	[(`Path`, `Transform`) | `Patch` | None]
`color`	any matplotlib color
`contains`	a callable function

Property	Description
family or fontfamily or fontname or name	[FONTNAME | 'serif' | 'sans-serif' | 'cursive' | 'fantasy' | 'monospace']
figure	a matplotlib.figure.Figure instance
fontproperties or font_properties	a matplotlib.font_manager.FontProperties instance
gid	an id string
horizontalalignment or ha	['center' | 'right' | 'left']
label	string or anything printable with '%s' conversion.
linespacing	float (multiple of font size)
multialignment	['left' | 'right' | 'center']
path_effects	unknown
picker	[None|float|boolean|callable]
position	(x,y)
rasterized	[True | False | None]
rotation	[angle in degrees | 'vertical' | 'horizontal']
rotation_mode	unknown
size or fontsize	[size in points | 'xx-small' | 'x-small' | 'small' | 'medium' | 'large' | 'x-large' | 'xx-large']
sketch_params	unknown
snap	unknown
stretch or fontstretch	[a numeric value in range 0-1000 | 'ultra-condensed' | 'extra-condensed' | 'condensed' | 'semi-condensed' | 'normal' | 'semi-expanded' | 'expanded' | 'extra-expanded' | 'ultra-expanded']
style or fontstyle	['normal' | 'italic' | 'oblique']
text	string or anything printable with '%s' conversion.
transform	Transform instance
url	a url string
usetex	unknown
variant or fontvariant	['normal' | 'small-caps']
verticalalignment or ma or va	['center' | 'top' | 'bottom' | 'baseline']
visible	[True | False]
weight or fontweight	[a numeric value in range 0-1000 | 'ultralight' | 'light' | 'normal' | 'regular' | 'book' | 'medium' | 'roman' | 'semibold' | 'demibold' | 'demi' | 'bold' | 'heavy' | 'extra bold' | 'black']
wrap	unknown
x	float
y	float
zorder	any number

`tight_layout(`*`renderer=None`*`, `*`pad=1.08`*`, `*`h_pad=None`*`, `*`w_pad=None`*`, `*`rect=None`*`)`

Adjust subplot parameters to give specified padding.

Parameters:

pad : float

padding between the figure edge and the edges of subplots, as a fraction of the font-size.

h_pad, w_pad : float

padding (height/width) between edges of adjacent subplots. Defaults to `pad_inches`.

rect : if rect is given, it is interpreted as a rectangle

(left, bottom, right, top) in the normalized figure coordinate that the whole subplots area (including labels) will fit into. Default is (0, 0, 1, 1).

`waitforbuttonpress(`*`timeout=-1`*`)`

Blocking call to interact with the figure.

This will return True is a key was pressed, False if a mouse button was pressed and None if *`timeout`* was reached without either being pressed.

If *`timeout`* is negative, does not timeout.

`class` `matplotlib.figure.SubplotParams(`*`left=None`*`, `*`bottom=None`*`, `*`right=None`*`, `*`top=None`*`, `*`wspace=None`*`, `*`hspace=None`*`)`

Bases: `object`

A class to hold the parameters for a subplot

All dimensions are fraction of the figure width or height. All values default to their rc params

The following attributes are available

left : 0.125

The left side of the subplots of the figure

right : 0.9

The right side of the subplots of the figure

bottom : 0.1

The bottom of the subplots of the figure

top : 0.9

The top of the subplots of the figure

wspace : 0.2

The amount of width reserved for blank space between subplots, expressed as a fraction of the average axis width

hspace : 0.2

The amount of height reserved for white space between subplots, expressed as a fraction of the average axis height

---

`update`(*left=None*, *bottom=None*, *right=None*, *top=None*, *wspace=None*, *hspace=None*)

Update the current values. If any kwarg is None, default to the current value, if set, otherwise to rc

---

`matplotlib.figure.figaspect`(*arg*)

Create a figure with specified aspect ratio. If *arg* is a number, use that aspect ratio. If *arg* is an array, figaspect will determine the width and height for a figure that would fit array preserving aspect ratio. The figure width, height in inches are returned. Be sure to create an axes with equal with and height, e.g.,

Example usage:

```
# make a figure twice as tall as it is wide
w, h = figaspect(2.)
fig = Figure(figsize=(w,h))
ax = fig.add_axes([0.1, 0.1, 0.8, 0.8])
ax.imshow(A, **kwargs)

# make a figure with the proper aspect for an array
A = rand(5,3)
w, h = figaspect(A)
fig = Figure(figsize=(w,h))
ax = fig.add_axes([0.1, 0.1, 0.8, 0.8])
ax.imshow(A, **kwargs)
```

Thanks to Fernando Perez for this function

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