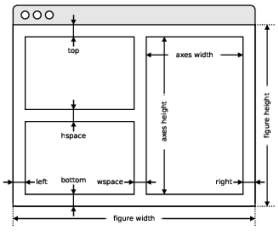
Axes adjustments

API

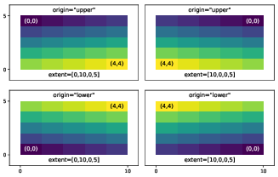
plt.**subplots_adjust**(...)



Extent & origin

API

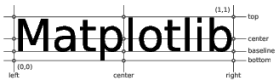
ax.**imshow**(extent=..., origin=...)



Text alignments

API

ax.**text**(..., ha=... , va=..., ...)



Text parameters

API

ax.**text**(..., family=..., size=..., weight=...)
ax.**text**(..., fontproperties=...)

The quick brown fox — xx-large (1.73)
The quick brown fox — x-large (1.44)
The quick brown fox — large (1.20)
The quick brown fox — medium (1.00)
The quick brown fox — small (0.83)
The quick brown fox — x-small (0.69)
The quick brown fox — xx-small (0.58)

The quick brown fox jumps over the lazy dog — black (900)
The quick brown fox jumps over the lazy dog — bold (700)
The quick brown fox jumps over the lazy dog — semibold (600)
The quick brown fox jumps over the lazy dog — normal (400)
The quick brown fox jumps over the lazy dog — ultralight (100)

The quick brown fox jumps over the lazy dog — monospace
The quick brown fox jumps over the lazy dog — serif
The quick brown fox jumps over the lazy dog — sans
The quick brown fox jumps over the lazy dog — cursive

The quick brown fox jumps over the lazy dog — italic
The quick brown fox jumps over the lazy dog — normal

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG — small-caps
The quick brown fox jumps over the lazy dog — normal

Uniform colormaps

viridis
plasma
inferno
magma
cividis

Sequential colormaps

Greys
Purples
Blues
Greens
Oranges
Reds
YlOrBr
YlOrRd
OrRd
PuRd
RdPu
BuPu
GnBu
PuBu
YlGnBu
PuBuGn
BuGn
YlGn

Diverging colormaps

PiYG
PRGn
BrBG
PuOr
RdGy
RdBu
RdYlBu
RdYlGn
Spectral
coolwarm
bwr
seismic

Qualitative colormaps

Pastel1
Pastel2
Paired
Accent
Dark2
Set1
Set2
Set3
tab10
tab20
tab20b
tab20c

Miscellaneous colormaps

terrain
ocean
cubehelix
rainbow
twilight

Color names

API

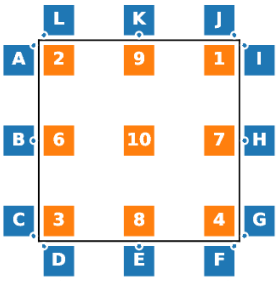
black, k, dimgray, dimgrey, gray, grey, darkgray, darkgrey, silver, lightgray, lightgrey, gainsboro, whitesmoke, w, white, snow, rosybrown, lightcoral, indianred, brown, firebrick, maroon, darkred, r, red, mistyrose, salmon, tomato, darksalmon, coral, orangered, lightsalmon, sienna, seashell, chocolate, saddlebrown, sandybrown, peachpuff, peru, linen, bisque, darkorange, burlywood, antiquewhite, tan, navajowhite, blanchedalmond, papayawhip, moccasin, orange, wheat, oldlace, floralwhite, darkgoldenrod, goldenrod, cornsilk, gold, lemonchiffon, khaki, palegoldenrod, darkkhaki, ivory, beige, lightyellow, lightgoldenrodyellow, olive, y, yellow, olivedrab, yellowgreen, darkolivegreen, greenyellow, chartreuse, lawngreen, honeydew, darkseagreen, palegreen, lightgreen, forestgreen, limegreen, darkgreen, g, green, lime, seagreen, mediumseagreen, springgreen, mintcream, mediumspringgreen, mediumaquamarine, aquamarine, turquoise, lightseagreen, mediumturquoise, azure, lightcyan, paleturquoise, darkslategray, darkslategrey, teal, darkcyan, c, aqua, cyan, darkturquoise, cadetblue, powderblue, lightblue, deepskyblue, skyblue, lightskyblue, steelblue, aliceblue, dodgerblue, lightslategray, lightslategrey, slategray, slategrey, lightsteelblue, cornflowerblue, royalblue, ghostwhite, lavender, midnightblue, navy, darkblue, mediumblue, b, blue, slateblue, darkslateblue, mediumslateblue, mediumpurple, rebeccapurple, blueviolet, indigo, darkorchid, darkviolet, mediumorchid, thistle, plum, violet, purple, darkmagenta, m, fuchsia, magenta, orchid, mediumvioletred, deeppink, hotpink, lavenderblush, palevioletred, crimson, pink, lightpink

Image interpolation

API

None
none
nearest
bilinear
bicubic
spline16
spline36
hanning
hamming
hermite
kaiser
quadric
catrom
gaussian
bessel
mitchell
sinc
lanczos

Legend placement



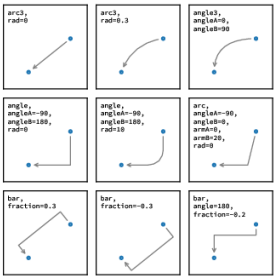
ax.**legend**(loc="string", bbox_to_anchor=(x, y))

2: upper left — 9: upper center — 1: upper right
6: center left — 10: center — 7: center right
3: lower left — 8: lower center — 4: lower right

A: upper right / (-0.1, 0.9)
B: center right / (-0.1, 0.5)
C: lower right / (-0.1, 0.1)
D: upper left / (0.1, -0.1)
E: upper center / (0.5, -0.1)
F: upper right / (0.9, -0.1)
G: lower left / (1.1, 0.1)
H: center left / (1.1, 0.5)
I: upper left / (1.1, 0.9)
J: lower right / (0.9, 1.1)
K: lower center / (0.5, 1.1)
L: lower left / (0.1, 1.1)

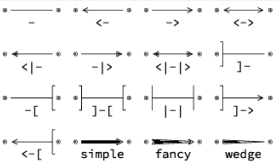
Annotation connection styles

API



Annotation arrow styles

API



How do I ...

... resize a figure?
→ fig.set_size_inches(w, h)
... save a figure?
→ fig.savefig("figure.pdf")
... save a transparent figure?
→ fig.savefig("figure.pdf", transparent=True)
... clear a figure/an axes?
→ fig.clear() → ax.clear()
... close all figures?
→ plt.close("all")
... remove ticks?
→ ax.set_[xy]ticks([])
... remove tick labels ?
→ ax.set_[xy]ticklabels([])
... rotate tick labels ?
→ ax.tick_params(axis="x", rotation=90)
... hide top spine?
→ ax.spines['top'].set_visible(False)
... hide legend border?
→ ax.legend(frameon=False)
... show error as shaded region?
→ ax.fill_between(X, Y+error, Y-error)
... draw a rectangle?
→ ax.add_patch(plt.Rectangle((0, 0), 1, 1)
... draw a vertical line?
→ ax.axvline(x=0.5)
... draw outside frame?
→ ax.plot(..., clip_on=False)
... use transparency?
→ ax.plot(..., alpha=0.25)
... convert an RGB image into a gray image?
→ gray = 0.2989*R + 0.5870*G + 0.1140*B
... set figure background color?
→ fig.patch.set_facecolor("grey")
... get a reversed colormap?
→ plt.get_cmap("viridis_r")
... get a discrete colormap?
→ plt.get_cmap("viridis", 10)
... show a figure for one second?
→ fig.show(block=False), time.sleep(1)

Performance tips

`scatter(X, Y)`	slow
`plot(X, Y, marker="o", ls="")`	fast
`for i in range(n): plot(i, X[i], "o")`	slow
`plot(X, marker="o", ls="")`	fast
`cla(); imshow(…); canvas.draw()`	slow
`im.set_data(…); canvas.draw()`	fast

Beyond Matplotlib

Seaborn: Statistical data visualization
Cartopy: Geospatial data processing
yt: Volumetric data visualization
mpld3: Bringing Matplotlib to the browser
Datashader: Large data processing pipeline
plotnine: A grammar of graphics for Python

Matplotlib Cheatsheets
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