



Quick-R

accessing the power of R

Home | Interface | Input | Manage | Stats | Adv Stats | Graphs | Adv Graphs | Blog

R Interface

[Graphical Parameters](#)

[Axes and Text](#)

[Combining Plots](#)

[Lattice Graphs](#)

[ggplot2 Graphs](#)

[Probability Plots](#)

[Mosaic Plots](#)

[Correlograms](#)

[Interactive Graphs](#)

R in Action



[R in Action](#) (2nd ed) significantly expands upon this material. Use promo code **ria38** for a 38% discount.

Top Menu

[Home](#)

[The R Interface](#)

[Data Input](#)

[Data Management](#)

[Basic Statistics](#)

[Advanced Statistics](#)

[Basic Graphs](#)

[Advanced Graphs](#)

[Blog](#)

Graphical Parameters

You can customize many features of your graphs (fonts, colors, axes, titles) through graphic options.

One way is to specify these options in through the `par()` function. If you set parameter values here, the changes will be in effect for the rest of the session or until you change them again. The format is `par(optionname=value, optionname=value, ...)`

```
# Set a graphical parameter using par()

par()           # view current settings
opar <- par()   # make a copy of current settings
par(col.lab="red") # red x and y labels
hist(mtcars$mpg) # create a plot with these new settings
par(opar)       # restore original settings
```

A second way to specify graphical parameters is by providing the `optionname=value` pairs directly to a high level plotting function. In this case, the options are only in effect for that specific graph.

```
# Set a graphical parameter within the plotting function
hist(mtcars$mpg, col.lab="red")
```

See the help for a specific high level plotting function (e.g. `plot`, `hist`, `boxplot`) to determine which graphical parameters can be set this way.

The remainder of this section describes some of the more important graphical parameters that you can set.

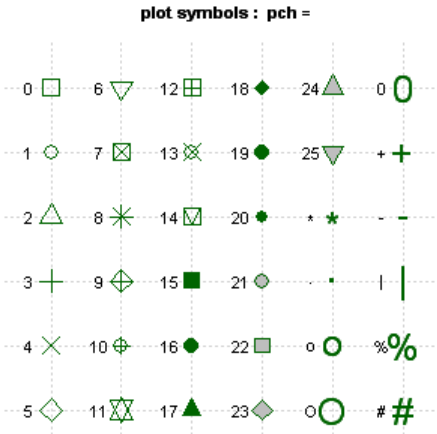
Text and Symbol Size

The following options can be used to control text and symbol size in graphs.

option	description
<code>cex</code>	number indicating the amount by which plotting text and symbols should be scaled relative to the default. 1=default, 1.5 is 50% larger, 0.5 is 50% smaller, etc.
<code>cex.axis</code>	magnification of axis annotation relative to <code>cex</code>
<code>cex.lab</code>	magnification of x and y labels relative to <code>cex</code>
<code>cex.main</code>	magnification of titles relative to <code>cex</code>
<code>cex.sub</code>	magnification of subtitles relative to <code>cex</code>

Plotting Symbols

Use the `pch=` option to specify symbols to use when plotting points. For symbols 21 through 25, specify border color (`col=`) and fill color (`bg=`).

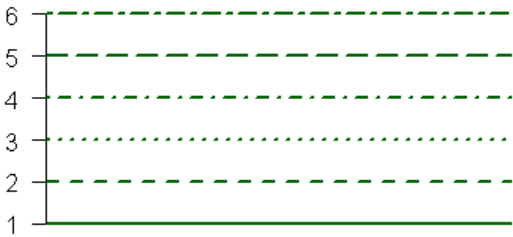


Lines

You can change lines using the following options. This is particularly useful for reference lines, axes, and fit lines.

option	description
lty	line type. see the chart below.
lwd	line width relative to the default (default=1). 2 is twice as wide.

Line Types: lty=



Colors

Options that specify colors include the following.

option	description
col	Default plotting color. Some functions (e.g. lines) accept a vector of values that are recycled.
col.axis	color for axis annotation
col.lab	color for x and y labels
col.main	color for titles
col.sub	color for subtitles
fg	plot foreground color (axes, boxes - also sets col= to same)
bg	plot background color

You can specify colors in R by index, name, hexadecimal, or RGB.

For example col=1, col="white", and col="#FFFFFF" are equivalent.

The following chart was produced with code developed by Earl F. Glynn. See his [Color Chart](#) for all the details you would ever need about using colors in R.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225
226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275
276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375
376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425
426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475
476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525
526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550
551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575
576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600
601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625
626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650
651	652	653	654	655	656	657																		

You can also create a vector of n contiguous colors using the functions `rainbow(n)`, `heat.colors(n)`, `terrain.colors(n)`, `topo.colors(n)`, and `cm.colors(n)`.

`colors()` returns all available color names.

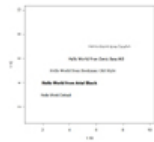
Fonts

You can easily set font size and style, but font family is a bit more complicated.

option	description
font	Integer specifying font to use for text. 1=plain, 2=bold, 3=italic, 4=bold italic, 5=symbol
font.axis	font for axis annotation
font.lab	font for x and y labels
font.main	font for titles
font.sub	font for subtitles
ps	font point size (roughly 1/72 inch) text size=ps*cex
family	font family for drawing text. Standard values are "serif", "sans", "mono", "symbol". Mapping is device dependent.

In windows, mono is mapped to "TT Courier New", serif is mapped to "TT Times New Roman", sans is mapped to "TT Arial", mono is mapped to "TT Courier New", and symbol is mapped to "TT Symbol" (TT=True Type). You can add your own mappings.

```
# Type family examples - creating new mappings
plot(1:10,1:10,type="n")
windowsFonts(
  A=windowsFont("Arial Black"),
  B=windowsFont("Bookman Old Style"),
  C=windowsFont("Comic Sans MS"),
  D=windowsFont("Symbol")
)
text(3,3,"Hello world Default")
text(4,4,family="A","Hello world from Arial Black")
text(5,5,family="B","Hello world from Bookman Old Style")
text(6,6,family="C","Hello world from Comic Sans MS")
text(7,7,family="D","Hello world from Symbol")
```



click to view

Margins and Graph Size

You can control the margin size using the following parameters.

option	description
mar	numerical vector indicating margin size c(bottom, left, top, right) in lines. default = c(5, 4, 4, 2) + 0.1
mai	numerical vector indicating margin size c(bottom, left, top, right) in inches
pin	plot dimensions (width, height) in inches

For complete information on margins, see Earl F. Glynn's [margin tutorial](#).

Going Further

See [help\(par\)](#) for more information on graphical parameters. The customization of plotting axes and text annotations are covered [next section](#).

Copyright © 2014 [Robert I. Kabacoff, Ph.D.](#) | [Sitemap](#)

Designed by [WebTemplateOcean.com](#)