

Package ‘rtsplot’

May 29, 2018

Type Package

Title Time Series Plot

Version 0.1.0

Description A fast and elegant time series visualization package. In addition to the standard R plot types, this package supports candle sticks, open-high-low-close, and volume plots. Useful for visualizing any time series data, e.g., stock prices and technical indicators.

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Imports xts, quantmod, TTR, zoo, RColorBrewer

URL <https://bitbucket.org/rtsvizteam/rtsplot>

BugReports <https://bitbucket.org/rtsvizteam/rtsplot/issues>

LazyLoad yes

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Author Irina Kapler [cre],
RTSVizTeam [aut, cph]

Maintainer Irina Kapler <irkapler@gmail.com>

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register.theme	<i>Theme</i>
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Description

Setup theme

Usage

```
register.theme(grid.color = "gray90", colors = "Set1",
  col.border = "black", col.up = "green", col.dn = "red",
  col.x.highlight = "orange", col.y.highlight = "orange", cex = 1,
  legend.bg.col = grDevices::adjustcolor("white", 200/255))
```

```
rtsplot.theme()
```

```
rtsplot.theme.set(...)
```

```
rtsplot.colors(n)
```

Arguments

grid.color	color for grid lines, defaults to 'gray90'
colors	RColorBrewer set to generate colors, defaults to "Set1" in RColorBrewer
col.border	border color for drawing candles, defaults to 'black'
col.up	up color for drawing candles, defaults to 'green'
col.dn	down color for drawing candles, defaults to 'red'
col.x.highlight	color for highlighting along x axis, defaults to 'orange'
col.y.highlight	color for highlighting along y axis, defaults to 'orange'
cex	font size, defaults to 1
legend.bg.col	background legend color, defaults to grDevices::adjustcolor('white', 200/255)
...	additional settings
n	number of colors to generate

Value

None

 rtsplot *'rtsplot' - Time series plot with base R Graphics.*

Description

Plot time series data with base R Graphics.

The 'rtsplot' package is **fast** time series plot package with base R Graphics.

Plot function for time series

Usage

```
rtsplot(y, main = NULL, plotX = TRUE, LeftMargin = 0, grid = "xy",
  x.highlight = NULL, y.highlight = NULL, y.highlight.col = NULL,
  las = 1, type = "l", xlab = "", ylab = "", ylim = NULL, log = "",
  ...)
```

Arguments

y	xts object
main	plot title
plotX	flag to display X axis
LeftMargin	to plot second Y axis, set LeftMargin=3, defaults to 0
grid	which grid lines to draw, defaults to 'xy'
x.highlight	segments to highlight along X axis, defaults to NULL
y.highlight	segments to highlight along Y axis, defaults to NULL
y.highlight.col	color to highlight segments Y axis, defaults to NULL
las	rotation of Y axis labels, defaults to 1 , for more info see par
type	plot type, defaults to 'l' , for more info see plot also support 'ohlc', 'hl', 'candle', 'volume' types
xlab	X label, defaults to "" , for more info see plot
ylab	Y label, defaults to "" , for more info see plot
ylim	range on Y values, defaults to NULL
log	log scale x, y, xy axes, defaults to ""
...	additional parameters to the plot

Value

nothing

Examples

```

# generate time series data
n = 1000
x = seq(Sys.Date(), by = 'day', length.out = n)
y = cumsum( rnorm(n, sd = sqrt(0.1)) )
y = xts::xts(y, x)
symbol = 'Test'

sma = TTR::SMA(y, 250)
rsi = TTR::RSI(y, 20)

# plot candles and RSI charts
layout(c(1,1,1,2))
cols = rtsplot.colors(2)

rtsplot(y, type = 'l', plotX = FALSE, col=cols[1],lwd=1.5)
rtsplot.lines(sma, col=cols[2], lwd=1.5)
rtsplot.legend(c(symbol, 'SMA(250)'), cols[1:2], list(y,sma))

# plot rsi
rtsplot(rsi, type = 'l', ylim=c(0,100),
y.highlight = c(c(0,30), c(70,100)),
y.highlight.col = grDevices::adjustcolor(c('green','red'), 50/255)
)
rtsplot.legend('RSI(20)', 'black', rsi)

# generate time series data
n = 1000
x = seq(Sys.Date(), by = 'day', length.out = n)
y = cumsum( rnorm(n, sd = sqrt(0.1)) )
y = xts::xts(y, x)
symbol = 'SPY'

# simple example
highlight = which(y < 2)

# plot
layout(1)
rtsplot.theme.set(col.x.highlight=grDevices::adjustcolor('orange', 200/255))

rtsplot(y, type = 'l', main = symbol, x.highlight = highlight)

```

rtsplot.corner.label *Plot corner label*

Description

Plot corner label, based on the [text at the upper left corner outside of the plot region](<http://r.789695.n4.nabble.com/text-at-the-upper-left-corner-outside-of-the-plot-region-td885675.html>)

Usage

```
rtsplot.corner.label(label = NULL, col = "black", x = -1, y = 1,
  xoffset = NA, yoffset = NA, space = c("plot", "figure"), cex = 1,
  border = NA)
```

Arguments

label	label
col	label color
x	x location, defaults to -1
y	y location, defaults to 1
xoffset	x offset, defaults to NA
yoffset	y offset, defaults to NA
space	coordinate space, can be "plot" or "figure", defaults to "plot"
cex	font size, defaults to 1
border	border color, defaults to NA - no color

Value

nothing

Examples

```
rtsplot.theme.set(legend.bg.col=grDevices::adjustcolor('orange', 200/255))
plot(rnorm(20), rnorm(20))
```

```
rtsplot.corner.label('test1', y=-1, space='figure')
rtsplot.corner.label('test2', y=1, space='figure')
rtsplot.corner.label('test3', x=1, space='figure')
rtsplot.corner.label('test4', x=1, y=-1, space='figure')
rtsplot.theme.set(legend.bg.col=grDevices::adjustcolor('white', 50/255))
```

rtsplot.format

Format numbers using 1000 separator

Description

Format numbers using 1000 separator

Usage

```
rtsplot.format(temp, nround = 2, sprefix = "", eprefix = "")
```

Arguments

temp	numbers
nround	number of rounding digits, defaults to '2'
srefix	start prefix string, defaults to ''
eprefix	end postfix string, defaults to ''

Value

numbers formatted using 1000 separator

rtsplot.grid	<i>Add grid to time series plot</i>
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Description

Add grid to time series plot

Usage

```
rtsplot.grid(grid, xaxis.ticks, col = rtsplot.theme()$grid.color)
```

Arguments

grid	which grid lines to draw, defaults to 'xy'
xaxis.ticks	location of x axis ticks
col	grid color, defaults to rtsplot.theme()\$grid.color

Value

nothing

rtsplot.layout	<i>Create layout</i>
----------------	----------------------

Description

Create layout

Usage

```
rtsplot.layout(ilyout, delim = ",")
```

Arguments

ilayout	matrix stored as a string
delim	delimiter, defaults to ' '

Value

nothing

rtsplot.legend	<i>Plot legend - shortcut to the legend function</i>
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Description

Plot legend - shortcut to the [legend](#) function

Usage

```
rtsplot.legend(labels, fill = NULL, lastobs = NULL, x = "topleft",
  merge = FALSE, bty = "n", border = NA, yformat = rtsplot.format,
  cex = 1, ...)
```

Arguments

labels	legend labels
fill	fill colors, defaults to NULL
lastobs	list of last observations, defaults to NULL
x	location of legend, defaults to 'topleft'
merge	merge, defaults to FALSE , see legend function for more info
bty	box, defaults to 'n' , see legend function for more info
border	border color, defaults to NA - no color
yformat	format Y values function, defaults to rtsplot.format
cex	font size, defaults to 1
...	other parameters to legend, see legend function for more info

Value

nothing

`rtsplot.lines` *Add lines to time series plot*

Description

Add lines to time series plot

Usage

```
rtsplot.lines(y, type = "l", col = graphics::par("col"), ...)
```

Arguments

<code>y</code>	<code>xts</code> object
<code>type</code>	line type, defaults to 'l' , for more info see lines
<code>col</code>	color, defaults to <code>par('col')</code>
<code>...</code>	additional parameters to the lines

Value

nothing

`rtsplot.matplot` [matplot](#) version for `xts` object

Description

[matplot](#) version for `xts` object

Usage

```
rtsplot.matplot(y, dates = NULL, ylim = NULL, type = "l",
  cols = rtsplot.colors(ncol(y)), ...)
```

Arguments

<code>y</code>	<code>xts</code> object
<code>dates</code>	subset of dates defaults to NULL
<code>ylim</code>	range on Y values, defaults to NULL
<code>type</code>	plot type, defaults to 'l' , see plot for details
<code>cols</code>	colors
<code>...</code>	additional parameters to the matplot

Value

nothing

`rtsplot.scale.volume` *Scale volume*

Description

Scale volume

Usage

```
rtsplot.scale.volume(y)
```

Arguments

`y` `xts` object

Value

adjusted y object

`rtsplot.stacked` *Create Stacked plot*

Description

Create Stacked plot

Usage

```
rtsplot.stacked(x, y, xlab = "", cols = rtsplot.colors(ncol(y)),  
type = c("l", "s"), flip.legend = FALSE, ...)
```

Arguments

`x` dates object
`y` matrix with weights
`xlab` X label, **defaults to** "", for more info see [plot](#)
`cols` colors, **defaults to colors** [rtsplot.theme](#)
`type` plot type: lines, step stairs `c('l','s')`
`flip.legend` flag to reverse legend order, **defaults to FALSE**
`...` additional parameters to the [plot](#)

Value

nothing

<code>rtsplot.text</code>	<i>Add text to time series plot</i>
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Description

Add text to time series plot

Usage

```
rtsplot.text(y, ...)
```

Arguments

<code>y</code>	<code>xts</code> object
<code>...</code>	additional parameters to the <code>lines</code>

Value

nothing

<code>rtsplot.volume</code>	<i>Plot volume</i>
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Description

Plot volume

Usage

```
rtsplot.volume(y, col = rtsplot.volume.col(y),  
border = rtsplot.theme()$col.border)
```

Arguments

<code>y</code>	<code>xts</code> object
<code>col</code>	color for volume bars
<code>border</code>	color for volume bars border

Value

nothing

`rtsplot.x.highlight` *Highlight vertical segments*

Description

Highlight vertical segments

Usage

```
rtsplot.x.highlight(y, highlight, col = rtsplot.theme()$col.x.highlight)
```

Arguments

`y` `xts` object
`highlight` segments to highlight along X axis
`col` highlight color, **defaults to `rtsplot.control$col.x.highlight`**

Value

nothing

`rtsplot.y.highlight` *Highlight horizontal segments*

Description

Highlight horizontal segments

Usage

```
rtsplot.y.highlight(highlight, col = rtsplot.theme()$col.y.highlight)
```

Arguments

`highlight` segments to highlight along Y axis
`col` highlight color, **defaults to `rtsplot.control$col.y.highlight`**

Value

nothing

Examples

```
# download data
data.spy = getSymbols('SPY', auto.assign = FALSE)
rsi = RSI(Cl(data.spy), 20)

#set up two regions for graphs candlestick price data on top 2/3 of the plot
#and rsi on the bottom 1/3 of the plot
layout(c(1,1,2))

rtsplot(data.spy, type = 'candle', plotX = FALSE)
  rtsplot.legend('SPY', 'grey70', data.spy)
rtsplot(rsi, type = 'l')

col = grDevices::adjustcolor(c('green','red'), 80/255)
rtsplot.y.highlight(col=col[1], highlight=c(50,100))
rtsplot.y.highlight(col=col[2], highlight=c(0,50))

abline(h = 50, col = 'gray20')

col = iif(mlast(rsi)>50,'black','red')
rtsplot.legend('RSI(20)', col, rsi, text.col=col)
```

 rtsplot2Y

Plot time series with second Y axis

Description

Plot time series with second Y axis

Usage

```
rtsplot2Y(y, las = 1, type = "l", ...)
```

Arguments

y	xts object
las	rotation of Y axis labels, defaults to 1 , for more info see par
type	plot type, defaults to 'l' , for more info see plot also support 'ohlc', 'hl', 'candle', 'volume' types
...	additional parameters to the plot

Value

nothing

Examples

```
# generate time series data
n = 1000
x = seq(Sys.Date(), by = 'day', length.out = n)
y = cumsum( rnorm(n, sd = sqrt(0.1)) )
y = xts::xts(y, x)
symbol = 'SPY'

y1 = 100 + cumsum( rnorm(n, sd = sqrt(0.1)) )
y1 = xts::xts(y1, x)
symbol = 'IBM'

# two Y axis example
# to plot second Y axis, free some space on left side, set LeftMargin=3
layout(1)
cols = c('black', 'red')

rtsplot(y, type = 'l', LeftMargin=3, col=cols[1])

rtsplot2Y(y1, type='l', las=1, col=cols[2], col.axis=cols[2])

rtsplot.legend('SPY(rhs),IBM(lhs)', cols, list(y,y1))
```

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