

Package ‘rtsplot’

September 15, 2018

Type Package

Title Time Series Plot

Version 0.1.1

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, zoo, RColorBrewer

Suggests TTR

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

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

LazyLoad yes

RoxygenNote 6.1.0

NeedsCompilation no

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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	<i>'rtsplot' - Time series plot with base R Graphics.</i>
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Description

Plot time series data with base R Graphics.

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

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
y = rtsplot.fake.stock.data(1000)
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)

y = rtsplot.fake.stock.data(1000)
symbol = 'SPY'

# simple example
highlight = which(y < 10)

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

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

rtsplot.candle

Create Candle Plot

Description

Plot candles if dx is sufficient otherwise ohlc or bars

Usage

```
rtsplo.candle(y, col = rtsplo.candle.col(y),  
border = rtsplo.theme()$col.border)
```

Arguments

y	xts object
col	color for bars, defaults to rtsplo.candle.col
border	border color, defaults to rtsplo.theme()\$col.border

Value

nothing

Examples

```
y = rtsplo.fake.stock.data(100, ohlc=TRUE)  
symbol = 'SPY'  
  
# plot  
layout(1)  
rtsplo(y, type = 'n')  
rtsplo.candle(y)  
rtsplo.legend(symbol, 'black', y)
```

rtsplo.candle.col *Bar Colors for Candle and Volume plots*

Description

Bar Colors for Candle and Volume plots

Usage

```
rtsplo.candle.col(y)  
  
rtsplo.volume.col(y)
```

Arguments

y	xts object
---	------------

Value

colors

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.fake.stock.data`
Generate fake stock data

Description

Generate fake stock data for use in `rtsplot` examples

Usage

```
rtsplot.fake.stock.data(n, y0 = 10, stdev = 0.1, ohlc = FALSE,  
  method = c("normal", "adhoc"))
```

Arguments

<code>n</code>	number of points to generate
<code>y0</code>	starting price, defaults to 10
<code>stdev</code>	standard deviation, defaults to 0.1
<code>ohlc</code>	generate ohlc data, defaults to FALSE
<code>method</code>	method to generate fake stock data, defaults to 'normal' two methods are implemented: * 'normal' - generate fake stock data assuming returns are normally distributed with zero drift * 'uniform' - generate fake stock data assuming returns are uniformly distributed with zero drift

Value

`xts` object with fake stock data

Examples

```
rtsplot.fake.stock.data(10)
```

`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.hl	<i>Create HL Plot</i>
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Description

Create HL Plot

Usage

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


Arguments

`y` `xts` object
`col` color for bars, **defaults to `rtspplot.volume.col`**
`border` border color, **defaults to `rtspplot.theme()$col.border`**

Value

nothing

Examples

```
y = rtspplot.fake.stock.data(100, ohlc=TRUE)
symbol = 'SPY'

# plot
layout(1)
rtspplot(y, type = 'n')
rtspplot.hl(y)
rtspplot.legend(symbol, 'black', y)
```

`rtspplot.layout` *Create layout*

Description

Create layout

Usage

```
rtspplot.layout(ilayout, delim = ",")
```

Arguments

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

Value

nothing

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

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

Examples

```
y = rtsplot.fake.stock.data(1000)  
symbol = 'SPY'  
  
# plot  
layout(1)  
rtsplot(y, type = 'l', col='black')  
rtsplot.legend(symbol, 'black', y)
```

rtsp <code>plot</code> .lines	<i>Add lines to time series plot</i>
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Description

Add lines to time series plot

Usage

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

Arguments

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

Value

nothing

Examples

```
y = rtspplot.fake.stock.data(1000)
symbol = 'SPY'

# moving average
sma = TTR::SMA(y, 250)

# plot
layout(1)
rtspplot(y, type = 'l', col='black')
rtspplot.lines(sma, col='blue', lwd=1.5)
rtspplot.legend(c(symbol, 'SMA(250)'), 'black,blue', list(y,sma))
```

rtsp <code>plot</code> .matplot	matplot version for xts object
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Description

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

Usage

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

Arguments

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

Value

nothing

rtsplot.ohlc	<i>Create OHLC Plot</i>
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Description

Plot ohlc if dx is sufficient otherwise bars

Usage

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

Arguments

y	xts object
col	color for bars, defaults to rtsplot.theme()\$col.border

Value

nothing

Examples

```
y = rtsplot.fake.stock.data(100, ohlc=TRUE)
symbol = 'SPY'

# plot
layout(1)
rtsplot(y, type = 'n')
rtsplot.ohlc(y)
rtsplot.legend(symbol, 'black', y)
```

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

rtsplo.t.text	<i>Add text to time series plot</i>
---------------	-------------------------------------

Description

Add text to time series plot

Usage

```
rtsplo.t.text(y, ...)
```

Arguments

y	xts object
...	additional parameters to the lines

Value

nothing

Examples

```
y = rtsplo.t.fake.stock.data(1000)
symbol = 'SPY'

# plot
layout(1)
rtsplo.t(y, type = 'l', col='black')
rtsplo.t.text(y[100], 'Text', col='red')
rtsplo.t.legend(symbol, 'black', y)
```

rtsplo.t.volume	<i>Plot volume</i>
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Description

Plot volume

Usage

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

Arguments

y xts object
 col color for volume bars
 border 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

Detailed discussion for validity of dual Y axis at [Dual axes time series plots may be ok sometimes after all](<http://freerangestats.info/blog/2016/08/18/dualaxes>)

Usage

```
rtsplot2Y(y, las = 1, type = "l", col.axis = "red", ylim = NULL,
  log = "", ...)
```

Arguments

y	<code>xts</code> 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
col.axis	axis color, defaults to 'red'

`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
y = rtspplot.fake.stock.data(1000)
symbol = 'SPY'

y1 = rtspplot.fake.stock.data(1000, 100)
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')

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

rtspplot2Y(y1, type='l', las=1, col=cols[2], col.axis=cols[2])

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

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