

**graph twoway rarea** — Range plot with area shading[Description](#)  
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## Description

A range plot has two  $y$  variables, such as high and low daily stock prices or upper and lower 95% confidence limits.

`twoway rarea` plots range as a shaded area.

Also see [\[G-2\] graph twoway area](#) for area plots filled to the axis.

## Quick start

A range plot with area shading and sorted by ascending values of  $x$

```
twoway rarea y1 y2 x, sort
```

A horizontal area plot

```
twoway rarea y1 y2 x, sort horizontal
```

Allow missing values to create gaps in the area

```
twoway rarea y1 y2 x, sort cmissing(n)
```

Specify navy area and lines

```
twoway rarea y1 y2 x, sort fcolor(navy) lcolor(navy)
```

As above, but reduce the area color intensity to 30%

```
twoway rarea y1 y2 x, sort fcolor(navy) fintensity(30) lcolor(navy)
```

## Menu

Graphics > Twoway graph (scatter, line, etc.)

## Syntax

```
twoway rarea y1var y2var xvar [if] [in] [, options]
```

| <i>options</i>             | Description  |
|----------------------------|--|
| <code>vertical</code>      | vertical area plot; the default  |
| <code>horizontal</code>    | horizontal area plot   |
| <code>cmissing(y n)</code> | missing values do not force gaps in area; default is <code>cmissing(y)</code>      |
| <code>sort</code>          | sort by <i>xvar</i> ; recommended  |
| <i>area_options</i>        | change look of shaded areas  |
| <i>axis_choice_options</i> | associate plot with alternative axis   |
| <i>twoway_options</i>      | titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc. |

All explicit options are *unique*; see [G-4] **Concept: repeated options**.

## Options

`vertical` and `horizontal` specify whether the high and low *y* values are to be presented vertically (the default) or horizontally.

In the default `vertical` case, *y1var* and *y2var* record the minimum and maximum (or maximum and minimum) *y* values to be graphed against each *xvar* value.

If `horizontal` is specified, the values recorded in *y1var* and *y2var* are plotted in the *x* direction and *xvar* is treated as the *y* value.

`cmissing(y|n)` specifies whether missing values are to be ignored when drawing the area or if they are to create breaks in the area. The default is `cmissing(y)`, meaning that they are ignored.

Consider the following data:

|    | y  | x |
|----|----|---|
| 1. | 1  | 1 |
| 2. | 3  | 2 |
| 3. | 5  | 3 |
| 4. | .  | . |
| 5. | 6  | 5 |
| 6. | 11 | 8 |

Say that you graph these data by using `twoway rarea y x`. Do you want a break in the area between 3 and 5? If so, you type

```
. twoway rarea y x, cmissing(n)
```

and two areas will be drawn, one for the observations before the missing values at observation 4 and one for the observations after the missing values.

If you omit the option (or type `missing(y)`), the data are treated as if they contained

|    | y  | x |
|----|----|---|
| 1. | 1  | 1 |
| 2. | 3  | 2 |
| 3. | 5  | 3 |
| 4. | 6  | 5 |
| 5. | 11 | 8 |

meaning that one contiguous area will be drawn over the range (1,8).

`sort` specifies that the data be sorted by *xvar* before plotting.

*area\_options* set the look of the shaded areas. The most important of these options is `color(colorstyle)`, which specifies the color and opacity of both the area and its outline; see [G-4] *colorstyle* for a list of color choices. See [G-3] *area\_options* for information on the other *area\_options*.

*axis\_choice\_options* associate the plot with a particular *y* or *x* axis on the graph; see [G-3] *axis\_choice\_options*.

*twoway\_options* are a set of common options supported by all *twoway* graphs. These options allow you to title graphs, name graphs, control axes and legends, add lines and text, set aspect ratios, create graphs over `by()` groups, and change some advanced settings. See [G-3] *twoway\_options*.

## Remarks and examples

[stata.com](https://www.stata.com)

Remarks are presented under the following headings:

*Typical use*  
*Advanced use*  
*Cautions*

### Typical use

We have daily data recording the values for the S&P 500 in 2001:

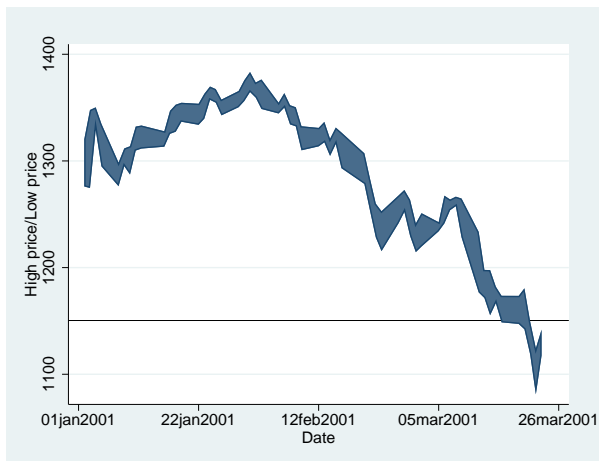
```
. use https://www.stata-press.com/data/r17/sp500
(S&P 500)
. list date high low close in 1/5
```

|    | date      | high    | low     | close   |
|----|-----------|---------|---------|---------|
| 1. | 02jan2001 | 1320.28 | 1276.05 | 1283.27 |
| 2. | 03jan2001 | 1347.76 | 1274.62 | 1347.56 |
| 3. | 04jan2001 | 1350.24 | 1329.14 | 1333.34 |
| 4. | 05jan2001 | 1334.77 | 1294.95 | 1298.35 |
| 5. | 08jan2001 | 1298.35 | 1276.29 | 1295.86 |

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We will use the first 57 observations from these data:

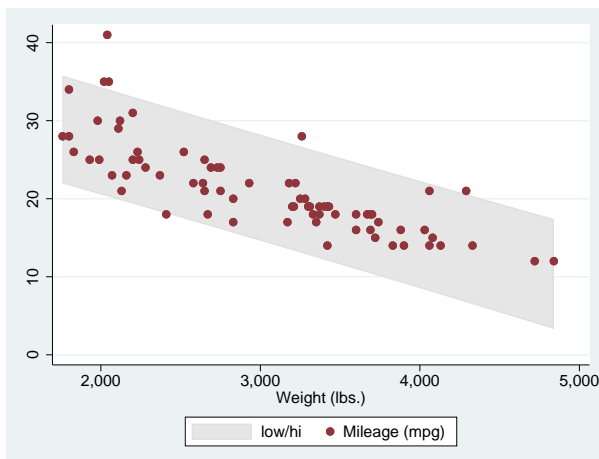
```
. twoway rarea high low date in 1/57
```



### Advanced use

rarea works particularly well when the upper and lower limits are smooth functions and when the area is merely shaded rather than given an eye-catching color:

```
. use https://www.stata-press.com/data/r17/auto, clear  
(1978 automobile data)  
. quietly regress mpg weight  
. predict hat  
(option xb assumed; fitted values)  
. predict s, stdf  
. generate low = hat - 1.96*s  
. generate hi = hat + 1.96*s  
. twoway rarea low hi weight, sort color(gs14) ||  
  scatter mpg weight
```



Notice the use of option `color()` to change the color of the shaded area. Also, we graphed the shaded area first and then the scatter. Typing

```
. twoway scatter ... || rarea ...
```

would not have produced the desired result because the shaded area would have covered up the scatterplot.

Also see [G-2] [graph twoway lfitci](#).

## Cautions

Be sure that the data are in the order of *xvar*, or specify `rarea`'s `sort` option. If you do neither, you will get something that looks like modern art; see *Cautions* in [G-2] [graph twoway area](#) for an example.

## Also see

[G-2] [graph twoway area](#) — Tway line plot with area shading

[G-2] [graph twoway rbar](#) — Range plot with bars

[G-2] [graph twoway rcap](#) — Range plot with capped spikes

[G-2] [graph twoway rcapsym](#) — Range plot with spikes capped with marker symbols

[G-2] [graph twoway rconnected](#) — Range plot with connected lines

[G-2] [graph twoway rline](#) — Range plot with lines

[G-2] [graph twoway rscatter](#) — Range plot with markers

[G-2] [graph twoway rspike](#) — Range plot with spikes