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

\texttt{twoway rcap} plots a range, using capped spikes (I-beams) to connect the high and low values.

### Quick start

Range plot with capped spikes 
\texttt{twoway rcap y1 y2 x}

As above, with horizontal spikes 
\texttt{twoway rcap y1 y2 x, horizontal}

Specify small caps 
\texttt{twoway rcap y1 y2 x, msize(small)}

As above, but specify orange spikes 
\texttt{twoway rcap y1 y2 x, msize(small) lcolor(orange)}

Use approximately 5 tick marks at round values on the \( y \) axis and label them 
\texttt{twoway rcap y1 y2 x, ylabel(#5)}

### Menu

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

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

<table>
<thead>
<tr>
<th>options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>vertical</code></td>
<td>vertical spikes; the default</td>
</tr>
<tr>
<td><code>horizontal</code></td>
<td>horizontal spikes</td>
</tr>
<tr>
<td><code>line_options</code></td>
<td>change look of spike and cap lines</td>
</tr>
<tr>
<td><code>msize(markersizestyle)</code></td>
<td>width of cap</td>
</tr>
<tr>
<td><code>axis_choice_options</code></td>
<td>associate plot with alternative axis</td>
</tr>
<tr>
<td><code>twoway_options</code></td>
<td>titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.</td>
</tr>
</tbody>
</table>

All explicit options are rightmost, except `vertical` and `horizontal`, which 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.

`line_options` specify the look of the lines used to draw the spikes and their caps, including pattern, width, and color; see [G-3] `line_options`.

`msize(markersizestyle)` specifies the width of the cap. Option `msize()` is in fact `twoway scatter`'s `marker_option` that sets the size of the marker symbol, but here `msymbol()` is borrowed to set the cap width. See [G-4] `markersizestyle` for a list of size choices.

`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

Remarks are presented under the following headings:

Typical use
Advanced use
Advanced use 2

Typical use

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

```
. use https://www.stata-press.com/data/r16/sp500
(S&P 500)
. list date high low close in 1/5
```

```
<table>
<thead>
<tr>
<th>date</th>
<th>high</th>
<th>low</th>
<th>close</th>
</tr>
</thead>
<tbody>
<tr>
<td>02jan2001</td>
<td>1320.28</td>
<td>1276.05</td>
<td>1283.27</td>
</tr>
<tr>
<td>03jan2001</td>
<td>1347.76</td>
<td>1274.62</td>
<td>1347.56</td>
</tr>
<tr>
<td>04jan2001</td>
<td>1350.24</td>
<td>1329.14</td>
<td>1333.34</td>
</tr>
<tr>
<td>05jan2001</td>
<td>1334.77</td>
<td>1294.95</td>
<td>1298.35</td>
</tr>
<tr>
<td>08jan2001</td>
<td>1298.35</td>
<td>1276.29</td>
<td>1295.86</td>
</tr>
</tbody>
</table>
```

We will use the first 37 observations from these data:

```
. twoway rcap high low date in 1/37
```

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

```
. use https://www.stata-press.com/data/r16/sp500
(S&P 500)
. list date high low close in 1/5
```

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<td>1298.35</td>
<td>1276.29</td>
<td>1295.86</td>
</tr>
</tbody>
</table>
```

We will use the first 37 observations from these data:

```
. twoway rcap high low date in 1/37
```
Advanced use

twoway rcap works well when combined with a horizontal line representing a base value:

```
. use https://www.stata-press.com/data/r16/sp500, clear
  (S&P 500)
. generate month = month(date)
. sort month
. by month: egen lo = min(volume)
. by month: egen hi = max(volume)
. format lo hi %10.0gc
. summarize volume

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>volume</td>
<td>248</td>
<td>12320.68</td>
<td>2585.929</td>
<td>4103</td>
<td>23308.3</td>
</tr>
</tbody>
</table>

. by month: keep if _n==_N
(236 observations deleted)
. twoway rcap lo hi month,
  xlabel(1 "J" 2 "F" 3 "M" 4 "A" 5 "M" 6 "J"
  7 "J" 8 "A" 9 "S" 10 "O" 11 "N" 12 "D")
  xtitle("Month of 2001")
  ytitle("High and Low Volume")
  yaxis(1 2) ylabel(12321 "12,321 (mean)", axis(2) angle(0))
  ytitle("", axis(2))
  yline(12321, lstyle(foreground))
  msize(*2)
  title("Volume of the S&P 500", margin(b+2.5))
  note("Source: Yahoo!Finance and Commodity Systems Inc.")
```
Advanced use 2

twoway rcap also works well when combined with a scatterplot to produce hi-lo-middle graphs. Returning to the first 37 observations of the S&P 500 used in the first example, we add a scatterplot of the closing value:

```
. use https://www.stata-press.com/data/r16/sp500, clear
   (S&P 500)
. keep in 1/37
   (211 observations deleted)
. twoway rcap high low date || scatter close date
```

![Graph with hi-lo-middle plot]

Also see

- [G-2] `graph twoway rarea` — Range plot with area shading
- [G-2] `graph twoway rbar` — Range plot with bars
- [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