corrheat Quick Guide

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What it does

`corrheat` draws a lower-triangle correlation heat plot in one Stata command. Each cell shows r with its p value underneath, and a gradient color bar sits in the empty upper-right triangle.

The bar is built from the same colors and bin edges that heatplot uses for the cells, so the legend always matches the plot. `corrheat` runs `pwcorr` on the variables you list and works on a preserved copy of your data, so your dataset is never changed.

Version 0.1.2. Built on Ben Jann's heatplot (v1.1.1, the current SSC release).

Setup

Requires Stata 16 or newer. Install the three SSC packages it depends on, once per machine.

```
ssc install heatplot, replace
ssc install palettes, replace
ssc install colrspace, replace
```

Save `corrheat.ado` and corrheat.sthlp (so that help corrheat works) in your PERSONAL ado folder; type `sysdir` in Stata to see where that is. Stata then finds `corrheat` like any installed command.

If you edit `corrheat.ado` while Stata is open, type `discard` before rerunning so Stata reloads the new version.

Basic use

```
corrheat varlist [if] [in] [, options twoway_options]
```

A quick test anyone can run on Stata's built-in data:

```
sysuse auto, clear
corrheat price mpg headroom trunk weight length turn displacement,
xtitle("Variables")
```

A publication figure with a fixed scale and size:

```
corrheat cbsr bs_overall_rate bs_honesty bs_neuro bs_extra bs_agree ///
    bs_consc bs_open bs_intell, cuts(-0.1(0.05)1)                   ///
    xtitle("High BS Profiles", size(medium)) xsize(6.5) ysize(4.5)

graph export "corr_fig1.png", width(3000) replace
```

- The first variable in the list is the top row and column 1.
- Row labels come from the variable labels, so label your variables first.
- The x axis is numbered 1 to k−1, because the last column holds only the diagonal.
- The Results window prints the bin edges it used, e.g. `corrheat: using cuts(-.4(.05)1)`.

Options

All options are optional; the defaults reproduce the standard figure.

Option	Default	What it does
`cuts(numlist)`	Most negative r, rounded down to `step()`, up to 1	Color-bin edges. The bar covers exactly this range.
`step(#)`	.05	Bin width used for the automatic cuts
`colors(colorlist)`	`White Ivory "118 223 253" "0 129 168"`	Palette from low to high, interpolated across the bins
`whiteabove(#)`	.8	Cells whose rounded r is at or above this get white text
`whitebelow(#)`	-2 (never)	Cells whose rounded r is at or below this get white text; for diverging palettes
`rsize(size)`	`*1.3`	Size of the r labels, including the 1s on the diagonal
`psize(size)`	`*.9`	Size of the p labels
`nopvalues`	Off	Show r only
`leadzero`	Off	Keep leading zeros (0.28, 0.020). By default they are dropped, APA style (.28, .020, <.001).
`listwise`	Off (pairwise)	Listwise deletion in `pwcorr`
`nobar`	Off	Leave out the color bar
`barpos(x0 x1 ytop ybot)`	k–1.25, k–.95, .6, .6+.45k	Bar position in plot coordinates (see Tips)
`ticks(numlist)`	-1(.25)1	Values that get a tick on the bar; values outside its range are skipped
`tlabsize(size)`	small	Size of the bar's tick labels
Twoway options	None	Anything else, such as `xtitle()`, `title()`, `xsize()`, `ysize()`, `name()` or `saving()`, goes to the graph

Tips

- **Use one scale per paper.** Automatic cuts fit each figure to its own data, so the same shade can mean different r values in different figures. Check the `using cuts(...)` line for each figure and pass the widest range to all of them.
- **Moving the bar.** In plot coordinates, row i sits at y = i (row 1 on top) and column j at x = j; each cell is 1 unit square. `barpos(7.5 7.8 .6 4.5)` sets the left edge, right edge, top and bottom. Larger x moves the bar right, larger y moves it down.
- **Diverging palette.** For a scale centered on zero, give three colors and symmetric cuts, e.g. `colors(#b8860b #f7f7f7 #0f7395) cuts(-1(.05)1) whitebelow(-.8)`. Gold to teal stays readable for red-green color vision differences.
- **Text color uses the rounded r.** Two cells that both display .80 always get the same text color. Their shading can still differ by one step when the unrounded values sit on either side of a bin edge (.7996 vs .8004); the shading reflects the unrounded values.

Limits and troubleshooting

The bar's default position assumes at least 5 variables and a lower triangle with the diagonal drawn. Avoid passing heatplot's `nodiagonal` or `upper`, which break the layout.

Problem	Fix
`command corrheat is unrecognized`	The .ado isn't on Stata's search path. Check its folder against `sysdir` and `adopath`.
`-heatplot- not found` or `-colorpalette- not found`	Install the SSC packages listed under Setup.
Edits to the .ado have no effect	Type `discard`, then rerun.
Bar overlaps cells, or tick labels run off the plot	Move it with `barpos()`. With 4 or fewer variables the empty triangle is too small, so use `nobar`.
Bar starts lower than your `cuts()`	A correlation fell below your lowest cut, so heatplot added one extra bin from that value up. Lower the first cut.
p labels missing for some cells	`pwcorr` returned no p value for that pair, usually because too few observations overlap.