**Help topics**

**Geoms**

Geoms, short for geometric objects, describe the type of plot you will produce.

* [http://docs.ggplot2.org/current/icons/geom_abline.pnggeom\_abline](http://docs.ggplot2.org/current/geom_abline.html)(geom\_hline, geom\_vline)  
  Lines: horizontal, vertical, and specified by slope and intercept.
* [http://docs.ggplot2.org/current/icons/geom_bar.pnggeom\_bar](http://docs.ggplot2.org/current/geom_bar.html)(stat\_count)  
  Bars, rectangles with bases on x-axis
* [geom\_bin2d](http://docs.ggplot2.org/current/geom_bin2d.html)(stat\_bin2d, stat\_bin\_2d)  
  Add heatmap of 2d bin counts.
* [geom\_blank](http://docs.ggplot2.org/current/geom_blank.html)  
  Blank, draws nothing.
* [http://docs.ggplot2.org/current/icons/geom_boxplot.pnggeom\_boxplot](http://docs.ggplot2.org/current/geom_boxplot.html)(stat\_boxplot)  
  Box and whiskers plot.
* [http://docs.ggplot2.org/current/icons/geom_contour.pnggeom\_contour](http://docs.ggplot2.org/current/geom_contour.html)(stat\_contour)  
  Display contours of a 3d surface in 2d.
* [geom\_count](http://docs.ggplot2.org/current/geom_count.html)(stat\_sum)  
  Count the number of observations at each location.
* [http://docs.ggplot2.org/current/icons/geom_crossbar.pnggeom\_crossbar](http://docs.ggplot2.org/current/geom_linerange.html)(geom\_errorbar, geom\_linerange, geom\_pointrange)  
  Vertical intervals: lines, crossbars & errorbars.
* [http://docs.ggplot2.org/current/icons/geom_density.pnggeom\_density](http://docs.ggplot2.org/current/geom_density.html)(stat\_density)  
  Display a smooth density estimate.
* [geom\_density\_2d](http://docs.ggplot2.org/current/geom_density_2d.html)(geom\_density2d, stat\_density2d, stat\_density\_2d)  
  Contours from a 2d density estimate.
* [http://docs.ggplot2.org/current/icons/geom_dotplot.pnggeom\_dotplot](http://docs.ggplot2.org/current/geom_dotplot.html)  
  Dot plot
* [http://docs.ggplot2.org/current/icons/geom_errorbarh.pnggeom\_errorbarh](http://docs.ggplot2.org/current/geom_errorbarh.html)  
  Horizontal error bars
* [http://docs.ggplot2.org/current/icons/geom_freqpoly.pnggeom\_freqpoly](http://docs.ggplot2.org/current/geom_histogram.html)(geom\_histogram, stat\_bin)  
  Histograms and frequency polygons.
* [geom\_hex](http://docs.ggplot2.org/current/geom_hex.html)(stat\_bin\_hex, stat\_binhex)  
  Hexagon binning.
* [http://docs.ggplot2.org/current/icons/geom_jitter.pnggeom\_jitter](http://docs.ggplot2.org/current/geom_jitter.html)  
  Points, jittered to reduce overplotting.
* [geom\_label](http://docs.ggplot2.org/current/geom_text.html)(geom\_text)  
  Textual annotations.
* [geom\_map](http://docs.ggplot2.org/current/geom_map.html)  
  Polygons from a reference map.
* [http://docs.ggplot2.org/current/icons/geom_path.pnggeom\_path](http://docs.ggplot2.org/current/geom_path.html)(geom\_line, geom\_step)  
  Connect observations.
* [http://docs.ggplot2.org/current/icons/geom_point.pnggeom\_point](http://docs.ggplot2.org/current/geom_point.html)  
  Points, as for a scatterplot
* [http://docs.ggplot2.org/current/icons/geom_polygon.pnggeom\_polygon](http://docs.ggplot2.org/current/geom_polygon.html)  
  Polygon, a filled path.
* [http://docs.ggplot2.org/current/icons/geom_quantile.pnggeom\_quantile](http://docs.ggplot2.org/current/geom_quantile.html)(stat\_quantile)  
  Add quantile lines from a quantile regression.
* [http://docs.ggplot2.org/current/icons/geom_raster.pnggeom\_raster](http://docs.ggplot2.org/current/geom_tile.html)(geom\_rect, geom\_tile)  
  Draw rectangles.
* [http://docs.ggplot2.org/current/icons/geom_ribbon.pnggeom\_ribbon](http://docs.ggplot2.org/current/geom_ribbon.html)(geom\_area)  
  Ribbons and area plots.
* [geom\_rug](http://docs.ggplot2.org/current/geom_rug.html)  
  Marginal rug plots.
* [http://docs.ggplot2.org/current/icons/geom_segment.pnggeom\_segment](http://docs.ggplot2.org/current/geom_segment.html)(geom\_curve)  
  Line segments and curves.
* [http://docs.ggplot2.org/current/icons/geom_smooth.pnggeom\_smooth](http://docs.ggplot2.org/current/geom_smooth.html)(stat\_smooth)  
  Add a smoothed conditional mean.
* [http://docs.ggplot2.org/current/icons/geom_violin.pnggeom\_violin](http://docs.ggplot2.org/current/geom_violin.html)(stat\_ydensity)  
  Violin plot.

**Statistics**

It's often useful to transform your data before plotting, and that's what statistical transformations do.

* [http://docs.ggplot2.org/current/icons/geom_step.pngstat\_ecdf](http://docs.ggplot2.org/current/stat_ecdf.html)  
  Empirical Cumulative Density Function
* [stat\_ellipse](http://docs.ggplot2.org/current/stat_ellipse.html)  
  Plot data ellipses.
* [stat\_function](http://docs.ggplot2.org/current/stat_function.html)  
  Superimpose a function.
* [http://docs.ggplot2.org/current/icons/stat_identity.pngstat\_identity](http://docs.ggplot2.org/current/stat_identity.html)  
  Identity statistic.
* [stat\_qq](http://docs.ggplot2.org/current/stat_qq.html)(geom\_qq)  
  Calculation for quantile-quantile plot.
* [stat\_summary\_2d](http://docs.ggplot2.org/current/stat_summary_2d.html)(stat\_summary2d, stat\_summary\_hex)  
  Bin and summarise in 2d (rectangle & hexagons)
* [stat\_unique](http://docs.ggplot2.org/current/stat_unique.html)  
  Remove duplicates.

**Scales**

Scales control the mapping between data and aesthetics.

* [expand\_limits](http://docs.ggplot2.org/current/expand_limits.html)  
  Expand the plot limits with data.
* [guides](http://docs.ggplot2.org/current/guides.html)  
  Set guides for each scale.
* [guide\_legend](http://docs.ggplot2.org/current/guide_legend.html)  
  Legend guide.
* [guide\_colourbar](http://docs.ggplot2.org/current/guide_colourbar.html)(guide\_colorbar)  
  Continuous colour bar guide.
* [lims](http://docs.ggplot2.org/current/lims.html)(xlim, ylim)  
  Convenience functions to set the axis limits.
* [http://docs.ggplot2.org/current/icons/scale_alpha.pngscale\_alpha](http://docs.ggplot2.org/current/scale_alpha.html)(scale\_alpha\_continuous, scale\_alpha\_discrete)  
  Alpha scales.
* [http://docs.ggplot2.org/current/icons/scale_colour_brewer.pngscale\_colour\_brewer](http://docs.ggplot2.org/current/scale_brewer.html)(scale\_color\_brewer, scale\_color\_distiller, scale\_colour\_distiller, scale\_fill\_brewer, scale\_fill\_distiller)  
  Sequential, diverging and qualitative colour scales from colorbrewer.org
* [http://docs.ggplot2.org/current/icons/scale_colour_gradient.pngscale\_colour\_gradient](http://docs.ggplot2.org/current/scale_gradient.html)(scale\_color\_continuous, scale\_color\_gradient, scale\_color\_gradient2, scale\_color\_gradientn, scale\_colour\_continuous, scale\_colour\_gradient2, scale\_colour\_gradientn, scale\_fill\_continuous, scale\_fill\_gradient, scale\_fill\_gradient2, scale\_fill\_gradientn)  
  Smooth gradient between two colours
* [http://docs.ggplot2.org/current/icons/scale_colour_grey.pngscale\_colour\_grey](http://docs.ggplot2.org/current/scale_grey.html)(scale\_color\_grey, scale\_fill\_grey)  
  Sequential grey colour scale.
* [http://docs.ggplot2.org/current/icons/scale_colour_hue.pngscale\_colour\_hue](http://docs.ggplot2.org/current/scale_hue.html)(scale\_color\_discrete, scale\_color\_hue, scale\_colour\_discrete, scale\_fill\_discrete, scale\_fill\_hue)  
  Qualitative colour scale with evenly spaced hues.
* [http://docs.ggplot2.org/current/icons/scale_identity.pngscale\_identity](http://docs.ggplot2.org/current/scale_identity.html)(scale\_alpha\_identity, scale\_color\_identity, scale\_colour\_identity, scale\_fill\_identity, scale\_linetype\_identity, scale\_shape\_identity, scale\_size\_identity)  
  Use values without scaling.
* [http://docs.ggplot2.org/current/icons/scale_manual.pngscale\_manual](http://docs.ggplot2.org/current/scale_manual.html)(scale\_alpha\_manual, scale\_color\_manual, scale\_colour\_manual, scale\_fill\_manual, scale\_linetype\_manual, scale\_shape\_manual, scale\_size\_manual)  
  Create your own discrete scale.
* [http://docs.ggplot2.org/current/icons/scale_linetype.pngscale\_linetype](http://docs.ggplot2.org/current/scale_linetype.html)(scale\_linetype\_continuous, scale\_linetype\_discrete)  
  Scale for line patterns.
* [http://docs.ggplot2.org/current/icons/scale_shape.pngscale\_shape](http://docs.ggplot2.org/current/scale_shape.html)(scale\_shape\_continuous, scale\_shape\_discrete)  
  Scale for shapes, aka glyphs.
* [http://docs.ggplot2.org/current/icons/scale_size.pngscale\_size](http://docs.ggplot2.org/current/scale_size.html)(scale\_radius, scale\_size\_area, scale\_size\_continuous, scale\_size\_discrete)  
  Scale size (area or radius).
* [scale\_x\_discrete](http://docs.ggplot2.org/current/scale_discrete.html)(scale\_y\_discrete)  
  Discrete position.
* [labs](http://docs.ggplot2.org/current/labs.html)(ggtitle, xlab, ylab)  
  Change axis labels and legend titles
* [update\_labels](http://docs.ggplot2.org/current/update_labels.html)  
  Update axis/legend labels

**Coordinate systems**

Coordinate systems adjust the mapping from coordinates to the 2d plane of the computer screen.

* [http://docs.ggplot2.org/current/icons/coord_cartesian.pngcoord\_cartesian](http://docs.ggplot2.org/current/coord_cartesian.html)  
  Cartesian coordinates.
* [http://docs.ggplot2.org/current/icons/coord_fixed.pngcoord\_fixed](http://docs.ggplot2.org/current/coord_fixed.html)(coord\_equal)  
  Cartesian coordinates with fixed relationship between x and y scales.
* [http://docs.ggplot2.org/current/icons/coord_flip.pngcoord\_flip](http://docs.ggplot2.org/current/coord_flip.html)  
  Flipped cartesian coordinates.
* [http://docs.ggplot2.org/current/icons/coord_map.pngcoord\_map](http://docs.ggplot2.org/current/coord_map.html)(coord\_quickmap)  
  Map projections.
* [http://docs.ggplot2.org/current/icons/coord_polar.pngcoord\_polar](http://docs.ggplot2.org/current/coord_polar.html)  
  Polar coordinates.
* [coord\_trans](http://docs.ggplot2.org/current/coord_trans.html)  
  Transformed cartesian coordinate system.

**Faceting**

Facets display subsets of the dataset in different panels.

* [http://docs.ggplot2.org/current/icons/facet_grid.pngfacet\_grid](http://docs.ggplot2.org/current/facet_grid.html)  
  Lay out panels in a grid.
* [http://docs.ggplot2.org/current/icons/facet_null.pngfacet\_null](http://docs.ggplot2.org/current/facet_null.html)  
  Facet specification: a single panel.
* [facet\_wrap](http://docs.ggplot2.org/current/facet_wrap.html)  
  Wrap a 1d ribbon of panels into 2d.
* [labeller](http://docs.ggplot2.org/current/labeller.html)  
  Generic labeller function for facets
* [label\_bquote](http://docs.ggplot2.org/current/label_bquote.html)  
  Backquoted labeller

**Position adjustments**

Position adjustments can be used to fine tune positioning of objects to achieve effects like dodging, jittering and stacking.

* [http://docs.ggplot2.org/current/icons/position_dodge.pngposition\_dodge](http://docs.ggplot2.org/current/position_dodge.html)  
  Adjust position by dodging overlaps to the side.
* [http://docs.ggplot2.org/current/icons/position_fill.pngposition\_fill](http://docs.ggplot2.org/current/position_stack.html)(position\_stack)  
  Stack overlapping objects on top of one another.
* [http://docs.ggplot2.org/current/icons/position_identity.pngposition\_identity](http://docs.ggplot2.org/current/position_identity.html)  
  Don't adjust position
* [position\_nudge](http://docs.ggplot2.org/current/position_nudge.html)  
  Nudge points.
* [http://docs.ggplot2.org/current/icons/geom_jitter.pngposition\_jitter](http://docs.ggplot2.org/current/position_jitter.html)  
  Jitter points to avoid overplotting.
* [position\_jitterdodge](http://docs.ggplot2.org/current/position_jitterdodge.html)  
  Adjust position by simultaneously dodging and jittering

**Data**

Data sets included in ggplot2 and used in examples

* [diamonds](http://docs.ggplot2.org/current/diamonds.html)  
  Prices of 50,000 round cut diamonds
* [economics](http://docs.ggplot2.org/current/economics.html)(economics\_long)  
  US economic time series.
* [faithfuld](http://docs.ggplot2.org/current/faithfuld.html)  
  2d density estimate of Old Faithful data
* [luv\_colours](http://docs.ggplot2.org/current/luv_colours.html)  
  colors()
* [midwest](http://docs.ggplot2.org/current/midwest.html)  
  Midwest demographics.
* [mpg](http://docs.ggplot2.org/current/mpg.html)  
  Fuel economy data from 1999 and 2008 for 38 popular models of car
* [msleep](http://docs.ggplot2.org/current/msleep.html)  
  An updated and expanded version of the mammals sleep dataset.
* [presidential](http://docs.ggplot2.org/current/presidential.html)  
  Terms of 10 presidents from Eisenhower to Bush W.
* [seals](http://docs.ggplot2.org/current/seals.html)  
  Vector field of seal movements.

**Annotation**

Specialised functions for adding annotations to a plot

* [annotate](http://docs.ggplot2.org/current/annotate.html)  
  Create an annotation layer.
* [annotation\_custom](http://docs.ggplot2.org/current/annotation_custom.html)  
  Annotation: Custom grob.
* [annotation\_logticks](http://docs.ggplot2.org/current/annotation_logticks.html)  
  Annotation: log tick marks
* [annotation\_map](http://docs.ggplot2.org/current/annotation_map.html)  
  Annotation: maps.
* [annotation\_raster](http://docs.ggplot2.org/current/annotation_raster.html)  
  Annotation: High-performance rectangular tiling.
* [borders](http://docs.ggplot2.org/current/borders.html)  
  Create a layer of map borders.

**Fortify**

Fortify methods make it possible to use ggplot2 with objects of various types, not just data frames.

* [fortify](http://docs.ggplot2.org/current/fortify.html)  
  Fortify a model with data.
* [fortify-multcomp](http://docs.ggplot2.org/current/fortify-multcomp.html)(fortify.cld, fortify.confint.glht, fortify.glht, fortify.summary.glht)  
  Fortify methods for objects produced by
* [fortify.lm](http://docs.ggplot2.org/current/fortify.lm.html)  
  Supplement the data fitted to a linear model with model fit statistics.
* [fortify.map](http://docs.ggplot2.org/current/fortify.map.html)  
  Fortify method for map objects.
* [fortify.sp](http://docs.ggplot2.org/current/fortify.sp.html)(fortify.Line, fortify.Lines, fortify.Polygon, fortify.Polygons, fortify.SpatialLinesDataFrame, fortify.SpatialPolygons, fortify.SpatialPolygonsDataFrame)  
  Fortify method for classes from the sp package.
* [map\_data](http://docs.ggplot2.org/current/map_data.html)  
  Create a data frame of map data.

**Themes**

Themes control non-data components of the plot

* [add\_theme](http://docs.ggplot2.org/current/add_theme.html)  
  Modify properties of an element in a theme object
* [calc\_element](http://docs.ggplot2.org/current/calc_element.html)  
  Calculate the element properties, by inheriting properties from its parents
* [element\_blank](http://docs.ggplot2.org/current/element_blank.html)  
  Theme element: blank.
* [element\_line](http://docs.ggplot2.org/current/element_line.html)  
  Theme element: line.
* [element\_rect](http://docs.ggplot2.org/current/element_rect.html)  
  Theme element: rectangle.
* [element\_text](http://docs.ggplot2.org/current/element_text.html)  
  Theme element: text.
* [ggtheme](http://docs.ggplot2.org/current/ggtheme.html)(theme\_bw, theme\_classic, theme\_dark, theme\_gray, theme\_grey, theme\_light, theme\_linedraw, theme\_minimal, theme\_void)  
  ggplot2 themes
* [is.rel](http://docs.ggplot2.org/current/is.rel.html)  
  Reports whether x is a rel object
* [is.theme](http://docs.ggplot2.org/current/is.theme.html)  
  Reports whether x is a theme object
* [margin](http://docs.ggplot2.org/current/margin.html)  
  Define margins.
* [rel](http://docs.ggplot2.org/current/rel.html)  
  Relative sizing for theme elements
* [theme](http://docs.ggplot2.org/current/theme.html)  
  Set theme elements
* [theme\_update](http://docs.ggplot2.org/current/theme_update.html)(theme\_get, theme\_set)  
  Get, set and update themes.

**Plot creation**

* [ggplot](http://docs.ggplot2.org/current/ggplot.html)(ggplot.data.frame, ggplot.default)  
  Create a new ggplot plot.
* [qplot](http://docs.ggplot2.org/current/qplot.html)(quickplot)  
  Quick plot
* [+.gg](http://docs.ggplot2.org/current/gg-add.html)(%+%, %+replace%)  
  Modify a ggplot or theme object by adding on new components.
* [autoplot](http://docs.ggplot2.org/current/autoplot.html)  
  Create a complete ggplot appropriate to a particular data type
* [is.ggplot](http://docs.ggplot2.org/current/is.ggplot.html)  
  Reports whether x is a ggplot object
* [print.ggplot](http://docs.ggplot2.org/current/print.ggplot.html)(plot.ggplot)  
  Draw plot on current graphics device.

**Aesthetics**

* [aes](http://docs.ggplot2.org/current/aes.html)  
  Define aesthetic mappings.
* [aes\_](http://docs.ggplot2.org/current/aes_.html)(aes\_q, aes\_string)  
  Define aesthetic mappings from strings, or quoted calls and formulas.
* [aes\_all](http://docs.ggplot2.org/current/aes_all.html)  
  Given a character vector, create a set of identity mappings
* [aes\_auto](http://docs.ggplot2.org/current/aes_auto.html)  
  Automatic aesthetic mapping
* [aes\_colour\_fill\_alpha](http://docs.ggplot2.org/current/aes_colour_fill_alpha.html)(color, colour, fill)  
  Colour related aesthetics: colour, fill and alpha
* [aes\_group\_order](http://docs.ggplot2.org/current/aes_group_order.html)(group)  
  Aesthetics: group
* [aes\_linetype\_size\_shape](http://docs.ggplot2.org/current/aes_linetype_size_shape.html)(linetype, shape, size)  
  Differentiation related aesthetics: linetype, size, shape
* [aes\_position](http://docs.ggplot2.org/current/aes_position.html)(x, xend, xmax, xmin, y, yend, ymax, ymin)  
  Position related aesthetics: x, y, xmin, xmax, ymin, ymax, xend, yend

**ggproto**

* [ggproto](http://docs.ggplot2.org/current/ggproto.html)(ggproto\_parent)  
  Create a new ggproto object
* [print.ggproto](http://docs.ggplot2.org/current/print.ggproto.html)  
  Print a ggproto object
* [is.ggproto](http://docs.ggplot2.org/current/is.ggproto.html)  
  Is an object a ggproto object?
* [format.ggproto](http://docs.ggplot2.org/current/format.ggproto.html)  
  Format a ggproto object

**Other**

* [as\_labeller](http://docs.ggplot2.org/current/as_labeller.html)  
  Coerce to labeller function
* [as.list.ggproto](http://docs.ggplot2.org/current/as.list.ggproto.html)  
  Convert a ggproto object to a list
* [cut\_interval](http://docs.ggplot2.org/current/cut_interval.html)(cut\_number, cut\_width)  
  Cut up numeric vector into useful groups.
* [geom\_spoke](http://docs.ggplot2.org/current/geom_spoke.html)(stat\_spoke)  
  A line segment parameterised by location, direction and distance.
* [ggsave](http://docs.ggplot2.org/current/ggsave.html)  
  Save a ggplot (or other grid object) with sensible defaults
* [graphical-units](http://docs.ggplot2.org/current/graphical-units.html)(.pt, .stroke)  
  Graphical units
* [hmisc](http://docs.ggplot2.org/current/hmisc.html)(mean\_cl\_boot, mean\_cl\_normal, mean\_sdl, median\_hilow)  
  Wrap up a selection of summary functions from Hmisc to make it easy to use
* [labellers](http://docs.ggplot2.org/current/labellers.html)(label\_both, label\_context, label\_parsed, label\_value, label\_wrap\_gen)  
  Labeller functions
* [last\_plot](http://docs.ggplot2.org/current/last_plot.html)  
  Retrieve the last plot to be modified or created.
* [layer](http://docs.ggplot2.org/current/layer.html)  
  Create a new layer
* [mean\_se](http://docs.ggplot2.org/current/mean_se.html)  
  Calculate mean and standard errors on either side.
* [resolution](http://docs.ggplot2.org/current/resolution.html)  
  Compute the "resolution" of a data vector.
* [scale\_continuous](http://docs.ggplot2.org/current/scale_continuous.html)(scale\_x\_continuous, scale\_x\_log10, scale\_x\_reverse, scale\_x\_sqrt, scale\_y\_continuous, scale\_y\_log10, scale\_y\_reverse, scale\_y\_sqrt)  
  Continuous position scales (x & y).
* [scale\_date](http://docs.ggplot2.org/current/scale_date.html)(scale\_x\_date, scale\_x\_datetime, scale\_y\_date, scale\_y\_datetime)  
  Position scale, date & date times
* [stat\_summary\_bin](http://docs.ggplot2.org/current/stat_summary.html)(stat\_summary)  
  Summarise y values at unique/binned x x.
* [translate\_qplot\_base](http://docs.ggplot2.org/current/translate_qplot_base.html)  
  Translating between qplot and base graphics
* [translate\_qplot\_ggplot](http://docs.ggplot2.org/current/translate_qplot_ggplot.html)  
  Translating between qplot and ggplot
* [translate\_qplot\_lattice](http://docs.ggplot2.org/current/translate_qplot_lattice.html)  
  Translating between qplot and lattice
* [txhousing](http://docs.ggplot2.org/current/txhousing.html)  
  Housing sales in TX.
* [update\_geom\_defaults](http://docs.ggplot2.org/current/update_defaults.html)(update\_stat\_defaults)  
  Modify geom/stat aesthetic defaults for future plots