# Package 'plotly'

October 22, 2023

**Title** Create Interactive Web Graphics via 'plotly.js'

**Version** 4.10.3

**License** MIT + file LICENSE

**Description**
Create interactive web graphics from 'ggplot2' graphs and/or a custom interface to the (MIT-licensed) JavaScript library 'plotly.js' inspired by the grammar of graphics.

**URL** https://plotly-r.com, https://github.com/plotly/plotly.R, https://plotly.com/r/

**BugReports** https://github.com/plotly/plotly.R/issues

**Depends** R (>= 3.2.0), ggplot2 (>= 3.0.0)

**Imports** tools, scales, httr (>= 1.3.0), jsonlite (>= 1.6), magrittr, digest, viridisLite, base64enc, htmltools (>= 0.3.6), htmlwidgets (>= 1.5.2.9001), tidyr (>= 1.0.0), RColorBrewer, dplyr, vctrs, tibble, lazyeval (>= 0.2.0), rlang (>= 0.4.10), crosstalk, purrr, data.table, promises

**Suggests** MASS, maps, hexbin, ggthemes, GGally, ggalluvial, testthat, knitr, shiny (>= 1.1.0), shinytest (>= 1.3.0), curl, rmarkdown, Cairo, broom, webshot, listviewer, dendextend, sf, png, IRdisplay, processx, plotlyGeoAssets, forcats, withr, palmerpenguins, rversions, reticulate, rsvg

**LazyData** true

**RoxygenNote** 7.2.3

**Encoding** UTF-8

**Config/Needs/check** tidyverse/ggplot2, rcmdcheck, devtools, reshape2

**NeedsCompilation** no

**Author** Carson Sievert [aut, cre] (<https://orcid.org/0000-0002-4958-2844>),
Chris Parmer [aut],
Toby Hocking [aut],
Scott Chamberlain [aut],
Karthik Ram [aut],
Marianne Corvellec [aut] (<https://orcid.org/0000-0002-1994-3581>),

Pedro Despouy [aut],
Salim Brüggemann [ctb] (<https://orcid.org/0000-0002-5329-5987>),
Plotly Technologies Inc. [cph]

**Maintainer** Carson Sievert <cpsievert1@gmail.com>

**Repository** CRAN

**Date/Publication** 2023-10-21 22:50:09 UTC

# R topics documented:

---

`add_annotations` *Add an annotation(s) to a plot*

---

## Description

Add an annotation(s) to a plot

## Usage

```
add_annotations(p, text = NULL, ..., data = NULL, inherit = TRUE)
```

### Arguments

| | |
|---|---|
| p | a plotly object |
| text | annotation text (required). |
| ... | these arguments are documented at https://github.com/plotly/plotly.js/blob/master/src/components/annotations/attributes.js |
| data | a data frame. |
| inherit | inherit attributes from plot_ly()? |

### Author(s)

Carson Sievert

---

## add_data *Add data to a plotly visualization*

---

### Description

Add data to a plotly visualization

### Usage

```
add_data(p, data = NULL)
```

### Arguments

| | |
|---|---|
| p | a plotly visualization |
| data | a data frame. |

### Examples

```
plot_ly() %>% add_data(economics) %>% add_trace(x = ~date, y = ~pce)
```

## add_fun *Apply function to plot, without modifying data*

### Description

Useful when you need two or more layers that apply a summary statistic to the original data.

### Usage

```
add_fun(p, fun, ...)
```

### Arguments

| | |
|---|---|
| p | a plotly object. |
| fun | a function. Should take a plotly object as input and return a modified plotly object. |
| ... | arguments passed to fun. |

## add_trace *Add trace(s) to a plotly visualization*

### Description

Add trace(s) to a plotly visualization

### Usage

```
add_trace(p, ..., data = NULL, inherit = TRUE)

add_markers(p, x = NULL, y = NULL, z = NULL, ..., data = NULL, inherit = TRUE)

add_text(
  p,
  x = NULL,
  y = NULL,
  z = NULL,
  text = NULL,
  ...,
  data = NULL,
  inherit = TRUE
)

add_paths(p, x = NULL, y = NULL, z = NULL, ..., data = NULL, inherit = TRUE)

add_lines(p, x = NULL, y = NULL, z = NULL, ..., data = NULL, inherit = TRUE)
```

```
add_segments(
  p,
  x = NULL,
  y = NULL,
  xend = NULL,
  yend = NULL,
  ...,
  data = NULL,
  inherit = TRUE
)

add_polygons(p, x = NULL, y = NULL, ..., data = NULL, inherit = TRUE)

add_sf(p, ..., x = ~x, y = ~y, data = NULL, inherit = TRUE)

add_table(p, ..., rownames = TRUE, data = NULL, inherit = TRUE)

add_ribbons(
  p,
  x = NULL,
  ymin = NULL,
  ymax = NULL,
  ...,
  data = NULL,
  inherit = TRUE
)

add_image(p, z = NULL, colormodel = NULL, ..., data = NULL, inherit = TRUE)

add_area(p, r = NULL, theta = NULL, t = NULL, ..., data = NULL, inherit = TRUE)

add_pie(p, values = NULL, labels = NULL, ..., data = NULL, inherit = TRUE)

add_bars(p, x = NULL, y = NULL, ..., data = NULL, inherit = TRUE)

add_histogram(p, x = NULL, y = NULL, ..., data = NULL, inherit = TRUE)

add_histogram2d(
  p,
  x = NULL,
  y = NULL,
  z = NULL,
  ...,
  data = NULL,
  inherit = TRUE
)
```

```
add_histogram2dcontour(
  p,
  x = NULL,
  y = NULL,
  z = NULL,
  ...,
  data = NULL,
  inherit = TRUE
)

add_heatmap(p, x = NULL, y = NULL, z = NULL, ..., data = NULL, inherit = TRUE)

add_contour(p, z = NULL, ..., data = NULL, inherit = TRUE)

add_boxplot(p, x = NULL, y = NULL, ..., data = NULL, inherit = TRUE)

add_surface(p, z = NULL, ..., data = NULL, inherit = TRUE)

add_mesh(p, x = NULL, y = NULL, z = NULL, ..., data = NULL, inherit = TRUE)

add_scattergeo(p, ...)

add_choropleth(p, z = NULL, ..., data = NULL, inherit = TRUE)
```

## Arguments

| | |
|---|---|
| p | a plotly object |
| ... | Arguments (i.e., attributes) passed along to the trace type. See schema() for a list of acceptable attributes for a given trace type (by going to traces -> type -> attributes). Note that attributes provided at this level may override other arguments (e.g. plot_ly(x = 1:10, y = 1:10, color = I("red"), marker = list(color = "blue"))). |
| data | A data frame (optional) or crosstalk::SharedData object. |
| inherit | inherit attributes from plot_ly()? |
| x | the x variable. |
| y | the y variable. |
| z | a numeric matrix (unless add_image(), which wants a raster object, see as.raster()). |
| text | textual labels. |
| xend | "final" x position (in this context, x represents "start") |
| yend | "final" y position (in this context, y represents "start") |
| rownames | whether or not to display the rownames of data. |
| ymin | a variable used to define the lower boundary of a polygon. |
| ymax | a variable used to define the upper boundary of a polygon. |
| colormodel | Sets the colormodel for image traces if z is not a raster object. If z is a raster object (see as.raster()), the 'rgba' colormodel is always used. |

| | |
|---|---|
| r | Sets the radial coordinates. |
| theta | Sets the angular coordinates. |
| t | Deprecated. Use theta instead. |
| values | the value to associated with each slice of the pie. |
| labels | the labels (categories) corresponding to values. |

## Author(s)

Carson Sievert

## References

https://plotly-r.com/overview.html

https://plotly.com/r/

https://plotly.com/r/reference/

## See Also

plot_ly()

## Examples

```
# the `plot_ly()` function initiates an object, and if no trace type
# is specified, it sets a sensible default
p <- plot_ly(economics, x = ~date, y = ~uempmed)
p

# some `add_*()` functions are a specific case of a trace type
# for example, `add_markers()` is a scatter trace with mode of markers
add_markers(p)

# scatter trace with mode of text
add_text(p, text = "%")

# scatter trace with mode of lines
add_paths(p)

# like `add_paths()`, but ensures points are connected according to `x`
add_lines(p)

# if you prefer to work with plotly.js more directly, can always
# use `add_trace()` and specify the type yourself
add_trace(p, type = "scatter", mode = "markers+lines")

# mappings provided to `plot_ly()` are "global", but can be overwritten
plot_ly(economics, x = ~date, y = ~uempmed, color = I("red"), showlegend = FALSE) %>%
  add_lines() %>%
  add_markers(color = ~pop)
```

```
# a number of `add_*()` functions are special cases of the scatter trace
plot_ly(economics, x = ~date) %>%
  add_ribbons(ymin = ~pce - 1e3, ymax = ~pce + 1e3)

# use `group_by()` (or `group2NA()`) to apply visual mapping
# once per group (e.g. one line per group)
txhousing %>%
  group_by(city) %>%
  plot_ly(x = ~date, y = ~median) %>%
  add_lines(color = I("black"))

## Not run:
# use `add_sf()` or `add_polygons()` to create geo-spatial maps
# http://blog.cpsievert.me/2018/03/30/visualizing-geo-spatial-data-with-sf-and-plotly/
if (requireNamespace("sf", quietly = TRUE)) {
  nc <- sf::st_read(system.file("shape/nc.shp", package = "sf"), quiet = TRUE)
  plot_ly() %>% add_sf(data = nc)
}

# univariate summary statistics
plot_ly(mtcars, x = ~factor(vs), y = ~mpg) %>%
  add_boxplot()
plot_ly(mtcars, x = ~factor(vs), y = ~mpg) %>%
  add_trace(type = "violin")

# `add_histogram()` does binning for you...
mtcars %>%
  plot_ly(x = ~factor(vs)) %>%
  add_histogram()

# ...but you can 'pre-compute' bar heights in R
mtcars %>%
  dplyr::count(vs) %>%
  plot_ly(x = ~vs, y = ~n) %>%
  add_bars()

# the 2d analogy of add_histogram() is add_histogram2d()/add_histogram2dcontour()
library(MASS)
(p <- plot_ly(geyser, x = ~waiting, y = ~duration))
add_histogram2d(p)
add_histogram2dcontour(p)

# the 2d analogy of add_bars() is add_heatmap()/add_contour()
# (i.e., bin counts must be pre-specified)
den <- kde2d(geyser$waiting, geyser$duration)
p <- plot_ly(x = den$x, y = den$y, z = den$z)
add_heatmap(p)
add_contour(p)

# `add_table()` makes it easy to map a data frame to the table trace type
plot_ly(economics) %>%
  add_table()
```

```
# pie charts!
ds <- data.frame(labels = c("A", "B", "C"), values = c(10, 40, 60))
plot_ly(ds, labels = ~labels, values = ~values) %>%
  add_pie() %>%
  layout(title = "Basic Pie Chart using Plotly")

data(wind)
plot_ly(wind, r = ~r, theta = ~t) %>%
  add_area(color = ~nms) %>%
  layout(
    polar = list(
      radialaxis = list(ticksuffix = "%"),
      angularaxis = list(rotation = 90)
    )
  )

# ------------------------------------------------------------
# 3D chart types
# ------------------------------------------------------------
plot_ly(z = ~volcano) %>%
  add_surface()
plot_ly(x = c(0, 0, 1), y = c(0, 1, 0), z = c(0, 0, 0)) %>%
  add_mesh()

## End(Not run)
```

---

`animation_opts` *Animation configuration options*

---

## Description

Animations can be created by either using the `frame` argument in `plot_ly()` or the (unofficial) `frame` ggplot2 aesthetic in `ggplotly()`. By default, animations populate a play button and slider component for controlling the state of the animation (to pause an animation, click on a relevant location on the slider bar). Both the play button and slider component transition between frames according rules specified by `animation_opts()`.

## Usage

```
animation_opts(
  p,
  frame = 500,
  transition = frame,
  easing = "linear",
  redraw = TRUE,
  mode = "immediate"
)
```

```
animation_slider(p, hide = FALSE, ...)

animation_button(p, ..., label)
```

## Arguments

| | |
|---|---|
| p | a plotly object. |
| frame | The amount of time between frames (in milliseconds). Note that this amount should include the transition. |
| transition | The duration of the smooth transition between frames (in milliseconds). |
| easing | The type of transition easing. See the list of options here https://github.com/plotly/plotly.js/blob/master/src/plots/animation_attributes.js |
| redraw | Trigger a redraw of the plot at completion of the transition? A redraw may significantly impact performance, but may be necessary to update graphical elements that can't be transitioned. |
| mode | Describes how a new animate call interacts with currently-running animations. If immediate, current animations are interrupted and the new animation is started. If next, the current frame is allowed to complete, after which the new animation is started. If afterall all existing frames are animated to completion before the new animation is started. |
| hide | remove the animation slider? |
| ... | for animation_slider, attributes are passed to a special layout.sliders object tied to the animation frames. The definition of these attributes may be found here https://github.com/plotly/plotly.js/blob/master/src/components/sliders/attributes.js For animation_button, arguments are passed to a special layout.updatemenus button object tied to the animation https://github.com/plotly/plotly.js/blob/master/src/components/updatemenus/attributes.js |
| label | a character string used for the animation button's label |

## Author(s)

Carson Sievert

## Examples

```
df <- data.frame(
  x = c(1, 2, 2, 1, 1, 2),
  y = c(1, 2, 2, 1, 1, 2),
  z = c(1, 1, 2, 2, 3, 3)
)
plot_ly(df) %>%
  add_markers(x = 1.5, y = 1.5) %>%
  add_markers(x = ~x, y = ~y, frame = ~z)
```

```
# it's a good idea to remove smooth transitions when there is
# no relationship between objects in each view
plot_ly(mtcars, x = ~wt, y = ~mpg, frame = ~cyl) %>%
  animation_opts(transition = 0)

# works the same way with ggplotly
if (interactive()) {
  p <- ggplot(txhousing, aes(month, median)) +
    geom_line(aes(group = year), alpha = 0.3) +
    geom_smooth() +
    geom_line(aes(frame = year, ids = month), color = "red") +
    facet_wrap(~ city)

  ggplotly(p, width = 1200, height = 900) %>%
    animation_opts(1000)
}


#' # for more, see https://plotly.com/r/animating-views.html
```

---

`api_create` *Tools for working with plotly's REST API (v2)*

---

## Description

Convenience functions for working with version 2 of plotly's REST API. Upload R objects to a plotly account via `api_create()` and download plotly objects via `api_download_plot()`/`api_download_grid()`. For anything else, use `api()`.

## Usage

```
api_create(
  x = last_plot(),
  filename = NULL,
  fileopt = c("overwrite", "new"),
  sharing = c("public", "private", "secret"),
  ...
)

## S3 method for class 'plotly'
api_create(
  x = last_plot(),
  filename = NULL,
  fileopt = "overwrite",
  sharing = "public",
  ...
)
```

```
## S3 method for class 'ggplot'
api_create(
  x = last_plot(),
  filename = NULL,
  fileopt = "overwrite",
  sharing = "public",
  ...
)

## S3 method for class 'data.frame'
api_create(x, filename = NULL, fileopt = "overwrite", sharing = "public", ...)

api_download_plot(id, username)

api_download_grid(id, username)

api(endpoint = "/", verb = "GET", body = NULL, ...)
```

## Arguments

| | |
|---|---|
| x | An R object to hosted on plotly's web platform. Can be a plotly/ggplot2 object or a data.frame. |
| filename | character vector naming file(s). If x is a plot, can be a vector of length 2 naming both the plot AND the underlying grid. |
| fileopt | character string describing whether to "overwrite" existing files or ensure "new" file(s) are always created. |
| sharing | If 'public', anyone can view this graph. It will appear in your profile and can appear in search engines. You do not need to be logged in to Plotly to view this chart. If 'private', only you can view this plot. It will not appear in the Plotly feed, your profile, or search engines. You must be logged in to Plotly to view this graph. You can privately share this graph with other Plotly users in your online Plotly account and they will need to be logged in to view this plot. If 'secret', anyone with this secret link can view this chart. It will not appear in the Plotly feed, your profile, or search engines. If it is embedded inside a webpage or an IPython notebook, anybody who is viewing that page will be able to view the graph. You do not need to be logged in to view this plot. |
| ... | For `api()`, these arguments are passed onto `httr::RETRY()`. For `api_create()`, these arguments are included in the body of the HTTP request. |
| id | a filename id. |
| username | a plotly username. |
| endpoint | the endpoint (i.e., location) for the request. To see a list of all available endpoints, call `api()`. Any relevant query parameters should be included here (see examples). |
| verb | name of the HTTP verb to use (as in, `httr::RETRY()`). |
| body | body of the HTTP request(as in, `httr::RETRY()`). If this value is not already converted to JSON (via `jsonlite::toJSON()`), it uses the internal `to_JSON()` to ensure values are "automatically unboxed" (i.e., vec. |

## Author(s)

Carson Sievert

## References

https://api.plot.ly/v2

## See Also

signup()

## Examples

```
## Not run:

# ------------------------------------------------------------
# api_create() makes it easy to upload ggplot2/plotly objects
# and/or data frames to your plotly account
# ------------------------------------------------------------

# A data frame creates a plotly "grid". Printing one will take you
# to the it's web address so you can start creating!
(m <- api_create(mtcars))

# A plotly/ggplot2 object create a plotly "plot".
p <- plot_ly(mtcars, x = ~factor(vs))
(r <- api_create(p))

# api_create() returns metadata about the remote "file". Here is
# one way you could use that metadata to download a plot for local use:
fileID <- strsplit(r$file$fid, ":")[[1]]
layout(
  api_download_plot(fileID[2], fileID[1]),
  title = sprintf("Local version of <a href='%s'>this</a> plot", r$file$web_url)
)

# ------------------------------------------------------------
# The api() function provides a low-level interface for performing
# any action at any endpoint! It always returns a list.
# ------------------------------------------------------------

# list all the endpoints
api()

# search the entire platform!
# see https://api.plot.ly/v2/search
api("search?q=overdose")
api("search?q=plottype:pie trump fake")

# these examples will require a user account
```

```
usr <- Sys.getenv("plotly_username", NA)
if (!is.na(usr)) {
  # your account info https://api.plot.ly/v2/#users
  api(sprintf("users/%s", usr))
  # your folders/files https://api.plot.ly/v2/folders#user
  api(sprintf("folders/home?user=%s", usr))
}

# Retrieve a specific file https://api.plot.ly/v2/files#retrieve
api("files/cpsievert:14681")

# change the filename https://api.plot.ly/v2/files#update
# (note: this won't work unless you have proper credentials to the relevant account)
api("files/cpsievert:14681", "PATCH", list(filename = "toy file"))

# Copy a file https://api.plot.ly/v2/files#lookup
api("files/cpsievert:14681/copy", "POST")

# Create a folder https://api.plot.ly/v2/folders#create
api("folders", "POST", list(path = "/starts/at/root/and/ends/here"))


## End(Not run)
```

---

`as.widget` *Convert a plotly object to an htmlwidget object*

---

## Description

This function was deprecated in 4.0.0, as plotly objects are now htmlwidget objects, so there is no need to convert them.

## Usage

```
as.widget(x, ...)
```

## Arguments

| | |
|---|---|
| `x` | a plotly object. |
| `...` | other options passed onto `htmlwidgets::createWidget` |

## as_widget *Convert a list to a plotly htmlwidget object*

### Description

Convert a list to a plotly htmlwidget object

### Usage

```
as_widget(x, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly object. |
| ... | other options passed onto htmlwidgets::createWidget |

### Examples

```
trace <- list(x = 1, y = 1)
obj <- list(data = list(trace), layout = list(title = "my plot"))
as_widget(obj)
```

## attrs_selected *Specify attributes of selection traces*

### Description

By default the name of the selection trace derives from the selected values.

### Usage

```
attrs_selected(opacity = 1, ...)
```

### Arguments

| | |
|---|---|
| opacity | a number between 0 and 1 specifying the overall opacity of the selected trace |
| ... | other trace attributes attached to the selection trace. |

### Author(s)

Carson Sievert

## bbox *Estimate bounding box of a rotated string*

### Description

Estimate bounding box of a rotated string

### Usage

```
bbox(txt = "foo", angle = 0, size = 12)
```

### Arguments

| | |
|---|---|
| txt | a character string of length 1 |
| angle | sets the angle of the tick labels with respect to the horizontal (e.g., tickangle of -90 draws the tick labels vertically) |
| size | vertical size of a character |

### References

https://www.dropbox.com/s/nc6968prgw8ne4w/bbox.pdf?dl=0

## colorbar *Modify the colorbar*

### Description

Modify the colorbar

### Usage

```
colorbar(p, ..., limits = NULL, which = 1)
```

### Arguments

| | |
|---|---|
| p | a plotly object |
| ... | arguments are documented here https://plotly.com/r/reference/#scatter-marker-colorbar. |
| limits | numeric vector of length 2. Set the extent of the colorbar scale. |
| which | colorbar to modify? Should only be relevant for subplots with multiple colorbars. |

### Author(s)

Carson Sievert

## Examples

```
p <- plot_ly(mtcars, x = ~wt, y = ~mpg, color = ~cyl)

# pass any colorbar attribute --
# https://plotly.com/r/reference/#scatter-marker-colorbar
colorbar(p, len = 0.5)

# Expand the limits of the colorbar
colorbar(p, limits = c(0, 20))
# values outside the colorbar limits are considered "missing"
colorbar(p, limits = c(5, 6))

# also works on colorbars generated via a z value
corr <- cor(diamonds[vapply(diamonds, is.numeric, logical(1))])
plot_ly(x = rownames(corr), y = colnames(corr), z = corr) %>%
 add_heatmap() %>%
 colorbar(limits = c(-1, 1))
```

---

# config *Set the default configuration for plotly*

---

## Description

Set the default configuration for plotly

## Usage

```
config(
  p,
  ...,
  cloud = FALSE,
  showSendToCloud = cloud,
  locale = NULL,
  mathjax = NULL
)
```

## Arguments

| | |
|---|---|
| p | a plotly object |
| ... | these arguments are documented at https://github.com/plotly/plotly.js/blob/master/src/plot_api/plot_config.js |
| cloud | deprecated. Use showSendToCloud instead. |
| showSendToCloud | include the send data to cloud button? |

| | |
|---|---|
| locale | locale to use. See here for more info. |
| mathjax | add MathJax rendering support. If "cdn", mathjax is loaded externally (meaning an internet connection is needed for TeX rendering). If "local", the PLOTLY_MATHJAX_PATH environment variable must be set to the location (a local file path) of MathJax. IMPORTANT: **plotly** uses SVG-based mathjax rendering which doesn't play nicely with HTML-based rendering (e.g., **rmarkdown** documents and **shiny** apps). To leverage both types of rendering, you must <iframe> your plotly graph(s) into the larger document (see here for an **rmarkdown** example and here for a **shiny** example). |

## Author(s)

Carson Sievert

## Examples

```
# remove the plotly logo and collaborate button from modebar
config(plot_ly(), displaylogo = FALSE, collaborate = FALSE)

# enable mathjax
# see more examples at https://plotly.com/r/LaTeX/
plot_ly(x = c(1, 2, 3, 4), y = c(1, 4, 9, 16)) %>%
  layout(title = TeX("\\text{Some mathjax: }\\alpha+\\beta x")) %>%
  config(mathjax = "cdn")

# change the language used to render date axes and on-graph text
# (e.g., modebar buttons)
today <- Sys.Date()
x <- seq.Date(today, today + 360, by = "day")
p <- plot_ly(x = x, y = rnorm(length(x))) %>%
  add_lines()

# japanese
config(p, locale = "ja")
# german
config(p, locale = "de")
# spanish
config(p, locale = "es")
# chinese
config(p, locale = "zh-CN")
```

---

# embed_notebook *Embed a plot as an iframe into a Jupyter Notebook*

---

## Description

Embed a plot as an iframe into a Jupyter Notebook

### Usage

```
embed_notebook(x, width = NULL, height = NULL, file = NULL)
```

### Arguments

| | |
|---|---|
| x | a plotly object |
| width | attribute of the iframe. If NULL, the width in plot_ly is used. If that is also NULL, '100%' is the default. |
| height | attribute of the iframe. If NULL, the height in plot_ly is used. If that is also NULL, '400px' is the default. |
| file | deprecated. |

### Author(s)

Carson Sievert

---

## event_data *Access plotly user input event data in shiny*

---

### Description

This function must be called within a reactive shiny context.

### Usage

```
event_data(
 event = c("plotly_hover", "plotly_unhover", "plotly_click", "plotly_doubleclick",
    "plotly_selected", "plotly_selecting", "plotly_brushed", "plotly_brushing",
  "plotly_deselect", "plotly_relayout", "plotly_restyle", "plotly_legendclick",
    "plotly_legenddoubleclick", "plotly_clickannotation", "plotly_afterplot",
    "plotly_sunburstclick"),
  source = "A",
  session = shiny::getDefaultReactiveDomain(),
  priority = c("input", "event")
)
```

### Arguments

| | |
|---|---|
| event | The type of plotly event. All supported events are listed in the function signature above (i.e., the usage section). |
| source | a character string of length 1. Match the value of this string with the source argument in plot_ly() (or ggplotly()) to respond to events emitted from that specific plot. |
| session | a shiny session object (the default should almost always be used). |
| priority | the priority of the corresponding shiny input value. If equal to "event", then event_data() always triggers re-execution, instead of re-executing only when the relevant shiny input value changes (the default). |

### Author(s)

Carson Sievert

### References

- https://plotly-r.com/linking-views-with-shiny.html#shiny-plotly-inputs
- https://plotly.com/javascript/plotlyjs-function-reference/

### See Also

event_register, event_unregister

### Examples

```
## Not run:
plotly_example("shiny", "event_data")

## End(Not run)
```

---

## event_register *Register a shiny input value*

---

### Description

Register a shiny input value

### Usage

```
event_register(p, event = NULL)
```

### Arguments

| | |
|---|---|
| p | a plotly object. |
| event | The type of plotly event. All supported events are listed in the function signature above (i.e., the usage section). |

### Author(s)

Carson Sievert

### See Also

event_data

## event_unregister *Un-register a shiny input value*

### Description

Un-register a shiny input value

### Usage

```
event_unregister(p, event = NULL)
```

### Arguments

| | |
|---|---|
| p | a plotly object. |
| event | The type of plotly event. All supported events are listed in the function signature above (i.e., the usage section). |

### Author(s)

Carson Sievert

### See Also

event_data

## export *Export a plotly graph to a static file*

### Description

This function is in the process of being deprecated (use orca instead).

### Usage

```
export(p = last_plot(), file = "plotly.png", selenium = NULL, ...)
```

### Arguments

| | |
|---|---|
| p | a plotly or ggplot object. |
| file | a filename. The file type is inferred from the file extension. Valid extensions include 'jpeg' \| 'png' \| 'webp' \| 'svg' \| 'pdf' |
| selenium | used only when p is a WebGL plot or the output format is 'webp' or 'svg'. Should be an object of class "rsClientServer" returned by RSelenium::rsDriver. |
| ... | if p is non-WebGL and the output file format is jpeg/png/pdf arguments are passed along to webshot::webshot(). Otherwise, they are ignored. |

### Details

For SVG plots, a screenshot is taken via `webshot::webshot()`. Since `phantomjs` (and hence `webshot`) does not support WebGL, the RSelenium package is used for exporting WebGL plots.

### Author(s)

Carson Sievert

---

## `geom2trace` *Convert a "basic" geoms to a plotly.js trace.*

---

### Description

This function makes it possible to convert ggplot2 geoms that are not included with ggplot2 itself. Users shouldn't need to use this function. It exists purely to allow other package authors to write their own conversion method(s).

### Usage

```
geom2trace(data, params, p)
```

### Arguments

| | |
|---|---|
| `data` | the data returned by `plotly::to_basic`. |
| `params` | parameters for the geom, statistic, and 'constant' aesthetics |
| `p` | a ggplot2 object (the conversion may depend on scales, for instance). |

---

## `get_figure` *Request a figure object*

---

### Description

Deprecated: see `api_download_plot()`.

### Usage

```
get_figure(username, id)
```

### Arguments

| | |
|---|---|
| `username` | corresponding username for the figure. |
| `id` | of the Plotly figure. |

gg2list *Convert a ggplot to a list.*

## Description

Convert a ggplot to a list.

## Usage

```
gg2list(
  p,
  width = NULL,
  height = NULL,
  tooltip = "all",
  dynamicTicks = FALSE,
  layerData = 1,
  originalData = TRUE,
  source = "A",
  ...
)
```

## Arguments

| | |
|---|---|
| p | ggplot2 plot. |
| width | Width of the plot in pixels (optional, defaults to automatic sizing). |
| height | Height of the plot in pixels (optional, defaults to automatic sizing). |
| tooltip | a character vector specifying which aesthetic tooltips to show in the tooltip. The default, "all", means show all the aesthetic tooltips (including the unofficial "text" aesthetic). |
| dynamicTicks | accepts the following values: FALSE, TRUE, "x", or "y". Dynamic ticks are useful for updating ticks in response to zoom/pan/filter interactions; however, there is no guarantee they reproduce axis tick text as they would appear in the static ggplot2 image. |
| layerData | data from which layer should be returned? |
| originalData | should the "original" or "scaled" data be returned? |
| source | a character string of length 1. Match the value of this string with the source argument in event_data() to retrieve the event data corresponding to a specific plot (shiny apps can have multiple plots). |
| ... | currently not used |

## Value

a 'built' plotly object (list with names "data" and "layout").

ggplotly *Convert ggplot2 to plotly*

## Description

This function converts a `ggplot2::ggplot()` object to a plotly object.

## Usage

```
ggplotly(
  p = ggplot2::last_plot(),
  width = NULL,
  height = NULL,
  tooltip = "all",
  dynamicTicks = FALSE,
  layerData = 1,
  originalData = TRUE,
  source = "A",
  ...
)
```

## Arguments

| | |
|---|---|
| p | a ggplot object. |
| width | Width of the plot in pixels (optional, defaults to automatic sizing). |
| height | Height of the plot in pixels (optional, defaults to automatic sizing). |
| tooltip | a character vector specifying which aesthetic mappings to show in the tooltip. The default, "all", means show all the aesthetic mappings (including the unofficial "text" aesthetic). The order of variables here will also control the order they appear. For example, use `tooltip = c("y", "x", "colour")` if you want y first, x second, and colour last. |
| dynamicTicks | should plotly.js dynamically generate axis tick labels? Dynamic ticks are useful for updating ticks in response to zoom/pan interactions; however, they can not always reproduce labels as they would appear in the static ggplot2 image. |
| layerData | data from which layer should be returned? |
| originalData | should the "original" or "scaled" data be returned? |
| source | a character string of length 1. Match the value of this string with the source argument in `event_data()` to retrieve the event data corresponding to a specific plot (shiny apps can have multiple plots). |
| ... | arguments passed onto methods. |

## Details

Conversion of relative sizes depends on the size of the current graphics device (if no device is open, width/height of a new (off-screen) device defaults to 640/480). In other words, `height` and `width` must be specified at runtime to ensure sizing is correct. For examples on how to specify the output container's `height`/`width` in a shiny app, see `plotly_example("shiny", "ggplotly_sizing")`.

## Author(s)

Carson Sievert

## References

https://plotly.com/ggplot2/

## See Also

`plot_ly()`

## Examples

```
## Not run:
# simple example
ggpenguins <- qplot(bill_length_mm , body_mass_g,
data = palmerpenguins::penguins, color = species)
ggplotly(ggpenguins)

data(canada.cities, package = "maps")
viz <- ggplot(canada.cities, aes(long, lat)) +
  borders(regions = "canada") +
  coord_equal() +
  geom_point(aes(text = name, size = pop), colour = "red", alpha = 1/2)
ggplotly(viz, tooltip = c("text", "size"))

# linked scatterplot brushing
d <- highlight_key(mtcars)
qplot(data = d, x = mpg, y = wt) %>%
  subplot(qplot(data = d, x = mpg, y = vs)) %>%
  layout(title = "Click and drag to select points") %>%
  highlight("plotly_selected")


# more brushing (i.e. highlighting) examples
demo("crosstalk-highlight-ggplotly", package = "plotly")

# client-side linked brushing in a scatterplot matrix
highlight_key(palmerpenguins::penguins) %>%
  GGally::ggpairs(aes(colour = Species), columns = 1:4) %>%
  ggplotly(tooltip = c("x", "y", "colour")) %>%
  highlight("plotly_selected")

## End(Not run)
```

group2NA *Separate groups with missing values*

## Description

This function is used internally by plotly, but may also be useful to some power users. The details section explains when and why this function is useful.

## Usage

```
group2NA(
  data,
  groupNames = "group",
  nested = NULL,
  ordered = NULL,
  retrace.first = inherits(data, "GeomPolygon")
)
```

## Arguments

| | |
|---|---|
| data | a data frame. |
| groupNames | character vector of grouping variable(s) |
| nested | other variables that group should be nested (i.e., ordered) within. |
| ordered | a variable to arrange by (within nested & groupNames). This is useful primarily for ordering by x |
| retrace.first | should the first row of each group be appended to the last row? This is useful for enclosing polygons with lines. |

## Details

If a group of scatter traces share the same non-positional characteristics (i.e., color, fill, etc), it is more efficient to draw them as a single trace with missing values that separate the groups (instead of multiple traces), In this case, one should also take care to make sure connectgaps is set to FALSE.

## Value

a data.frame with rows ordered by: nested, then groupNames, then ordered. As long as groupNames contains valid variable names, new rows will also be inserted to separate the groups.

## Examples

```
# note the insertion of new rows with missing values
group2NA(mtcars, "vs", "cyl")

# need to group lines by city somehow!
```

```
plot_ly(txhousing, x = ~date, y = ~median) %>% add_lines()

# instead of using group_by(), you could use group2NA()
tx <- group2NA(txhousing, "city")
plot_ly(tx, x = ~date, y = ~median) %>% add_lines()

# add_lines() will ensure paths are sorted by x, but this is equivalent
tx <- group2NA(txhousing, "city", ordered = "date")
plot_ly(tx, x = ~date, y = ~median) %>% add_paths()
```

---

`hide_colorbar` *Hide color bar(s)*

---

## Description

Hide color bar(s)

## Usage

```
hide_colorbar(p)
```

## Arguments

| | |
|---|---|
| p | a plotly object. |

## See Also

hide_legend()

## Examples

```
p <- plot_ly(mtcars, x = ~wt, y = ~cyl, color = ~cyl)
hide_colorbar(p)
```

## hide_guides *Hide guides (legends and colorbars)*

### Description

Hide guides (legends and colorbars)

### Usage

```
hide_guides(p)
```

### Arguments

| | |
|---|---|
| p | a plotly object. |

### See Also

hide_legend(), hide_colorbar()

## hide_legend *Hide legend*

### Description

Hide legend

### Usage

```
hide_legend(p)
```

### Arguments

| | |
|---|---|
| p | a plotly object. |

### See Also

hide_colorbar()

### Examples

```
p <- plot_ly(mtcars, x = ~wt, y = ~cyl, color = ~factor(cyl))
hide_legend(p)
```

highlight *Query graphical elements in multiple linked views*

## Description

This function sets a variety of options for brushing (i.e., highlighting) multiple plots. These options are primarily designed for linking multiple plotly graphs, and may not behave as expected when linking plotly to another htmlwidget package via crosstalk. In some cases, other htmlwidgets will respect these options, such as persistent selection in leaflet (see `demo("highlight-leaflet", package = "plotly")`).

## Usage

```
highlight(
  p,
  on = "plotly_click",
  off,
  persistent = getOption("persistent", FALSE),
  dynamic = FALSE,
  color = NULL,
  selectize = FALSE,
  defaultValues = NULL,
  opacityDim = getOption("opacityDim", 0.2),
  selected = attrs_selected(),
  debounce = 0,
  ...
)
```

## Arguments

| | |
|---|---|
| p | a plotly visualization. |
| on | turn on a selection on which event(s)? To disable on events altogether, use `NULL`. Currently the following are supported:<br>• `'plotly_click'`<br>• `'plotly_hover'`<br>• `'plotly_selected'`: triggered through rectangular (layout.dragmode = 'select') or lasso (layout.dragmode = 'lasso') brush. |
| off | turn off a selection on which event(s)? To disable off events altogether, use `NULL`. Currently the following are supported:<br>• `'plotly_doubleclick'`: triggered on a double mouse click while (layout.dragmode = 'zoom') or (layout.dragmode = 'pan')<br>• `'plotly_deselect'`: triggered on a double mouse click while (layout.dragmode = 'select') or (layout.dragmode = 'lasso')<br>• `'plotly_relayout'`: triggered whenever axes are rescaled (i.e., clicking the home button in the modebar) or whenever the height/width of the plot changes. |

| | |
|---|---|
| persistent | should selections persist (i.e., accumulate)? We often refer to the default (FALSE) as a 'transient' selection mode; which is recommended, because one may switch from 'transient' to 'persistent' selection by holding the shift key. |
| dynamic | should a widget for changing selection colors be included? |
| color | character string of color(s) to use for highlighting selections. See toRGB() for valid color specifications. If NULL (the default), the color of selected marks are not altered. |
| selectize | whether or not to render a selectize.js widget for selecting highlight_key() values. A list of additional selectize.js options may also be provided. The label used for this widget should be set via the groupName argument of highlight_key(). |
| defaultValues | a vector of values for setting a "default selection". These values should match the key attribute. |
| opacityDim | a number between 0 and 1 used to reduce the opacity of non-selected traces (by multiplying with the existing opacity). |
| selected | attributes of the selection, see attrs_selected(). |
| debounce | amount of time to wait before firing an event (in milliseconds). The default of 0 means do not debounce at all. Debouncing is mainly useful when on = "plotly_hover" to avoid firing too many events when users clickly move the mouse over relevant graphical marks. |
| ... | currently not supported. |

## Author(s)

Carson Sievert

## References

https://plotly-r.com/client-side-linking.html

## See Also

attrs_selected()

## Examples

```
# These examples are designed to show you how to highlight/brush a *single*
# view. For examples of multiple linked views, see `demo(package = "plotly")`

d <- highlight_key(txhousing, ~city)
p <- ggplot(d, aes(date, median, group = city)) + geom_line()
gg <- ggplotly(p, tooltip = "city")
highlight(gg, dynamic = TRUE)

# supply custom colors to the brush
cols <- toRGB(RColorBrewer::brewer.pal(3, "Dark2"), 0.5)
highlight(gg, on = "plotly_hover", color = cols, dynamic = TRUE)
```

```
# Use attrs_selected() for complete control over the selection appearance
# note any relevant colors you specify here should override the color argument
s <- attrs_selected(
  showlegend = TRUE,
  mode = "lines+markers",
  marker = list(symbol = "x")
)

highlight(layout(gg, showlegend = TRUE), selected = s)
```

---

`highlight_key` *Highlight/query data based on primary key*

---

## Description

This function simply creates an object of class crosstalk::SharedData. The reason it exists is to make it easier to teach others how to leverage its functionality in plotly. It also makes it more discoverable if one is already aware of highlight.

## Usage

```
highlight_key(x, ...)
```

## Arguments

| | |
|---|---|
| `x` | a plotly visualization or a `data.frame`. |
| `...` | arguments passed to `crosstalk::SharedData$new()` |

## Value

An object of class crosstalk::SharedData

## Author(s)

Carson Sievert

## See Also

highlight

## hobbs *Hobbs data*

### Description

Description TBD.

### Usage

```
hobbs
```

### Format

A data frame with three variables: `r`, `t`, `nms`.

## knit_print.api_grid *Embed a plotly grid as an iframe in a knitr doc*

### Description

Embed a plotly grid as an iframe in a knitr doc

### Usage

```
knit_print.api_grid(x, options, ...)
```

### Arguments

| | |
|---|---|
| `x` | a plotly figure object |
| `options` | knitr options. |
| `...` | placeholder. |

### References

https://github.com/yihui/knitr/blob/master/vignettes/knit_print.Rmd

## knit_print.api_grid_local *Embed a plotly grid as an iframe in a knitr doc*

### Description

Embed a plotly grid as an iframe in a knitr doc

### Usage

```
knit_print.api_grid_local(x, options, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly figure object |
| options | knitr options. |
| ... | placeholder. |

### References

https://github.com/yihui/knitr/blob/master/vignettes/knit_print.Rmd

## knit_print.api_plot *Embed a plotly figure as an iframe in a knitr doc*

### Description

Embed a plotly figure as an iframe in a knitr doc

### Usage

```
knit_print.api_plot(x, options, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly figure object |
| options | knitr options. |
| ... | placeholder. |

### References

https://github.com/yihui/knitr/blob/master/vignettes/knit_print.Rmd

## last_plot *Retrieve the last plot to be modified or created.*

### Description

Retrieve the last plot to be modified or created.

### Usage

```
last_plot()
```

### See Also

ggplot2::last_plot()

## layout *Modify the layout of a plotly visualization*

### Description

Modify the layout of a plotly visualization

### Usage

```
layout(p, ..., data = NULL)
```

### Arguments

| | |
|---|---|
| p | A plotly object. |
| ... | Arguments to the layout object. For documentation, see https://plotly.com/r/reference/#Layout_and_layout_style_objects |
| data | A data frame to associate with this layout (optional). If not provided, arguments are evaluated using the data frame in plot_ly(). |

### Author(s)

Carson Sievert

## mic *Mic data*

### Description

Description TBD.

### Usage

```
mic
```

### Format

A data frame with three variables: `r`, `t`, `nms`.

## offline *Plotly Offline*

### Description

Deprecated in version 2.0 (offline plots are now the default)

### Usage

```
offline(p, height, width, out_dir, open_browser)
```

### Arguments

| | |
|---|---|
| `p` | a plotly object |
| `height` | A valid CSS unit. (like "100\ which will be coerced to a string and have "px" appended. |
| `width` | A valid CSS unit. (like "100\ which will be coerced to a string and have "px" appended. |
| `out_dir` | a directory to place the visualization. If `NULL`, a temporary directory is used when the offline object is printed. |
| `open_browser` | open the visualization after creating it? |

### Value

a plotly object of class "offline"

### Author(s)

Carson Sievert

orca *Static image exporting via orca*

## Description

Superseded by `kaleido()`.

## Usage

```
orca(
  p,
  file = "plot.png",
  format = tools::file_ext(file),
  scale = NULL,
  width = NULL,
  height = NULL,
  mathjax = FALSE,
  parallel_limit = NULL,
  verbose = FALSE,
  debug = FALSE,
  safe = FALSE,
  more_args = NULL,
  ...
)

orca_serve(
  port = 5151,
  mathjax = FALSE,
  safe = FALSE,
  request_limit = NULL,
  keep_alive = TRUE,
  window_max_number = NULL,
  quiet = FALSE,
  debug = FALSE,
  more_args = NULL,
  ...
)
```

## Arguments

| | |
|---|---|
| `p` | a plotly object. |
| `file` | output filename. |
| `format` | the output format (png, jpeg, webp, svg, pdf, eps). |
| `scale` | Sets the image scale. Applies to all output images. |
| `width` | Sets the image width. If not set, defaults to `layout.width` value. Applies to all output images. |

| | |
|---|---|
| `height` | Sets the image height. If not set, defaults to `layout.height` value. Applies to all output images. |
| `mathjax` | whether or not to include MathJax (required to render TeX). If `TRUE`, the PLOTLY_MATHJAX_PATH environment variable must be set and point to the location of MathJax (this variable is also used to render TeX in interactive graphs, see config). |
| `parallel_limit` | Sets the limit of parallel tasks run. |
| `verbose` | Turn on verbose logging on stdout. |
| `debug` | Starts app in debug mode and turn on verbose logs on stdout. |
| `safe` | Turns on safe mode: where figures likely to make browser window hang during image generating are skipped. |
| `more_args` | additional arguments to pass along to system command. This is useful for specifying display and/or electron options, such as `--enable-webgl` or `--disable-gpu`. |
| `...` | for `orca()`, additional arguments passed along to `processx::run`. For `orca_serve()`, additional arguments passed along to `processx::process`. |
| `port` | Sets the server's port number. |
| `request_limit` | Sets a request limit that makes orca exit when reached. |
| `keep_alive` | Turn on keep alive mode where orca will (try to) relaunch server if process unexpectedly exits. |
| `window_max_number` | Sets maximum number of browser windows the server can keep open at a given time. |
| `quiet` | Suppress all logging info. |

## Methods

The `orca_serve()` function returns an object with two methods:

`export(p, file = "plot.png", format = tools::file_ext(file), scale = NULL, width = NULL, height = NULL)`
: Export a static image of a plotly graph. Arguments found here are the same as those found in `orca()`

`close()` Close down the orca server and kill the underlying node process.

## Fields

The `orca_serve()` function returns an object with two fields:

`port` The port number that the server is listening to.

`process` An R6 class for controlling and querying the underlying node process.

## Author(s)

Carson Sievert

## Examples

```
## Not run:
# NOTE: in a headless environment, you may need to set `more_args="--enable-webgl"`
# to export webgl correctly
p <- plot_ly(z = ~volcano) %>% add_surface()
orca(p, "surface-plot.svg")

#' # launch the server
server <- orca_serve()

# export as many graphs as you'd like
server$export(qplot(1:10), "test1.pdf")
server$export(plot_ly(x = 1:10, y = 1:10), "test2.pdf")

# the underlying process is exposed as a field, so you
# have full control over the external process
server$process$is_alive()

# convenience method for closing down the server
server$close()

# remove the exported files from disk
unlink("test1.pdf")
unlink("test2.pdf")

## End(Not run)
```

---

# partial_bundle *Use a partial bundle of plotly.js*

---

## Description

Leveraging plotly.js' partial bundles can lead to smaller file sizes and faster rendering. The full list of available bundles, and the trace types that they support, are available here

## Usage

```
partial_bundle(p, type = "auto", local = TRUE, minified = TRUE)
```

## Arguments

| | |
|---|---|
| p | a plotly object. |
| type | name of the (partial) bundle. The default, 'auto', attempts to find the smallest single bundle that can render p. If no single partial bundle can render p, then the full bundle is used. |

| | |
|---|---|
| local | whether or not to download the partial bundle so that it can be viewed later without an internet connection. |
| minified | whether or not to use a minified js file (non-minified file can be useful for debugging plotly.js) |

## Details

WARNING: use this function with caution when rendering multiple plotly graphs on a single website. That's because, if multiple plotly.js bundles are used, the most recent bundle will override the other bundles. See the examples section for an example.

## Author(s)

Carson Sievert

## Examples

```
# ------------------------------------------------------------------------
# This function is always safe to use when rendering a single
# plotly graph. In this case, we get a 3x file reduction.
# ------------------------------------------------------------------------

## Not run:
library(plotly)
p <- plot_ly(x = 1:10, y = 1:10) %>% add_markers()
save_widget <- function(p, f) {
  owd <- setwd(dirname(f))
  on.exit(setwd(owd))
  htmlwidgets::saveWidget(p, f)
  mb <- round(file.info(f)$size / 1e6, 3)
  message("File is: ", mb," MB")
}
f1 <- tempfile(fileext = ".html")
f2 <- tempfile(fileext = ".html")
save_widget(p, f1)
save_widget(partial_bundle(p), f2)

# ------------------------------------------------------------------------
# But, since plotly.js bundles override one another,
# be careful when putting multiple graphs in a larger document!
# Note how the surface (part of the gl3d bundle) renders, but the
# heatmap (part of the cartesian bundle) doesn't...
# ------------------------------------------------------------------------

library(htmltools)
p1 <- plot_ly(z = ~volcano) %>%
  add_heatmap() %>%
  partial_bundle()
p2 <- plot_ly(z = ~volcano) %>%
  add_surface() %>%
```

```
  partial_bundle()
browsable(tagList(p1, p2))

## End(Not run)
```

---

`plotly-shiny` *Shiny bindings for plotly*

---

## Description

Output and render functions for using plotly within Shiny applications and interactive Rmd documents.

## Usage

```
plotlyOutput(
  outputId,
  width = "100%",
  height = "400px",
  inline = FALSE,
  reportTheme = TRUE,
  fill = !inline
)

renderPlotly(expr, env = parent.frame(), quoted = FALSE)
```

## Arguments

| | |
|---|---|
| `outputId` | output variable to read from |
| `width, height` | Must be a valid CSS unit (like `"100%"`, `"400px"`, `"auto"`) or a number, which will be coerced to a string and have `"px"` appended. Note that, for height, using "auto" or "100%" generally will not work as expected, because of how height is computed with HTML/CSS. |
| `inline` | use an inline (`span()`) or block container (`div()`) for the output |
| `reportTheme` | whether or not to report CSS styles (if a sufficient version of shiny and htmlwidgets is available). |
| `fill` | see `htmlwidgets::shinyWidgetOutput()` for explanation (requires a recent version of htmlwidgets). |
| `expr` | An expression that generates a plotly |
| `env` | The environment in which to evaluate `expr`. |
| `quoted` | Is `expr` a quoted expression (with `quote()`)? This is useful if you want to save an expression in a variable. |

`plotlyProxy` *Modify a plotly object inside a shiny app*

## Description

Modify a plotly object inside a shiny app

## Usage

```
plotlyProxy(
  outputId,
  session = shiny::getDefaultReactiveDomain(),
  deferUntilFlush = TRUE
)

plotlyProxyInvoke(p, method, ...)
```

## Arguments

| | |
|---|---|
| `outputId` | single-element character vector indicating the output ID map to modify (if invoked from a Shiny module, the namespace will be added automatically) |
| `session` | the Shiny session object to which the map belongs; usually the default value will suffice. |
| `deferUntilFlush` | indicates whether actions performed against this instance should be carried out right away, or whether they should be held until after the next time all of the outputs are updated. |
| `p` | a plotly proxy object (created with `plotlyProxy`) |
| `method` | a plotlyjs method to invoke. For a list of options, visit https://plotly.com/javascript/plotlyjs-function-reference/ |
| `...` | unnamed arguments passed onto the plotly.js method |

## Examples

```
if (require("shiny") && interactive()) {
  plotly_example("shiny", "proxy_relayout")
  plotly_example("shiny", "proxy_mapbox")
}
```

## plotly_build *'Build' (i.e., evaluate) a plotly object*

### Description

This generic function creates the list object sent to plotly.js for rendering. Using this function can be useful for overriding defaults provided by ggplotly/plot_ly or for debugging rendering errors.

### Usage

```
plotly_build(p, registerFrames = TRUE)
```

### Arguments

| | |
|---|---|
| p | a ggplot object, or a plotly object, or a list. |
| registerFrames | should a frame trace attribute be interpreted as frames in an animation? |

### Examples

```
p <- plot_ly(economics, x = ~date, y = ~pce)
# the unevaluated plotly object
str(p)
# the evaluated data
str(plotly_build(p)$x$data)
```

## plotly_data *Obtain data associated with a plotly graph*

### Description

plotly_data() returns data associated with a plotly visualization (if there are multiple data frames, by default, it returns the most recent one).

### Usage

```
plotly_data(p, id = p$x$cur_data)

## S3 method for class 'plotly'
groups(x)

## S3 method for class 'plotly'
ungroup(x, ...)
```

```
## S3 method for class 'plotly'
group_by(.data, ...)

## S3 method for class 'plotly'
mutate(.data, ...)

## S3 method for class 'plotly'
do(.data, ...)

## S3 method for class 'plotly'
summarise(.data, ...)

## S3 method for class 'plotly'
arrange(.data, ...)

## S3 method for class 'plotly'
select(.data, ...)

## S3 method for class 'plotly'
filter(.data, ...)

## S3 method for class 'plotly'
distinct(.data, ...)

## S3 method for class 'plotly'
slice(.data, ...)

## S3 method for class 'plotly'
rename(.data, ...)

## S3 method for class 'plotly'
transmute(.data, ...)

## S3 method for class 'plotly'
group_by_(.data, ...)

## S3 method for class 'plotly'
mutate_(.data, ...)

## S3 method for class 'plotly'
do_(.data, ...)

## S3 method for class 'plotly'
summarise_(.data, ...)

## S3 method for class 'plotly'
arrange_(.data, ...)
```

```
## S3 method for class 'plotly'
select_(.data, ...)

## S3 method for class 'plotly'
filter_(.data, ...)

## S3 method for class 'plotly'
distinct_(.data, ...)

## S3 method for class 'plotly'
slice_(.data, ...)

## S3 method for class 'plotly'
rename_(.data, ...)

## S3 method for class 'plotly'
transmute_(.data, ...)
```

## Arguments

| | |
|---|---|
| p | a plotly visualization. |
| id | a character string or number referencing an "attribute layer". |
| x | a plotly visualization. |
| ... | arguments passed onto the relevant method. |
| .data | a plotly visualization. |

## Examples

```
# use group_by() to define groups of visual markings
p <- txhousing %>%
  group_by(city) %>%
  plot_ly(x = ~date, y = ~sales)
p

# plotly objects preserve data groupings
groups(p)
plotly_data(p)

# dplyr verbs operate on plotly objects as if they were data frames
p <- economics %>%
  plot_ly(x = ~date, y = ~unemploy / pop) %>%
  add_lines() %>%
  mutate(rate = unemploy / pop) %>%
  filter(rate == max(rate))
plotly_data(p)
add_markers(p)
layout(p, annotations = list(x = ~date, y = ~rate, text = "peak"))
```

```
# use group_by() + do() + subplot() for trellis displays
d <- group_by(mpg, drv)
plots <- do(d, p = plot_ly(., x = ~cty, name = ~drv))
subplot(plots[["p"]], nrows = 3, shareX = TRUE)

# arrange displays by their mean
means <- summarise(d, mn = mean(cty, na.rm = TRUE))
means %>%
  dplyr::left_join(plots) %>%
  arrange(mn) %>%
  subplot(nrows = NROW(.), shareX = TRUE)

# more dplyr verbs applied to plotly objects
p <- mtcars %>%
  plot_ly(x = ~wt, y = ~mpg, name = "scatter trace") %>%
  add_markers()
p %>% slice(1) %>% plotly_data()
p %>% slice(1) %>% add_markers(name = "first observation")
p %>% filter(cyl == 4) %>% plotly_data()
p %>% filter(cyl == 4) %>% add_markers(name = "four cylinders")
```

---

`plotly_empty` *Create a complete empty plotly graph.*

---

## Description

Useful when used with `subplot()`

## Usage

```
plotly_empty(...)
```

## Arguments

| | |
|---|---|
| `...` | arguments passed onto `plot_ly()` |

---

`plotly_example` *Run a plotly example(s)*

---

## Description

Provides a unified interface for running demos, shiny apps, and Rmd documents which are bundled with the package.

### Usage

```
plotly_example(type = c("demo", "shiny", "rmd"), name, edit = TRUE, ...)
```

### Arguments

| | |
|---|---|
| type | the type of example |
| name | the name of the example (valid names depend on type). |
| edit | whether to open the relevant source files using file.edit. Only relevant if type is "shiny" or "rmd". |
| ... | arguments passed onto the suitable method. |

### Author(s)

Carson Sievert

---

## plotly_IMAGE *Create a static image*

---

### Description

The images endpoint turns a plot (which may be given in multiple forms) into an image of the desired format.

### Usage

```
plotly_IMAGE(
  x,
  width = 1000,
  height = 500,
  format = "png",
  scale = 1,
  out_file,
  ...
)
```

### Arguments

| | |
|---|---|
| x | either a plotly object or a list. |
| width | Image width in pixels |
| height | Image height in pixels |
| format | The desired image format 'png', 'jpeg', 'svg', 'pdf', 'eps', or 'webp' |
| scale | Both png and jpeg formats will be scaled beyond the specified width and height by this number. |
| out_file | A filename for writing the image to a file. |
| ... | arguments passed onto httr::RETRY |

## Examples

```
## Not run:
p <- plot_ly(x = 1:10)
Png <- plotly_IMAGE(p, out_file = "plotly-test-image.png")
Jpeg <- plotly_IMAGE(p, format = "jpeg", out_file = "plotly-test-image.jpeg")
Svg <- plotly_IMAGE(p, format = "svg",  out_file = "plotly-test-image.svg")
Pdf <- plotly_IMAGE(p, format = "pdf",  out_file = "plotly-test-image.pdf")

## End(Not run)
```

---

# plotly_json *Inspect JSON sent to plotly.js*

---

## Description

This function is useful for obtaining/viewing/debugging JSON sent to plotly.js.

## Usage

```
plotly_json(p = last_plot(), jsonedit = interactive(), pretty = TRUE, ...)
```

## Arguments

| | |
|---|---|
| p | a plotly or ggplot object. |
| jsonedit | use listviewer::jsonedit to view the JSON? |
| pretty | adds indentation whitespace to JSON output. Can be TRUE/FALSE or a number specifying the number of spaces to indent. See jsonlite::prettify. |
| ... | other options passed onto listviewer::jsonedit |

## Examples

```
plotly_json(plot_ly())
plotly_json(plot_ly(), FALSE)
```

plotly_POST *Create/Modify plotly graphs*

## Description

Deprecated: see `api_create()`.

## Usage

```
plotly_POST(
  x = last_plot(),
  filename = NULL,
  fileopt = "overwrite",
  sharing = c("public", "private", "secret"),
  ...
)
```

## Arguments

| | |
|---|---|
| x | either a ggplot object, a plotly object, or a list. |
| filename | character string describing the name of the plot in your plotly account. Use / to specify directories. If a directory path does not exist it will be created. If this argument is not specified and the title of the plot exists, that will be used for the filename. |
| fileopt | character string describing whether to create a "new" plotly, "overwrite" an existing plotly, "append" data to existing plotly, or "extend" it. |
| sharing | If 'public', anyone can view this graph. It will appear in your profile and can appear in search engines. You do not need to be logged in to Plotly to view this chart. If 'private', only you can view this plot. It will not appear in the Plotly feed, your profile, or search engines. You must be logged in to Plotly to view this graph. You can privately share this graph with other Plotly users in your online Plotly account and they will need to be logged in to view this plot. If 'secret', anyone with this secret link can view this chart. It will not appear in the Plotly feed, your profile, or search engines. If it is embedded inside a webpage or an IPython notebook, anybody who is viewing that page will be able to view the graph. You do not need to be logged in to view this plot. |
| ... | not used |

## See Also

`plot_ly()`, `signup()`

plot_dendro *Plot an interactive dendrogram*

## Description

This function takes advantage of nested key selections to implement an interactive dendrogram. Selecting a node selects all the labels (i.e. leafs) under that node.

## Usage

```
plot_dendro(d, set = "A", xmin = -50, height = 500, width = 500, ...)
```

## Arguments

| | |
|---|---|
| d | a dendrogram object |
| set | defines a crosstalk group |
| xmin | minimum of the range of the x-scale |
| height | height |
| width | width |
| ... | arguments supplied to subplot() |

## Author(s)

Carson Sievert

## See Also

plot_ly(), plot_mapbox(), ggplotly()

## Examples

```
## Not run:
hc <- hclust(dist(USArrests), "ave")
dend1 <- as.dendrogram(hc)
plot_dendro(dend1, height = 600) %>%
  hide_legend() %>%
  highlight(persistent = TRUE, dynamic = TRUE)

## End(Not run)
```

plot_geo *Initiate a plotly-geo object*

## Description

Use this function instead of plot_ly() to initialize a plotly-geo object. This enforces the entire plot so use the scattergeo trace type, and enables higher level geometries like add_polygons() to work

## Usage

```
plot_geo(data = data.frame(), ..., offline = FALSE)
```

## Arguments

| | |
|---|---|
| data | A data frame (optional). |
| ... | arguments passed along to plot_ly(). |
| offline | whether or not to include geo assets so that the map can be viewed with or without an internet connection. The plotlyGeoAssets package is required for this functionality. |

## Author(s)

Carson Sievert

## See Also

plot_ly(), plot_mapbox(), ggplotly()

## Examples

```
map_data("world", "canada") %>%
  group_by(group) %>%
  plot_geo(x = ~long, y = ~lat) %>%
  add_markers(size = I(1))
```

plot_ly *Initiate a plotly visualization*

## Description

This function maps R objects to plotly.js, an (MIT licensed) web-based interactive charting library. It provides abstractions for doing common things (e.g. mapping data values to fill colors (via `color`) or creating animations (via `frame`)) and sets some different defaults to make the interface feel more 'R-like' (i.e., closer to `plot()` and `ggplot2::qplot()`).

## Usage

```
plot_ly(
  data = data.frame(),
  ...,
  type = NULL,
  name,
  color,
  colors = NULL,
  alpha = NULL,
  stroke,
  strokes = NULL,
  alpha_stroke = 1,
  size,
  sizes = c(10, 100),
  span,
  spans = c(1, 20),
  symbol,
  symbols = NULL,
  linetype,
  linetypes = NULL,
  split,
  frame,
  width = NULL,
  height = NULL,
  source = "A"
)
```

## Arguments

| | |
|---|---|
| `data` | A data frame (optional) or crosstalk::SharedData object. |
| `...` | Arguments (i.e., attributes) passed along to the trace `type`. See `schema()` for a list of acceptable attributes for a given trace `type` (by going to `traces -> type -> attributes`). Note that attributes provided at this level may override other arguments (e.g. `plot_ly(x = 1:10, y = 1:10, color = I("red"), marker = list(color = "blue"))`). |

| | |
|---|---|
| type | A character string specifying the trace type (e.g. "scatter", "bar", "box", etc). If specified, it *always* creates a trace, otherwise |
| name | Values mapped to the trace's name attribute. Since a trace can only have one name, this argument acts very much like split in that it creates one trace for every unique value. |
| color | Values mapped to relevant 'fill-color' attribute(s) (e.g. fillcolor, marker.color, textfont.color, etc.). The mapping from data values to color codes may be controlled using colors and alpha, or avoided altogether via I() (e.g., color = I("red")). Any color understood by grDevices::col2rgb() may be used in this way. |
| colors | Either a colorbrewer2.org palette name (e.g. "YlOrRd" or "Blues"), or a vector of colors to interpolate in hexadecimal "#RRGGBB" format, or a color interpolation function like colorRamp(). |
| alpha | A number between 0 and 1 specifying the alpha channel applied to color. Defaults to 0.5 when mapping to fillcolor and 1 otherwise. |
| stroke | Similar to color, but values are mapped to relevant 'stroke-color' attribute(s) (e.g., marker.line.color and line.color for filled polygons). If not specified, stroke inherits from color. |
| strokes | Similar to colors, but controls the stroke mapping. |
| alpha_stroke | Similar to alpha, but applied to stroke. |
| size | (Numeric) values mapped to relevant 'fill-size' attribute(s) (e.g., marker.size, textfont.size, and error_x.width). The mapping from data values to symbols may be controlled using sizes, or avoided altogether via I() (e.g., size = I(30)). |
| sizes | A numeric vector of length 2 used to scale size to pixels. |
| span | (Numeric) values mapped to relevant 'stroke-size' attribute(s) (e.g., marker.line.width, line.width for filled polygons, and error_x.thickness) The mapping from data values to symbols may be controlled using spans, or avoided altogether via I() (e.g., span = I(30)). |
| spans | A numeric vector of length 2 used to scale span to pixels. |
| symbol | (Discrete) values mapped to marker.symbol. The mapping from data values to symbols may be controlled using symbols, or avoided altogether via I() (e.g., symbol = I("pentagon")). Any pch value or symbol name may be used in this way. |
| symbols | A character vector of pch values or symbol names. |
| linetype | (Discrete) values mapped to line.dash. The mapping from data values to symbols may be controlled using linetypes, or avoided altogether via I() (e.g., linetype = I("dash")). Any lty (see par) value or dash name may be used in this way. |
| linetypes | A character vector of lty values or dash names |
| split | (Discrete) values used to create multiple traces (one trace per value). |
| frame | (Discrete) values used to create animation frames. |
| width | Width in pixels (optional, defaults to automatic sizing). |
| height | Height in pixels (optional, defaults to automatic sizing). |

source — a character string of length 1. Match the value of this string with the source argument in event_data() to retrieve the event data corresponding to a specific plot (shiny apps can have multiple plots).

## Details

Unless type is specified, this function just initiates a plotly object with 'global' attributes that are passed onto downstream uses of add_trace() (or similar). A formula must always be used when referencing column name(s) in data (e.g. plot_ly(mtcars, x = ~wt)). Formulas are optional when supplying values directly, but they do help inform default axis/scale titles (e.g., plot_ly(x = mtcars$wt) vs plot_ly(x = ~mtcars$wt))

## Author(s)

Carson Sievert

## References

https://plotly-r.com/overview.html

## See Also

- For initializing a plotly-geo object: plot_geo()
- For initializing a plotly-mapbox object: plot_mapbox()
- For translating a ggplot2 object to a plotly object: ggplotly()
- For modifying any plotly object: layout(), add_trace(), style()
- For linked brushing: highlight()
- For arranging multiple plots: subplot(), crosstalk::bscols()
- For inspecting plotly objects: plotly_json()
- For quick, accurate, and searchable plotly.js reference: schema()

## Examples

```
## Not run:

# plot_ly() tries to create a sensible plot based on the information you
# give it. If you don't provide a trace type, plot_ly() will infer one.
plot_ly(economics, x = ~pop)
plot_ly(economics, x = ~date, y = ~pop)
# plot_ly() doesn't require data frame(s), which allows one to take
# advantage of trace type(s) designed specifically for numeric matrices
plot_ly(z = ~volcano)
plot_ly(z = ~volcano, type = "surface")

# plotly has a functional interface: every plotly function takes a plotly
# object as it's first input argument and returns a modified plotly object
add_lines(plot_ly(economics, x = ~date, y = ~unemploy/pop))
```

```
# To make code more readable, plotly imports the pipe operator from magrittr
economics %>% plot_ly(x = ~date, y = ~unemploy/pop) %>% add_lines()

# Attributes defined via plot_ly() set 'global' attributes that
# are carried onto subsequent traces, but those may be over-written
plot_ly(economics, x = ~date, color = I("black")) %>%
 add_lines(y = ~uempmed) %>%
 add_lines(y = ~psavert, color = I("red"))

# Attributes are documented in the figure reference -> https://plotly.com/r/reference
# You might notice plot_ly() has named arguments that aren't in this figure
# reference. These arguments make it easier to map abstract data values to
# visual attributes.
p <- plot_ly(palmerpenguins::penguins, x = ~bill_length_mm, y = ~body_mass_g)
add_markers(p, color = ~bill_depth_mm, size = ~bill_depth_mm)
add_markers(p, color = ~species)
add_markers(p, color = ~species, colors = "Set1")
add_markers(p, symbol = ~species)
add_paths(p, linetype = ~species)


## End(Not run)
```

---

`plot_mapbox` *Initiate a plotly-mapbox object*

---

## Description

Use this function instead of `plot_ly()` to initialize a plotly-mapbox object. This enforces the entire plot so use the scattermapbox trace type, and enables higher level geometries like `add_polygons()` to work

## Usage

```
plot_mapbox(data = data.frame(), ...)
```

## Arguments

| | |
|---|---|
| `data` | A data frame (optional). |
| `...` | arguments passed along to `plot_ly()`. They should be valid scattermapbox attributes - `https://plotly.com/r/reference/#scattermapbox`. Note that x/y can also be used in place of lat/lon. |

## Author(s)

Carson Sievert

## See Also

plot_ly(), plot_geo(), ggplotly()

## Examples

```
## Not run:

plot_mapbox(res_mn)
plot_mapbox(res_mn, color = ~INDRESNAME)

map_data("world", "canada") %>%
  group_by(group) %>%
  plot_mapbox(x = ~long, y = ~lat) %>%
  add_polygons() %>%
  layout(
    mapbox = list(
      center = list(lat = ~median(lat), lon = ~median(long))
    )
  )

## End(Not run)
```

---

# print.api *Print method for a 'generic' API response*

---

## Description

Print method for a 'generic' API response

## Usage

```
## S3 method for class 'api'
print(x, ...)
```

## Arguments

| | |
|---|---|
| x | a list. |
| ... | additional arguments (currently ignored) |

## print.api_grid *Print a plotly grid object*

### Description

Print a plotly grid object

### Usage

```
## S3 method for class 'api_grid'
print(x, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly grid object |
| ... | additional arguments (currently ignored) |

## print.api_grid_local *Print a plotly grid object*

### Description

Print a plotly grid object

### Usage

```
## S3 method for class 'api_grid_local'
print(x, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly grid object |
| ... | additional arguments (currently ignored) |

## print.api_plot *Print a plot on plotly's platform*

### Description

Print a plot on plotly's platform

### Usage

```
## S3 method for class 'api_plot'
print(x, ...)
```

### Arguments

| | |
|---|---|
| x | a plotly figure object |
| ... | additional arguments (currently ignored) |

## rangeslider *Add a range slider to the x-axis*

### Description

Add a range slider to the x-axis

### Usage

```
rangeslider(p, start = NULL, end = NULL, ...)
```

### Arguments

| | |
|---|---|
| p | plotly object. |
| start | a start date/value. |
| end | an end date/value. |
| ... | these arguments are documented here https://plotly.com/r/reference/#layout-xaxis-rangeslid |

### Author(s)

Carson Sievert

## Examples

```
plot_ly(x = time(USAccDeaths), y = USAccDeaths) %>%
  add_lines() %>%
  rangeslider()

d <- tibble::tibble(
  time = seq(as.Date("2016-01-01"), as.Date("2016-08-31"), by = "days"),
  y = rnorm(seq_along(time))
 )

plot_ly(d, x = ~time, y = ~y) %>%
  add_lines() %>%
  rangeslider(d$time[5], d$time[50])
```

---

`raster2uri` *Encode a raster object as a data URI*

---

## Description

Encode a raster object as a data URI, which is suitable for use with `layout()` images. This is especially convenient for embedding raster images on a plot in a self-contained fashion (i.e., so they don't depend on external URL links).

## Usage

```
raster2uri(r, ...)
```

## Arguments

| | |
|---|---|
| `r` | an object coercable to a raster object via `as.raster()` |
| `...` | arguments passed onto `as.raster()`. |

## Author(s)

Carson Sievert

## References

https://plotly-r.com/embedding-images.html

## Examples

```
# a red gradient (from ?as.raster)
r <- as.raster(matrix(hcl(0, 80, seq(50, 80, 10)), nrow = 4, ncol = 5))
plot(r)

# embed the raster as an image
plot_ly(x = 1, y = 1) %>%
  layout(
    images = list(list(
     source = raster2uri(r),
     xref = "paper",
     yref = "paper",
     x = 0, y = 0,
     sizex = 0.5, sizey = 0.5,
     xanchor = "left", yanchor = "bottom"
  ))
 )
```

---

# remove_typedarray_polyfill

*Remove TypedArray polyfill*

---

## Description

By default, plotly.js' TypedArray polyfill is included as a dependency, so printing "just works" in any context. Many users won't need this polyfill, so this function may be used to remove it and thus reduce the size of the page.

## Usage

```
remove_typedarray_polyfill(p)
```

## Arguments

| | |
|---|---|
| p | a plotly object |

## Details

The polyfill seems to be only relevant for those rendering plots via phantomjs and RStudio on some Windows platforms.

## Examples

```
## Not run:
p1 <- plot_ly()
p2 <- remove_typedarray_polyfill(p1)
t1 <- tempfile(fileext = ".html")
htmlwidgets::saveWidget(p1, t1)
file.info(t1)$size
htmlwidgets::saveWidget(p2, t1)
file.info(t1)$size

## End(Not run)
```

---

# res_mn *Minnesotan Indian Reservation Lands*

---

## Description

Minnesotan Indian Reservation Lands

## Usage

```
res_mn
```

## Format

An sf data frame with 13 features and 5 fields

## References

https://www.dot.state.mn.us/maps/gdma/gis-data.html

---

# save_image *Save plot as a static image*

---

## Description

Static image exporting via the kaleido python package. `kaleido()` imports kaleido into a **reticulate**d Python session and returns a `$transform()` method for converting R plots into static images. `save_image()` provides a convenience wrapper around `kaleido()$transform()`.

## Usage

```
save_image(p, file, ..., width = NULL, height = NULL, scale = NULL)

kaleido(...)
```

## Arguments

| | |
|---|---|
| p | a plot object. |
| file | a file path with a suitable file extension (png, jpg, jpeg, webp, svg, or pdf). |
| ... | not currently used. |
| width, height | The width/height of the exported image in layout pixels. If scale is 1, this will also be the width/height of the exported image in physical pixels. |
| scale | The scale factor to use when exporting the figure. A scale factor larger than 1.0 will increase the image resolution with respect to the figure's layout pixel dimensions. Whereas as scale factor of less than 1.0 will decrease the image resolution. |

## Value

For save_image(), the generated file. For kaleido(), an environment that contains:

- transform(): a function to convert plots objects into static images. This function has the same signature (i.e., arguments) as save_image()
- shutdown(): a function for shutting down any currently running subprocesses that were launched via transform()
- scope: a reference to the underlying kaleido.scopes.plotly.PlotlyScope python object. Modify this object to customize the underlying Chromium subprocess and/or configure other details such as URL to plotly.js, MathJax, etc.

## Installation

kaleido() requires the kaleido python package to be usable via the **reticulate** package. Here is a recommended way to do the installation:

```
install.packages('reticulate')
reticulate::install_miniconda()
reticulate::conda_install('r-reticulate', 'python-kaleido')
reticulate::conda_install('r-reticulate', 'plotly', channel = 'plotly')
reticulate::use_miniconda('r-reticulate')
```

## Examples

```
## Not run:
  # Save a single image
  p <- plot_ly(x = 1:10)
  tmp <- tempfile(fileext = ".png")
  save_image(p, tmp)
  file.show(tmp)

  # Efficiently save multiple images
  scope <- kaleido()
  for (i in 1:5) {
```

```
    scope$transform(p, tmp)
  }
  # Remove and garbage collect to remove
  # R/Python objects and shutdown subprocesses
  rm(scope); gc()

## End(Not run)
```

---

schema *Acquire (and optionally display) plotly's plot schema*

---

## Description

The schema contains valid attributes names, their value type, default values (if any), and min/max values (if applicable).

## Usage

```
schema(jsonedit = interactive(), ...)
```

## Arguments

| | |
|---|---|
| jsonedit | use `listviewer::jsonedit` to view the JSON? |
| ... | other options passed onto `listviewer::jsonedit` |

## Examples

```
s <- schema()

# retrieve acceptable `layout.mapbox.style` values
if (!is.na(Sys.getenv('MAPBOX_TOKEN', NA))) {
  styles <- s$layout$layoutAttributes$mapbox$style$values
  subplot(
    plot_mapbox() %>% layout(mapbox = list(style = styles[3])),
    plot_mapbox() %>% layout(mapbox = list(style = styles[5]))
  )
}
```

## showRGB *View colors already formatted by toRGB()*

### Description

Useful for viewing colors after they've been converted to plotly.js' color format – "rgba(255, 255, 255, 1)"

### Usage

```
showRGB(x, ...)
```

### Arguments

| | |
|---|---|
| x | character string specifying color(s). |
| ... | arguments passed along to scales::show_col. |

### Author(s)

Carson Sievert

### Examples

```
showRGB(toRGB(colors()), labels = FALSE)
```

## signup *Create a new plotly account.*

### Description

A sign up interface to plotly through the R Console.

### Usage

```
signup(username, email, save = TRUE)
```

### Arguments

| | |
|---|---|
| username | Desired username. |
| email | Desired email. |
| save | If request is successful, should the username & API key be automatically stored as an environment variable in a .Rprofile? |

### Value

- api_key key to use with the api
- tmp_pw temporary password to access your plotly account

### References

https://plotly.com/rest/

### Examples

```
## Not run:
# You need a plotly username and API key to communicate with the plotly API.

# If you don't already have an API key, you can obtain one with a valid
# username and email via signup().
s <- signup('anna.lyst', 'anna.lyst@plot.ly')

# If you already have a username and API key, please create the following
# environment variables:
Sys.setenv("plotly_username" = "me")
Sys.setenv("plotly_api_key" = "mykey")
# You can also change the default domain if you have a plotly server.
Sys.setenv("plotly_domain" = "http://mydomain.com")

# If you want to automatically load these environment variables when you
# start R, you can put them inside your ~/.Rprofile
# (see help(.Rprofile) for more details)


## End(Not run)
```

---

## style *Modify trace(s)*

---

### Description

Modify trace(s) of an existing plotly visualization. Useful when used in conjunction with `get_figure()`.

### Usage

```
style(p, ..., traces = NULL)
```

### Arguments

| | |
|---|---|
| p | A plotly visualization. |
| ... | Visual properties. |
| traces | numeric vector. Which traces should be modified? By default, attributes place in ... will be applied to every trace. |

## Author(s)

Carson Sievert

## See Also

api_download_plot()

## Examples

```
# style() is especially useful in conjunction with ggplotly()
# It allows you to leverage the underlying plotly.js library to change
# the return result of ggplotly()
(p <- ggplotly(qplot(data = mtcars, wt, mpg, geom = c("point", "smooth"))))

# removes hoverinfo for the line/ribbon traces (use `plotly_json()` to verify!)
style(p, hoverinfo = "none", traces = c(2, 3))

# another example with plot_ly() instead of ggplotly()
marker <- list(
  color = "red",
  line = list(
    width = 20,
    color = "black"
 )
)
(p <- plot_ly(x = 1:10, y = 1:10, marker = marker))

# note how the entire (marker) object is replaced if a list is provided
style(p, marker = list(line = list(color = "blue")))

# similar to plotly.js, you can update a particular attribute like so
# https://github.com/plotly/plotly.js/issues/1866#issuecomment-314115744
style(p, marker.line.color = "blue")
# this clobbers the previously supplied marker.line.color
style(p, marker.line = list(width = 2.5), marker.size = 10)
```

---

# subplot *View multiple plots in a single view*

---

## Description

View multiple plots in a single view

## Usage

```
subplot(
  ...,
  nrows = 1,
  widths = NULL,
  heights = NULL,
  margin = 0.02,
  shareX = FALSE,
  shareY = FALSE,
  titleX = shareX,
  titleY = shareY,
  which_layout = "merge"
)
```

## Arguments

| | |
|---|---|
| `...` | One of the following<br>• any number of plotly/ggplot2 objects.<br>• a list of plotly/ggplot2 objects.<br>• a tibble with one list-column of plotly/ggplot2 objects. |
| `nrows` | number of rows for laying out plots in a grid-like structure. Only used if no domain is already specified. |
| `widths` | relative width of each column on a 0-1 scale. By default all columns have an equal relative width. |
| `heights` | relative height of each row on a 0-1 scale. By default all rows have an equal relative height. |
| `margin` | either a single value or four values (all between 0 and 1). If four values are provided, the first is used as the left margin, the second is used as the right margin, the third is used as the top margin, and the fourth is used as the bottom margin. If a single value is provided, it will be used as all four margins. |
| `shareX` | should the x-axis be shared amongst the subplots? |
| `shareY` | should the y-axis be shared amongst the subplots? |
| `titleX` | should x-axis titles be retained? |
| `titleY` | should y-axis titles be retained? |
| `which_layout` | adopt the layout of which plot? If the default value of "merge" is used, layout options found later in the sequence of plots will override options found earlier in the sequence. This argument also accepts a numeric vector specifying which plots to consider when merging. |

## Value

A plotly object

## Author(s)

Carson Sievert

## Examples

```
# pass any number of plotly objects to subplot()
p1 <- plot_ly(economics, x = ~date, y = ~uempmed)
p2 <- plot_ly(economics, x = ~date, y = ~unemploy)
subplot(p1, p2, p1, p2, nrows = 2, margin = 0.05)

#'  # anchor multiple traces on the same legend entry
 p1 <- add_lines(p1, color = I("black"), name = "1st", legendgroup = "1st")
 p2 <- add_lines(p2, color = I("red"), name = "2nd", legendgroup = "2nd")

 subplot(
   p1, style(p1, showlegend = FALSE),
   p2, style(p2, showlegend = FALSE),
   nrows = 2, margin = 0.05
 )

# or pass a list
economics_long %>%
  split(.$variable) %>%
  lapply(function(d) plot_ly(d, x = ~date, y = ~value)) %>%
  subplot(nrows = NROW(.), shareX = TRUE)

# or pass a tibble with a list-column of plotly objects
economics_long %>%
  group_by(variable) %>%
  do(p = plot_ly(., x = ~date, y = ~value)) %>%
  subplot(nrows = NROW(.), shareX = TRUE)

# learn more at https://plotly.com/r/subplots/
```

---

# TeX *Render TeX in a plotly graph using MathJax*

---

## Description

This function makes it slightly easier to render TeX in a plotly graph – it ensures that MathJax is included with the final result and also ensures the provided string is surrounded with $ (this is what plotly.js uses to declare a string as TeX).

## Usage

```
TeX(x)
```

## Arguments

| | |
|---|---|
| x | a character vector |

## See Also

config

## Examples

```
plot_ly(x = c(1, 2, 3, 4), y = c(1, 4, 9, 16)) %>%
  layout(title = TeX("\\text{Some mathjax: }\\alpha+\\beta x")) %>%
  config(mathjax = "cdn")
```

---

# toRGB *Convert R colours to RGBA hexadecimal colour values*

---

## Description

Convert R colours to RGBA hexadecimal colour values

## Usage

```
toRGB(x, alpha = 1)
```

## Arguments

| | |
|---|---|
| x | see the col argument in col2rgb for valid specifications |
| alpha | alpha channel on 0-1 scale |

## Value

hexadecimal colour value (if is.na(x), return "transparent" for compatibility with Plotly)

## See Also

showRGB()

## Examples

```
toRGB("steelblue")
# [1] "rgba(70,130,180,1)"

m <- list(
  color = toRGB("red"),
  line = list(
    color = toRGB("black"),
    width = 19
  )
```

```
)

plot_ly(x = 1, y = 1, marker = m)
```

---

toWebGL *Convert trace types to WebGL*

---

## Description

Convert trace types to WebGL

## Usage

```
toWebGL(p)
```

## Arguments

| | |
|---|---|
| p | a plotly or ggplot object. |

## Examples

```
# currently no bargl trace type
toWebGL(ggplot() + geom_bar(aes(1:10)))
toWebGL(qplot(1:10, 1:10))
```

---

to_basic *Convert a geom to a "basic" geom.*

---

## Description

This function makes it possible to convert ggplot2 geoms that are not included with ggplot2 itself. Users shouldn't need to use this function. It exists purely to allow other package authors to write their own conversion method(s).

## Usage

```
to_basic(data, prestats_data, layout, params, p, ...)
```

### Arguments

| | |
|---|---|
| data | the data returned by ggplot2::ggplot_build(). |
| prestats_data | the data before statistics are computed. |
| layout | the panel layout. |
| params | parameters for the geom, statistic, and 'constant' aesthetics |
| p | a ggplot2 object (the conversion may depend on scales, for instance). |
| ... | currently ignored |

---

## wind *Wind data*

---

### Description

Description TBD.

### Usage

```
wind
```

### Format

A data frame with three variables: r, t, nms.

# Index