plotly

GETTING STARTED

1. Install

In the console:

```
install.packages ( 'plotly' )
```

2. Sign Up & Configure

plot.ly/r/getting-started

3. A Hello World Figure

```
library( plotly )
p <- plot_ly (
  x = rnorm( 1000 ),
  y = rnorm( 1000 ),
  mode = 'markers' )
```

4. Plot the Figure!

In the console, either:

Plot Offline by printing the figure:

```
p OR  print ( p )
```

Plot and Save in Cloud:

```
plotly_POST ( p )
```

BASIC CHARTS

Line Plots

```
plot_ly (
  x = c( 1, 2, 3 ),
  y = c( 5, 6, 7),
  type = 'scatter' ,
  mode = 'lines' )
```

Bubble Charts

```
plot_ly (
  x = c( 1, 2, 3 ),
  y = c( 5, 6, 7 ),
  type = 'scatter' ,
  mode = 'markers' ,
  size = c( 1, 5, 10 ),
  marker = list(
      color = c( 'red', 'blue' ,
      'green' )))
```

Scatter Plots

```
plot_ly (
  x = c( 1, 2, 3 ),
  y = c( 5, 6, 7 ),
  type = 'scatter' ,
  mode = 'markers' )
```

Heatmaps

```
plot_ly (
  z = volcano ,
  type = 'heatmap' )
```

Bar Charts

```
plot_ly (
  x = c( 1, 2, 3),
  y = c( 5, 6, 7),
  type = 'bar' ,
  mode = 'markers' )
```

Area Plots

```
plot_ly (
  x = c( 1, 2, 3 ),
  y = c( 5, 6, 7 ),
  type = 'scatter' ,
  mode = 'lines' ,
  fill = 'tozeroy' )
```

LAYOUT

Legends

```
set.seed( 123 )
  x = 1 : 100
  y1 = 2*x + rnorm ( 100 )
  y2 = -2*x + rnorm ( 100 )

plot_ly (
  x = x ,
  y = y1 ,
  type = 'scatter' ) %>%

  add_trace(
      x = x ,
      y = y2 ) %>%

  layout(
      legend =
          list( x = 0.5 ,
          y = 1 ,
          bgcolor = '#F3F3F3' ))
```

Axes

```
set.seed( 123 )
  x = 1 : 100
  y1 = 2*x + rnorm( 100 )
  y2 = -2*x + rnorm( 100 )

axis_template <- list(
  showgrid = F ,
  zeroline = F ,
  nticks = 20 ,
  showline = T ,
  title = 'AXIS' ,
  mirror = 'all' )

plot_ly (
  x = x ,
  y = y1 ,
  type = 'scatter' ) %>%

  layout(
      xaxis = axis_template ,
      yaxis = axis_template )
```

R CLIENT BASIC CHART PLOT.LY/R

ALL LAYOUTS PLOT.LY/REFERENCE/#LAYOUT

STATISTICAL CHARTS

Histograms

```
x <- rchisq ( 100, 5, 0 )
  plot_ly (
  x = x ,
  type = 'histogram' )
```

Box Plots

```
plot_ly (
  y = rnorm( 50 ) ,
  type = 'box' ) %>%

add_trace( y = rnorm( 50, 1 ))
```

2D Histogram

```
plot_ly (
  x = rnorm( 1000, sd = 10 ) ,
  y = rnorm( 1000, sd = 5 ) ,
  type = 'histogram2d' )
```

MAPS

Bubble Map

```
plot_ly (
  type = 'scattergeo' ,
  lon = c( -73.5, 151.2 ) ,
  lat = c( 45.5, -33.8 ) ,
  marker = list (
    color = c( 'red' , 'blue' ) ,
    size = c( 30, 50 ) ,
    mode = 'markers' ))
```

Choropleth Map

```
plot_ly (
  type = 'choropleth' ,
  locations = c( 'AZ', 'CA', 'VT' ) ,
  locationmode = 'USA-states' ,
  colorscale = 'Viridis' ,
  z = c( 10, 20, 40 )) %>%
  layout ( geo = list ( scope = 'usa' ))
```

Scatter Map

```
plot_ly (
  type = 'scattergeo' ,
  lon = c( 42, 39 ) ,
  lat = c( 12, 22 ) ,
  text = c( 'Rome' , 'Greece' ) ,
  mode = 'markers' )
```

3D CHARTS

3D Surface Plots

```
# Using a dataframe:
plot_ly (
  type = 'surface' ,
  z = ~volcano )
```

3D Line Plots

```
plot_ly (
  type = 'scatter3d' ,
  x = c( 9, 8, 5, 1 ) ,
  y = c( 1, 2, 4, 8 ) ,
  z = c( 11, 8, 15, 3 ) ,
  mode = 'lines' )
```

3D Scatter Plots

```
plot_ly (
  type = 'scatter3d' ,
  x = c( 9, 8, 5, 1 ) ,
  y = c( 1, 2, 4, 8 ) ,
  z = c( 11, 8, 15, 3 ) ,
  mode = 'markers' )
```

FIGURE HIERARCHY

Figure { }

```
plot_ly ( )
  data data.frame
    add _trace list ( )
    x, y, z, c ( )
    color, text, size c ( )
    colorscale 'string' or c ( )
      marker list ( )
        color 'string'
        symbol list ( )
      line list ( )
        color 'string'
        width 123

layout ( )
  title 'string'
  xaxis, yaxis list ( )
  scenelist ( )
    xaxis, yaxis, zaxis list ( )
  geo list ( )
  legend list ( )
  annotations list ( )

  c ( ) = array
  list ( ) = list
  'string' = string
  123 = number
```