



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' )
```

Scatter Plots

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

Bar Charts

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

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' ) ) )
```

Heatmaps

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

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 )
```

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
```