



GETTING STARTED

1. Install

In the terminal
`sudo pip install plotly`

2. Sign Up & Configure

<http://www.plot.ly/python/getting-started>

3. Boilerplate Imports

```
import plotly.plotly as py
import plotly.graph_objs as go
```

4. A Hello World Figure

```
trace = {'x': [1, 2], 'y': [1, 2]}
data = [trace]
layout = {}
fig = go.Figure (
    data = data, layout = layout )
```

5. Plot the Figure!

In the terminal:
`plot_url = py.plot (fig)`

Or in the IPython notebook:
`py.iplot (fig)`

BASIC CHARTS

Line Plots

```
trace1 = go.Scatter (
    x = [ 1, 2 ], y = [ 1, 2 ])
trace2 = go.Scatter (
    x = [ 1, 2 ], y = [ 2, 1 ])
py.iplot ( [ trace1, trace2 ] )
```

Bubble Charts

```
trace = go.Scatter (
    x = [ 1, 2, 3 ], y = [ 1, 2, 3 ],
    marker = dict (
        color = [ 'red', 'blue',
                'green' ],
        size = [ 30, 80, 200 ] ),
    mode = 'markers' )
py.iplot ( [ trace ] )
```

Scatter Plots

```
trace1 = go.Scatter (
    x = [ 1, 2, 3 ], y = [ 1, 2, 3 ],
    text = [ 'A','B','C' ],
    textposition = 'top center'
    mode = 'markers+text' )
mode = [ trace ]
py.iplot ( data )
```

Heatmaps

```
trace = go.Heatmap (
    z = [ [ 1, 2, 3, 4 ],
          [ 5, 6, 7, 8 ] ] )
data = [ trace ]
py.iplot ( data )
```

Bar Charts

```
trace = go.Bar (
    x = [ 1, 2 ], y = [ 1, 2 ])
data = [ trace ]
py.iplot ( data )
```

Area Plots

```
trace = go.Scatter (
    x = [ 1, 2 ], y = [ 1, 2 ],
    fill = 'tonexty' )
data = [ trace ]
py.iplot ( data )
```

LAYOUT

Legends

```
trace1 = go.Scatter (
    name = 'Calvin',
    x = [ 1, 2 ], y = [ 1, 2 ])

trace2 = go.Scatter (
    name = 'Hobbes',
    x = [ 2, 1 ], y = [ 2, 1 ])

layout = go.Layout (
    showlegend = True ,
    legend = dict (
        x = 0.2 , y = 0.5 )
    )

data = [ trace1 , trace2 ]
fig = go.Figure (
    data = data ,
    layout = layout )
py.iplot ( fig )
```

Axes

```
trace = go.Scatter (
    x = [ 1, 2, 3, 4 ],
    y = [ 1, 2, 3, 6 ])

axis_template = dict (
    showgrid = False ,
    zeroline = False ,
    nticks = 20 ,
    showline = True ,
    title = 'X AXIS'
    mirror = 'all' )

layout = go.Layout (
    xaxis = axis_template ,
    yaxis = axis_template ,
    )

data = [ trace ]
fig = go.Figure (
    data = data
    layout = layout )
py.iplot ( fig )
```

STATISTICAL CHARTS

Histograms

```
trace = go.Histogram (  
    x = [ 1, 2, 3, 3, 3, 4, 5 ] )  
data = [ trace ]  
py.iplot ( data )
```

Box Plots

```
trace = go.Box (  
    x = [ 1, 2, 3, 3, 3, 4, 5 ] )  
data = [ trace ]  
py.iplot ( data )
```

2D Histogram

```
trace = go.Histogram2d (  
    x = [ 1, 2, 3, 3, 3, 4, 5 ],  
    y = [ 1, 2, 3, 3, 3, 4, 5 ] )  
data = [ trace ]  
py.iplot ( data )
```

MAPS

Bubble Map

```
trace = dict (  
    type = 'scattergeo',  
    lon = [ 100, 400 ], lat = [ 0, 0 ],  
    marker = dict (  
        marker = [ 'red', 'blue' ],  
        size = [ 30, 50 ] ),  
    mode = 'markers' )  
py.iplot ( [ trace ] )
```

Choropleth Map

```
trc = dict (  
    type = 'choropleth',  
    locations = [ 'AZ', 'CA', 'VT' ],  
    locationmode = 'USA-states',  
    colorscale = [ 'Viridis' ],  
    z = [ 10, 20, 40 ] )  
lyt = dict ( geo = dict ( scope = 'usa' ) )  
map = go.Figure ( data = [ trc ],  
    layout = lyt )  
py.iplot ( map )
```

Scatter Map

```
trace = dict (  
    type = 'scattergeo',  
    lon = [ 42, 39 ], lat = [ 12, 22 ],  
    marker = [ 'Rome', 'Greece' ],  
    mode = 'markers' )  
py.iplot ( [ trace ] )
```

3D CHARTS

3D Surface Plots

```
trace = go.Surface (  
    colorscale = 'Viridis',  
    z = [ [ 3, 5, 8, 13 ],  
          [ 21, 13, 8, 5 ] ] )  
data = [ trace ]  
py.iplot ( data )
```

3D Line Plots

```
trace = go.Scatter3D (  
    x = [ 9, 8, 5, 1 ], y = [ 1, 2, 4, 8 ],  
    z = [ 11, 8, 15, 3 ],  
    mode = 'lines' )  
data = [ trace ]  
py.iplot ( data )
```

3D Scatter Plots

```
trace = go.Scatter3D (  
    x = [ 9, 8, 5, 1 ], y = [ 1, 2, 4, 8 ],  
    z = [ 11, 8, 15, 3 ],  
    mode = 'markers' )  
data = [ trace ]  
py.iplot ( data )
```

FIGURE HIERARCHY

Figure { }

```
DATA [ ]  
    TRACE { }  
        x, y, z [ ]  
        color, text, size [ ]  
        colorscale ABC or [ ]  
    MARKER { }  
        color ABC  
        symbol ABC  
    LINE { }  
        color ABC  
        width 123  
  
LAYOUT { }  
    title ABC  
    XAXIS, YAXIS { }  
    SCENE { }  
        XAXIS, YAXIS, ZAXIS { }  
    GEO { }  
    LEGEND { }  
    ANNOTATIONS { }
```

```
{ } = dictionary  
[ ] = list  
ABC = string  
123 = number
```