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st.vega_lite_chart

Streamlit Version Version 1.41.0

Display a chart using the Vega-Lite library.

<u>Vega-Lite</u> is a high-level grammar for defining interactive graphics.

Function signature [source]

st.vega_lite_chart(data=None, spec=None, *, use_container_width=False, theme="streamlit", key=None, on_select="ignore", selection_mode=None, **kwargs)

Parameters

data (Anything	
supported by	
st.dataframe)	

Either the data to be plotted or a Vega-Lite spec containing the data (which more closely follows the Vega-Lite API).

spec (dict or None)

The Vega-Lite spec for the chart. If spec is None (default), Streamlit uses the spec passed in data. You cannot pass a spec to both data and spec. See https://vega.github.io/vega-lite/docs/ for more info.

use_container_width (bool)

Whether to override the figure's native width with the width of the parent container. If use_container_width is False (default), Streamlit sets the width of the chart to fit its contents according to the plotting library, up to the width of the parent container. If use_container_width is True, Streamlit sets the width of the figure to match the width of the parent container.

theme ("streamlit" or None)

The theme of the chart. If theme is "streamlit" (default), Streamlit uses its own design default. If theme is None, Streamlit falls back to the default behavior of the library.

key (str)

An optional string to use for giving this element a stable identity. If key is None (default), this element's identity will be determined based on the values of the other parameters.

Additionally, if selections are activated and key is provided, Streamlit will register the key in Session State to store the selection state. The selection state is read-only.

on_select ("ignore", "rerun", or callable)

How the figure should respond to user selection events. This controls whether or not the figure behaves like an input widget. on select can be one of the following:

- "ignore" (default): Streamlit will not react to any selection events in the chart. The figure will not behave like an input widget.
- "rerun": Streamlit will rerun the app when the user selects data in the chart. In this case, st.vega_lite_chart will return the selection data as a dictionary.
- A callable: Streamlit will rerun the app and execute the callable as a callback function before the rest of the app. In this case, st.vega_lite_chart will return the selection data as a dictionary.

Returns

(element or dict)

If on_select is "ignore" (default), this command returns an internal placeholder for the chart element that can be used with the .add_rows() method. Otherwise, this command returns a dictionary-like object that supports both key and attribute notation. The attributes are described by the VegaLiteState dictionary schema.

Function signature[source]

st.vega_lite_chart(data=None, spec=None, *, use_container_width=False, theme="streamlit", key=None, on_select="ignore", selection_mode=None, **kwargs)

To use selection events, the Vega-Lite spec defined in data or spec must include selection parameters from the charting library. To learn about defining interactions in Vega-Lite, see Dynamic Behaviors with Parameters in Vega-Lite's documentation.

The selection parameters Streamlit should use. If selection_mode is None (default), Streamlit will use all selection parameters defined in the chart's Vega-Lite spec.

selection_mode (str or Iterable of str)

When Streamlit uses a selection parameter, selections from that parameter will trigger a rerun and be included in the selection state. When Streamlit does not use a selection parameter, selections from that parameter will not trigger a rerun and not be included in the selection state.

Selection parameters are identified by their name property.

**kwargs (any)

The Vega-Lite spec for the chart as keywords. This is an alternative to spec.

Returns

(element or dict)

If on_select is "ignore" (default), this command returns an internal placeholder for the chart element that can be used with the .add_rows() method. Otherwise, this command returns a dictionary-like object that supports both key and attribute notation. The attributes are described by the VegaLiteState dictionary schema.

Example

```
import streamlit as st
import pandas as pd
import numpy as np

chart_data = pd.DataFrame(np.random.randn(200, 3), columns=["a", "b", "c"])

st.vega_lite_chart(
    chart_data,
    {
        "mark": {"type": "circle", "tooltip": True},
        "encoding": {
            "x": {"field": "a", "type": "quantitative"},
            "y": {"field": "b", "type": "quantitative"},
            "size": {"field": "c", "type": "quantitative"},
            "color": {"field": "c", "type": "quantitative"},
        },
    },
},
```



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Examples of Vega-Lite usage without Streamlit can be found at https://vega.github.io/vega-lite/examples/. Most of those can be easily translated to the syntax shown above.

Chart selections



VegaLiteState



Streamlit Version Version 1.41.0

The schema for the Vega-Lite event state.

The event state is stored in a dictionary-like object that supports both key and attribute notation. Event states cannot be programmatically changed or set through Session State.

Only selection events are supported at this time.

Attributes

selection (dict)

The state of the on_select event. This attribute returns a dictionary-like object that supports both key and attribute notation. The name of each Vega-Lite selection parameter becomes an attribute in the selection dictionary. The format of the data within each attribute is determined by the selection parameter definition within Vega-Lite.

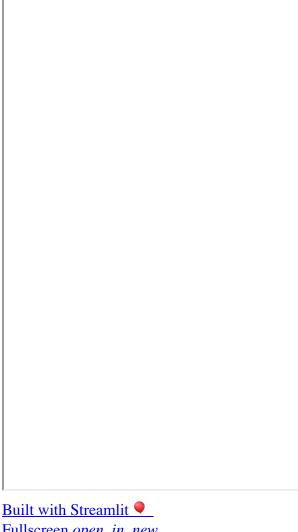
Examples

The following two examples have equivalent definitions. Each one has a point and interval selection parameter include in the chart definition. The point selection parameter is named "point_selection". The interval or box selection parameter is named "interval selection".

```
The follow example uses st.altair chart:
import streamlit as st
import pandas as pd
import numpy as np
import altair as alt
if "data" not in st.session_state:
    st.session state.data = pd.DataFrame(
        np.random.randn(20, 3), columns=["a", "b", "c"]
df = st.session_state.data
point selector = alt.selection point("point selection")
interval selector = alt.selection interval("interval selection")
chart = (
    alt.Chart(df)
    .mark circle()
    .encode(
        x="a",
        y="b",
        size="c"
        color="c",
        tooltip=["a", "b", "c"],
        fillOpacity=alt.condition(point selector, alt.value(1), alt.value(0.3)),
    .add params(point selector, interval selector)
)
event = st.altair chart(chart, key="alt chart", on select="rerun")
event
The following example uses st.vega lite chart:
import streamlit as st
import pandas as pd
import numpy as np
if "data" not in st.session state:
    st.session state.data = pd.DataFrame(
        np.random.randn(20, 3), columns=["a", "b", "c"]
spec = {
    "mark": {"type": "circle", "tooltip": True},
        {"name": "interval selection", "select": "interval"},
        {"name": "point_selection", "select": "point"},
    "encoding": {
        "x": {"field": "a", "type": "quantitative"},
"y": {"field": "b", "type": "quantitative"},
        "size": {"field": "c", "type": "quantitative"},
        "color": {"field": "c", "type": "quantitative"},
        "fillOpacity": {
             "condition": {"param": "point selection", "value": 1},
             "value": 0.3,
        },
    },
}
event = st.vega lite chart(
    st.session_state.data, spec, key="vega_chart", on_select="rerun"
```

Try selecting points in this interactive example. When you click a point, the selection will appear under the attribute, "point selection", which is the name given to the point selection parameter. Similarly, when you make an interval selection, it will appear under the attribute "interval_selection". You can give your selection parameters other names if desired.

If you hold shift while selecting points, existing point selections will be preserved. Interval selections are not preserved when making additional selections.



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element.add_rows



Streamlit Version Version 1.41.0

Concatenate a dataframe to the bottom of the current one.

Function signature[source]

element.add_rows(data=None, **kwargs)

Parameters

data (pandas.DataFrame, pandas.Styler, pyarrow.Table, numpy.ndarray, pyspark.sql.DataFrame, snowflake.snowpark.dataframe.DataFrame, Iterable, dict, or None)

Table to concat. Optional.

**kwargs (pandas.DataFrame, numpy.ndarray, Iterable, dict, or None)

The named dataset to concat. Optional. You can only pass in 1 dataset (including the one in the data parameter).

Example

```
import streamlit as st
import pandas as pd
import numpy as np
df1 = pd.DataFrame(
    np.random.randn(50, 20), columns=("col %d" % i for i in range(20))
)
my_table = st.table(df1)
df2 = pd.DataFrame(
    np.random.randn(50, 20), columns=("col %d" % i for i in range(20))
)
my table.add rows(df2)
# Now the table shown in the Streamlit app contains the data for
# df1 followed by the data for df2.
You can do the same thing with plots. For example, if you want to add more data to a line chart:
# Assuming df1 and df2 from the example above still exist...
my chart = st.line chart(df1)
my chart.add rows(df2)
# Now the chart shown in the Streamlit app contains the data for
# df1 followed by the data for df2.
And for plots whose datasets are named, you can pass the data with a keyword argument where the key is the
name:
my_chart = st.vega_lite_chart(
    {
        "mark": "line",
        "encoding": {"x": "a", "y": "b"},
        "datasets": {
            "some fancy name": dfl, # <-- named dataset
        "data": {"name": "some_fancy_name"},
    }
```

my chart.add rows(some fancy name=df2) # <-- name used as keyword

Theming



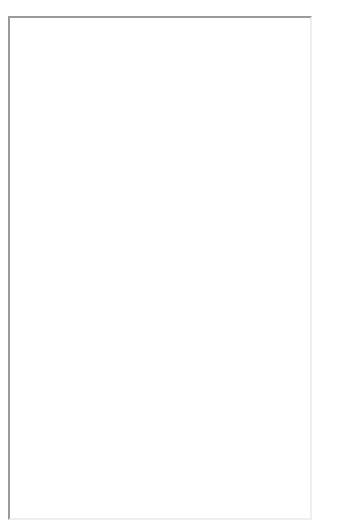
Vega-Lite charts are displayed using the Streamlit theme by default. This theme is sleek, user-friendly, and incorporates Streamlit's color palette. The added benefit is that your charts better integrate with the rest of your app's design.

The Streamlit theme is available from Streamlit 1.16.0 through the theme="streamlit" keyword argument. To disable it, and use Vega-Lite's native theme, use theme=None instead.

Let's look at an example of charts with the Streamlit theme and the native Vega-Lite theme:

```
import streamlit as st from vega_datasets import data source = data.cars() chart = { "mark": "point",
  "encoding": { "x": { "field": "Horsepower", "type": "quantitative", }, "y": { "field":
  "Miles_per_Gallon", "type": "quantitative", }, "color": { "field": "Origin", "type": "nominal" },
  "shape": { "field": "Origin", "type": "nominal" }, }, } tab1, tab2 = st.tabs(["Streamlit theme
  (default)", "Vega-Lite native theme"]) with tab1: # Use the Streamlit theme. # This is the default. So
  you can also omit the theme argument. st.vega_lite_chart( source, chart, theme="streamlit",
  use_container_width=True ) with tab2: st.vega_lite_chart( source, chart, theme=None,
  use_container_width=True )
```

Click the tabs in the interactive app below to see the charts with the Streamlit theme enabled and disabled.



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If you're wondering if your own customizations will still be taken into account, don't worry! You can still make changes to your chart configurations. In other words, although we now enable the Streamlit theme by default, you can overwrite it with custom colors or fonts. For example, if you want a chart line to be green instead of the default red, you can do it!

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forum

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