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🔥 Multiple outputs in Dash - Now Available!

[announcements](#)

Philippe 1 February 11, 2019, 8:42pm

📢 Announcing multi output!

Update multiple component props from a single callback!

Try now:

```
$ pip install dash==0.39.0
```

See more features in Dash 0.39.0 release notes: [🔥 Dash 0.39.0 released.](#)

Features

- Use a list/tuple of **Output** as output in callbacks.
- Return a tuple/list of value from the callbacks
 - The returned list must have the same length as the list of output
 - The output props are applied in the order they were declared in the output list.

Example

```
import dash
import dash_core_components as dcc
import dash_table as dt
import dash_html_components as html

from dash.dependencies import Output, Input
from dash.exceptions import PreventUpdate

import plotly.graph_objs as go

sample_data = {
    'series': {
        'data': [
            {'title': 'Game of Thrones', 'score': 9.5},
            {'title': 'Stranger Things', 'score': 8.9},
            {'title': 'Vikings', 'score': 8.6}
        ],
        'style': {
            'backgroundColor': '#ff998a'
        }
    },
    'movies': {
        'data': [
            {'title': 'Rambo', 'score': 7.7},
            {'title': 'The Terminator', 'score': 8.0},
            {'title': 'Alien', 'score': 8.5}
        ],
        'style': {
```

Feedback welcome!

🔗 Multi output callbacks support.

plotly:master ← plotly:multi-output

opened 06:53PM - 25 Oct 18 UTC **T4rkun** +301 -88

****Release candidates****

```
'''
pip install dash==0.38.0rc1
'''
```

****Add multi out...**

51 Likes

[:mega: Dash 0.39.0 released](#)

[Multiple outputs](#)

[Update multiple, with one callback](#)

[:mega: Announcing the Storage component](#)

[:mega: Dash Club - Dispatch #4 - Latest Dash Developments](#)

[Callback does not trigger when one component as input of too many callbacks?](#)

[Callback error updating](#)

[App callback without an output](#)

[How to reset the n clicks of a button and value of the input text box after the every callback? Please help](#)

Damian 2 February 11, 2019, 9:28pm

Thanks Philippe!!

This is going to make a big impact on a lot of apps I have where 1 input is used in many callbacks where the output components aren't close to each other in the layout or updating the parent layout messes with user state in an unacceptable way.

2 Likes

hobobot 3 February 11, 2019, 10:39pm

Oh my god thank you so much. This is a game changer

2 Likes

adi 4 February 12, 2019, 1:01am

This is awesome! Much appreciated for all the hard work that went into this!

2 Likes

dadv92 5 February 13, 2019, 7:52pm

wow nice!! this is indeed game changer. In all my dash apps I've needed to do very complicated things with local storage in order to achieve multioutput. Thanks a lot Philippe!!

1 Like

fish_in_mn 6 February 14, 2019, 7:03pm

This is great! I've been looking forward to this. Is 38rc1 a safe version? When is the release of 38?

Also, if I use conda instead of pip, will I be even further out from getting the release code? Seems like the conda packages are updated later? I'm relatively new to Python so curious if anyone knows how that works. I'm just shy about upgrading to a release candidate version as I have some things I want to make sure don't break.

Matthijs 7 February 15, 2019, 7:58am

Awesome! Thanks, this is really helpful 🍌

bradsbrown 8 February 25, 2019, 7:43pm

I'm very excited about this coming change, and it'll dramatically streamline some of the work we're doing. I see it didn't make it into **0.38.0**. Any ideas on when we can hope to see it released?

2 Likes

Matthijs 9 February 25, 2019, 8:31pm

Yes would be great to use and the dash callback and the multiple output features. Would it be possible to create a re version of this?

russellthehippo 10 February 28, 2019, 2:37am

This is the best possible update imaginable! Right now I have to create a lot of repetitive functions that SHOULD be executed at the same time - i.e. when one thing changes, a lot of things need to update simultaneously - but right now they update sequentially, which looks bad as some of the operations take a second or so.

This is also huge for minimizing memory and processing - if you have to pull the same data over and over and do the same conversions, it's a drag to copy and paste or even to pull from a Store every time.

Great update, thanks!

mattfrancis 11 February 28, 2019, 11:06pm

This is awesome. I'm also interested in the inverse; multiple callbacks changing the same output. I often have multiple things that could change the state of some component and putting the logic for all of them in a single callback makes code development and maintenance awkward, since they aren't logically related actions. I have no idea the technical complexity permitting that would imply, but is that something plausible in the future, or am I just doing something wrong in how I think about my code architecture?

vivekvs1 12 March 1, 2019, 1:45am

This is already possible isn't it? Multiple inputs for single output.

mattfrancis 13 March 1, 2019, 2:28am

Sorry I wasn't clear enough. I mean that I want *two different callbacks* to have the same output. Each callback handles a different kind of event that should trigger a change in some component. At the moment I have to put all the inputs into the same callback, put a bunch of logic in to figure out which input it was that fired the callback and then execute different update code accordingly.

chriddyp 14 March 1, 2019, 4:03am

mattfrancis:

put a bunch of logic in to figure out which input it was that fired the callback

We now have **callback_context** (*just released!*) that will tell you which input changed. See "How do I determine which input changed" in the faqs section: [FAQs | Dash for Python Documentation | Plotly](#)

6 Likes

jsquires 15 March 5, 2019, 4:48pm

fish_in_mn:

Also, if I use conda instead of pip, will I be even further out from getting the release code? Seems like the conda packages are updated later?

Also a conda user and wondering how long it usually takes before updates are available through conda forge?

mbkupfer 16 March 6, 2019, 1:04am

I haven't seen many people talk about examples of using this new feature so I thought I would chime in: I have found this particularly useful for when I'm working with dependent dropdowns. Before, I had to create one callback to update the options and another to update the value of the dependent dropdown, now I can do this all in one callback! I wouldn't say that this is a radical change, but it does allow for more elegant and cleaner code 😊

1 Like

jimmybow 17 March 7, 2019, 2:22am

awesome!! 🥰

2 Likes

markus_zhang 18 March 14, 2019, 1:44pm

Oh this is a god send. I was searching for "Multiple Output in Python Dash" and all previous searches result in negative findings and suddenly I see this one. Immediately improved my coding life.

3 Likes

lcalcagni 19 March 27, 2019, 2:11pm

I get an error when I try it:

File "app.py", line 114, in <module>

```
], [Input('data-dropdown', 'value')])
```

File "/anaconda3/lib/python3.7/site-packages/dash/dash.py", line 886, in callback

self._validate_callback(output, inputs, state)

File "/anaconda3/lib/python3.7/site-packages/dash/dash.py", line 676, in _validate_callback

name.lower(), str(arg), name

dash.exceptions.IncorrectTypeException: The output argument `[<Output graph.figure >, <Output data-table.data >, <Output data-table.columns >, <Output container.style >]` is not of type `dash.Output`.

2 Likes

jimmybow 20 March 28, 2019, 9:23am

the multiple outputs is great but i face some issue.

if i have a lots of outputs, it need a way to control which output i don't want to update .

the code maybe like as follows:

```
@app.callback([
    Output('graph', 'figure'),
    Output('data-table', 'data'),
    Output('data-table', 'columns'),
    Output('container', 'style')
], [Input('data-dropdown', 'value')])
def multi_output(value):
    if condition_1:
        ...
        return [preventupdate, b, c, d]
    elif condition_2:
        ...
        return [a, preventupdate, c, d]
    else:
        ...
        return [a, b, c, preventupdate]
```

Gertoolz 21 March 28, 2019, 9:27am

Long time waiting for this! Lots of thanks 😊!

Damian 22 March 28, 2019, 1:44pm

jimmybow:

the multiple outputs is great but i face some issue.

if i have a lots of outputs, it need a way to control which output i don't want to update .

the code maybe like as follows:

Take the state of the props you want to keep the same, e.g.:

```
@app.callback([
    Output('graph', 'figure'),
    Output('data-table', 'data'),
    Output('data-table', 'columns'),
    Output('container', 'style')
], [Input('data-dropdown', 'value')],
[State('graph', 'figure'),
 State('data-table', 'data'),
 State('data-table', 'columns'),
 State('container', 'style')])
def multi_output(value, graph_figure, dt_data, dt_columns, container_style):
    if condition_1:
        ...
        return [graph_figure, b, c, d]
    elif condition_2:
        ...
        return [a, dt_data, c, d]
    else:
        ...
        return [a, b, c, container_style]
```

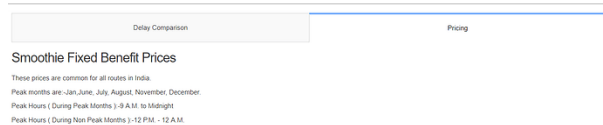
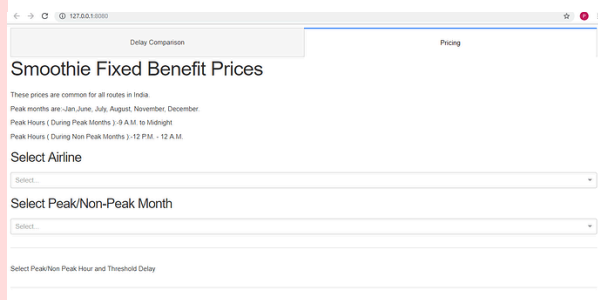
2 Likes

Prateek singh 23 April 5, 2019, 5:38am

The app is running on local host but is showing error when I uploaded on AWS. I have attached the jupyter notebook logs for reference. I have also attached the output on Local host and output on AWS. Output on AWS should be similar to the output on Local host

```
app.layout = html.Div([
    html.H1('Smoothie Fixed Benefit Prices'),
    html.P("These prices are common for all routes in India."),
    html.P("Peak months are:-Jan,June, July, August, November, December."),
    html.P("Peak Hours ( During Peak Months ):-9 A.M. to Midnight"),
    html.P("Peak Hours ( During Non Peak Months ):-12 P.M. - 12 A.M."),
    html.H3('Select Airline'),
    dcc.Dropdown(
        id='datasource-1',
        options=[
            {'label': i, 'value': i} for i in ['Low Delay Airlines (6E, UK)', 'High Delay Airlines (9W,AI,SG,G8)']
        ],
    ),
    html.H3('Select Peak/Non-Peak Month'),
    dcc.Dropdown(
        id='datasource-2',
        options=[
            {'label': i, 'value': i} for i in ['Peak Month', 'Non Peak Month']
        ]
    ),
    html.Hr(),
    html.Div('Select Peak/Non Peak Hour and Threshold Delay'),
    html.Div(
        id='controls-container'
    ),
    html.Hr(),
])
```

```
* Running on http://127.0.0.1:8080/ (Press CTRL+C to quit)
127.0.0.1 - - [04/Apr/2019 15:52:36] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [04/Apr/2019 15:52:36] "GET /_dash-layout HTTP/1.1" 200 -
127.0.0.1 - - [04/Apr/2019 15:52:36] "GET /_dash-dependencies HTTP/1.1" 200 -
127.0.0.1 - - [04/Apr/2019 15:52:36] "POST /_dash-update-component HTTP/1.1" 200 -
[2019-04-04 15:52:36,877] ERROR in app: Exception on /_dash-update-component [POST]
Traceback (most recent call last):
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\app.py", line 2292, in wsgi_app
    response = self.full_dispatch_request()
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\app.py", line 1815, in full_dispatch_request
    rv = self.handle_user_exception(e)
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\app.py", line 1718, in handle_user_exception
    reraise(exc_type, exc_value, tb)
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\compat.py", line 35, in reraise
    raise value
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\app.py", line 1813, in full_dispatch_request
    rv = self.dispatch_request()
  File "C:\ProgramData\Anaconda3\lib\site-packages\flask\app.py", line 1799, in dispatch_request
    return self.view_functions[rule.endpoint](**req.view_args)
  File "C:\ProgramData\Anaconda3\lib\site-packages\dash\dash.py", line 981, in dispatch
    return self.callback_map[target.id][callback](**args)
  File "C:\ProgramData\Anaconda3\lib\site-packages\dash\dash.py", line 906, in add_context
    output_value = func(*args, **kwargs)
  File "C:\python-Input-5-4b9ed626339d", line 218, in display_controls
    DYNAMIC_CONTROLS[datasource_1_value],
KeyError: None
127.0.0.1 - - [04/Apr/2019 15:52:36] "POST /_dash-update-component HTTP/1.1" 500 -
127.0.0.1 - - [04/Apr/2019 15:52:37] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [04/Apr/2019 15:52:37] "POST /_dash-update-component HTTP/1.1" 200 -
127.0.0.1 - - [04/Apr/2019 15:52:39] "POST /_dash-update-component HTTP/1.1" 200 -
```



I'm getting this error when i try to run my python code

Damian 25 April 5, 2019, 3:00pm

The error is very clear, DYNAMIC_CONTROLS has no key **None**.

This code here is not catching on initial load that the Inputs could have a null value.

```
@app.callback(
    Output('controls-container', 'children'),
    [Input('datasource-1', 'value'),
     Input('datasource-2', 'value')])
def display_controls(datasource_1_value, datasource_2_value):
    # generate 2 dynamic controls based off of the datasource selections
    return html.Div([
        DYNAMIC_CONTROLS[datasource_1_value],
        DYNAMIC_CONTROLS[datasource_2_value],
    ])
```

Put some checks in the function, e.g.:

```
@app.callback(
    Output('controls-container', 'children'),
    [Input('datasource-1', 'value'),
     Input('datasource-2', 'value')])
def display_controls(datasource_1_value, datasource_2_value):
    if datasource_1_value is None or datasource_2_value is None:
        raise dash.exceptions.PreventUpdate

    # generate 2 dynamic controls based off of the datasource selections
    return html.Div([
        DYNAMIC_CONTROLS[datasource_1_value],
        DYNAMIC_CONTROLS[datasource_2_value],
    ])
```

Prateek singh 27 April 6, 2019, 5:26am

I tried this. Although there are no logs error. It is still not working when I upload it on AWS.
What should I do ?

Damian 28 April 8, 2019, 1:51pm

Prateek_singh:

I tried this. Although there are no logs error. It is still not working when I upload it on AWS.
What should I do ?

Ask a new question about deploying to AWS, explain what your setup is, and try and come up with a minimal set of code that produces the problem. Most people aren't reading announcement threads to help solve problems.

lcalcgani 29 May 29, 2019, 3:24pm

I have this:

```
app.callback([
    Output('SeqR', 'children'),
    Output('Plat', 'children')],
    [Input('submit-button', 'n_clicks')],
    [State('ID_selector', 'value')])

def update_output(n_clicks, input_ID):

    if input_ID:
        seqR = "12312"
        plat = "12356"
        return html.Div(seqR), html.Div(plat)
```

But I get error when trying this code

sqzhang 30 May 29, 2019, 4:15pm

@lcalcgani

could you post the error code

Mike3 31 May 29, 2019, 6:34pm

Consider yourself lucky that the solution to this has come out not too long ago: just put in **dash.no_update** on the output line for variables you want to leave unchanged.

2 Likes

russellthehippo 32 May 29, 2019, 7:45pm

🔊 Multiple outputs in Dash - Now Available!

Ask a new question about deploying to AWS, explain what your setup is, and try and come up with a minimal set of code that produces the problem. Most people aren't reading announcement threads to help solve problems.

Snizl 33 July 9, 2019, 11:32am

Very useful!

Is it possible to return only one value and use this as the Output to multiple objects?

For example:

I have multiple dropdown menus to select which column of a data table should be used for what.

Like: Select the column of x values, select the column of y values etc.

These dropdown menus need to be updated when data is uploaded, and they of course should all have the same options.

So when I have a function that returns me the names of the columns like:

```
@app.callback([Output('classifier_choice', 'options'),
                Output('identifier_selector', 'options'),
                Output('timepoint_selector', 'options')],
              [Input('output-data-upload', 'children')])

def update_dropdown(contents):
    columns=df.columns
    print(columns)
    return [{'label' :k, 'value' :k} for k in columns].
```

Is it possible to use this return value for all the outputs?

datadrinkr 34 July 9, 2019, 5:06pm

This is truly a gamechanger, thank you!

chriddyp 35 July 9, 2019, 6:06pm

Snizl:

Is it possible to use this return value for all the outputs?

you can just return that 4 times - ie a list of length 4, with that value as each element.

chriddyp Split this topic 36 July 12, 2019, 2:10pm

A post was split to a new topic: [Multiple output when enable multiple select option in dropdown](#)

chriddyp Split this topic 37 August 28, 2020, 4:27pm

A post was split to a new topic: [Looking for help with multiple outputs](#)

sara.cc 38 September 25, 2021, 9:52am

Hier is my function,with multiple output,why i receive a dash.exceptions.InvalidCallbackReturnValue??

```
data_dict = {'lasso_selection': []}
```

```
@app.callback([
    Output('graph', 'figure'),
    Output('polygon_lan_lot-value', 'data')],
              [Input('graph', 'selectedData')])
def display_data(selectedData):
```

```
if type(selectedData) is dict:
    if 'lassoPoints' in selectedData.keys():
        l = []
        for i in range(len(selectedData["points"])):
            l.append(selectedData["points"][i]['lon'])
            data_set = pd.DataFrame(data=selectedData['lassoPoints']['mapbox'],
                                   columns=['lon', 'lat'])

        data_dict['lasso_selection'] = [data_set]

figure = {
    'data': [
        go.Scattermapbox(
            lat=[51.48165],
            lon=[7.21648],
            text='time',
            mode='markers',
            opacity=0.7,
            marker={
                'size': 10,
```

```
name='Others'),  
],  
'layout': go.Layout(  
    autosize=False,  
    width=1400,  
    height=500
```

Related topics

Topic	Replies	Activity
Why can an output only have a single callback function?	24	January 24, 2023
Duplicate Callback Outputs - Solution & API Discussion	22	March 16, 2023
Multiple outputs	7	April 5, 2019
Best approach to accomodating multiple callbacks for an output	8	October 2, 2021
Multiple callbacks for an output show-and-tell	27	September 29, 2022