

# Webex Teams Hackathon 2018



## Lab6 – Creating Webhook and REST API End Point for Webhook

### Objectives

In this lab, you will complete the following objectives:

- Create a Webex Teams webhook
- Create a REST API POST endpoint for your Webhook
- Process the bot message by your back end

### Background / Scenario

According to the background described in the previous lab we will create a Webex Teams webhook as a next step to handle actions in connection with our bot. Webhooks can be managed using Webex Teams APIs. You can get list of webhooks you created, create a new-, get the details of-, update- or delete an existing webhook. See <https://developer.webex.com/docs/api/v1/webhooks> for the details.

When completed, Webex Teams send notification to your back end each time when a message is sent to your bot. Your back end will get the message using Webex Teams API, process the message and send back an answer.

### Required Resources

- Webex Teams client
- Postman application
- Python 3 with IDLE
- Python code files

### Step 1: Create a webhook

In this step, you will create your first webhook.

- Navigate to <https://developer.webex.com/docs/api/v1/webhooks/create-a-webhook>
- At the Authorization parameter switch off the “Use personal access token”
- Add your bot’s access token after the Bearer text. If you do not find it, go to “My Webex Teams Apps” page, select your bot app, and regenerate the token.
- Under the body section give the following parameters:

**name:** wth2018-<nnnn>-bot-hook

**targetUrl:** <https://<your-heroku-host-name>/api/bot>

**resource:** messages

**event:** created

where wth2018-<nnnn> is your bot name and <https://<your-heroku-host-name>> is the URL where your back end can be accessed.

Leave the last two fields empty.

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POST

/v1/webhooks

**Header**

Content-Type

application/json

Authorization

☐ Use personal access token

Bearer

.....

**Body**

name

Required

wth2018-0654-hook

targetUrl

Required

https://wth2018-0654.herokuapp.com/api/bot

resource

Required

messages

event

Required

created

filter

e.g. roomId=Y2lzY29zcGFyazovL3VzL1JPT00vYmU

secret

e.g. 86dacc007724d8ea666f88fc77d918dad9537

Run

- e. Click on “Run” button. You will get a similar response with the details of the new webhook.

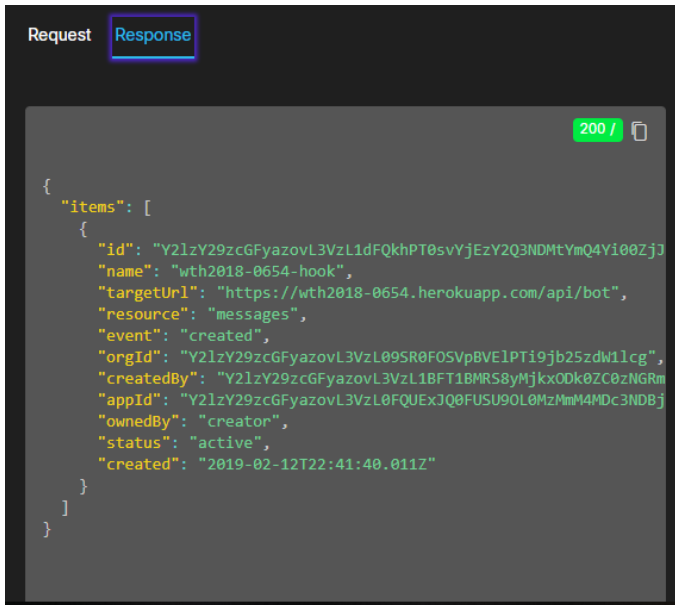
Request

Response

200 /

```
{
  "id": "Y2lzY29zcGFyazovL3VzL1dFQkhPT0svYjEzY2Q3NDMtYmQ4Yi00ZjJkLTg",
  "name": "wth2018-0654-hook",
  "targetUrl": "https://wth2018-0654.herokuapp.com/api/bot",
  "resource": "messages",
  "event": "created",
  "orgId": "Y2lzY29zcGFyazovL3VzL09SR0F0SVpBVElPTi9jb25zdW1lcg",
  "createdBy": "Y2lzY29zcGFyazovL3VzL1BFT1BMRS8yMjkxODk0ZC0zNGRmLTRh",
  "appId": "Y2lzY29zcGFyazovL3VzL0FQUEXJQ0FUSU9OL0MzMmM4MDC3NDBjNmU3",
  "ownedBy": "creator",
  "status": "active",
  "created": "2019-02-12T22:41:40.011Z"
}
```

- f. List your existing webhooks. Click on List webhooks link at the left side bar. Use the same authorization setting than the previous step. You will get similar response. There is only one item in the items array which is the webhook you created in the previous step.



### Step 2: Clone your back end project

- Create a new directory and name it to lab6-webhook
- Clone your lab4-heroku Github repo. In a command prompt at lab6-webhook directory type the following command:

```
git clone https://github.com/<your-github-username>/lab4-heroku.git .
```

**Note:** Do not miss dot at the end of the command.

- Rename lab4-heroku.py file to lab6-webhook.py
- Change Procfile content to web: gunicorn lab6-webhook:app

### Step 3: Add new POST endpoint for your webhook

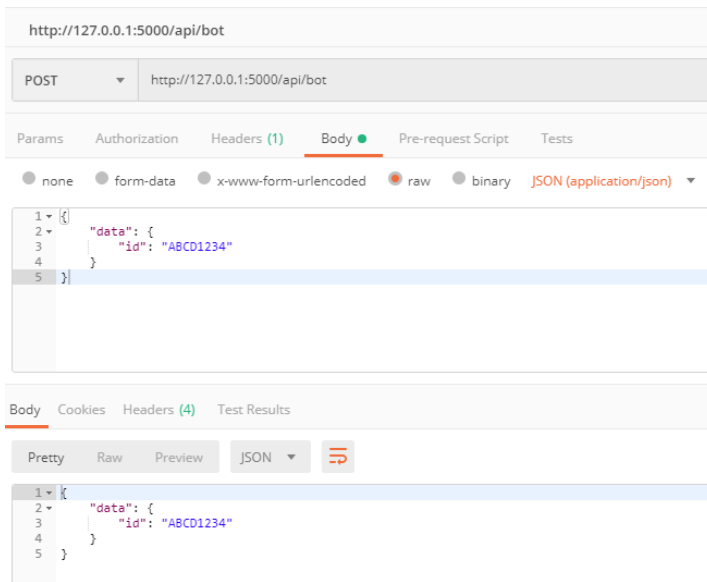
- In your lab6-webhook.py file add a new endpoint:

```
@app.route("/api/bot", methods = ['POST'])
def hook():
    webhookMessage = request.json
    print(webhookMessage)
    messageId = webhookMessage["data"]["id"]
    print(messageId)
    return jsonify(webhookMessage)
```

- Launch your back end app. In the command line type `python lab6-webhook.py`
- Test the endpoint in Postman with the following JSON body:

```
{
  "data": {
    "id": "ABCD1234"
  }
}
```

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- d. Check the console output on the command line. You should see similar result.

```
* Serving Flask app "lab6-webhook" (lazy loading)
* Environment: production
  WARNING: Do not use the development server in a production environment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
{'data': {'id': 'ABCD1234'}}
ABCD1234
127.0.0.1 - - [13/Feb/2019 10:41:43] "POST /api/bot HTTP/1.1" 200 -
```

- e. Stop your back end app. Press `Ctrl-C` in the command window.
- f. Commit and push your changes.

```
git add .
git commit -m "/api/bot POST endpoint added"
git push
```

- g. Login to Heroku (<https://dashboard.heroku.com>). Select your app and check the logs ("More" / "View logs") weather deployment was happened after your commit/push.

Application Logs

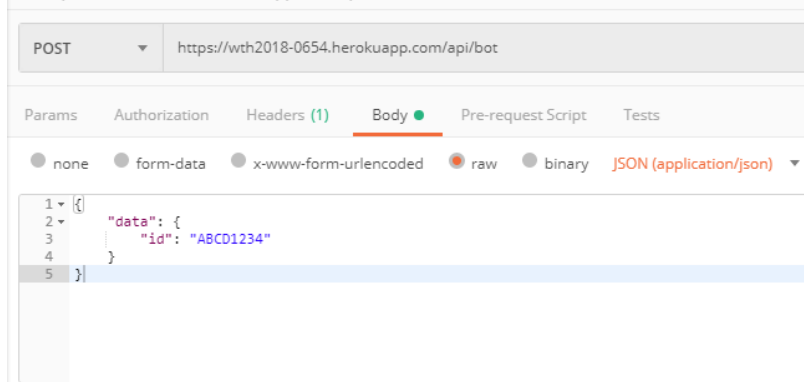
```
2019-02-13T10:05:03.000000+00:00 app[api]: Build succeeded
2019-02-13T10:05:05.331211+00:00 heroku[web.1]: Starting process with command `gunicorn lab6-webhook:app`
2019-02-13T10:05:13.294147+00:00 heroku[web.1]: State changed from starting to up
2019-02-13T10:05:12.444440+00:00 app[web.1]: [2019-02-13 10:05:12 +0000] [4] [INFO] Starting gunicorn 19.9.0
2019-02-13T10:05:12.448184+00:00 app[web.1]: [2019-02-13 10:05:12 +0000] [4] [INFO] Listening at: http://0.0.0.0:50291 (4)
2019-02-13T10:05:12.448712+00:00 app[web.1]: [2019-02-13 10:05:12 +0000] [4] [INFO] Using worker: sync
2019-02-13T10:05:12.467609+00:00 app[web.1]: [2019-02-13 10:05:12 +0000] [10] [INFO] Booting worker with pid: 10
2019-02-13T10:05:12.530429+00:00 app[web.1]: [2019-02-13 10:05:12 +0000] [11] [INFO] Booting worker with pid: 11
2019-02-13T10:05:16.108600+00:00 app[web.1]: 10.37.182.203 - - [13/Feb/2019:10:05:16 +0000] "GET / HTTP/1.1" 200 0
"https://dashboard.heroku.com/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.96 Safari/537.36"
2019-02-13T10:05:16.105971+00:00 heroku[router]: at=info method=GET path="/" host=wth2018-0654.herokuapp.com request_id=0ae40624-b686-4eda-8396-d133f720cc8a fwd="81.183.113.11" dyno=web.1 connect=1ms service=1376ms status=200 bytes=1626 protocol=https
```

- h. Open your app ("Open app")



- `https://<your-app-name>.herokuapp.com/api/bot`

<https://wth2018-0654.herokuapp.com/api/bot>



- ```
2019-02-13T10:11:43.863289+00:00 app[web.1]: {'data': {'id': 'ABCD1234'}}
2019-02-13T10:11:43.864225+00:00 app[web.1]: ABCD1234
2019-02-13T10:11:43.868534+00:00 app[web.1]: 10.37.18.194 - - [13/Feb/2019:10:11:43 +0000] "POST /api/bot HTTP/1.1" 200 27 "-"
"PostmanRuntime/7.6.0"
```

- a. Open your Webex Teams client. Select the “My demo space with n

- ```
@wth-<nnnn> Hello my bot!
```

where `with-<nnnn>` is your bot name.

- ```

2019-02-13T10:23:04.835576+00:00 heroku[router]: at=info method=POST path="/api/bot" host="wzh2018-0654.herokuapp.com" request_id=94ee1ba2-3bf4-41a5-8424-7be100864393 fwd="181.221.176.175" dyno=web.1 connect=ms service=ms status=200 bytes=1300 protocol=https
2019-02-13T10:23:04.831568+00:00 app[web.1]: {'id': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'name': 'wzh2018-0654-hook', 'targetUrl': 'https://wzh2018-0654.herokuapp.com/api/bot', 'resource': 'messages', 'event': 'created', 'orgId': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'createdBy': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'appId': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'ownedBy': 'creator', 'status': 'active', 'created': '2019-02-12T22:41:49.501Z', 'actorId': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'data': {'id': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'roomId': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'roomType': 'group', 'personId': 'Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'personEmail': 'wzh@http-foundation.hu', 'mentionedPeople': ['Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5', 'created': '2019-02-13T10:23:04.247Z']}}
2019-02-13T10:23:04.831657+00:00 app[web.1]: Y2l2Y29cGfYazovL3VzL1dFQkphOT8vYjE9Y2Q3NDMhYmY0Yj00ZjktLT4nZmHTA0ODVhYyYTI0ZDg5
2019-02-13T10:23:04.837879+00:00 app[web.1]: 10.9.210.147 ~ [13/Feb/2019:10:23:04 +0000] "POST /api/bot HTTP/1.1" 200 1146 ~ "Squared Scheduler/1.0"

```

```

2019-02-13T10:23:04.835576+00:00 heroku[jroute]: at=info method=POST path="/api/bot" host=wth2018-0654.herokuapp.com request_id=94ae1ba2-3bf4-41a5-8424-7be100664393
body="18.221.216.175" type=db-noop lms connect=lms service=dms status=200 bytes=1300 protocol=https

2019-02-13T10:23:04.831568+00:00 app[web.1]: {'id': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5', 'name': 'wth2018-0654-hook', 'targetUrl':
'https://wth2018-0654.herokuapp.com/api/bot', 'resource': 'messages', 'event': 'created', 'orgId': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZWdlcic', 'createdBy':
'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZGZyYzE4ZDU=', 'appId':
'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZGZyYzE4ZDU=', 'ownedBy': 'creator', 'status': 'active',
'created': '2019-02-12T22:41:40.811Z', 'actorId': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZWdlcic', 'data': {'id':
'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZGZyYzE4ZDU=', 'roomId': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZWdlcic',
'roomId': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZWdlcic', 'roomType': 'group', 'personId': 'Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZWdlcic', 'personEmail': 'wth@http-foundation.hu', 'mentionedPeople':
['Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZGZyYzE4ZDU']}, 'created': '2019-02-13T10:23:04.247Z'}

2019-02-13T10:23:04.831657+00:00 app[web.1]: Y2l2Y29zcGZyazovL3VzLW1lRFRhbnRvPStvYjE9Y2Q3NDMmYmQ4Vi00O2JkLTg4NzhtMTA0ODYyYi0tZWd5ZGZyYzE4ZDU=

2019-02-13T10:23:04.837879+00:00 app[web.1]: 10.9.210.147 - [13/Feb/2019:10:23:04 +0000] "POST /api/bot HTTP/1.1" 200 336 "-" Squared Scheduler/1.0"

```

In the second last line you can see the id of the message which is the output of `print(messageId)` command of your app.

a. Install `requests` package if you haven't done so before

- ```
pip install requests
```

- c. Update `requirements.txt` by issuing the following command at the command prompt:

```
pip freeze > requirements.txt
```

- d. Get the message part using Webex Teams message endpoint  
(<https://api.ciscospark.com/v1/messages/<messageId>>)

Add the following commands before your `/api/bot` endpoint before the return statement.

```
messageApiUrl = "https://api.ciscospark.com/v1/messages"
botAccessToken = "<your-bot-access-token>"

r = requests.get(messageApiUrl + "/" + messageId,
headers={'Authorization': 'Bearer ' + botAccessToken})
message = r.json()["text"]
print(message)
```

where `<your-bot-access-token>` is your bot access token.

- k. Commit and push your changes.

```
git add .
git commit -m "get bot message"
git push
```

- e. After the deployment process finished send a new message to your bot: `@wth2018-<nnnn> Hello my bot`
- f. Check the logs.

```
2019-02-13T11:15:14.490282+00:00 app[web.1]: {'id': 'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'name': 'wth2018-0654-hook', 'targetUrl':
'https://wth2018-0654.herokuapp.com/api/bot', 'resource': 'messages', 'event': 'created', 'orgId': 'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'createdBy':
'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'appId':
'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'ownedBy': 'creator', 'status': 'active',
'created': '2019-02-12T22:41:40.011Z', 'actorId': 'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'data': {'id':
'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'roomId': 'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5',
'roomType': 'group', 'personId': 'Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5', 'personEmail': 'wth@http-foundation.hu', 'mentionedPeople':
['Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5'], 'created': '2019-02-13T11:15:13.933Z'}}
2019-02-13T11:15:14.490338+00:00 app[web.1]: Y21zY29zcGFyYXovL3VzL1dFQkhPT0svYjEzY2Q3NDMhYmQ4Yi00ZjJkLTg4NmMhMTA0ODYyYTI0ZDg5
2019-02-13T11:15:15.042302+00:00 heroku[router]: at=info method=POST path="/api/bot" host=wth2018-0654.herokuapp.com request_id=239b77fd-7fb3-42de-a23a-3c14484b48db
fdw="18.221.216.175" dyno=web.1 connect=1ms service=556ms status=200 bytes=1300 protocol=https
2019-02-13T11:15:15.039596+00:00 app[web.1]: wth2018-0654 Hello my bot again!
2019-02-13T11:15:15.040613+00:00 app[web.1]: 10.13.202.222 - - [13/Feb/2019:11:15:15 +0000] "POST /api/bot HTTP/1.1" 200 1146 "-" "Squared Scheduler/1.0"
```

In the second last line you can see the message which is the output of `print (message)` command of your app.

### Step 6: Reply for the message by the name of your bot

- a. Send reply if your bot mentioned in the message and the message starts with "Hello". Add the following lines into your `/api/bot` endpoint after `print(message)` command.

```
if message[0:18] == "wth2018-0654 Hello":
    roomId = r.json()["roomId"]
    r = requests.post(messageApiUrl, headers={'Authorization': 'Bearer ' + botAccessToken}, data={'roomId': roomId, 'text': 'Hello from your bot!'})
    return jsonify(webhookMessage)
```

- b. Send a new message to your bot: `@wth2018-<nnnn> Hello my bot again!`

