

Your Own Serverless Infrastructure

ALL SCREENSHOTS OF CONSOLE CONTAIN THE COMMAND USED ELSE IT IS DIRECTLY ABOVE THE SCREENSHOT.

Provide a screenshot of invoking the figlet function:

```
gagan@gagan-VirtualBox:~/functions$ faas-cli store deploy figlet
Function figlet already exists, attempting rolling-update.

Deployed. 200 OK.
URL: http://127.0.0.1:8080/function/figlet
```

Deploying Figlet

```
gagan@gagan-VirtualBox:~/functions$ echo "Hello, FaaS, world" | faas-cli invoke figlet
Hello FaaS world

gagan@gagan-VirtualBox:~/functions$ echo "Gagan Gupta" | faas-cli invoke figlet
Gagan Gupta
```

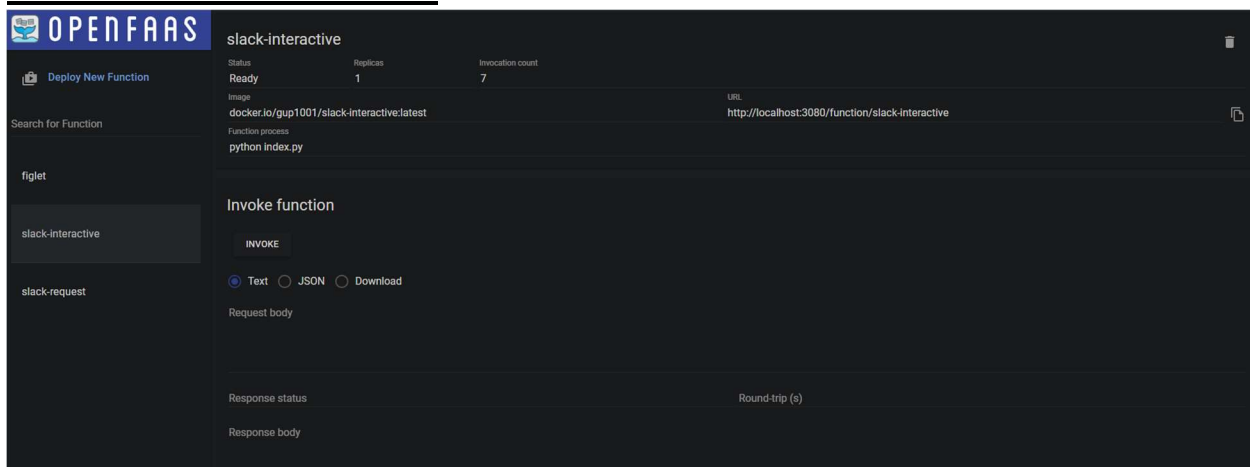
Invoking Figlet

Provide a screenshot of running the following command: `sudo journalctl -u faasd --lines 40`:

```
-- Logs begin at Sat 2021-11-06 00:45:20 PDT, end at Wed 2021-11-10 18:43:40 PST. --
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 Start-up order:
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 - basic-auth-plugin
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 - nats
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 - prometheus
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 - gateway
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 - queue-worker
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: Starting: basic-auth-plugin
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 Created container: basic-auth-plugin
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 basic-auth-plugin has IP: 10.62.0.2
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:04 Task: basic-auth-plugin Container: basic-auth-plug
Nov 10 17:35:04 gagan-VirtualBox faasd[603]: Starting: nats
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Created container: nats
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 nats has IP: 10.62.0.3
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Task: nats Container: nats
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: Starting: prometheus
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Created container: prometheus
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 prometheus has IP: 10.62.0.4
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Task: prometheus Container: prometheus
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: Starting: gateway
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Created container: gateway
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 gateway has IP: 10.62.0.5
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Task: gateway Container: gateway
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: Starting: queue-worker
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Created container: queue-worker
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 queue-worker has IP: 10.62.0.6
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Task: queue-worker Container: queue-worker
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Supervisor init done in: 1.884497738s
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Looking up IP for: "gateway"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver rebuilding map
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Looking up IP for: "prometheus"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "localhost"="127.0.0.1"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "faasd-provider"="10.62.0.1"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "basic-auth-plugin"="10.62.0.2"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "nats"="10.62.0.3"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "prometheus"="10.62.0.4"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "gateway"="10.62.0.5"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Resolver: "queue-worker"="10.62.0.6"
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 Proxy from: 127.0.0.1:9090, to: prometheus:9090 (10.62.0.
Nov 10 17:35:05 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:05 faasd: waiting for SIGTERM or SIGINT
Nov 10 17:35:06 gagan-VirtualBox faasd[603]: 2021/11/10 17:35:06 Proxy from: 0.0.0.0:8080, to: gateway:8080 (10.62.0.5)
```

40 lines of the faasd log

Provide a screenshot of your OpenFaaS gateway AFTER deploying figlet, slack-handler and slack-interactive functions:



OpenFaaS Gateway

Provide a screenshot of invoking slack-request and slack-interactive functions:

```
gagan@gagan-VirtualBox:~/functions$ curl http://4d3d-192-241-13-239.ngrok.io/function/slack-interactive --data '{"text": "Hello, World!"}'
```

```
{
  "attachments": [
    {
      "footer": "Slack Apps built on OpenFaas",
      "author_link": "https://github.com/gaganSCU/COEN241_HW2.git",
      "color": "#36a64f",
      "text": "Head over to COEN 241",
      "title": "COEN 241",
      "ts": 123456789,
      "author_name": "",
      "title_link": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/",
      "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
      "response_type": "ephemeral",
      "replace_original": true,
      "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash_256.png",
      "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!",
      "fallback": "Required plain-text summary of the attachment.",
      "thumb_url": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/",
      "author_icon": "https://avatars.githubusercontent.com/u/91451184?v=4"
    }
  ]
}
```

Curl invoke for Slack Interactive

```
gagan@gagan-VirtualBox:~/functions$ curl http://4d3d-192-241-13-239.ngrok.io/function/slack-request --data 'Hello, World!'
```

```
{
  "text": "Serverless Message",
  "attachments": [
    {
      "fields": [
        {
          "short": true,
          "value": "100",
          "title": "Amazing Level"
        }
      ],
      "author_icon": "",
      "image_url": "https://sevaa.com/app/uploads/2018/08/featured-image-cloud-computing.png",
      "author_name": "Gagan Gupta",
      "title": "The Awesome world of Cloud Computing! COEN 241",
      "text": "COEN 241 is the most awesome class ever!",
      "title": "About COEN 241",
      "title": "Would you recommend COEN 241 to your friends?",
      "color": "#3AA3E3",
      "actions": [
        {
          "text": "Of Course!",
          "type": "button",
          "name": "recommend",
          "value": "recommend"
        },
        {
          "text": "Most Definitely!",
          "type": "button",
          "name": "definitely",
          "value": "definitely"
        }
      ],
      "callback_id": "response123",
      "fallback": "Would you recommend COEN 241 to your friends?",
      "attachment_type": "default"
    }
  ]
}
```

Curl invoke for Slack Request

```
gagan@gagan-VirtualBox:~/functions$ echo '{"text": "Hello, World!"}' | faas-cli invoke slack-interactive
```

```
{
  "attachments": [
    {
      "footer": "Slack Apps built on OpenFaas",
      "author_link": "https://github.com/gaganSCU/COEN241_HW2.git",
      "color": "#36a64f",
      "text": "Head over to COEN 241",
      "title": "COEN 241",
      "ts": 123456789,
      "author_name": "",
      "title_link": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/",
      "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
      "response_type": "ephemeral",
      "replace_original": true,
      "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash_256.png",
      "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!",
      "fallback": "Required plain-text summary of the attachment.",
      "thumb_url": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/",
      "author_icon": "https://avatars.githubusercontent.com/u/91451184?v=4"
    }
  ]
}
```

Faas-cli invoke for Slack Interactive

```
gagan@gagan-VirtualBox:~/functions$ echo 'Hello World' | faas-cli invoke slack-request
```

```
{
  "text": "Serverless Message",
  "attachments": [
    {
      "fields": [
        {
          "short": true,
          "value": "100",
          "title": "Amazing Level"
        }
      ],
      "author_icon": "",
      "image_url": "https://sevaa.com/app/uploads/2018/08/featured-image-cloud-computing.png",
      "author_name": "Gagan Gupta",
      "title": "The Awesome world of Cloud Computing! COEN 241",
      "text": "COEN 241 is the most awesome class ever!",
      "title": "About COEN 241",
      "title": "Would you recommend COEN 241 to your friends?",
      "color": "#3AA3E3",
      "actions": [
        {
          "text": "Of Course!",
          "type": "button",
          "name": "recommend",
          "value": "recommend"
        },
        {
          "text": "Most Definitely!",
          "type": "button",
          "name": "definitely",
          "value": "definitely"
        }
      ],
      "callback_id": "response123",
      "fallback": "Would you recommend COEN 241 to your friends?",
      "attachment_type": "default"
    }
  ]
}
```

Faas-cli invoke for Slack Request

Questions:

1. What is the command to invoke the slack-request function?
 - a. Via Curl
 - i. <http://<YOUR-PUBLIC-IP>:8080/function/slack-request> --data 'Hello World'
 - b. Via faas-cli
 - i. echo 'Hello World' | faas-cli invoke slack-request
2. What is the output you see when you invoke the slack-request function?

```
gagan@gagan-VirtualBox:~/functions$ echo 'Hello World' | faas-cli invoke slack-request
{"text": "Serverless Message", "attachments": [{"fields": [{"short": true, "value": "100", "title": "Amazing Level"}], "author_icon": "", "image_url": "https://sevaa.com/app/uploads/2018/08/featured-image-cloud-computing.png", "author_name": "Gagan Gupta", "title": "The Awesome world of Cloud Computing! COEN 241"}, {"text": "COEN 241 is the most awesome class ever!", "title": "About COEN 241"}, {"title": "Would you recommend COEN 241 to your friends?", "color": "#3AA3E3", "actions": [{"text": "Of Course!", "type": "button", "name": "recommend", "value": "recommend"}, {"text": "Most Definitely!", "type": "button", "name": "definitely", "value": "definitely"}], "callback_id": "response123", "fallback": "Would you recommend COEN 241 to your friends?", "attachment_type": "default"}]}
```

3. What is the command to invoke the slack-interactive function?
 - a. Via curl
 - i. <http://<YOUR-PUBLIC-IP>:8080/function/slack-interactive> --data '{"Hello": "COEN 241"}'
 - b. Via faas-cli
 - i. echo '{"Hello": "COEN 241"}' | faas-cli invoke slack-interactive
4. What is the output you see when you invoke the slack-interactive function?

```
gagan@gagan-VirtualBox:~/functions$ echo '{"text": "Hello, World!"}' | faas-cli invoke slack-interactive
{"attachments": [{"footer": "Slack Apps built on OpenFaas", "author_link": "https://github.com/gaganSCU/COEN241_HW2.git", "color": "#36a64f", "text": "Head over to COEN 241", "title": "COEN 241", "ts": 123456789, "author_name": "", "title_link": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/", "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-and-photography/visual-identity-toolkit/logos-and-seals/Mission-Dont3.png", "response_type": "ephemeral", "replace_original": true, "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash_256.png", "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!", "fallback": "Required plain-text summary of the attachment.", "thumb_url": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/", "author_icon": "https://avatars.githubusercontent.com/u/91451184?v=4"}]}
```

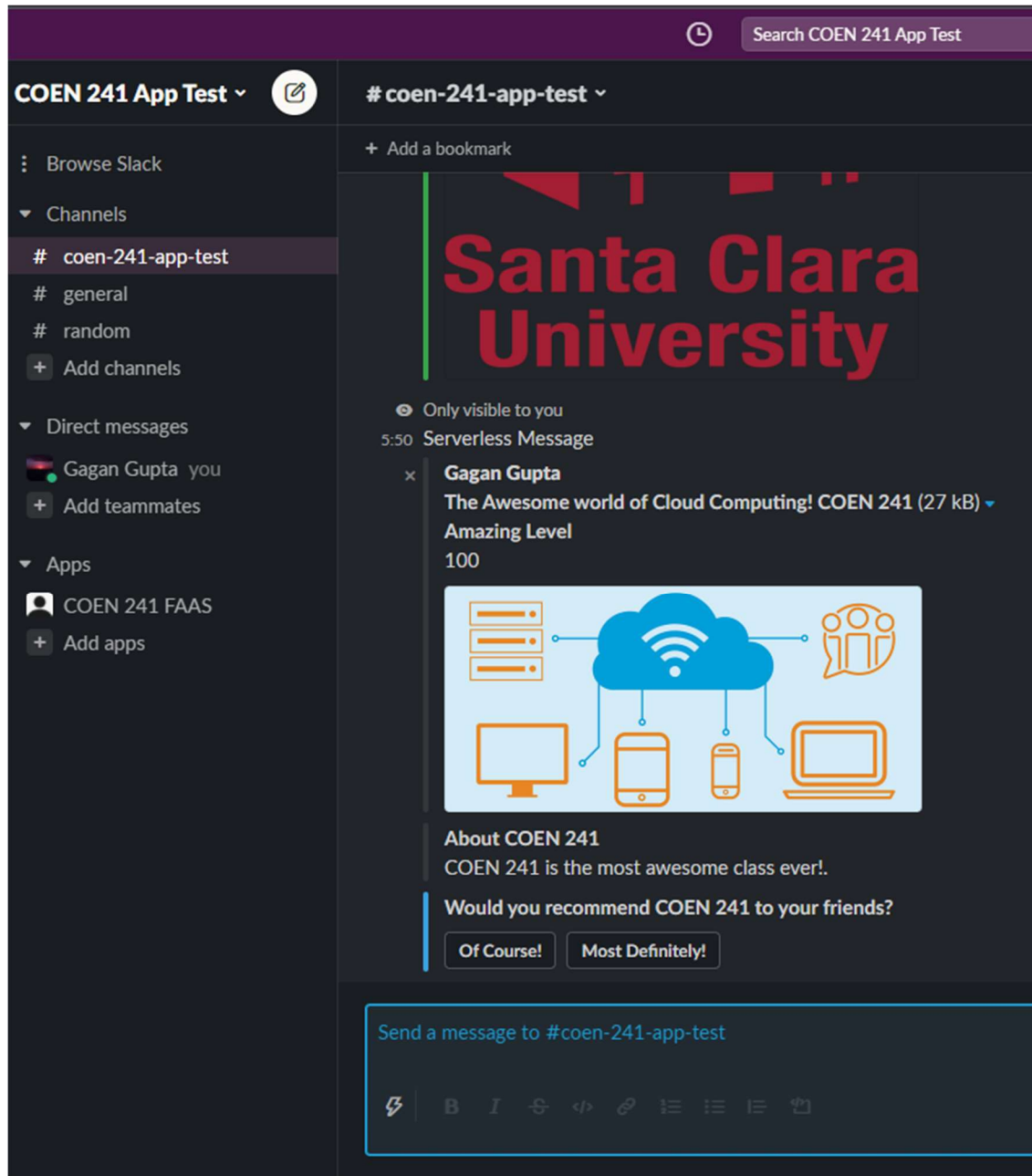
5. How would you pass different arguments to the functions?
 - a. To pass different arguments for curl, you can change the string in the quotes after the --data flag. To pass different arguments for faas-cli, you can change the string after the echo and before the pipe.
6. How would you change the slack-interactive function to react to different inputs?
 - a. The slack interactive function would react to different outputs if you changed the callback-id in the output of the slack request from response123 to a newly created response.

Extra Credit:

https://slack.com/oauth/v2/authorize?client_id=2717007443635.2702334508055&scope=commands,incoming-webhook&user_scope=

There is no redirect URL for the link above so it will take you to google.com as there was no requirement to implement an installation script. The slack documentation to add this script was not clear which cause me to leave it.

Without distribution, the app works on my directly connected workspace as shown below:



🕒

Search COEN 241 App Test

COEN 241 App Test

✎

⋮ Browse Slack

▼ Channels

coen-241-app-test

general

random

+ Add channels

▼ Direct messages

Gagan Gupta you

+ Add teammates

▼ Apps

COEN 241 FAAS

+ Add apps

coen-241-app-test

+ Add a bookmark

Santa Clara University

👁 Only visible to you

Ahh yeah! Great choice, COEN 241 is absolutely amazing!

COEN 241

Head over to COEN 241

Slack Apps built on OpenFaas Nov 29th, 1973 (16 kB)

Santa Clara University

Send a message to #coen-241-app-test

B *I*