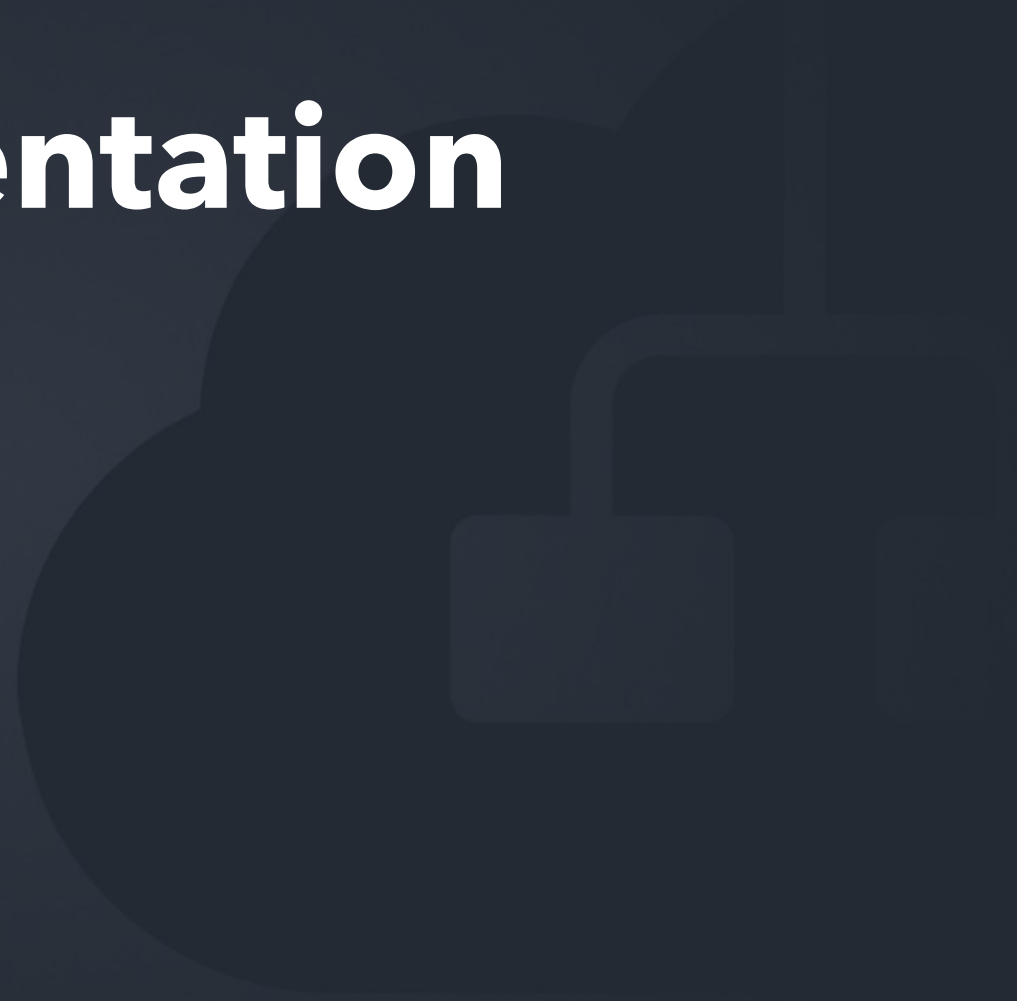
Creating DevOps RunBook Automation with an AI bot

Doug Sillars
@dougsillars
Head of Developer Relations

RunBook = Documentation

Documentation



Documentation

Documentation

Code samples

GET /repos/{owner}/{repo}/traffic/views

cURL JavaScript GitHub CLI

```
curl \
  -H "Accept: application/vnd.github+json" \
  -H "Authorization: Bearer <YOUR-TOKEN>"\
  -H "X-GitHub-Api-Version: 2022-11-28" \
  https://api.github.com/repos/OWNER/REPO/traff
```

Documentation

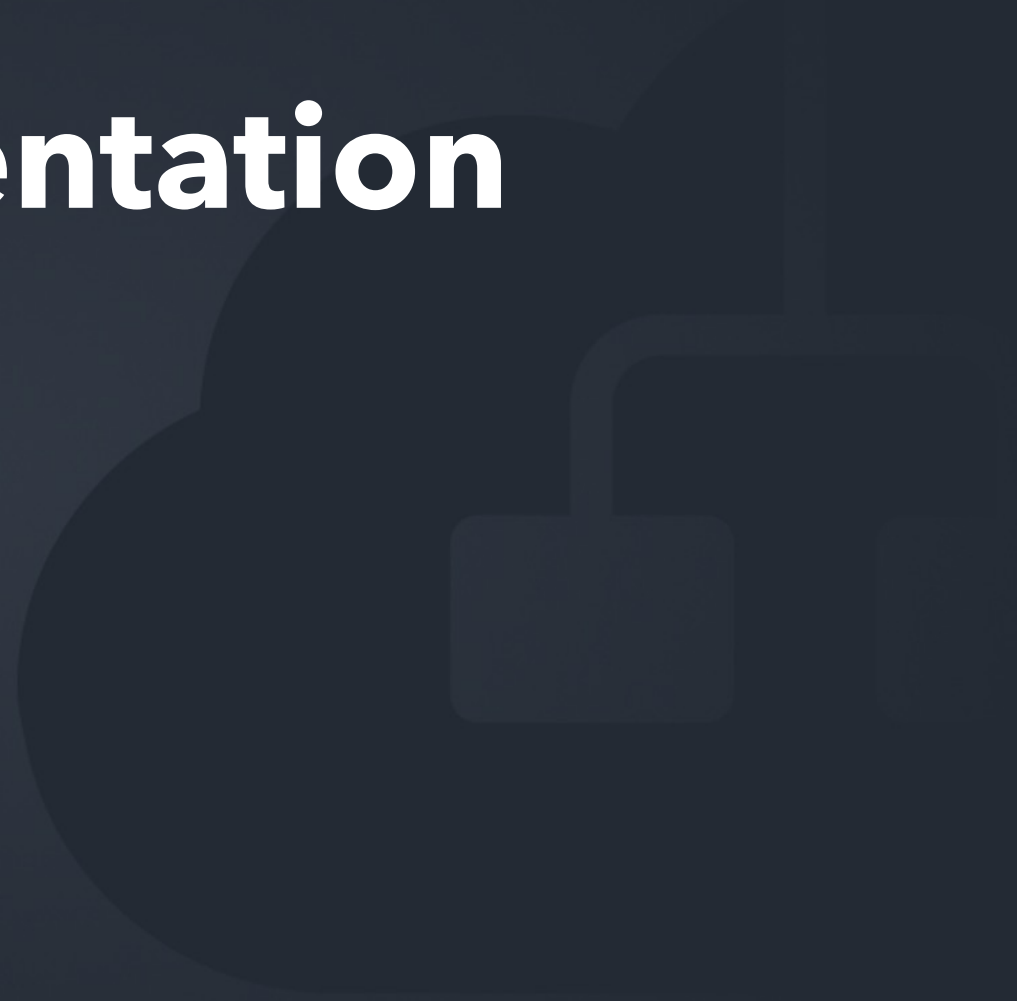

```
HTTP/2 403
"message": "Resource not accessible
by personal access token"
```

Documentation


```
HTTP/2 403
"message": "Resource not accessible
by personal access token"
```

```
  https://api.github.com/repos/unskript/Awesc
{
  "count": 891,
  "uniques": 57,
  "views": [
    {
      "timestamp": "2023-01-06T00:00:00Z",
      "count": 2,
      "uniques": 1
    },
    {
      "timestamp": "2023-01-07T00:00:00Z",
      "count": 7,
```

Documentation



Documentation

RunBooks
Checklists

Documentation

RunBooks
Checklists

Application Support and Operations takes up to 55% of Developer time

Documentation Advantages

https://zwischenzugs.com/2017/04/04/things-i-learned-managing-site-reliability-for-some-of-the-worlds-busiest-gambling-sites/

Documentation Advantages

- Faster resolution of Issues

https://zwischenzugs.com/2017/04/04/things-i-learned-managing-site-reliability-for-some-of-the-worlds-busiest-gambling-sites/

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7 month kick-off
10% ongoing

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Documentation Getting Started

https://blog.danslimmon.com/2019/07/15/do-nothing-scripting-the-key-to-gradual-automation/

Documentation Getting Started

Do Nothing Scripting

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Documentation Getting Started

Do Nothing Scripting

- Create steps in the code

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Documentation Getting Started

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- Create steps in the code
- Add Automations as needed

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Documentation Getting Started

Do Nothing Scripting

- Create steps in the code
- Add Automations as needed

Make it Accessible to the team

https://blog.danslimmon.com/2019/07/15/do-nothing-scripting-the-key-to-gradual-automation/

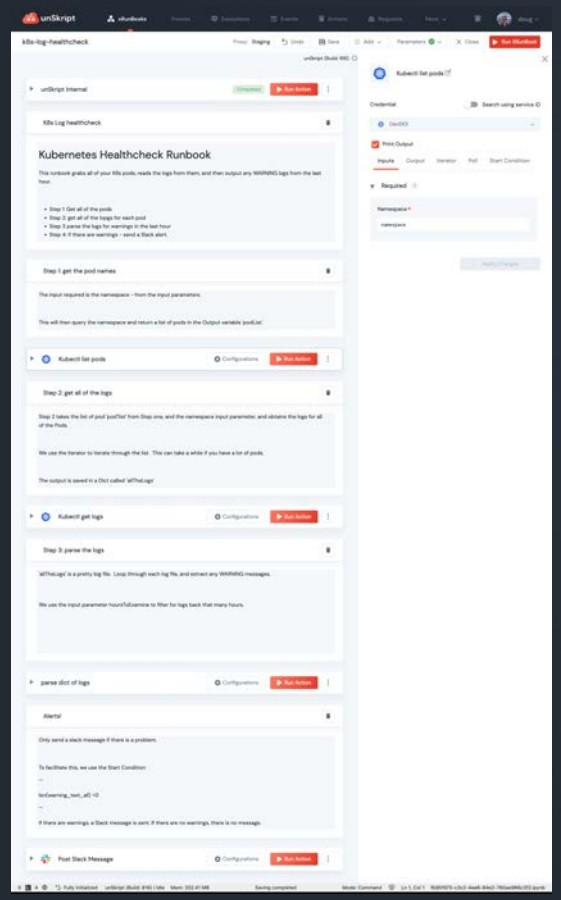
unSkript

UNSKRIPT, INC.

Open Source RunBook Automation

https://github.com/unskript/Awesome-CloudOps-Automation

Open Source RunBook Automation



Based on Jupyter Notebooks

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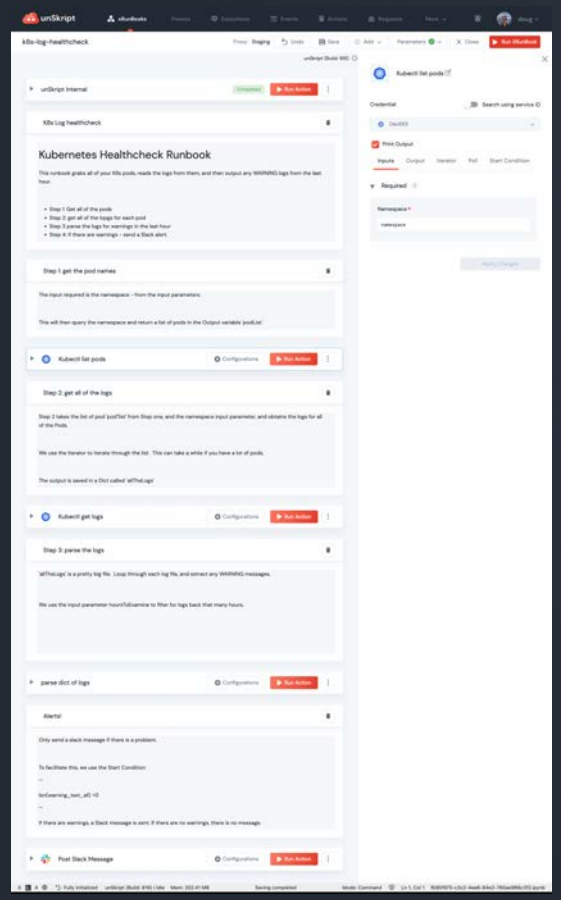

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- **Online/easily shared amongst teams**

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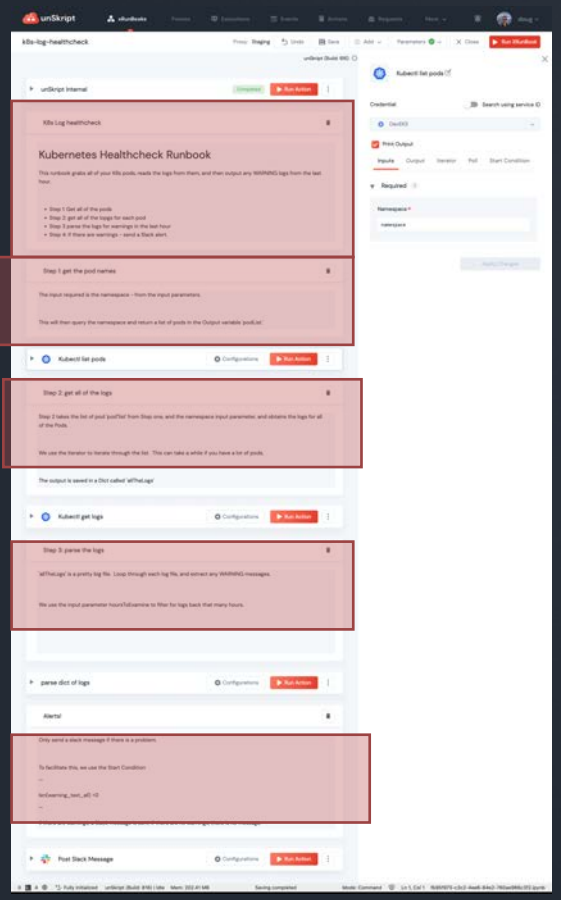

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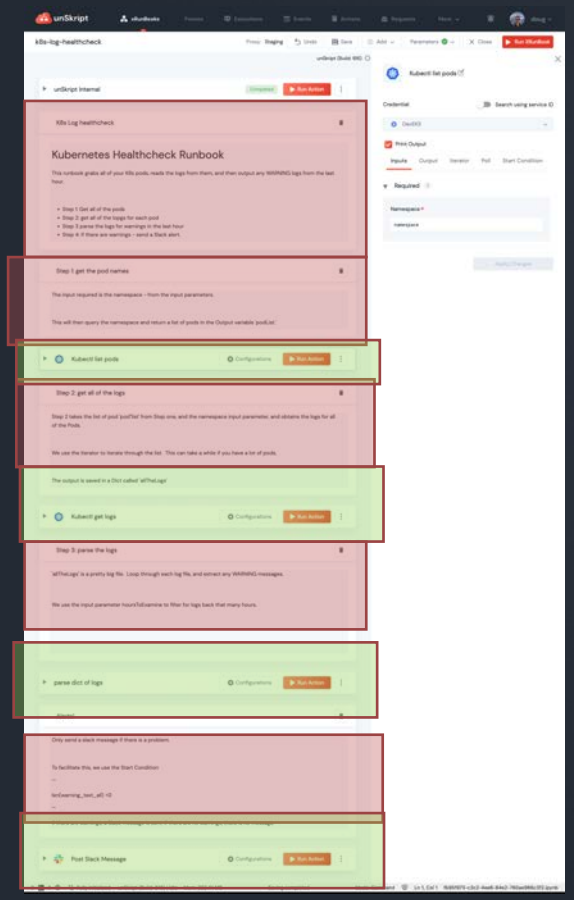

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- Simpler Escalations
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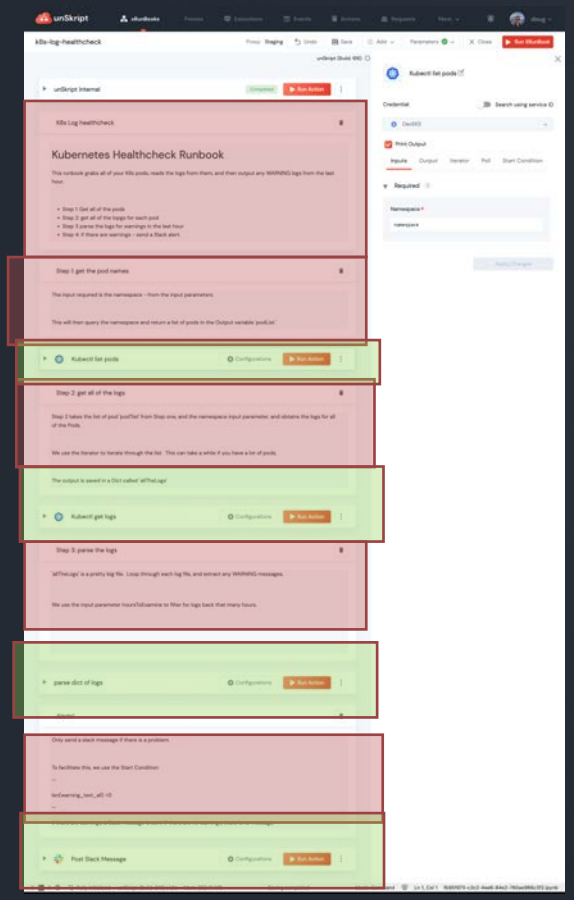
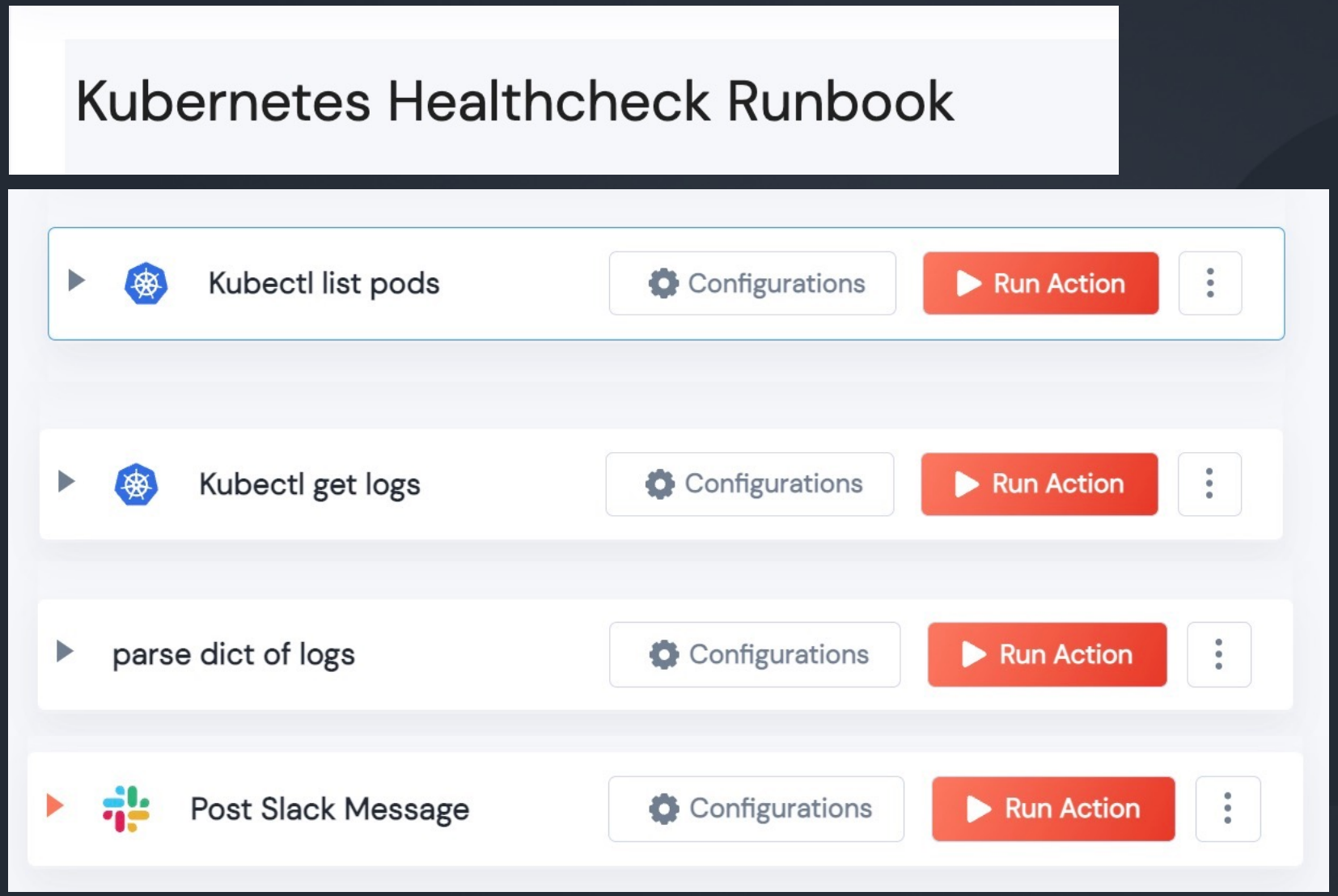


Based on Jupyter Notebooks

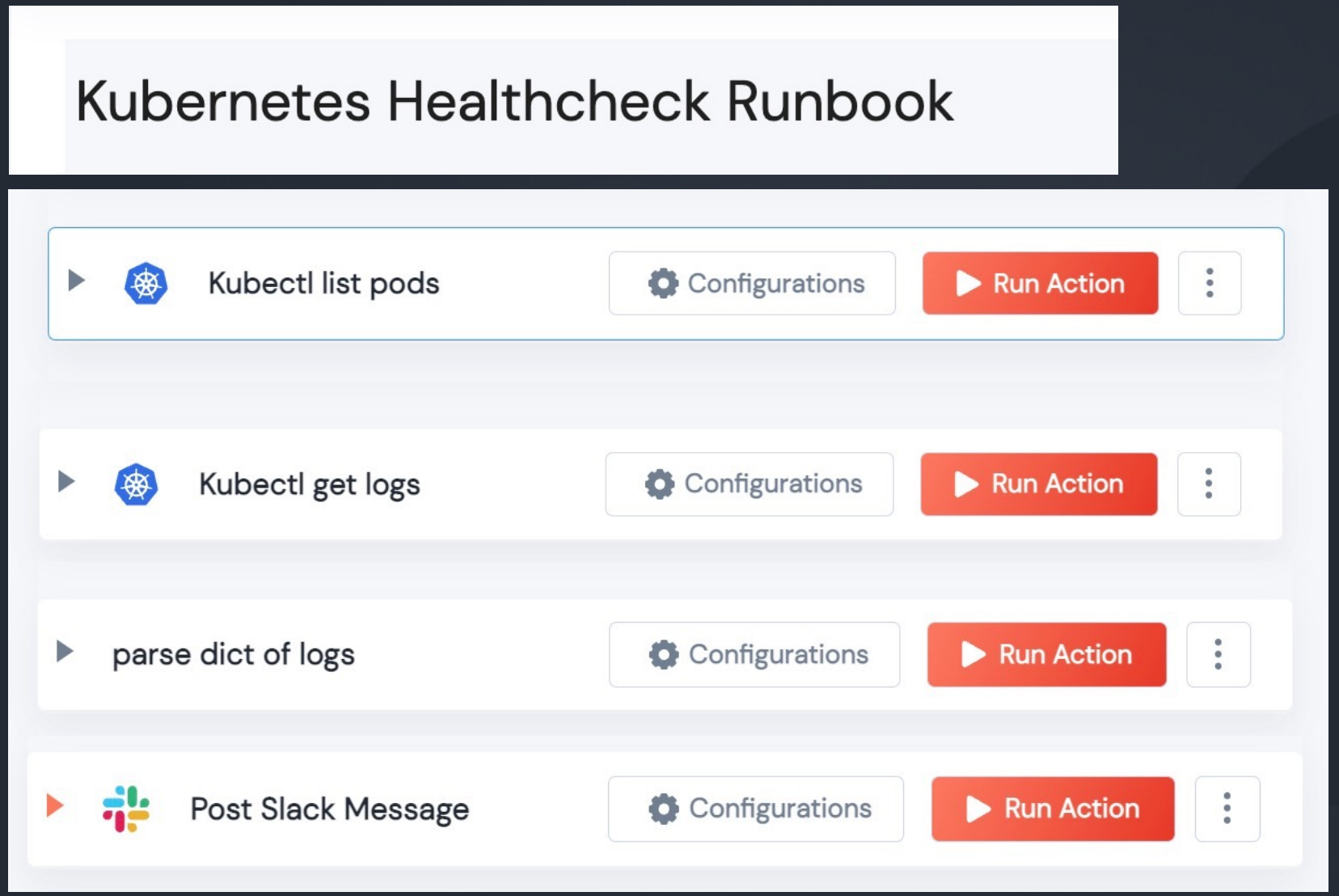
- **Online/easily shared amongst teams**
- **Text/Markdown fields**
- **Automation fields (Python)**
- **Hundreds of pre-built Actions**
  - **AWS, GCP, K8s, DBs, Jira & more!**

https://runbooks.sh

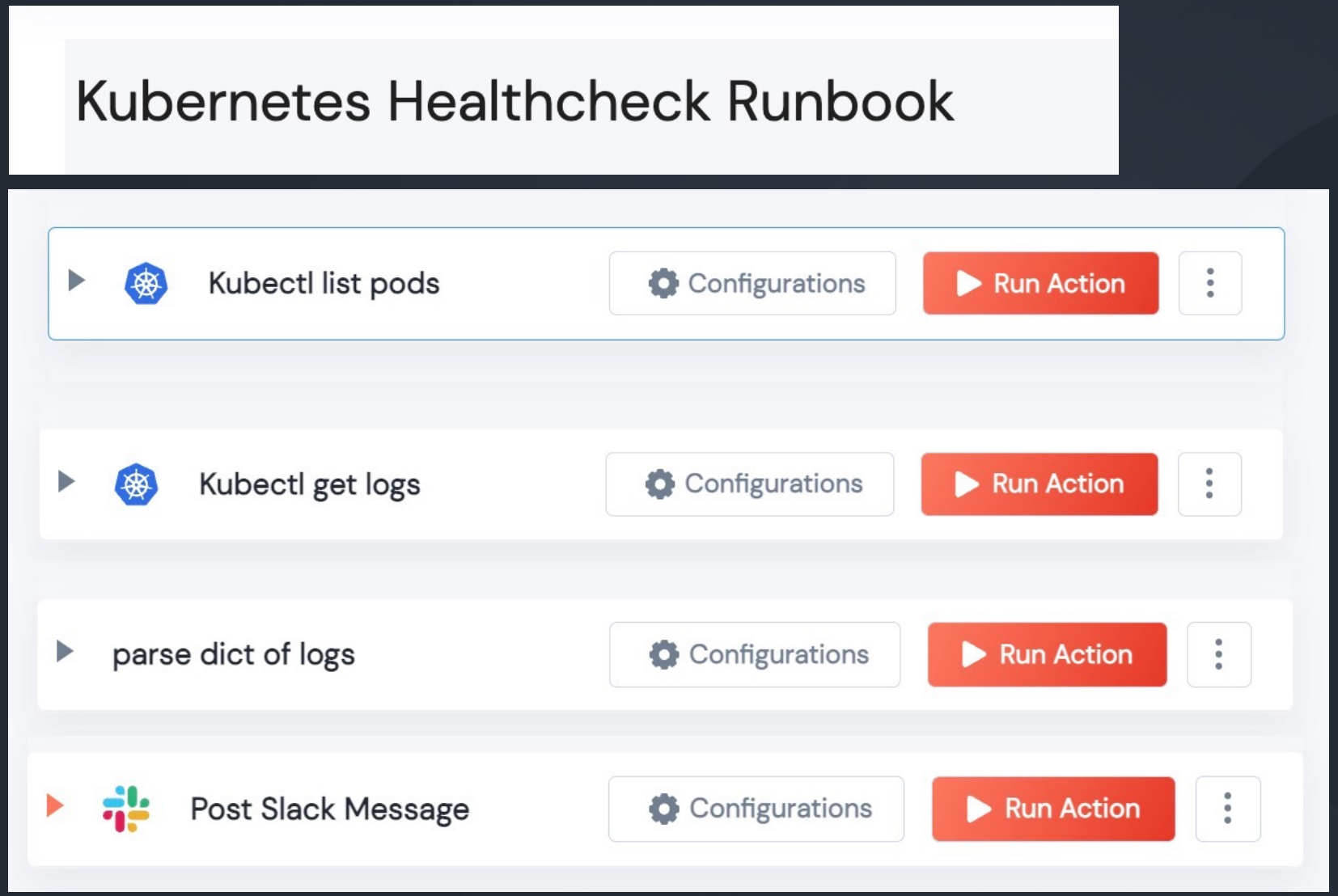
Example RunBook



Example RunBook



Example RunBook



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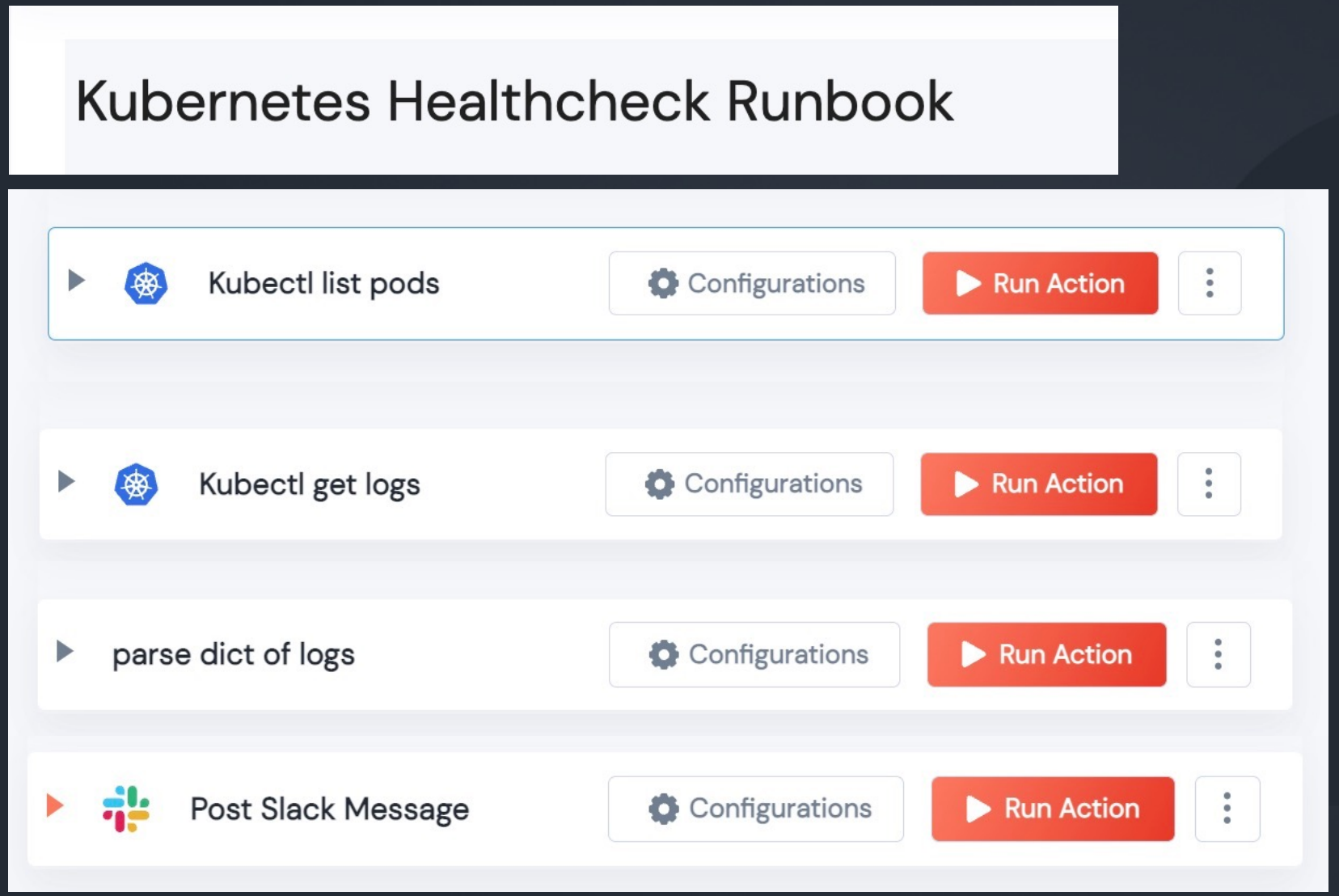
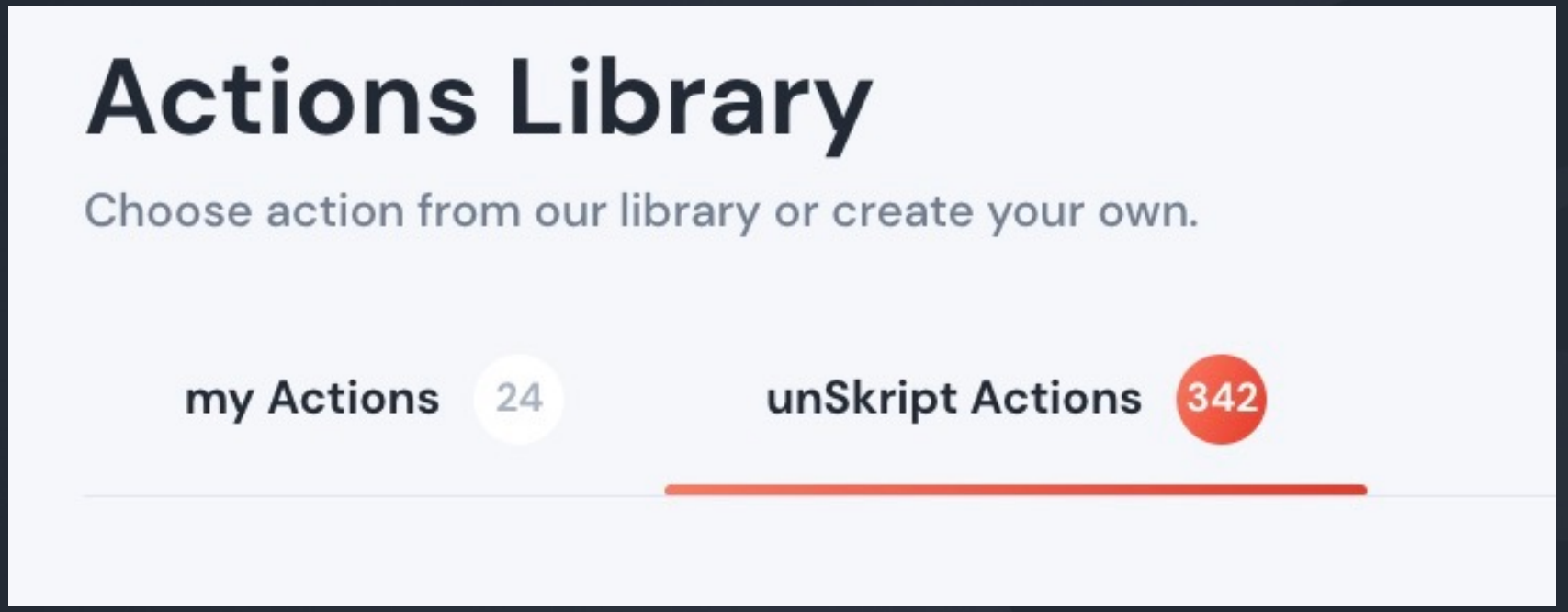


RunBook available in Open Source

Actions

Actions


Actions Library
Choose action from our library or create your own.
my Actions
24
unSkript Actions
342

Actions

If the desired Action doesn’t exist

- Extend existing Action

Actions

If the desired Action doesn't exist

- Extend existing Action
- Create a new Action

Actions

If the desired Action doesn't exist

- Extend existing Action
- Create a new Action
  - Connect to External Connection

Actions

If the desired Action doesn't exist

- Extend existing Action
- Create a new Action
  - Connect to External Connection
  - "Glue" Action

Create a new Action

Create a new Action

- Tag an EC2 Instance
- Check all GCP VMs and tell me if they are public or not

Create a new Action

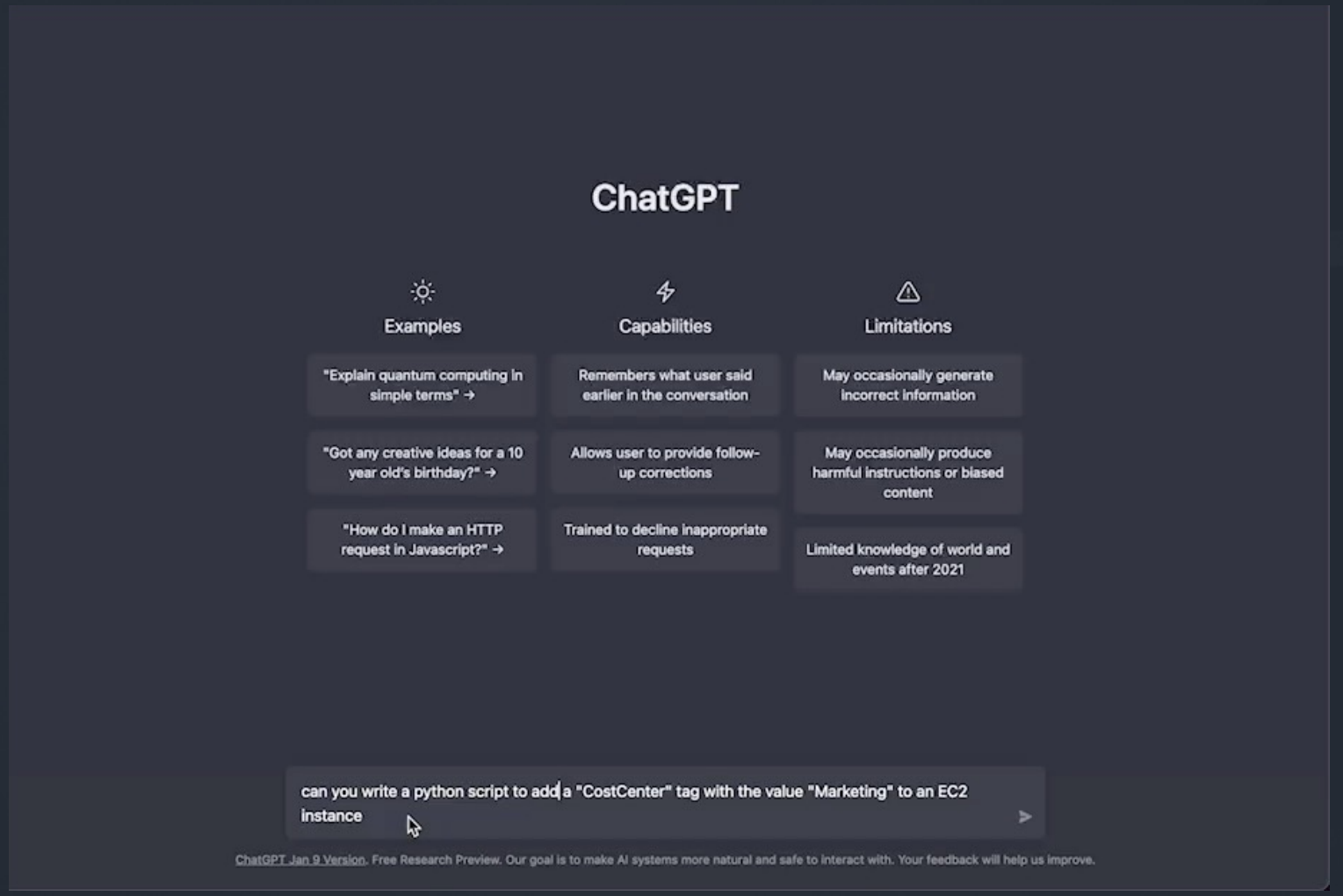
ChatGPT

Conversational AI

Can produce poetry, Text, Code

https://chat.openai.com/chat

Tag an AWS EC2 instance



Tag an AWS EC2 instance

```
import boto3

# Connect to the EC2 service
ec2 = boto3.client('ec2')

# The ID of the EC2 instance to add the tag to
instance_id = 'i-1234567890abcdef0'

# The key and value for the tag
tag_key = 'CostCenter'
tag_value = 'Marketing'

# Add the tag to the instance
ec2.create_tags(Resources=[instance_id], Tags=[{'Key': tag_key, 'Value':
tag_value}])
```

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```

```python
@beartype
def aws_tag_ec2_instance(handle, instance: str, tag_key: str, tag_value: str, region:str) -> Dict:


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```

```
Error while executing: You must specify a region.
Execution Failed: Error: You must specify a region.
  Task Parameters: {'instance': 'i-07e9ba22ffdef647c', 'tag_key': 'CostCenter
```

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    ec2 = handle.client('ec2', region_name=region)
    res = ec2.create_tags(Resources=[instance], Tags=[{'Key': tag_key, 'Value': tag_value}])


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```

```
{'ResponseMetadata': {'HTTPHeaders': {'cache-control': 'no-cache, no-store',
                                      'content-length': '221',
                                      'content-type': 'text/xml;charset=UTF-8',
                                      'date': 'Mon, 23 Jan 2023 17:22:25 GMT',
                                      'server': 'AmazonEC2',
                                      'strict-transport-security': 'max-age=31536000; '
                                                                   'includeSubDomains',
                                      'x-amzn-requestid': 'f6f12bc2-d87c-44b9-b970-f87f2c74ef43'},
                      'HTTPStatusCode': 200,
                      'RequestId': 'f6f12bc2-d87c-44b9-b970-f87f2c74ef43',
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```

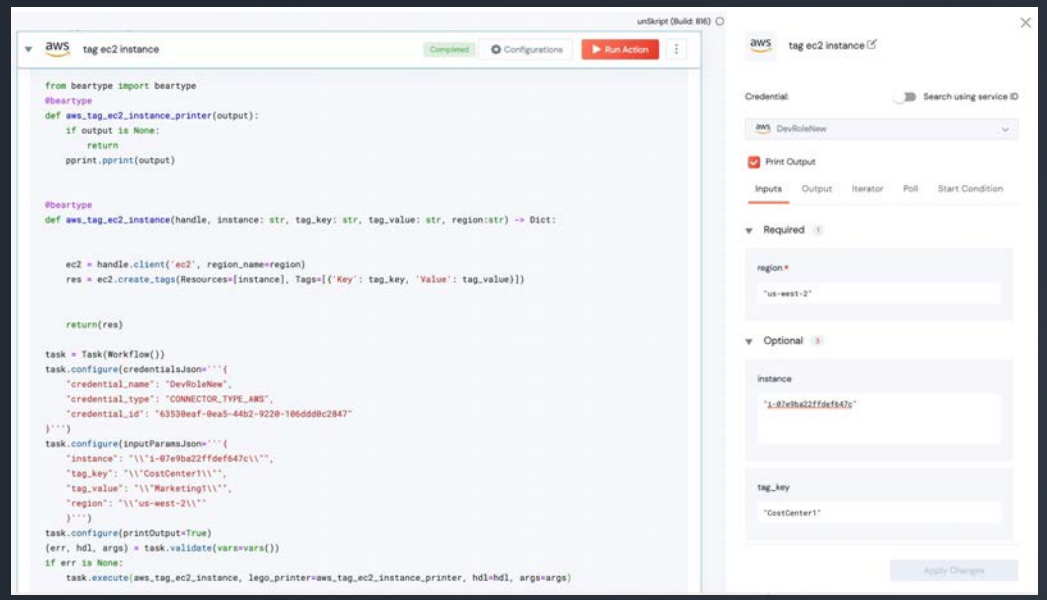
Tags

Manage tags

1

Key	Value
CostCenter1	Marketing1
CostCenter	Marketing
Name	doug_test

Tag an AWS EC2 instance



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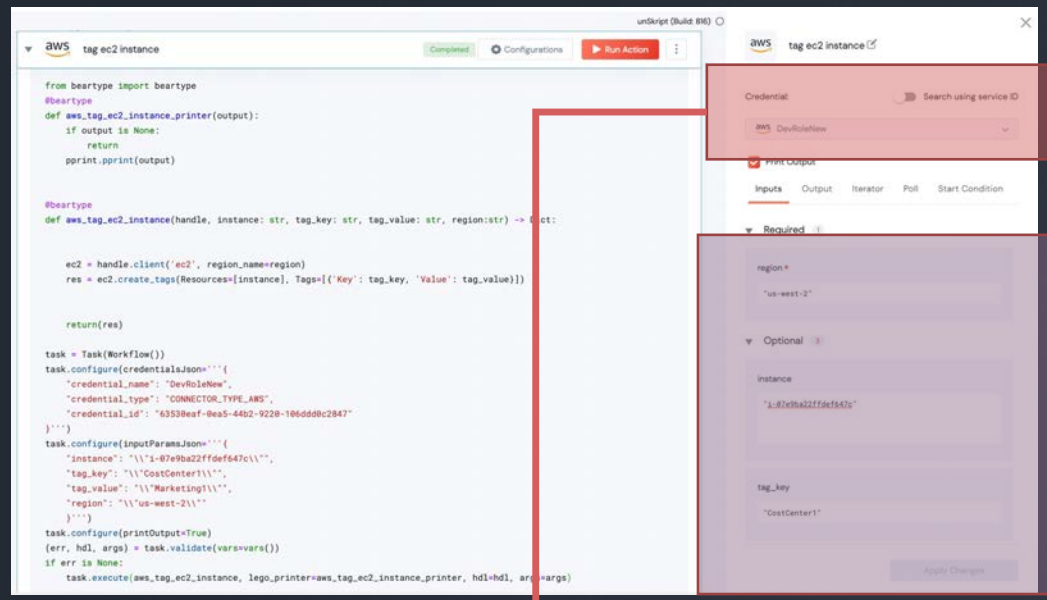
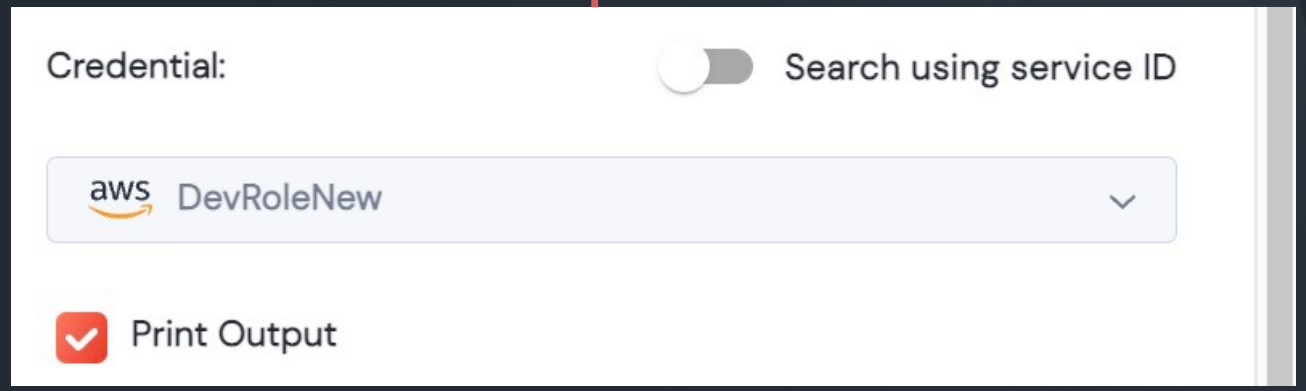
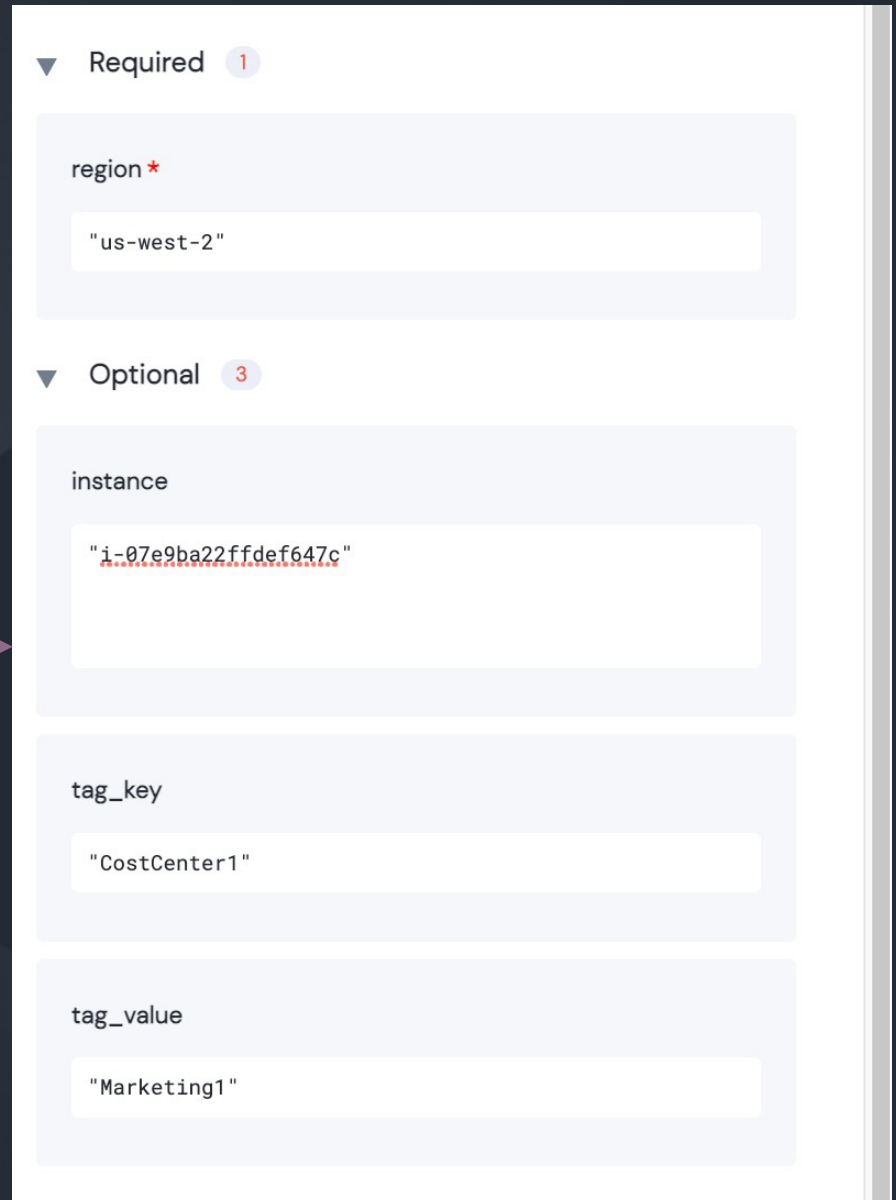
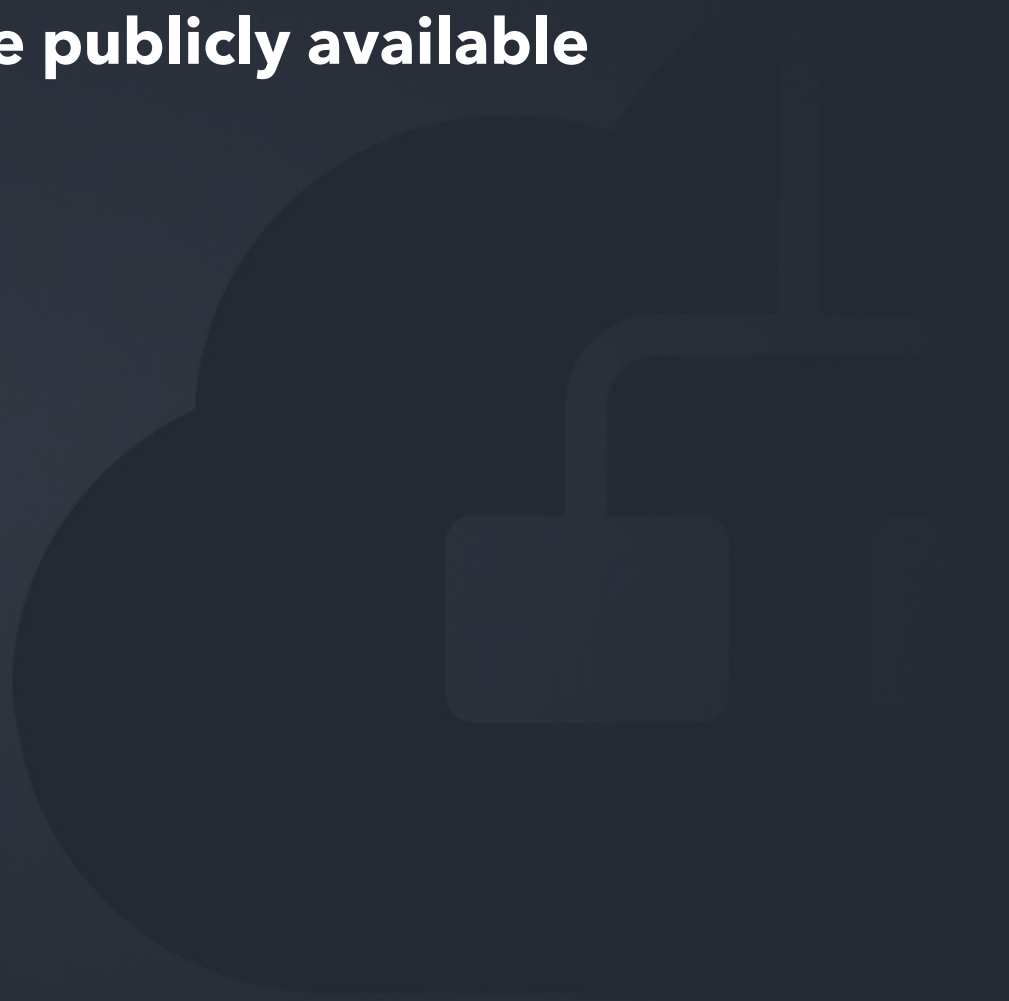






Get all GCP VMs

And tell me if they are publicly available



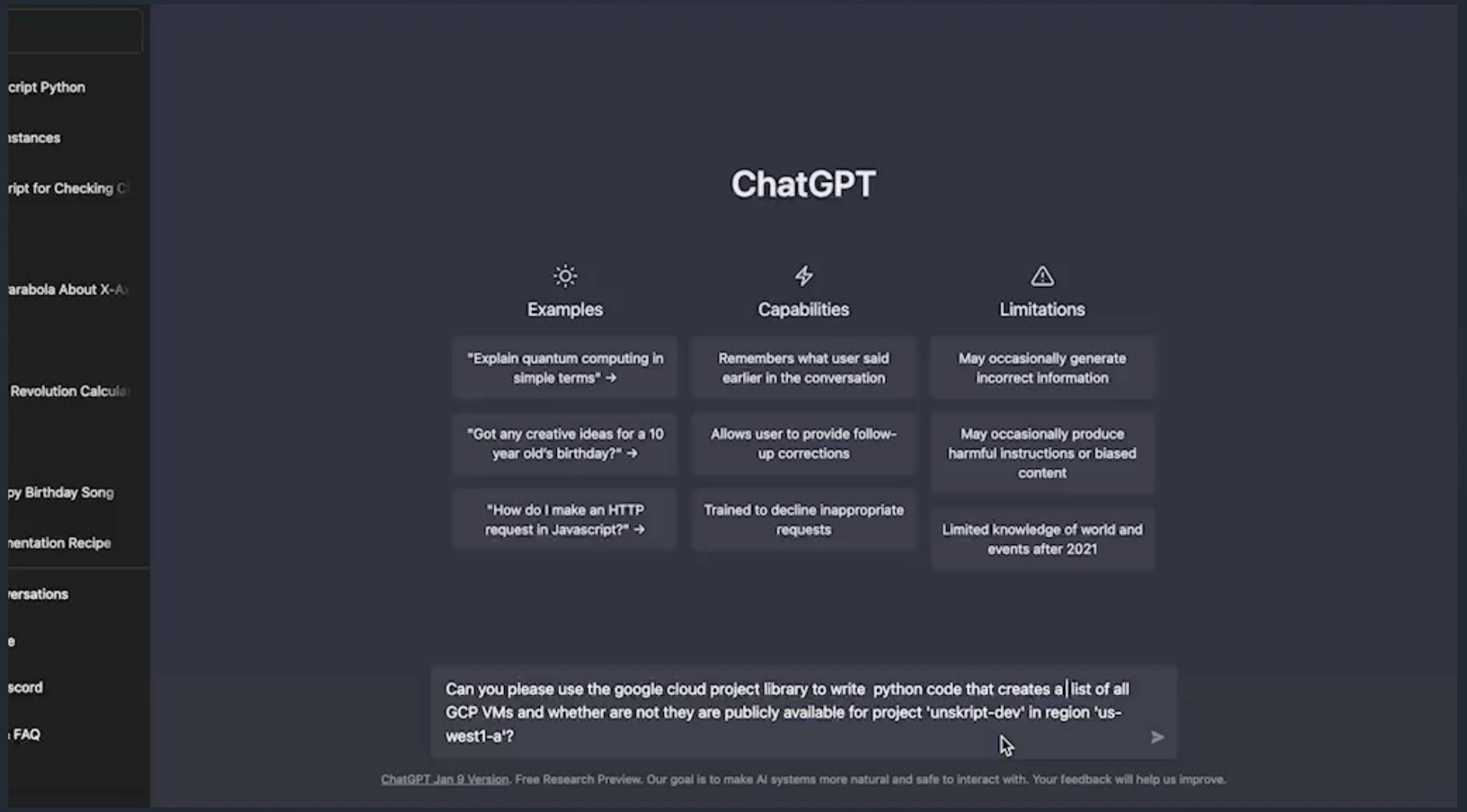
Get all GCP VMs

And tell me if they are publicly available

Can you please use the google cloud project library to write python code that creates a list of all GCP VMs and whether are not they are publicly available for project 'unskript-dev' in region 'us-west1-a'?

Get all GCP VMs

And tell me if they are publicly available



Get all GCP VMs

And tell me if they are publicly available

```python
from google.cloud import compute_engine

client = compute_engine.Client()
project = 'unskript-dev'
region = 'us-west1-a'

vms = client.list_instances(project=project, zone=region)
vm_list = []
for vm in vms:
    vm_info = {}
    vm_info['name'] = vm.name
    vm_info['publicly_accessible'] = vm.can_ip_forward
    vm_list.append(vm_info)

print(vm_list)
```

```python
compute_client = compute.InstancesClient(credentials=handle)

vms = compute_client.list(project=project, zone=zone)
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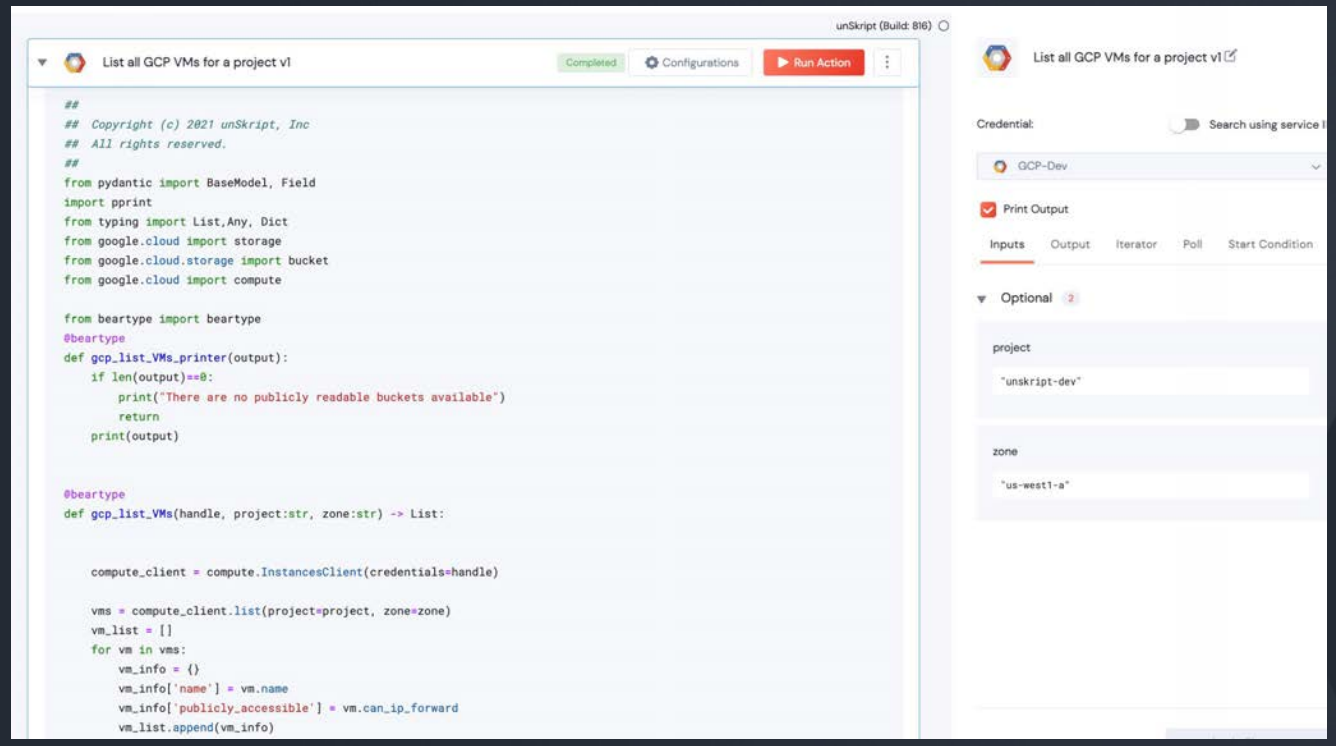
```
[{'name': 'gke-trace-e2-standard-2-saas-<clip>',
'publicly_accessible': False},
 {'name': 'gke-trace-e2-standard-2-saas-<clip>',
'publicly_accessible': False},
 {'name': 'gke-trace-github-runner-<clip>',
'publicly_accessible': False}]
```

Get all GCP VMs

And tell me if they are publicly available



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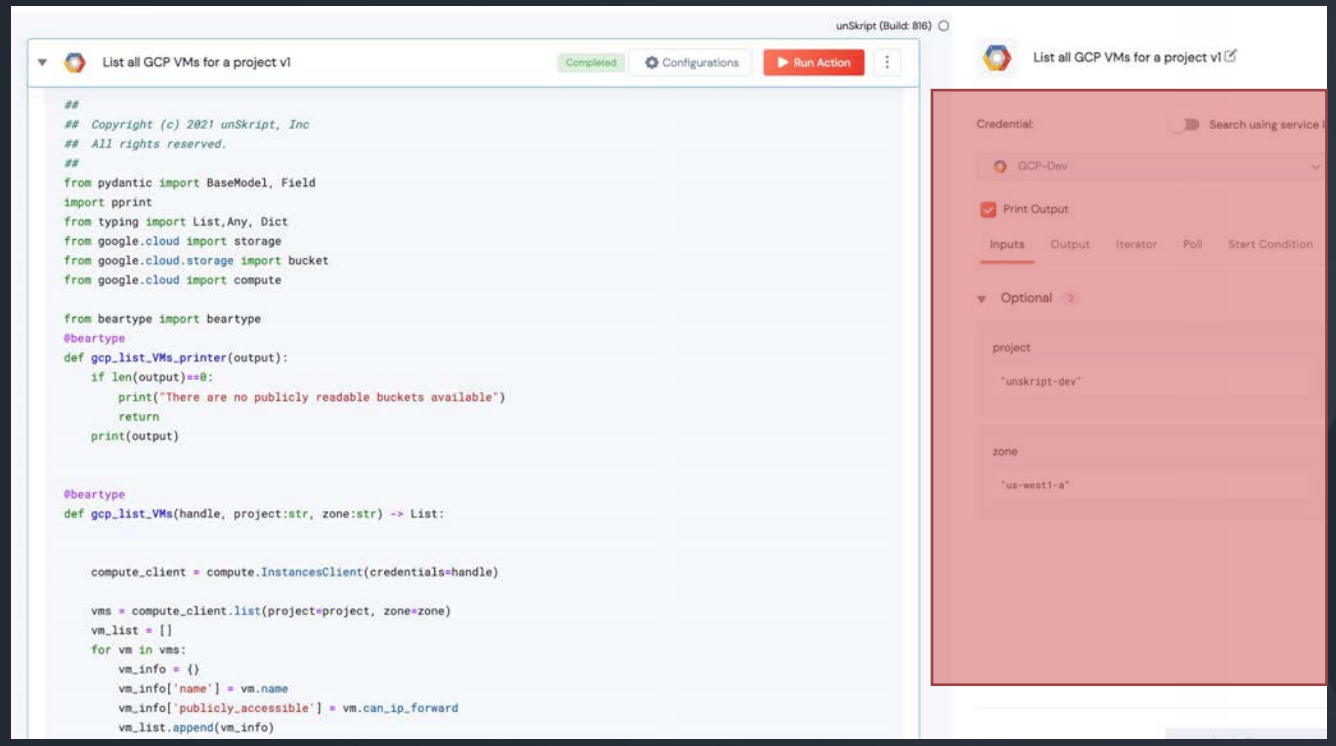

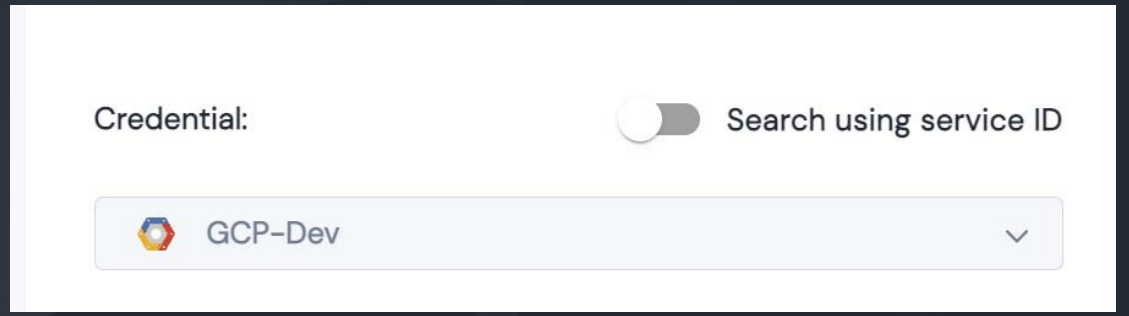

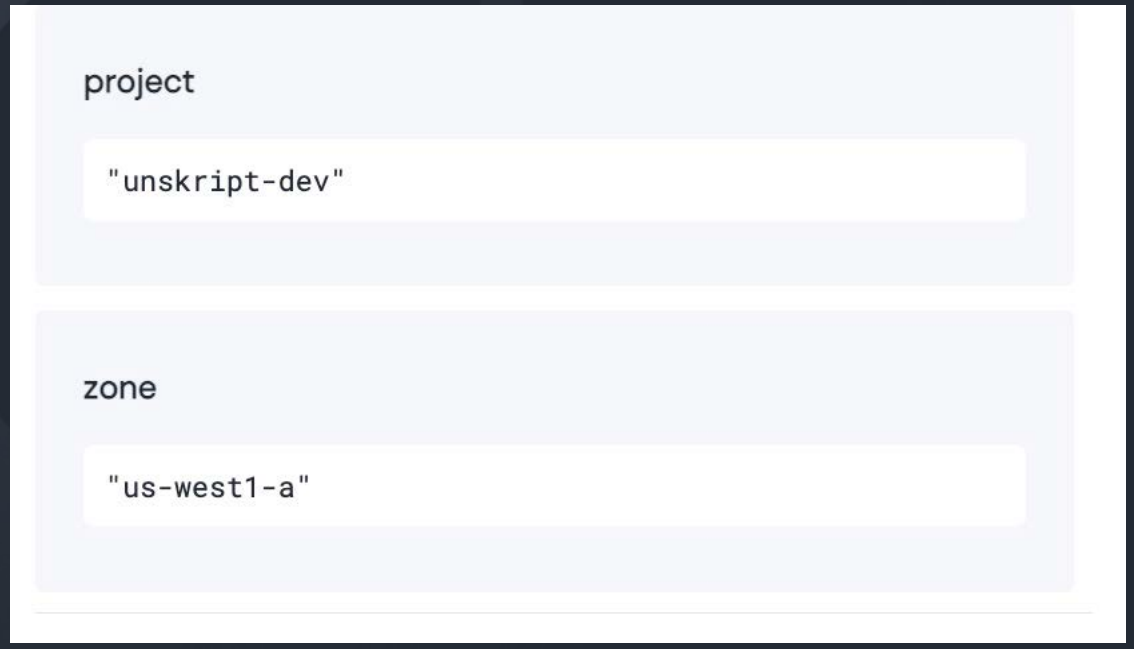

Demo

- Live demo
- Any suggestions to create a Automation Action using Chat GPT?

Summary

- RunBooks: Internal Documentation
  - Improve outcomes
  - Lower MTTR
  - Improve team collaboration
  - Can be Automated

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  - Improve outcomes
  - Lower MTTR
  - Improve team collaboration
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- Automation
  - Reduces Manual DevOps ‘toil’
  - Auto remediations
  - Increase observability
  - Etc.

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- RunBooks: Internal Documentation
  - Improve outcomes
  - Lower MTTR
  - Improve team collaboration
  - Can be Automated
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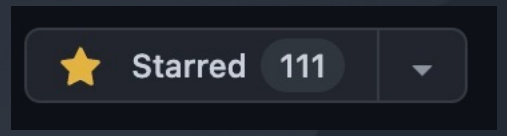
  - Reduces Manual DevOps ‘toil’
  - Auto remediations
  - Increase observability
  - Etc.
- unSkript
  - Open Source
  - Jupyter Notebooks
  - Hundreds of automations built in

Summary

- RunBooks: Internal Documentation
  - Improve outcomes
  - Lower MTTR
  - Improve team collaboration
  - Can be Automated
- Automation
  - Reduces Manual DevOps ‘toil’
  - Auto remediations
  - Increase observability
  - Etc.
- unSkript
  - Open Source
  - Jupyter Notebooks
  - Hundreds of automations built in
- ChatGPT
  - Prototyping of automation -> almost working demo

Resources

- **unSkript**
  - https://runbooks.sh
  - https://unskript.com
- **ChatGPT**
  - https://chat.openai.com/chat



- **Things I Learned Managing Site Reliability for Some of the World's Busiest Gambling Sites**
  - https://zwischenzugs.com/2017/04/04/things-i-learned-managing-site-reliability-for-some-of-the-worlds-busiest-gambling-sites/
- **Do Nothing Scripting**
  - https://blog.danslimmon.com/2019/07/15/do-nothing-scripting-the-key-to-gradual-automation/

Thank You