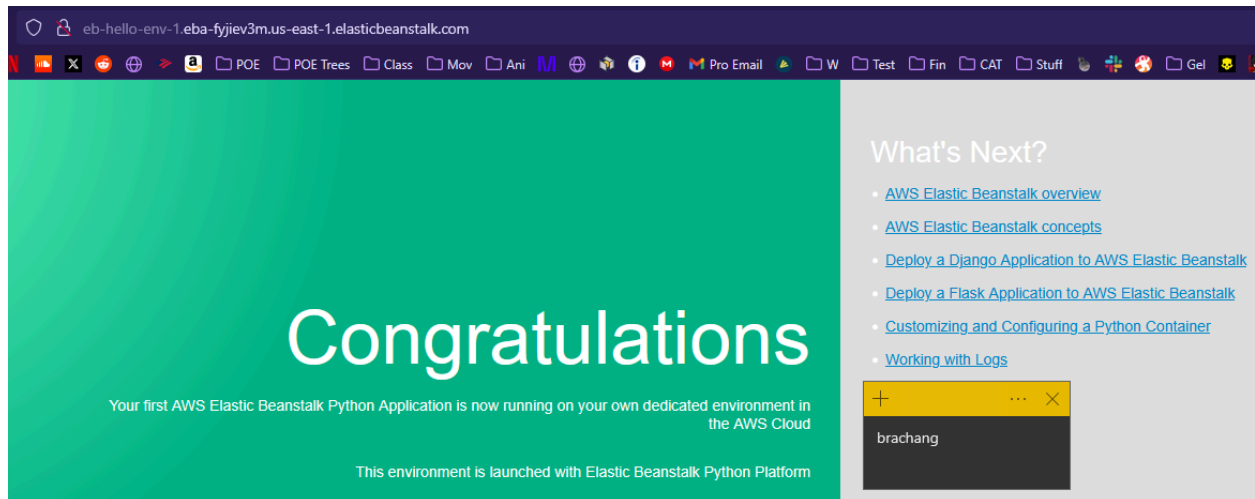


|   |           |
|---|-----------|
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| 4. Handling failures seamlessly.....                    | 2         |
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## 6.1a: EB Guestbook

### 3. Running the application

Take a screenshot showing it has been brought up successfully



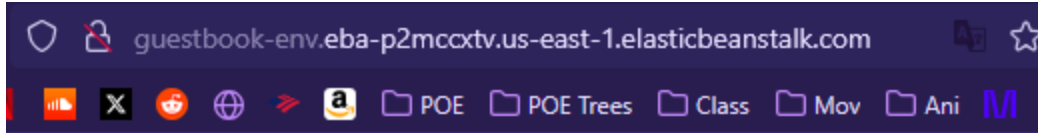
### 4. Handling failures seamlessly

Take a screenshot of the replacement VM being started.

|                                     |                |                     |            |          |                   |               |            |                         |               |
|-------------------------------------|----------------|---------------------|------------|----------|-------------------|---------------|------------|-------------------------|---------------|
| <input checked="" type="checkbox"/> | Eb-hello-env-1 | i-0a5df5a7d40269490 | Terminated | t2.small | -                 | View alarms + | us-east-1a | -                       | -             |
| <input type="checkbox"/>            | Eb-hello-env-1 | i-01cf5eb4d61aa9845 | Running    | t2.small | 2/2 checks passed | View alarms + | us-east-1c | ec2-54-211-70-100.co... | 54.211.70.100 |
| <input type="checkbox"/>            | Eb-hello-env-1 | i-08b4e508598b7bf1e | Running    | t2.small | Initializing      | View alarms + | us-east-1a | ec2-44-203-167-65.co... | 44.203.167.65 |
| <input type="checkbox"/>            | Eb-hello-env   | i-02d042fda56d18a71 | Terminated | t2.small | -                 | View alarms + | us-east-1d | -                       | -             |
| <input type="checkbox"/>            | Eb-hello-env   | i-0b2caacf91e9f52a  | Terminated | t2.small | -                 | View alarms + | us-east-1e | -                       | -             |

## 7. Deploying the Guestbook

Take a screenshot of the Guestbook including the URL with the entry in it.



Bradley Chang <brachang@pdx.edu>  
signed on 2025-02-11 00:48:27.094863  
Hello EC2!

---

Bradley Chang <brachang@pdx.edu>  
signed on 2025-02-15 21:48:21.580718  
Hello Elastic Beanstalk!

---

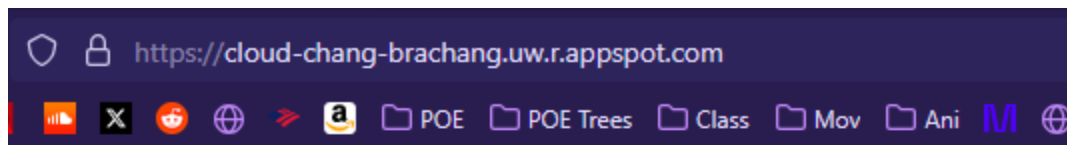
Take a screenshot of them.

| <input type="checkbox"/> | Name          | Instance ID         | Instance state | Instance type | Status check      | Alarm status                | Availability Zone | Public IPv4 DNS          | Public IPv4 ... | Elastic IP |
|--------------------------|---------------|---------------------|----------------|---------------|-------------------|-----------------------------|-------------------|--------------------------|-----------------|------------|
| <input type="checkbox"/> | guestbook-env | i-01911c00247619535 | Running        | t3.micro      | 3/3 checks passed | <a href="#">View alarms</a> | us-east-1b        | ec2-54-221-115-177.co... | 54.221.115.177  | -          |
| <input type="checkbox"/> | guestbook-env | i-0ae79a08c83d58bce | Running        | t3.micro      | 3/3 checks passed | <a href="#">View alarms</a> | us-east-1a        | ec2-3-84-57-188.comp...  | 3.84.57.188     | -          |
| <input type="checkbox"/> | guestbook-env | i-069ff03666a375411 | Running        | t3.micro      | 3/3 checks passed | <a href="#">View alarms</a> | us-east-1c        | ec2-13-216-213-234.co... | 13.216.213.234  | -          |
| <input type="checkbox"/> | ...           | df5a7d40269490      | Terminated     | t2.small      | -                 | <a href="#">View alarms</a> | us-east-1a        | -                        | -               | -          |
| <input type="checkbox"/> | brachang      | f5eb4d61aa9845      | Terminated     | t2.small      | -                 | <a href="#">View alarms</a> | us-east-1c        | -                        | -               | -          |
| <input type="checkbox"/> |               | 4e508598b7bf1e      | Terminated     | t2.small      | -                 | <a href="#">View alarms</a> | us-east-1a        | -                        | -               | -          |

## 6.1g: App Engine Guestbook

### 3. Deploying the Guestbook

Take a screenshot of the output that includes the URL in the address bar for your lab notebook.



## Guestbook

Sign [here](#)

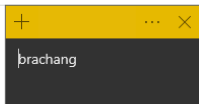
### Entries

Bradley Chang <brachang@pdx.edu>  
signed on 2025-02-16 20:25:26.934303+00:00  
Hello App Engine!

Take a screenshot of them.

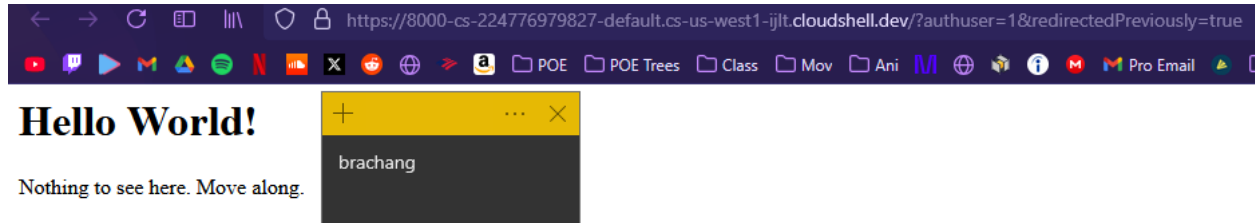
Instances ⓘ

| <input type="checkbox"/> | ID ↑                            | QPS ⓘ | Latency ⓘ | Requests | Errors | Memory   | Start Time                | Availability |
|--------------------------|---------------------------------|-------|-----------|----------|--------|----------|---------------------------|--------------|
| <input type="checkbox"/> | 00fd7d73371a41c90527f2c500f2... | 0     | 0 ms      | 3        | 0      | 107.3 MB | Feb 16, 2025, 12:22:28 PM | Resident     |
| <input type="checkbox"/> | 00fd7d73377b4c4afcd80d99bc9a... | 0     | 0 ms      | 7        | 0      | 107.6 MB | Feb 16, 2025, 12:22:28 PM | Resident     |



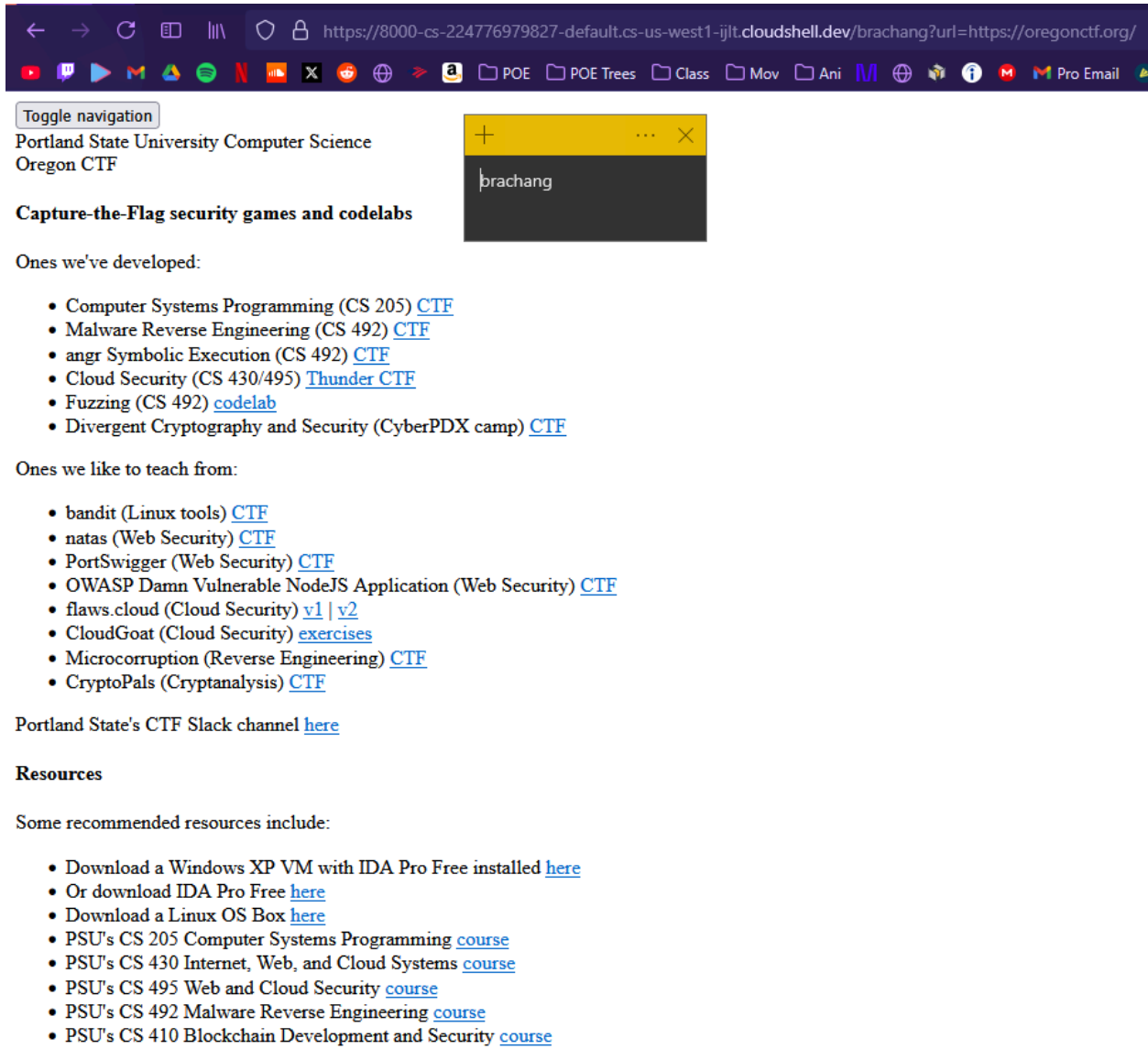
## 6.2g: Cloud Run, Secret Manager (Web proxy)

### 7. Build and test in Cloud Shell



### 8. Setup secret proxy

Take a screenshot of the proxy and its results including the URL containing your OdinID



Toggle navigation

Portland State University Computer Science  
Oregon CTF

**Capture-the-Flag security games and codelabs**

Ones we've developed:

- Computer Systems Programming (CS 205) [CTF](#)
- Malware Reverse Engineering (CS 492) [CTF](#)
- angr Symbolic Execution (CS 492) [CTF](#)
- Cloud Security (CS 430/495) [Thunder CTF](#)
- Fuzzing (CS 492) [codelab](#)
- Divergent Cryptography and Security (CyberPDX camp) [CTF](#)

Ones we like to teach from:

- bandit (Linux tools) [CTF](#)
- natas (Web Security) [CTF](#)
- PortSwigger (Web Security) [CTF](#)
- OWASP Damn Vulnerable NodeJS Application (Web Security) [CTF](#)
- flaws.cloud (Cloud Security) [v1](#) | [v2](#)
- CloudGoat (Cloud Security) [exercises](#)
- Microcorruption (Reverse Engineering) [CTF](#)
- CryptoPals (Cryptanalysis) [CTF](#)

Portland State's CTF Slack channel [here](#)

**Resources**

Some recommended resources include:

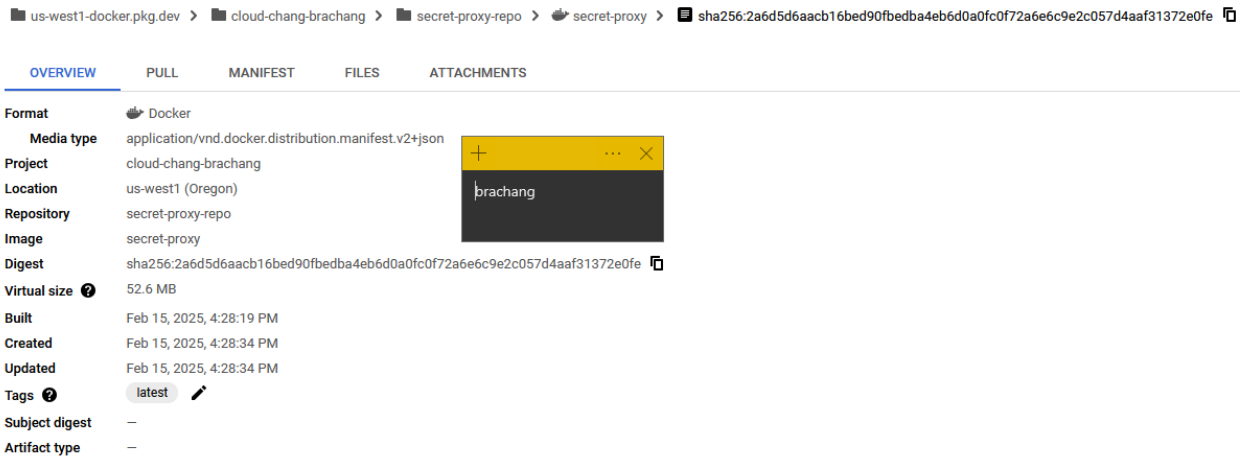
- Download a Windows XP VM with IDA Pro Free installed [here](#)
- Or download IDA Pro Free [here](#)
- Download a Linux OS Box [here](#)
- PSU's CS 205 Computer Systems Programming [course](#)
- PSU's CS 430 Internet, Web, and Cloud Systems [course](#)
- PSU's CS 495 Web and Cloud Security [course](#)
- PSU's CS 492 Malware Reverse Engineering [course](#)
- PSU's CS 410 Blockchain Development and Security [course](#)

**What is the security advantage of passing in the secret proxy route as an environment variable?**

I would guess that it allows us to hide the secret proxy route by using an environment variable.

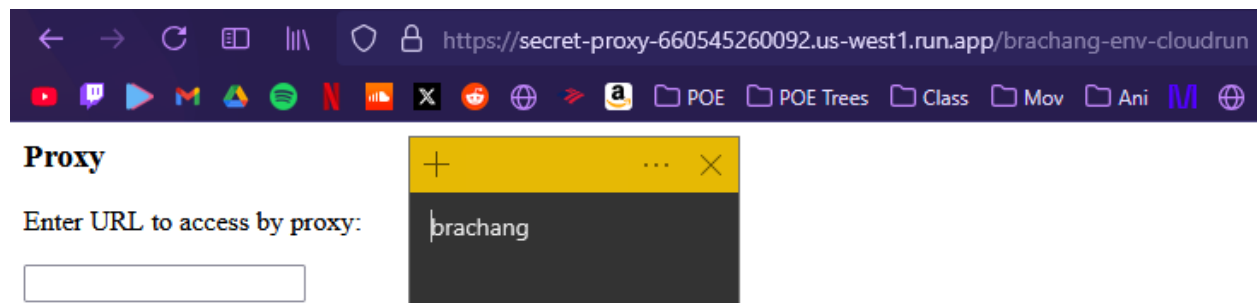
## 10. Cloud Build

Take a screenshot of the image in the registry that shows the size of the container for your lab notebook.

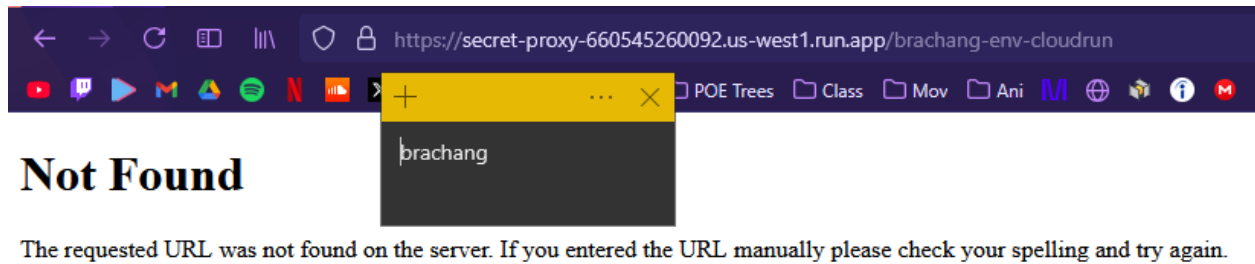


## 11. Deploy to Cloud Run

Take a screenshot of it that includes the proxy URL for your lab notebook.

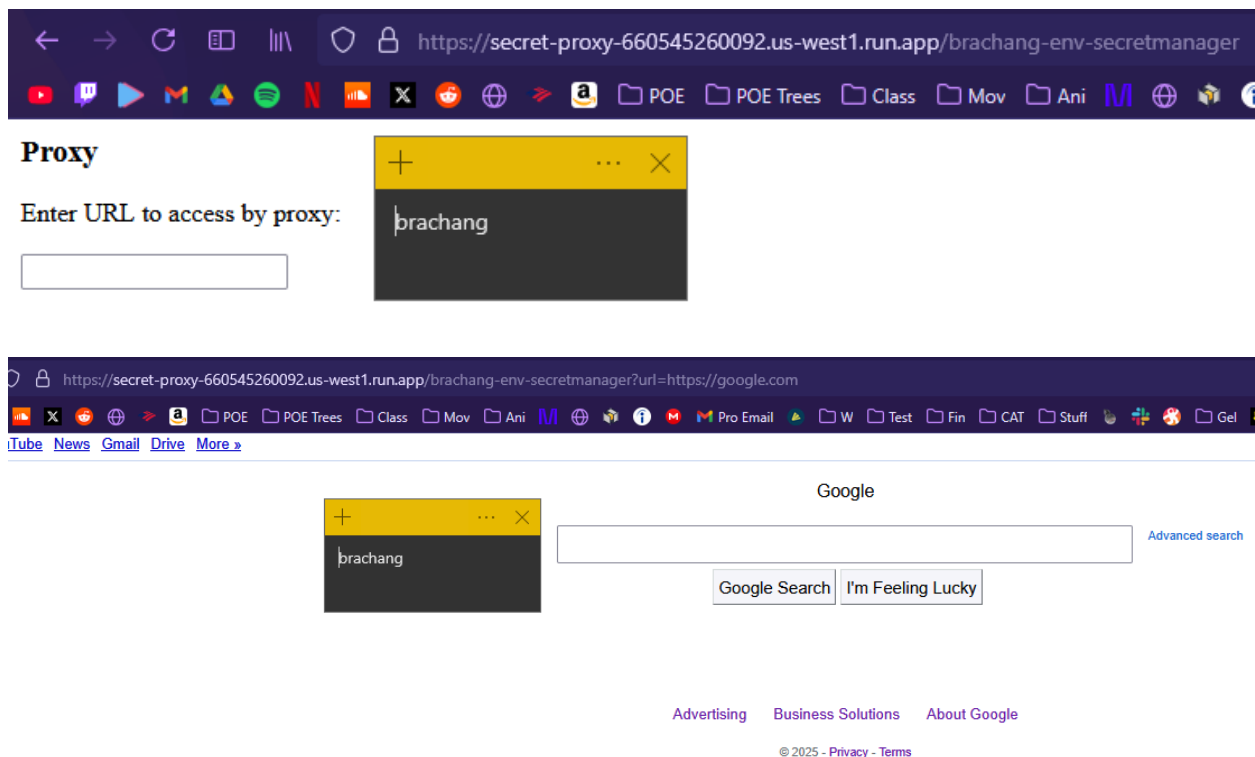


Take a screenshot of the error page that includes the proxy URL for your lab notebook.



## 13. Deploy to Cloud Run with Secret Manager

Take a screenshot of it that includes the proxy URL for your lab notebook.



Identify the vulnerability in your lab notebook that Google has prevented.

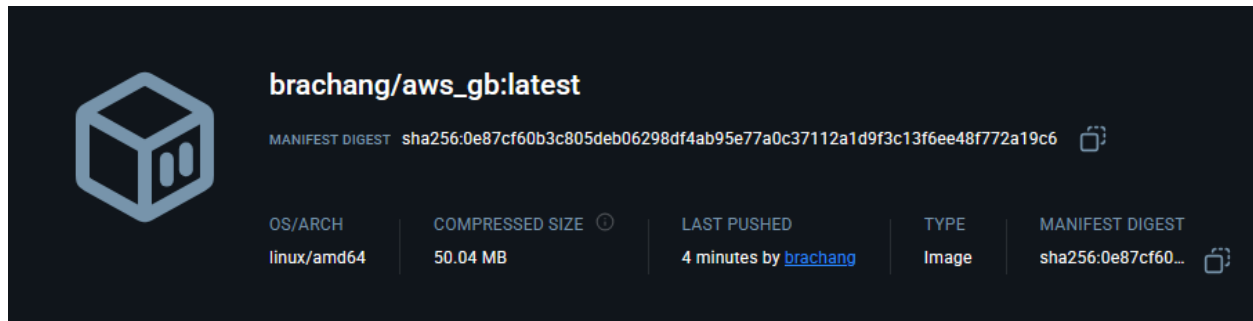
It prevented a Server Side Request Forgery or SSRF vulnerability.



## 06.3a: ECS Guestbook

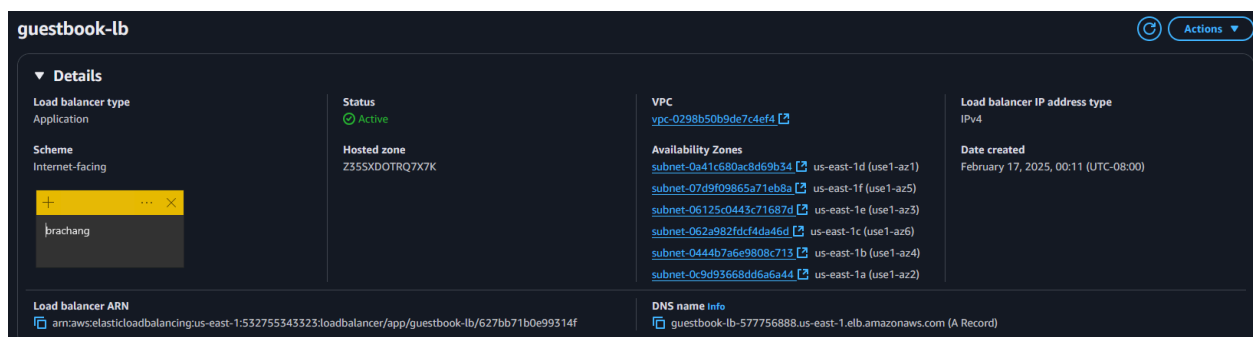
### 1. Prepare a container image

Show that your image was uploaded to your account on Docker Hub.



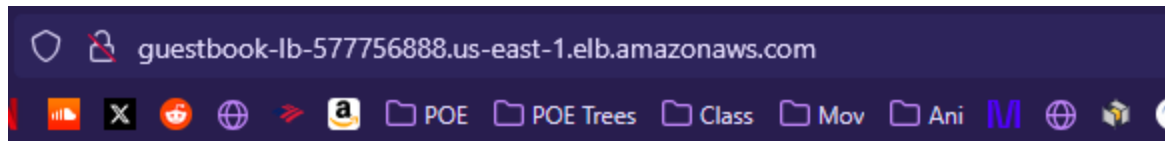
### 5. Examine the service

Take a screenshot of the DNS name of the guestbook-lb load balancer for your lab notebook



### 6. Visit the site

Take a screenshot of the Guestbook app running in a browser that includes the DNS name of the site.



signed on 2025-02-15 21:48:21.580718  
Hello Elastic Beanstalk!

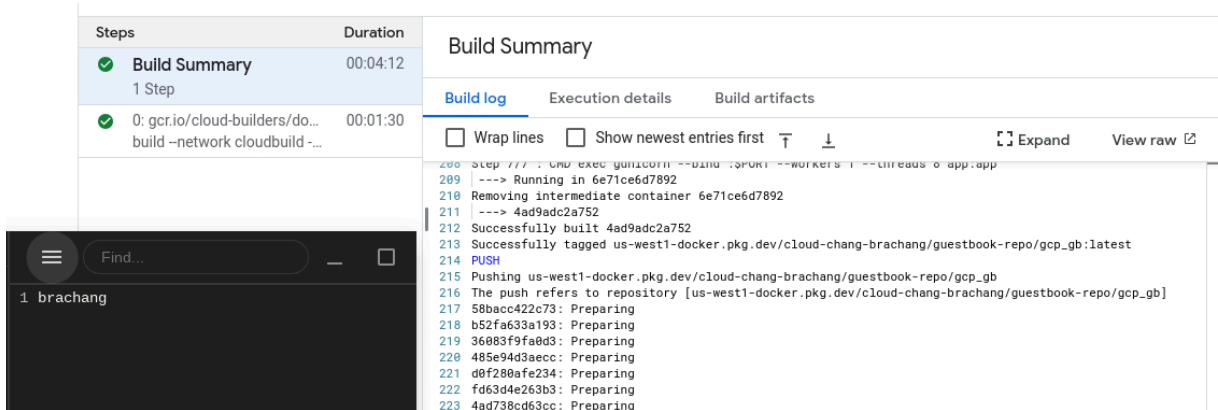
---

Bradley Chang <brachang@pdx.edu>  
signed on 2025-02-17 08:29:41.421293  
Hello ECS!

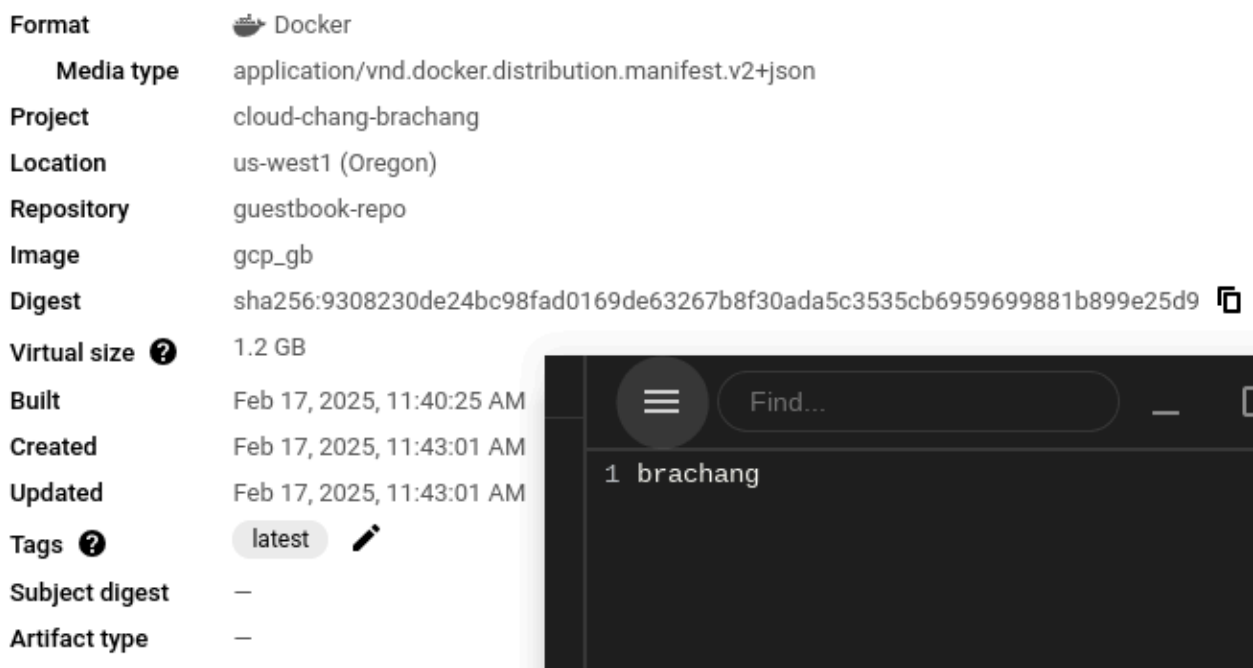
# 6.3g: Cloud Run Guestbook

## 2. Prepare a container image

Take a screenshot that includes the output of the command and the time it took to execute.

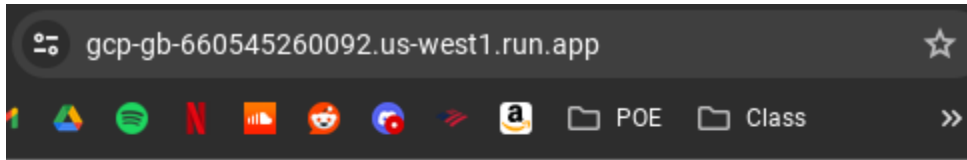


Take a screenshot showing the container image and its virtual size



## 4. View the Guestbook

Take a screenshot that includes the URL Cloud Run has created for your site.



---

Bradley Chang <brachang@pdx.edu>  
signed on 2025-02-17 20:03:05.763443+00:00  
Hello Cloud Run!

---

What port do container instances listen on?

|                  |  |
|------------------|--|
| Image            | <a href="#">us-west1-docker.pkg.dev/cloud-chang-brachang/gues...</a> |
| Port             | 8080   |
| Build            | (no build information available) ?                                   |
| Source           | (no source information available) ?                                  |
| Command and args | (container entrypoint)   |
| CPU limit        | 1  |
| Memory limit     | 512MiB   |

Listens on port 8080

What are the maximum number of instances Cloud Run will autoscale up to for your service?



## gcp-gb-00001-6q2

Deployed by brachang@pdx.edu using gcloud

### CONTAINERS

### VOLUMES

### NETWORKING

#### General

|                       |               |
|-----------------------|---------------|
| Billing               | Request-based |
| Startup CPU boost     | Enabled       |
| Concurrency           | 80            |
| Request timeout       | 300 seconds   |
| Execution environment | Default       |

#### Autoscaling

|                        |     |
|------------------------|-----|
| Revision max instances | 100 |
|------------------------|-----|

Maximum of 100 instances.

## 6.4g: Cloud Functions, PubSub

4. -

**After downloading the file from the bucket, where is it stored?**

It is stored in {temp\_local\_filename}

**What class in the ImageMagick package is used to do the blurring of the file?**

The image class.

**What lines of code perform the blurring of the image and its storage back into the filesystem?**

```
# Blur the image using ImageMagick.  
with Image(filename=temp_local_filename) as image:  
    image.resize(*image.size, blur=16, filter="hamming")  
    image.save(filename=temp_local_filename)
```

## 7. Test function

**Take a screenshot of the blurred image in the output bucket for your lab notebook**

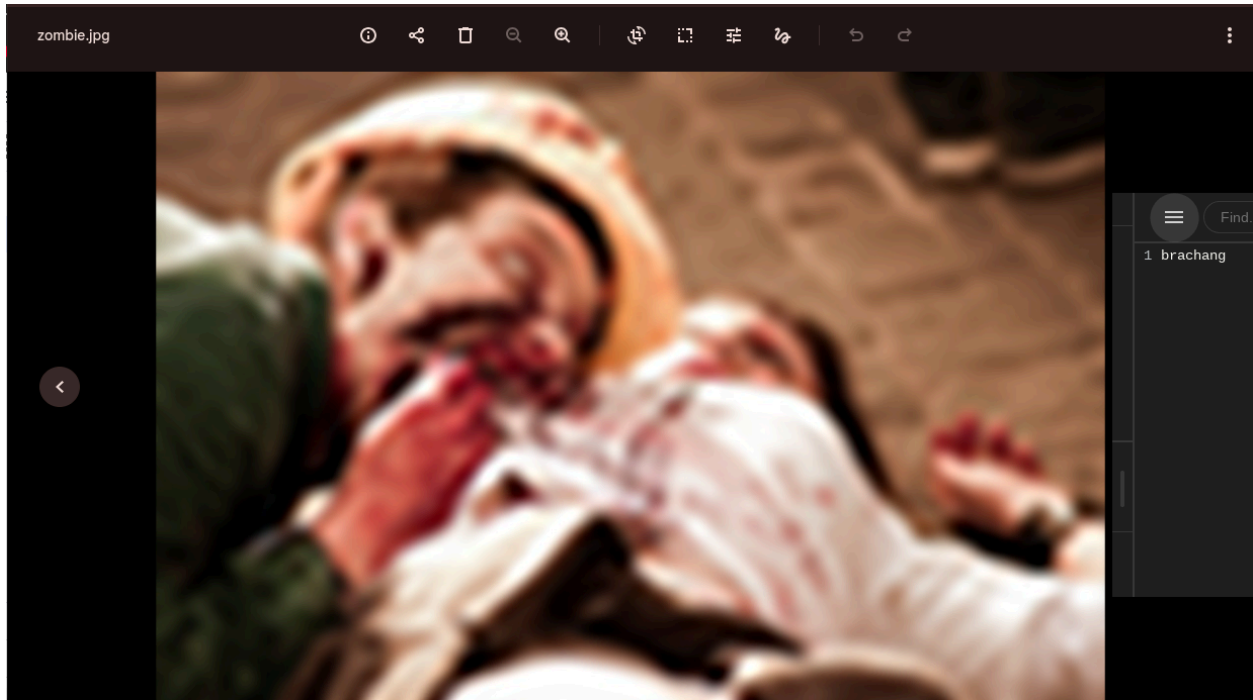


Image was automatically downloaded when I accessed it. Only way I can show it is by opening up an image app.

**Include a screenshot of the output logs that show that the above image was blurred.**

```
brachang@cloudshell:~/python-docs-samples/functions/v2/imagemagick (cloud-chang-brachang)$ gcloud beta functions logs read python-blur-function --region=us-west1 --gen2 --limit=100
LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:15.361
LOG: Blurred image uploaded to: gs://brachang-image-blur/zombie.jpg

LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:15.094
LOG: Image zombie.jpg was blurred.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:08.194
LOG: Image zombie.jpg was downloaded to /tmp/tmpwj725cer.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:08.134
LOG: The image zombie.jpg was detected as inappropriate.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:07.796
LOG: Analyzing zombie.jpg.
```

```
LEVEL:
NAME: python-blur-function
EXECUTION_ID: 3a6DNZVUOCZB
TIME_UTC: 2025-02-17 22:10:07.796
LOG: Analyzing zombie.jpg.

LEVEL: I
NAME: python-blur-function
EXECUTION_ID:
TIME_UTC: 2025-02-17 22:10:07.545
LOG:

LEVEL: I
NAME: python-blur-function
EXECUTION_ID:
TIME_UTC: 2025-02-17 22:09:16.625
LOG: Default STARTUP TCP probe succeeded after 1 attempt for container "worker" on port 8080.
brachang@cloudshell:~/python-docs-samples/functions/v2/imagemagick (cloud-chang-brachang)$
```

## 11. PubSub via CLI

### Why are there no items returned?

Because there are no items in the list since nothing was published.

## 12. -

### What is the messageId of the published message?



```
brachang@cloudshell:~ (cloud-chang-brachang)$ gcloud pubsub topics publish topic-brachang --
message="Message #2"
messageIds:
- '13970257424404077'
brachang@cloudshell:~ (cloud-chang-brachang)$
```

Take a screenshot of the output of the successful pull that includes the message and its messageId.

```
brachang@pubsub:~$ gcloud pubsub subscriptions pull sub-${USER}
+-----+-----+-----+-----+-----+-----+
| DATA | MESSAGE_ID | ORDERING_KEY | ATTRIBUTES | DELIVERY_ATTEMPT |
|      |            |              | ACK_ID     |                  |
+-----+-----+-----+-----+-----+-----+
| Message #2 | 13970257424404077 | | | | RFAGFixdRkhrNxxkIaFEOT14jPzUgKEUaAwgUBXx9cFtVdV1
dcmhRDRlyfWB8b1sVCABDB38LURsHaE5tdR-Iheb_S0NUa1kaBgJHvnlbWR8JaFhccgB5pNdcqZ72vXIJOjqc24HSbTvsyJdbZiM9xJJLD5-NTBFQV5AEkw-BURJUytD
CypYEU4EISE-MD5FUw |
+-----+-----+-----+-----+-----+-----+
brachang@pubsub:~$
```

## 15. Test programs and clean up

Take a screenshot showing the messageIds and messages sent

```
(env) brachang@cloudshell:~ (cloud-chang-brachang)$ python3 publisher.py
Enter a message to send: Hello world!
Published 13971654011054411 to topic projects/cloud-chang-brachang/topics/my_topic
Enter a message to send: vim is the best!
Published 13971645855677264 to topic projects/cloud-chang-brachang/topics/my_topic
Enter a message to send: Hello there!
Published 13970574700512149 to topic projects/cloud-chang-brachang/topics/my_topic
Enter a message to send:
```

Take a screenshot showing the same messageIds and messages received

```
(env) brachang@pubsub:~$ vim subscriber.py
(env) brachang@pubsub:~$ python3 subscriber.py
Received message 13971654011054411: 2025-02-18 01:18:41 (projects/cloud-chang-brachang/topics/my_topic) : Hello world!
Received message 13971645855677264: 2025-02-18 01:19:06 (projects/cloud-chang-brachang/topics/my_topic) : vim is the best!
Received message 13970574700512149: 2025-02-18 01:20:02 (projects/cloud-chang-brachang/topics/my_topic) : Hello there!

```