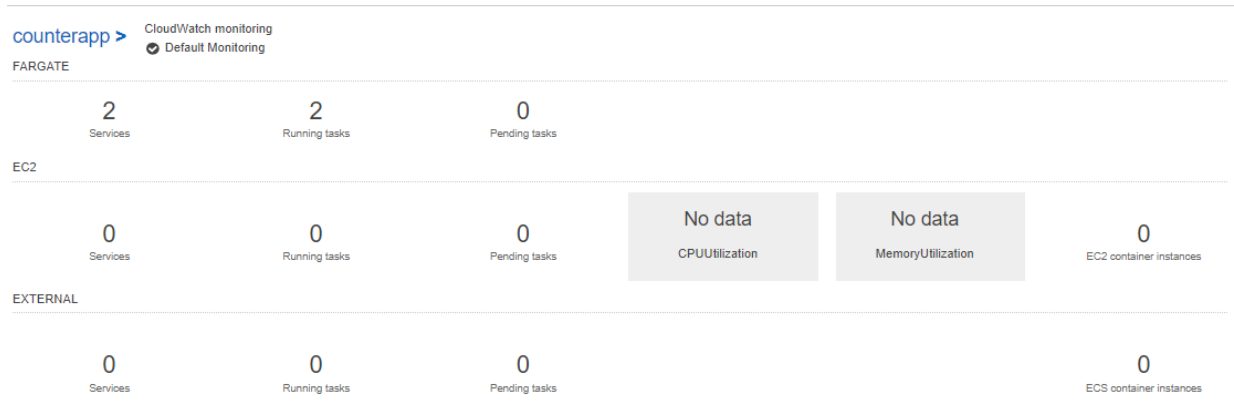


Assignment Submitted 4.5 by Ali Nasir and Sai fur Rehman

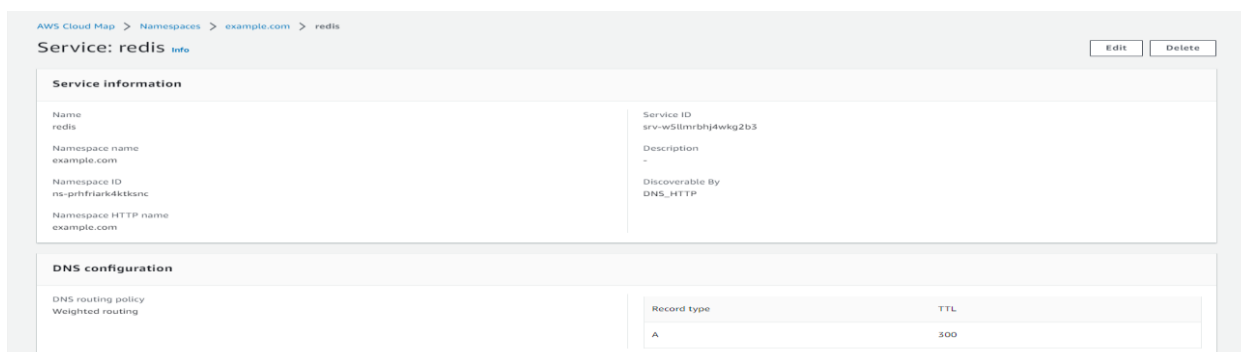
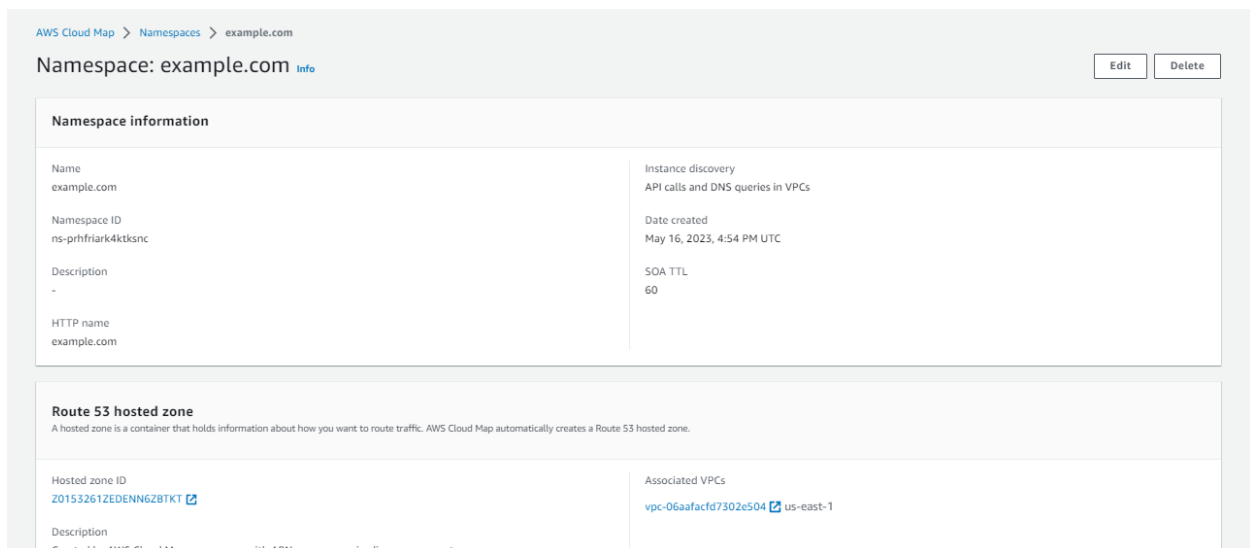
Problem Statement:

The assignmen is based o the instructions given by Sir Adil on slack

1. Create ECS Cluster



2. Setup Service Discovery



In flask app code read redis 'host' from an environment variable named 'SERVICE_DISCOVERY'. build flask app image and upload it in flask's repo.

```
1 import time
2 import redis
3 from flask import Flask
4 import os
5
6 app = Flask(__name__)
7 service = os.environ.get('SERVICE_DISCOVERY')
8 print('My Redis host: ', service)
9
10 try:
11     cache = redis.Redis(host=service, port=6379)
12 except Exception as e:
13     print('Exception: My Redis host: ', service)
14
15
16 def get_and_increas_hit_count():
17     retries = 5
18     while True:
19         try:
20             return cache.incr("hits")
21         except redis.exceptions.ConnectionError as exc:
22             if retries == 0:
23                 raise exc
24             retries -= 1
25             time.sleep(0.5)
26
27
28 @app.route("/")
29 def hello():
30     count = get_and_increas_hit_count()
31     return "Hello World! I have been seen {} times.\n".format(count)
```

```
1 FROM python:3.7-alpine
2
3 WORKDIR /code
4
5 ENV FLASK_APP=app.py
6 ENV FLASK_RUN_HOST=0.0.0.0
7 #ENV SERVICE_DISCOVERY = 'redis'
8 RUN apk add --no-cache gcc musl-dev linux-headers
9 COPY requirements.txt requirements.txt
10
11 RUN pip install -r requirements.txt
12
13 EXPOSE 5000
14
15 COPY . .
16
17 CMD ["flask", "run"]
```

From the ECS Console, navigate to Task Definitions and create new Fargate task definition

Amazon

Services

Task Definitions

Account Settings

Amazon EKS

Clusters (<https://us-east-1.console.aws.amazon.com/eks/home?region=us-east-1>)

Amazon ECR

Repositories (<https://us-east-1.console.aws.amazon.com/ecr/home?region=us-east-1>)

AWS Marketplace

Discover software

Subscriptions (<https://console.aws.amazon.com/subscriptions/home?region=us-east-1>)

Fulfillment Options

Task Definitions

flask_task1

1

The new Amazon ECS console will become the default for all users starting 2023. You can opt-in to the new console today to take advantage of the new simplified workflows for deploying tasks and services, dark mode, task definition JSON editor, and new ECS features. You can continue to use the classic console for any unsupported features in the new experience.

Task Definition: flask_task1:1

View detailed information for your task definition. To modify the task definition, you need to create a new revision and then make the required changes to the task definition.

Create new revision

Actions

Builder

JSON

Tags

Task definition name

flask_task1

Task role

None

Optional IAM role that tasks can use to make API requests to authorized AWS services. Create an Amazon Elastic Container Service Task Role in the IAM Console (<https://us-east-1.console.aws.amazon.com/iam/home?#/roles/ec2TaskExecutionRole>).

Network mode

awsvpc

If you choose "default", ECS will start your container using Docker's default networking mode, which is bridge on Linux and NAT on Windows. Windows tasks support the "default" and "awsvpc" network modes.

Operating system family

Linux

Compatibilities

EC2, FARGATE

Requires compatibilities

FARGATE

Task execution IAM role

This role is required by tasks to pull container images and publish container logs to Amazon CloudWatch on your behalf. If you do not have the `ecsTaskExecutionRole` already, we can create one for you.

Task execution role

ecsTaskExecutionRole (<https://us-east-1.console.aws.amazon.com/iam/home?#/roles/ecsTaskExecutionRole>)

Task size

The task size allows you to specify a fixed size for your task. Task size is required for tasks using the Fargate launch type and is optional for the EC2 or External launch type. Container level memory settings are optional when task size is set. Task size is not supported for Windows containers.

Task memory (MiB)

2048

Task CPU (vCPU)

1024

Task memory maximum allocation for container memory reservation

CloudShell

Feedback

Language

<https://us-east-1.console.aws.amazon.com/task-definitions/home?region=us-east-1>

[Privacy](https://aws.amazon.com/privacy/) (<https://aws.amazon.com/privacy/>)

[Terms](https://aws.amazon.com/terms/) (<https://aws.amazon.com/terms/>)

Custom preferences

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1.console.aws.amazon.com/containers/v1/home?region=us-east-1

2018-01-18 10:10

1.console.aws.amazon.com/containers/v1/home?region=us-east-1

Task CPU maximum allocation for containers

01024 shared of 1024 CPU units

Task Placement

No constraints

Container definitions

Container Name	Image	CPU Units	GPU	Inference Accelerator
task_container1	497218143173.dkr.ecr.us-east-1.amazonaws.com/task_container1	0		

Volumes

Requires attributes

Name	Value
com.amazonaws.ecs.capability.logging-driver.awslogs	
ecs.capability.execution-role-awslogs	
com.amazonaws.ecs.capability.ecr-auth	
com.amazonaws.ecs.capability.docker-remote-api.1.19	
ecs.capability.execution-role-ecr-pull	
com.amazonaws.ecs.capability.docker-remote-api.1.18	
ecs.capability.task-eni	

Language

Privacy

Terms

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1.console.aws.amazon.com/ecs

region=us-east-1

Task: CPU maximum allocation for containers

0

1024 shared of 1024 CPU units

Task Placement

Constraint: No constraints

Container definitions

Container N...	Image	CPU Units	GPU	Inference Ac...	Hard/Soft memory limits (MB)
redis_co...	49721814317...	0			--/--

Volumes

Requires attributes

Name	Value
com.amazonaws.ecs.capability.logging-driver.awslogs	
ecs.capability.execution-role-awslogs	
com.amazonaws.ecs.capability.ecr-auth	
com.amazonaws.ecs.capability.docker-remote-api.1.19	
ecs.capability.execution-role-ecr-pull	
com.amazonaws.ecs.capability.docker-remote-api.1.18	
ecs.capability.task-eni	

redis_container1

497218143173.dr.ecr.us-east-1...

0

--/--

Details

Port Mappings

Host Port	Container Port	Protocol
6379	6379	tcp

Environment Variables

Key	Value/ValueFrom
No environment variables	

Environment Files

Source	Location
No environment files	

Container Ordering

Container Name	Condition
No container ordering	

Container Timeouts

Start timeout:

Stop timeout:

Docker labels

Key	Value
No docker labels	

Extra hosts

Mount Points

Container Path	Source Volume	Read only
No mount points		

Volumes from

Source Container	Read only
No volumes from	

Ulimits

Name	Soft limit	Hard limit
No ulimit		

Elastic Inference

Accelerator

None

Log Configuration

Log driver: awslogs

Key	Value
awslogs-group	/ecs/redis_task1
awslogs-region	us-east-1
awslogs-stream-prefix	ecs

From cluster menu, create two services: flask_app and redis

Clusters > counterapp > Service: redis

Service : redis Update Delete

Cluster	counterapp	Desired count	1
Status	ACTIVE	Pending count	0
Task definition	redis_task1:1	Running count	1
Service type	REPLICA		
Launch type	FARGATE		
Service role	AWSServiceRoleForECS		
Created By	arn:aws:iam::497218143173:root		

Details Tasks Events Auto Scaling Deployments Metrics Tags Logs

Load Balancing

Load Balancer Name	Container Name	Container Port
No load balancers		

Network Access

Allowed VPC	vpc-06aafacfd7302e504
Allowed subnets	subnet-042e99f49e1725a7,subnet-0d28b5ca1a9e2698
Security groups*	sg-0484d7baf27b6c82
Auto-assign public IP	ENABLED

Service discovery

Service discovery endpoint	redis.example.com
Service discovery name	redis

Clusters > counterapp > Service: flask

Service : flask

Cluster	counterapp	Desired count	1
Status	ACTIVE	Pending count	0
Task definition	flask_task1:1	Running count	1
Service type	REPLICA		
Launch type	FARGATE		
Service role	AWSServiceRoleForECS		
Created By	arn:aws:iam::497218143173:root		

Details Tasks Events Auto Scaling Deployments Metrics Tags Logs

Load Balancing

Load Balancer Name	Container Name	Container Port
No load balancers		

Network Access

Allowed VPC	vpc-06aafacfd7302e504
Allowed subnets	subnet-042e99f49e1725a7,subnet-0d28b5ca1a9e2698
Security groups*	sg-0f9a222c77b616477
Auto-assign public IP	ENABLED

Network interfaces (1) Info Refresh Actions Create network interface

Clear filters

	Name	Network interface ID	Subnet ID	VPC ID	Availability Zone	Security groups
<input type="checkbox"/>	-	eni-0f3535f4a4cc1e091	subnet-04f2e99f49e1725a7	vpc-06aafacfd7302e504	us-east-1a	flask...

Public IPv4 DNS for the ENI, copy it and paste it in the browser address bar, adding the port number 5000 in the end (e.g. ec2-35-158-125-37.eu-central-1.compute.amazonaws.com:5000)

▼ Network interface details		
Network interface ID eni-0f3535f4a4cc1e091	Name -	Description arn:aws:ecs:us-east-1:497218143173:attachment/9abc5681-685e-4c21-8cee-20c315a807ed
Network interface status In-use	Interface type Elastic network interface	Security groups sg-0f9a222c77b616477 (flask-2894)
VPC ID vpc-06aafacf7302e504	Subnet ID subnet-04f2e99f49e1725a7	Availability Zone us-east-1a
Owner 497218143173	Requester ID 578734482556	Requester-managed True
Source/dest. check True		
▼ IP addresses		
Private IPv4 address 10.0.0.225	Private IPv4 DNS ip-10-0-0-225.ec2.internal	Elastic Fabric Adapter False
Public IPv4 address 34.207.80.100	Public IPv4 DNS ec2-34-207-80-100.compute-1.amazonaws.com	IPv6 addresses -
Secondary private IPv4 addresses -	Association ID -	Elastic IP address owner amazon
MAC address 0a:13:27:6a:f5:31	IPv4 Prefix Delegation -	IPv6 Prefix Delegation -
▼ Instance details		
Hello World! I have been seen 1 times.		
Hello World! I have been seen 3 times.		