AWS – X-Ray

By

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AWS X-Ray

- AWS X-Ray makes it easy for developers to analyze the behavior of their distributed applications by providing request tracing, exception collection, and profiling capabilities.

TRACE REQUESTS

AWS X-Ray traces requests made to your application.

X-Ray collects data about the request from each of the underlying application services it passes through.

RECORD TRACES

X-Ray combines the data gathered from each service into singular units called traces.

VIEW SERVICE MAP

View the service map to see trace data such as latencies, HTTP statuses, and metadata for each service.

ANALYZE ISSUES

Drill into the service showing unusual behavior to identify the root issue.

- AWS X-Ray traces requests as they move through your applications.
- It collects data and makes it available to view, filter, and sort.
- You can then use the data to gain insights and identify potential optimizations to make inside your application.

• X-Ray concepts:

a. Segments - Data about the work done by your application(Can include data on: the request, the response, subsegments, and issues)

b. Subsegments - A more granular view of data inside of segments

c. Service Graph - A JSON document that contains information about how your application's services and resources interact(this can create a visualized service map)

d. Traces - Trace ID's track requests as they go through your applications:

a. The first X-Ray supported service to interact with a request adds an HTTPS trace ID header

b. The trace ID header propagates downstream to track the request as it moves through the system

e. Sampling - X-Ray applies an alogorithm to sample request data but you can configure the frequncy of sampling(e.g. to reduce it on high-volume or lower-volume requests)

f. Tracing Header - Examples : X-Amzn-Trace-id: Root=1-.5759e988;Sampled=1

g. Filter Expressions - used in the X-Ray console to search through your traces by different characteristics(e.g. Specific trace ids, partial URL paths, annotations)

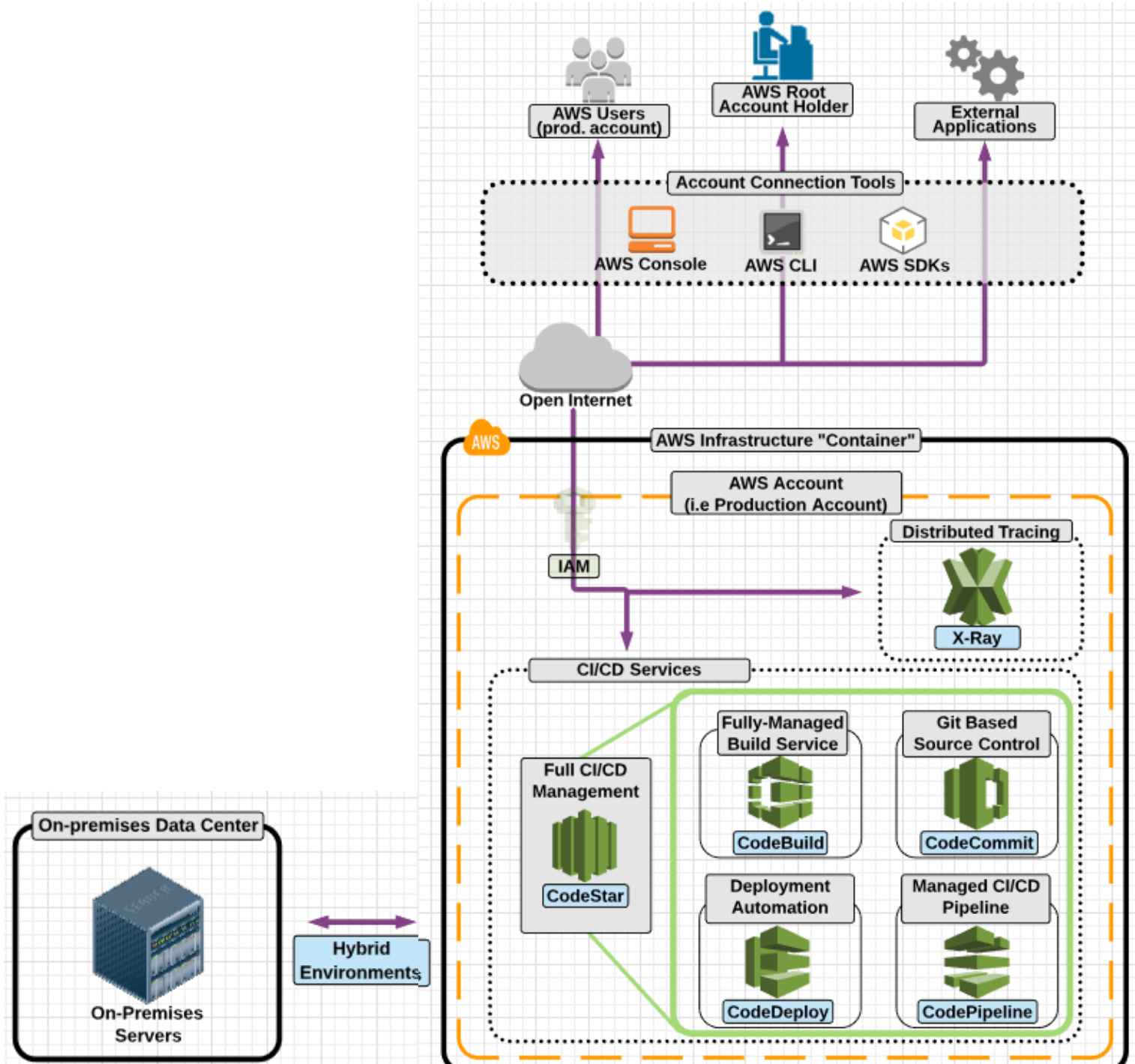
h. Annotations and Metadata - Additional way to store searchable annotations and non-searchable metadata data about traces.

i. Errors, Faults, and Exceptions - X-Ray tracks application errors and categorizes them as:

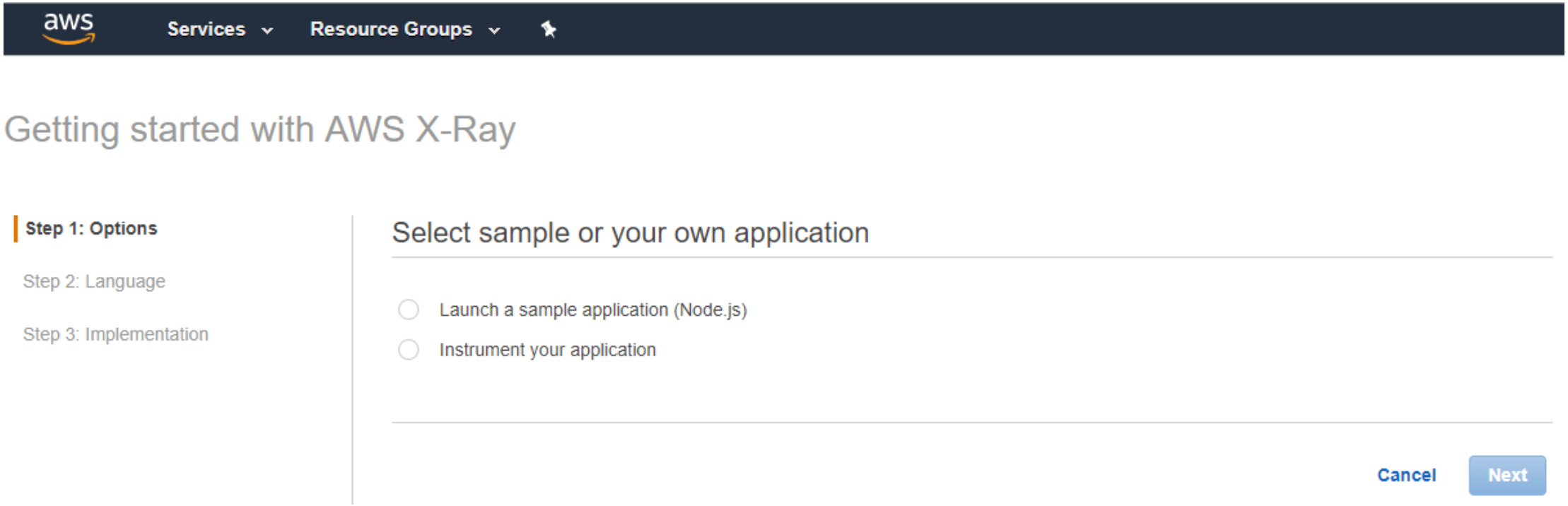
    a. Error - Client errors(400 series errors)

    b. Fault - Server faults(500 series errors)

    c. Throttle - Throttling errors(429 too many requests)


AWS Users
(prod. account)
AWS Root
Account Holder
External
Applications
Account Connection Tools
AWS Console
AWS CLI
AWS SDKs
Open Internet
AWS
AWS Infrastructure "Container"
AWS Account
(i.e Production Account)
Distributed Tracing
IAM
X-Ray
CI/CD Services
Fully-Managed
Build Service
Git Based
Source Control
Full CI/CD
Management
CodeBuild
CodeCommit
CodeStar
Deployment
Automation
Managed CI/CD
Pipeline
CodeDeploy
CodePipeline
On-premises Data Center
Hybrid
Environments
On-Premises
Servers

Step by Step X-Ray Service Practical Steps



Click on “Launch Sample Application”

Getting started with AWS X-Ray

Step 1: Options

Step 2: Language

Step 3: Implementation

Launch the sample application

The sample application uses AWS CloudFormation to create an Elastic Beanstalk application that generates sample data for you to view in the AWS X-Ray console.Click here to learn more about the sample application and view the source code.

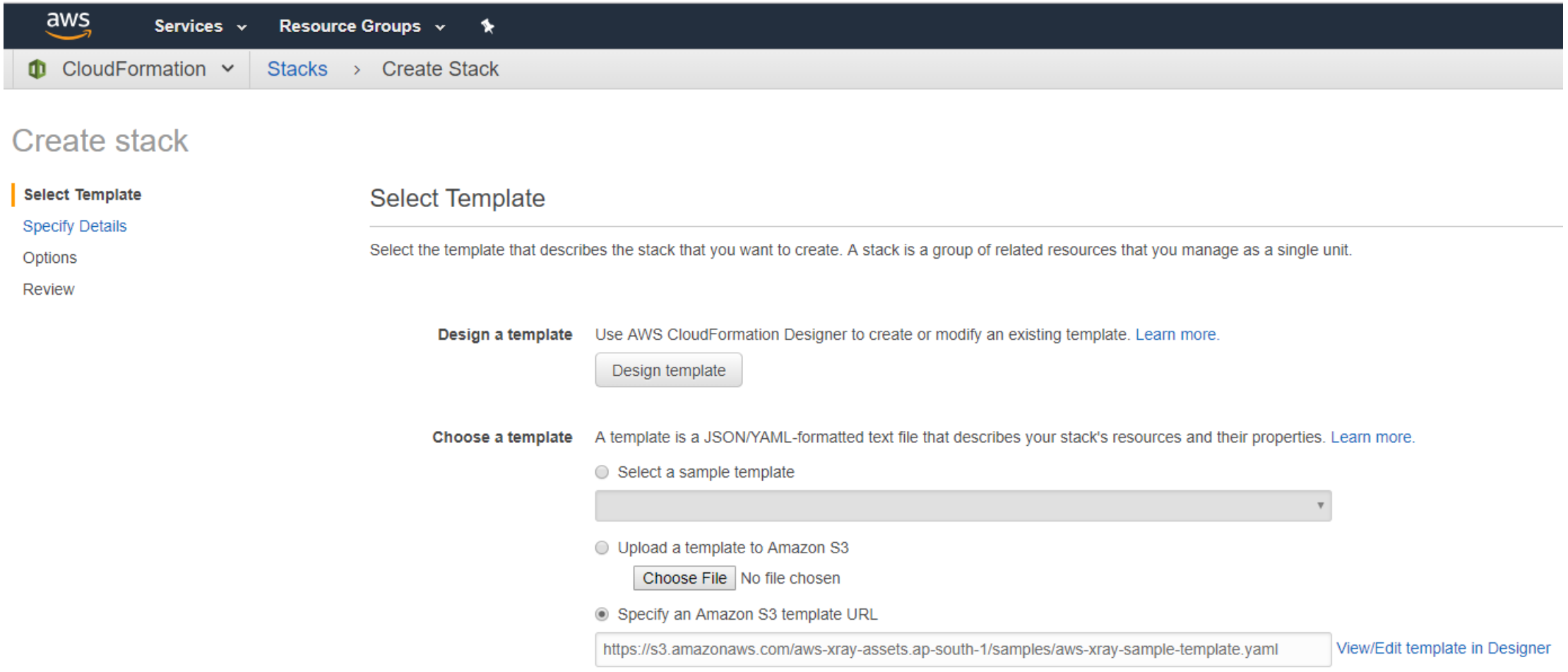
1. Choose **Launch sample application** to open the template in the CloudFormation console.
2. Choose **Next**.
3. Optionally, edit the **Stack name**. Choose **Next**.
4. Optionally, add tags to the sample stack. Choose **Next**.
5. Confirm that IAM resources will be created, and then choose **Create**.
6. It takes a few minutes for CloudFormation to create the resources used in the sample. When the status of your stack transitions to **CREATE_COMPLETE**, select it from the list and choose the **Output** tab.
7. Find the **ElasticBeanstalkEnvironmentURL** key. Copy the value into your web browser to visit the sample application.
8. Return to this page and choose **Done** to proceed to the service map.

Cleaning up

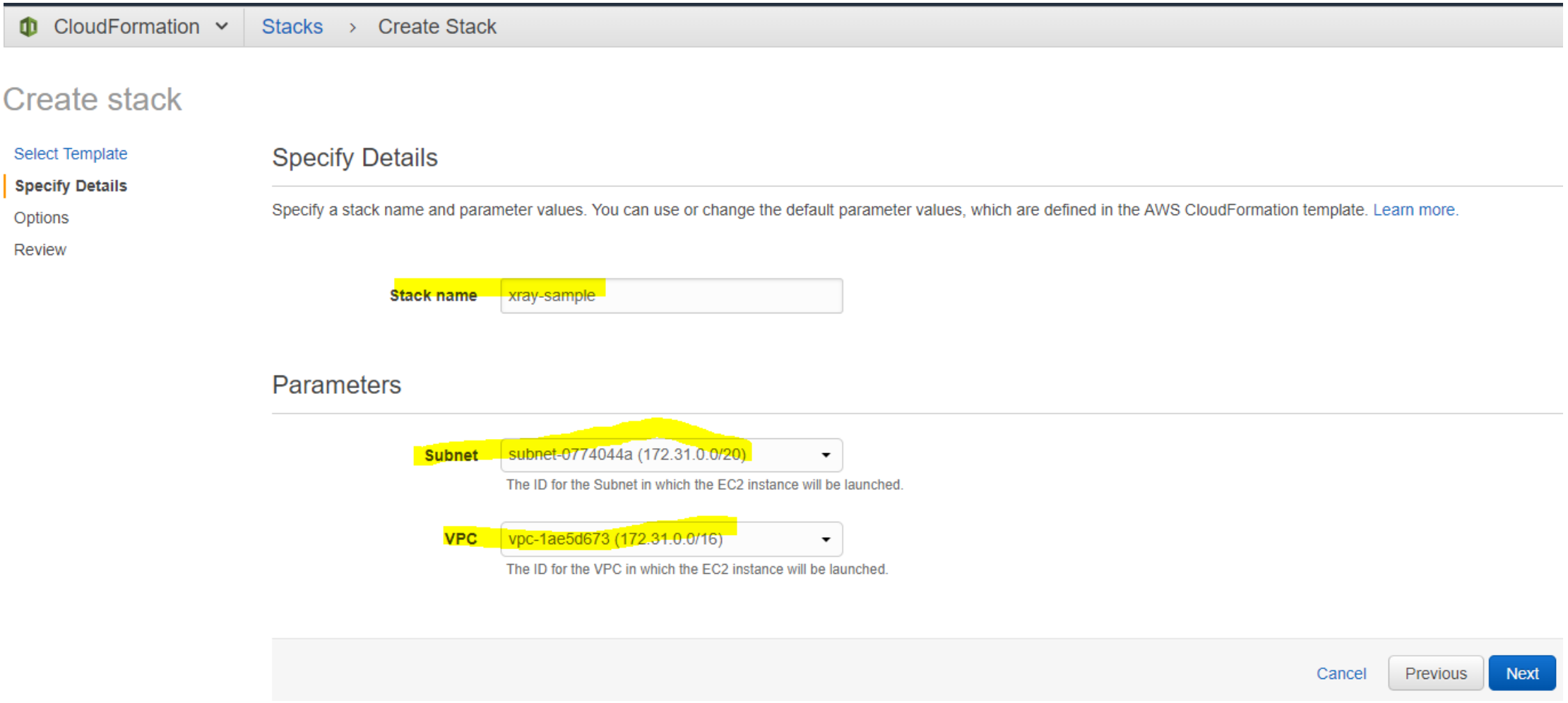
To delete the resources created in this sample, open the CloudFormation console, select the sample stack from the list, and then for **Actions**, choose **Delete Stack**.

Cancel | Previous | Launch sample application

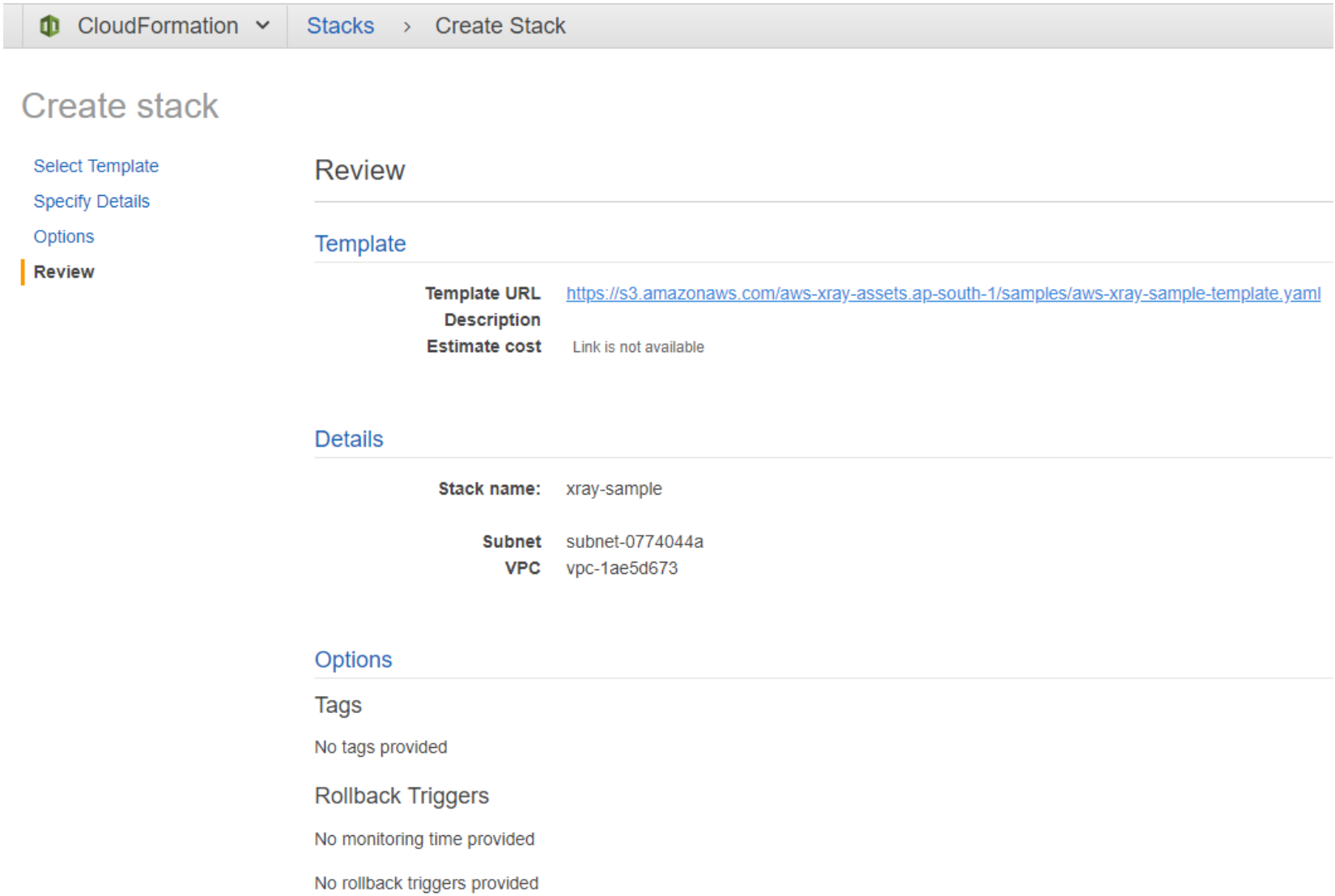
Click on “Next”



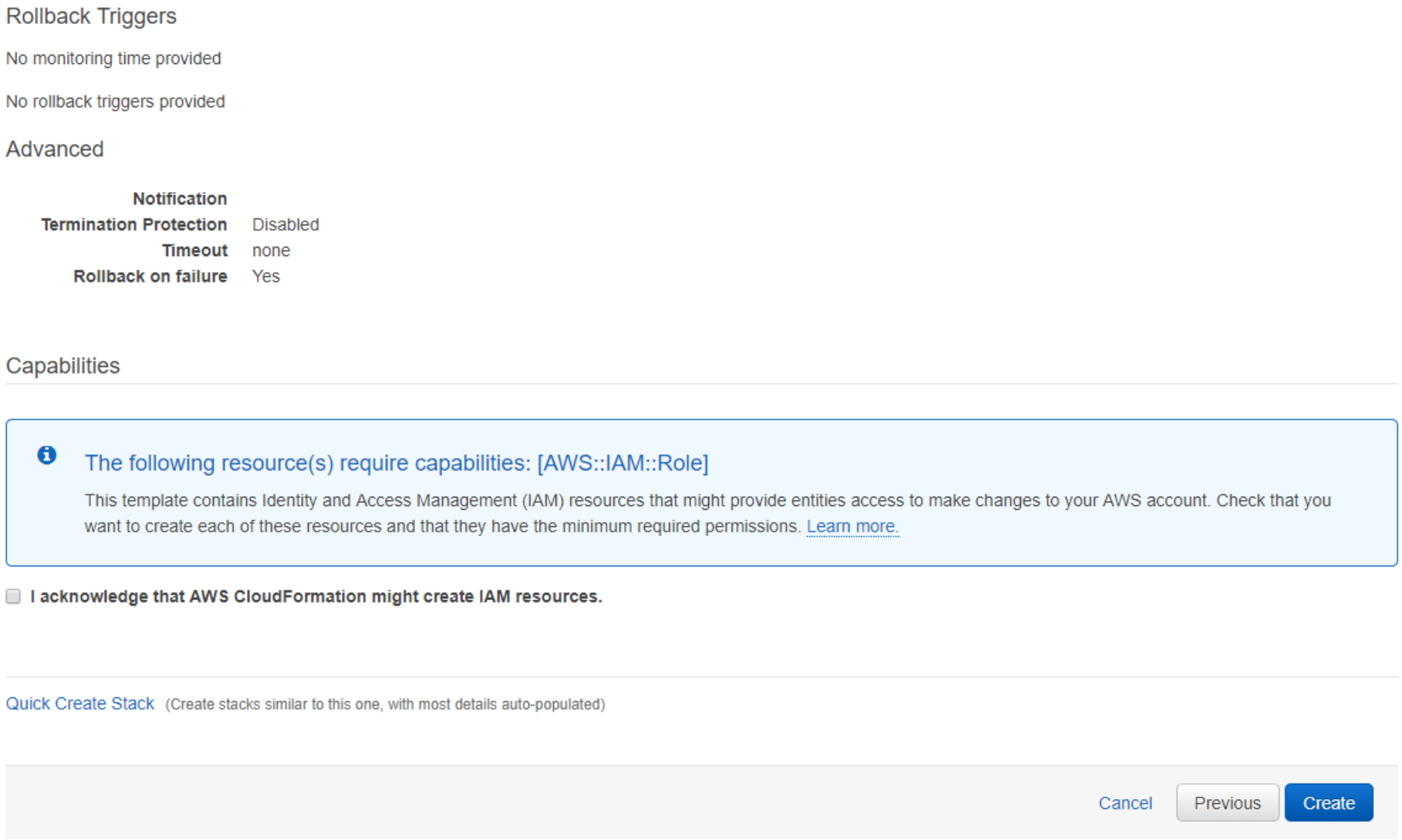
Click on “Next”



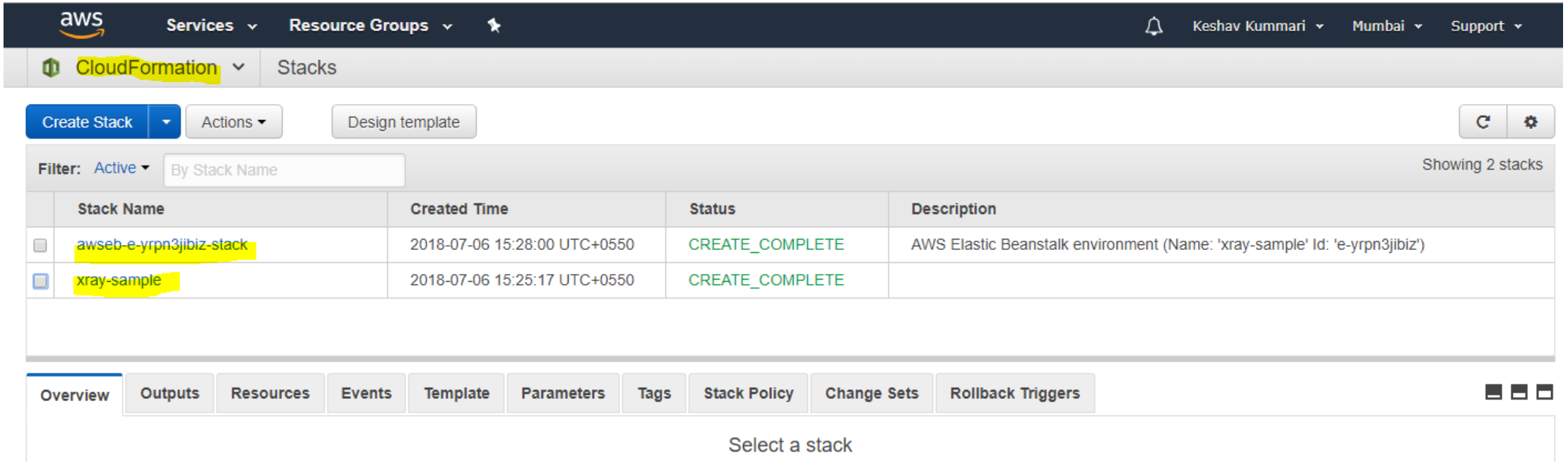
Review


CloudFormation
Stacks
Create Stack
Create stack
Select Template
Specify Details
Options
Review
Review
Template
Template URL
https://s3.amazonaws.com/aws-xray-assets.ap-south-1/samples/aws-xray-sample-template.yaml
Description
Estimate cost
Link is not available
Details
Stack name:
xray-sample
Subnet
subnet-0774044a
VPC
vpc-1ae5d673
Options
Tags
No tags provided
Rollback Triggers
No monitoring time provided
No rollback triggers provided

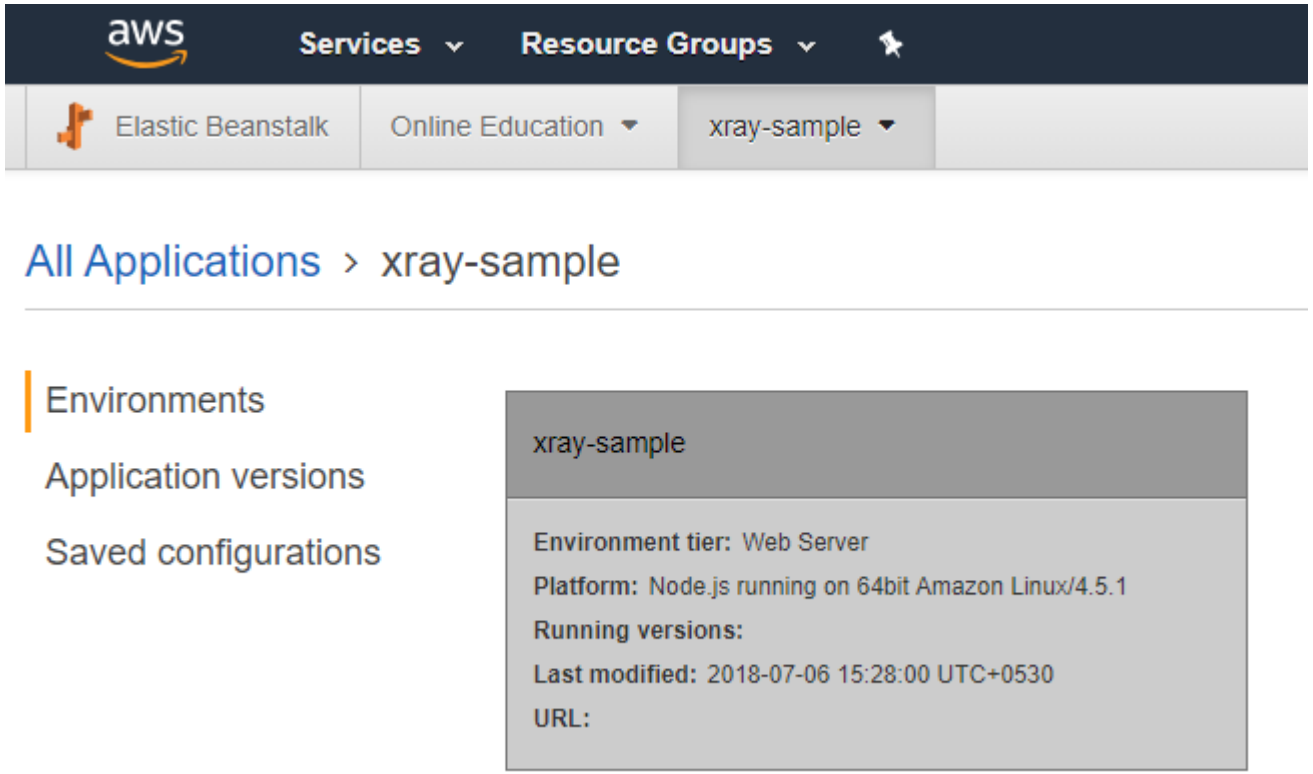
Click on “Create”



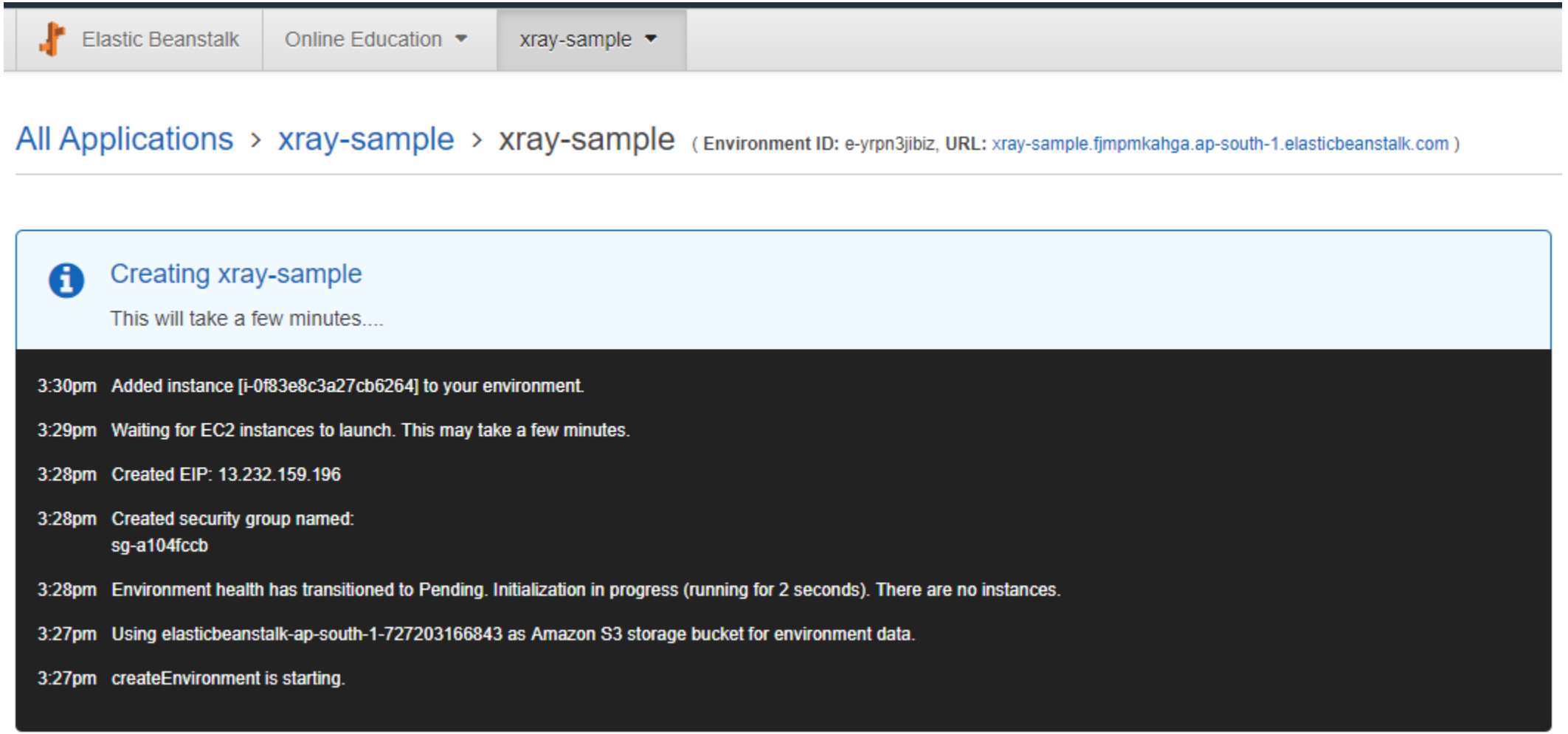
It has created two cloudFormation stacks



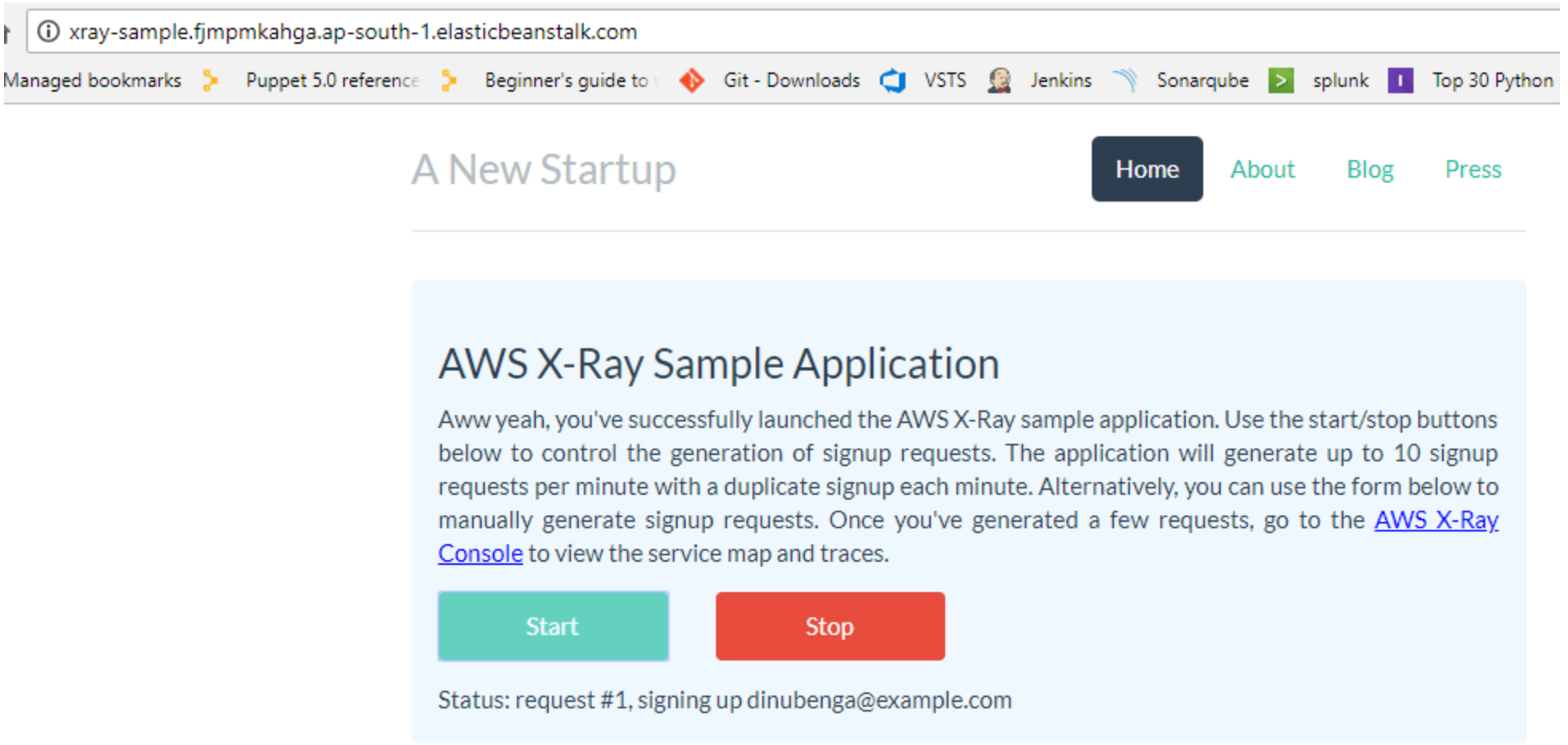
Go to >> Elastic Beanstalk and check Xray Sample Application is created



Click on “**URL:** xray-sample.fjmpmkahga.ap-south-1.elasticbeanstalk.com“



Click on “Start” button



“nodejs“ application has been deployed

All Applications › xray-sample › xray-sample (**Environment ID:** e-yrpn3jibiz, **URL:** xray-sample.fjmpmkahga.ap-south-1.elasticbeanstalk.com) **Actions**

- Dashboard
- Configuration
- Logs
- Health
- Monitoring
- Alarms
- Managed Updates
- Events
- Tags

Overview

Refresh

Health

Ok

Causes

Running Version

xray-sample-elasticbeanstalkapplicationversion-1s3lfy2p1u4fb

Upload and Deploy

Configuration

Node.js running on 64bit Amazon Linux/4.5.1

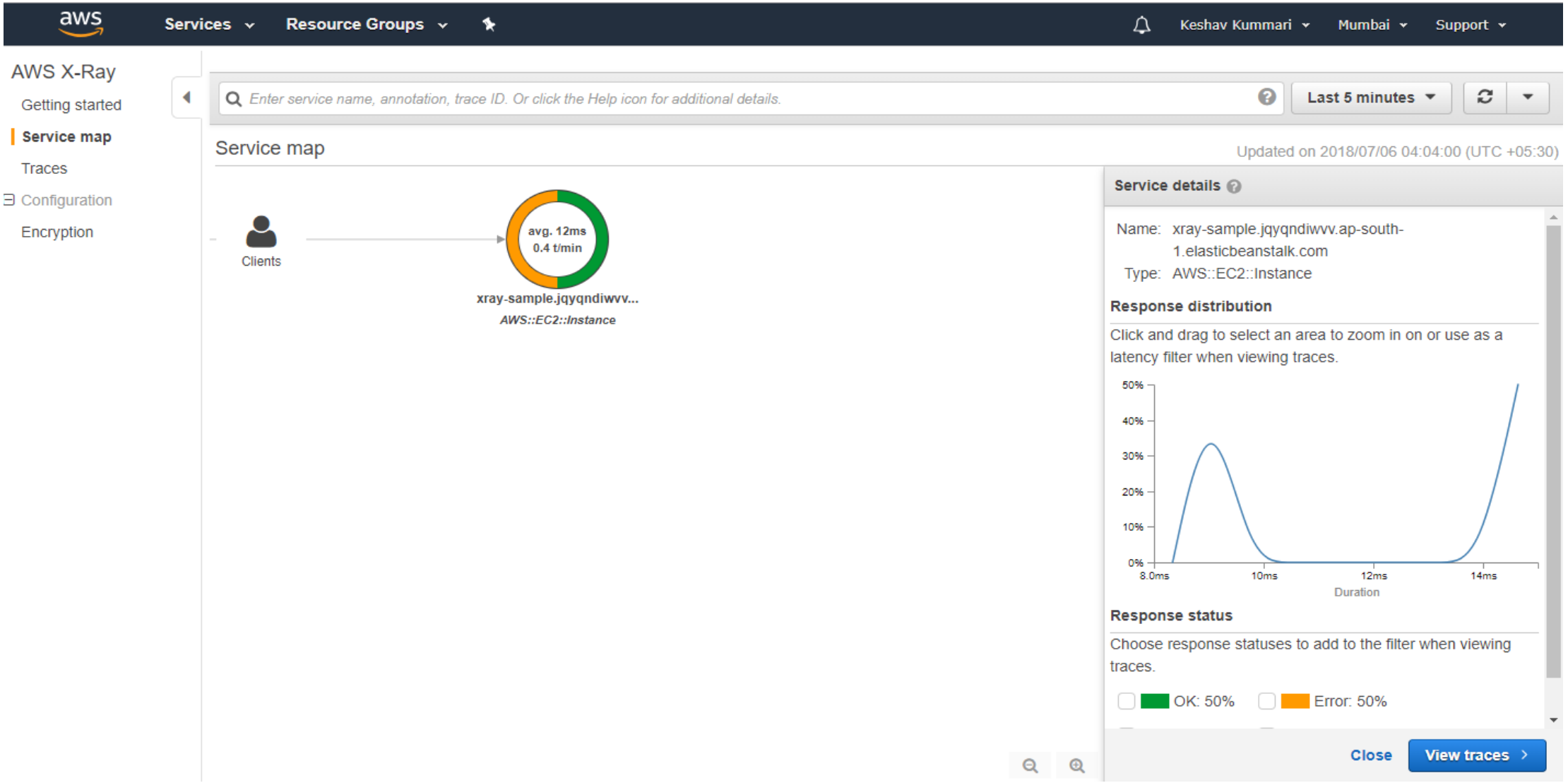
Change

Recent Events

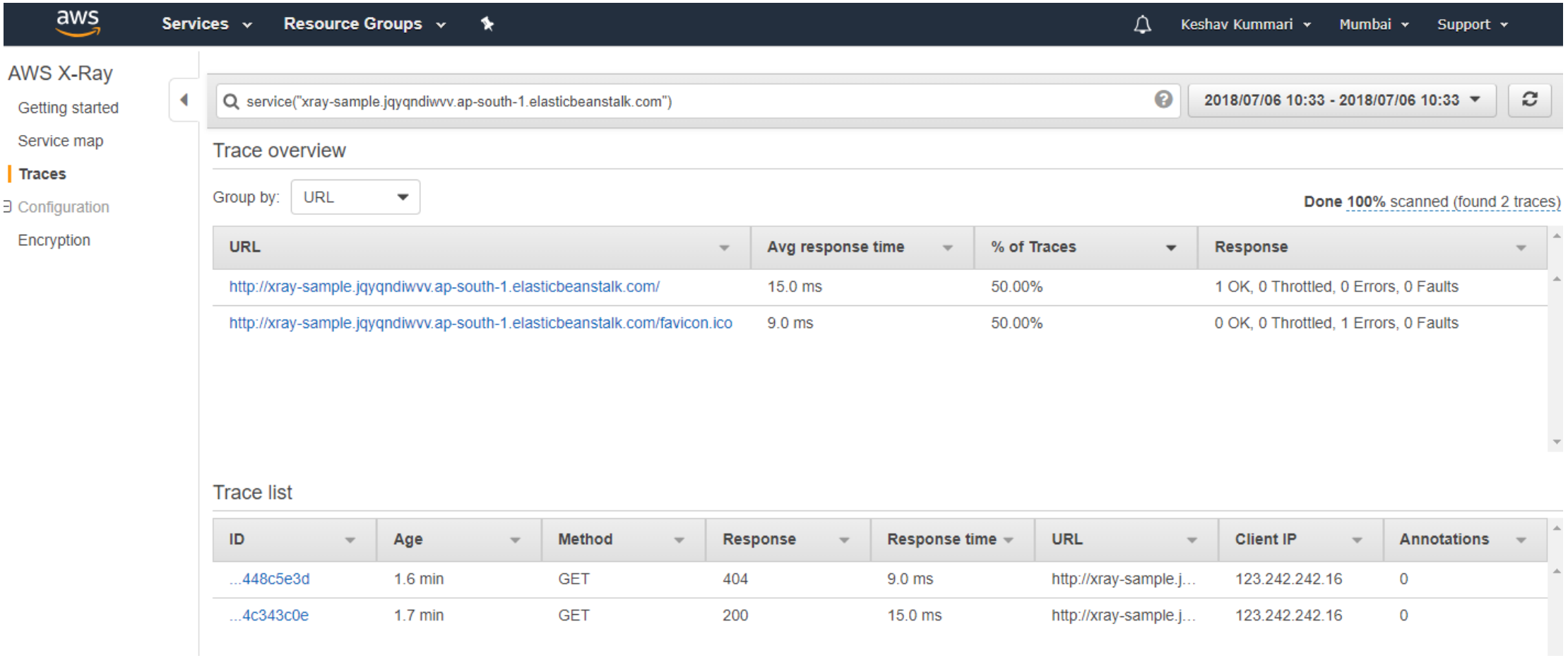
Show All

Time	Type	Details
2018-07-06 15:31:25 UTC+0530	INFO	Successfully launched environment: xray-sample
2018-07-06 15:31:08 UTC+0530	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 44 seconds ago and took 2 minutes.
2018-07-06 15:30:09 UTC+0530	INFO	Added instance [i-0f83e8c3a27cb6264] to your environment.
2018-07-06 15:29:36 UTC+0530	INFO	Waiting for EC2 instances to launch. This may take a few minutes.
2018-07-06 15:28:31 UTC+0530	INFO	Created EIP: 13.232.159.196

Check the Service Map



Click on “Traces” and cross check the trace info



Thank you so much