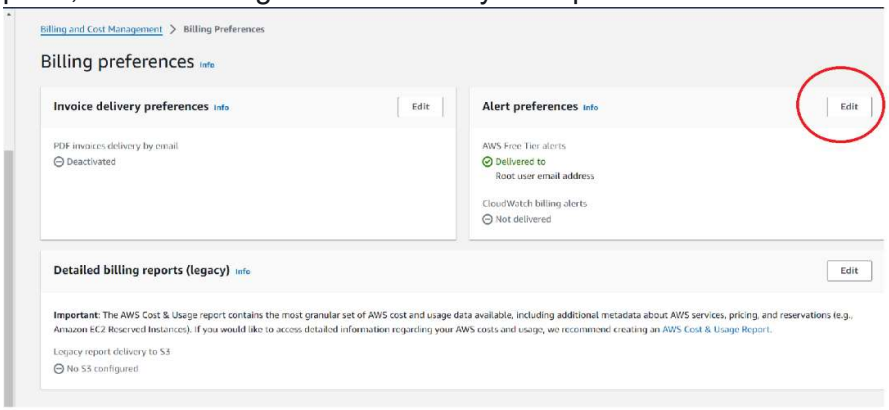
Tasks To Be Performed:

1. Create a CloudWatch billing alarm which goes off when the estimated charges go above $500.

Solution:

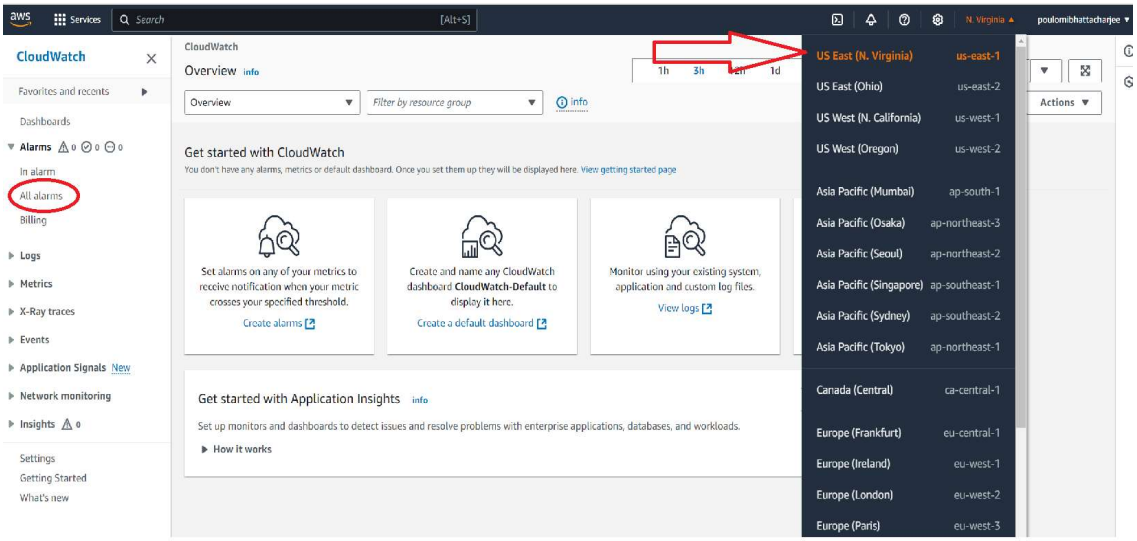
1) To create a billing alarm first we need to change our region to US-East because Billing metric data is stored in this Region and represents worldwide charges. Before we can create an alarm for estimated charges, we must enable billing alerts, so that we can monitor our estimated AWS charges and create an alarm using billing metric data.

2) To enable billing alerts. First Open the AWS Billing console . In the navigation pane, choose Billing Preferences. By Alert preferences choose Edit.

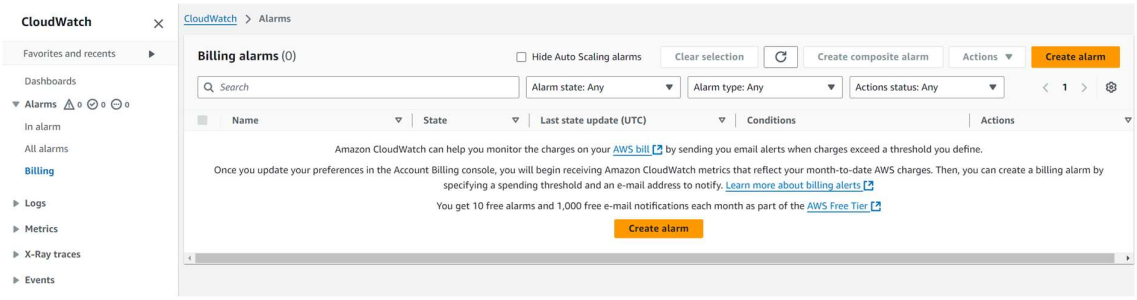


3) Choose Receive CloudWatch Billing Alerts.Choose Save preferences.

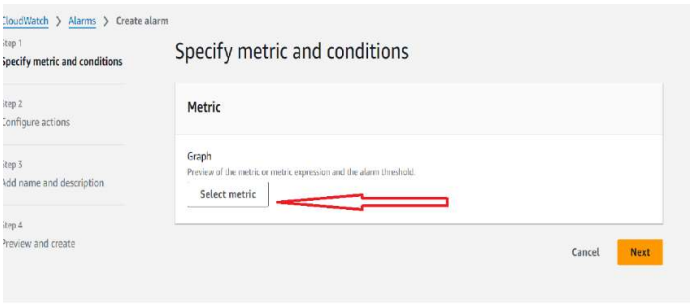
4) On the Cloudwatch click on all alarms.



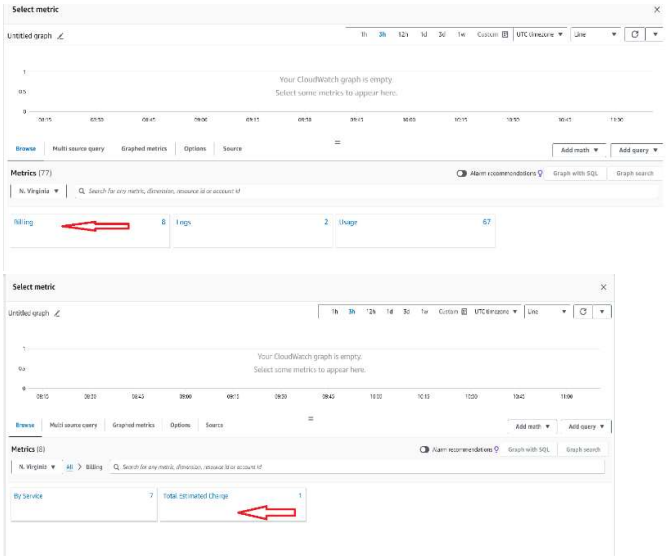
5) Click on create alarm .



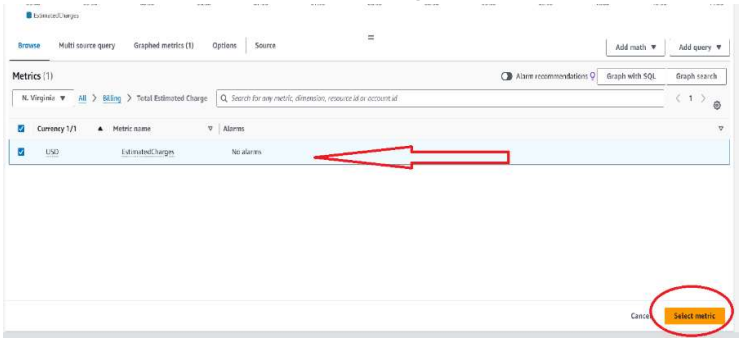
6) Select metric.



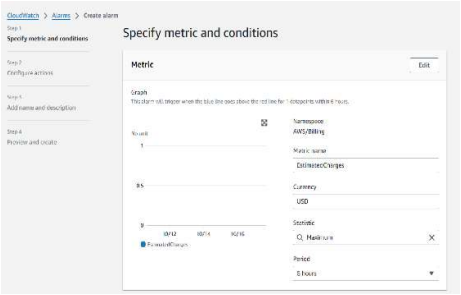
7) choose Billing, and then choose Total Estimated Charge.



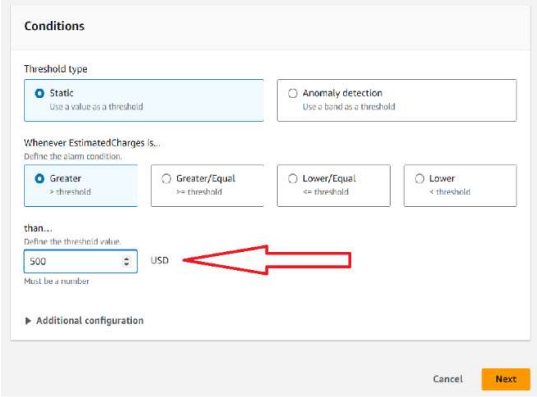
8) Select the box for the EstimatedCharges metric, and then choose Select metric.



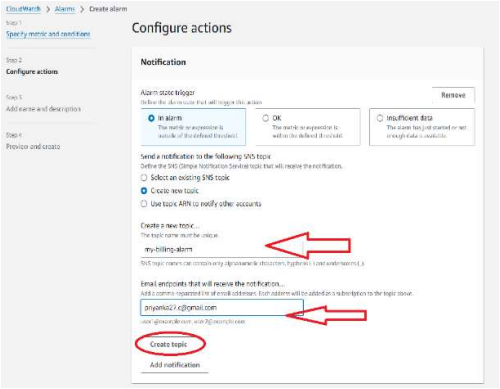
9) For Statistic, choose Maximum and For Period, choose 6 hours.



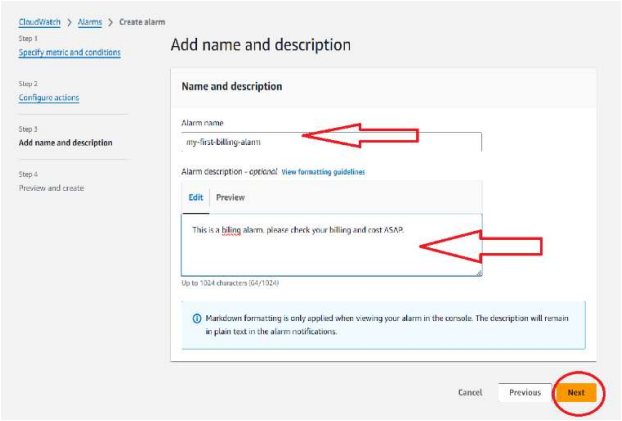
10) For Threshold type, choose Static.For Whenever EstimatedCharges is choose Greater. For than define the value that you want to cause your alarm to trigger. Click next.



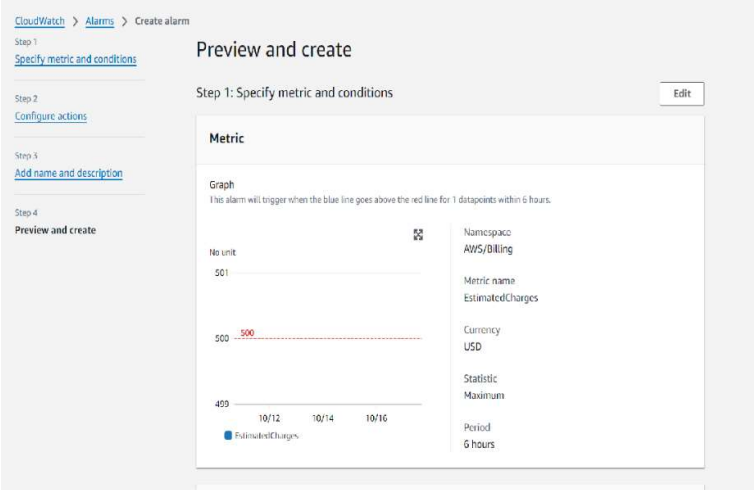
11) Under notification tab, select in alarm and create a new SNS topic. Give a name and the email id where the billing alarm will send notification and create topic.



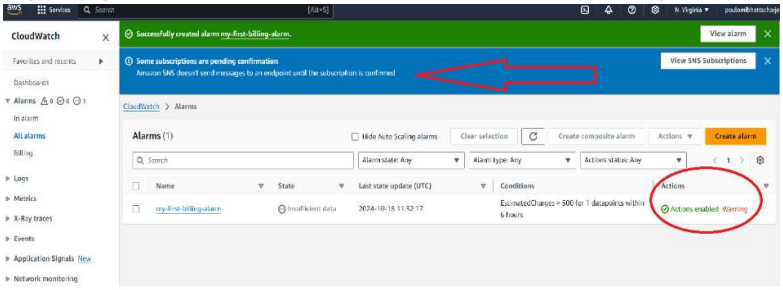
12) Give a name for the alarm and alarm description and click next.



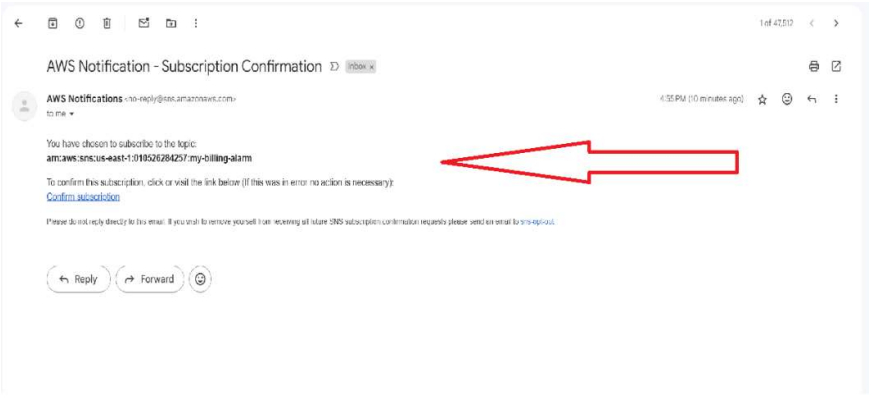
13) Preview and create your billng alarm.



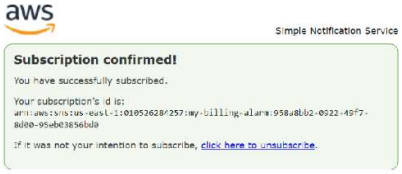
14) My billing alarm is created. There are some actions pending as we have enabled SNS .



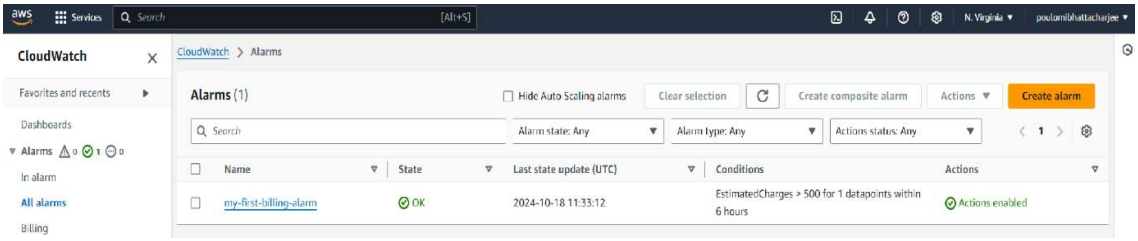
15) So log into the email which we provided earlier as email endpoint to receive notification. AWS will send a notification and we have to confirm the subscription.



16) Subscription confirmed.



17) Now finally our billing alarm which goes off when the estimated charges go above $500 is created.

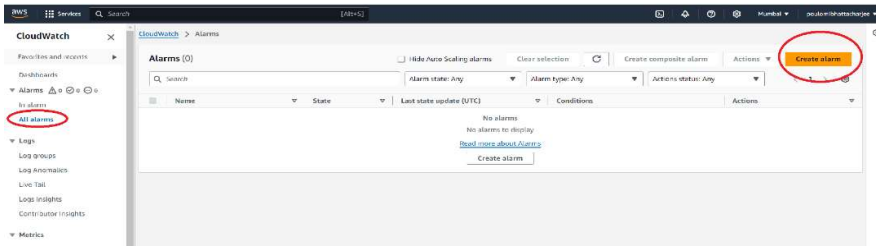


Tasks To Be Performed:

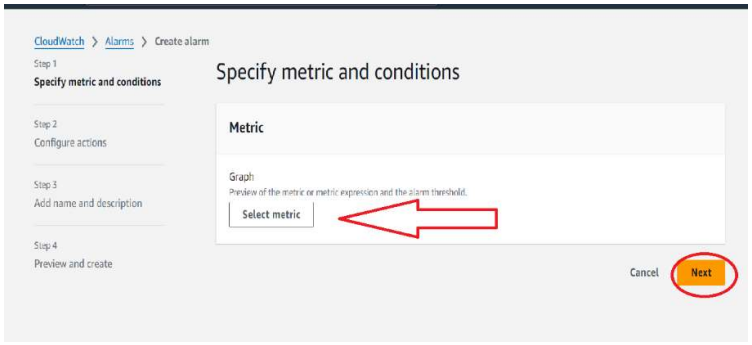
Create a CloudWatch alarm which goes off to an Alarm state when the CPU utilization of an EC2 instance goes above 65%. Also add an SNS topic so that it notifies the person when the threshold is crossed.

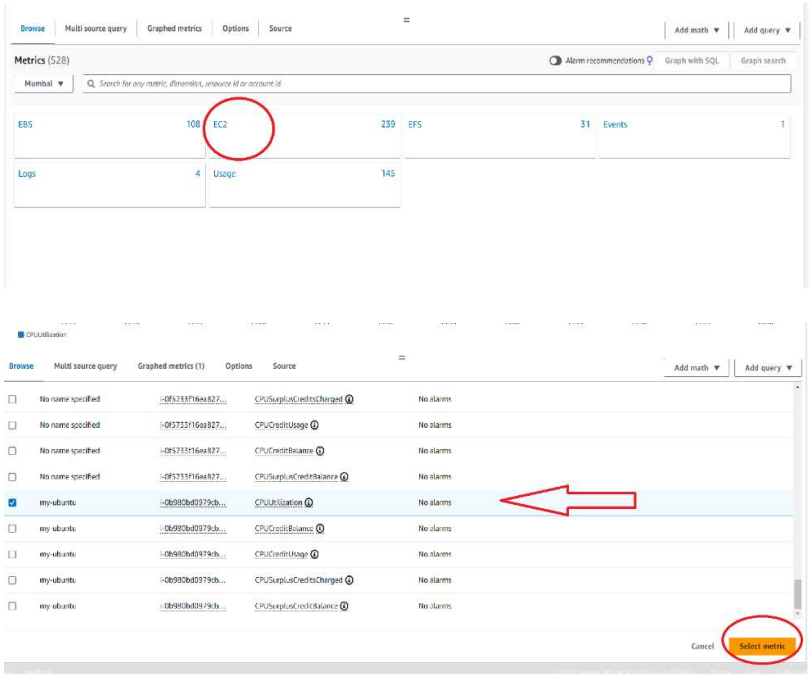
Solution:

1) Launch an instance. Go to cloudwatch console and click all alarms and then create alarms.

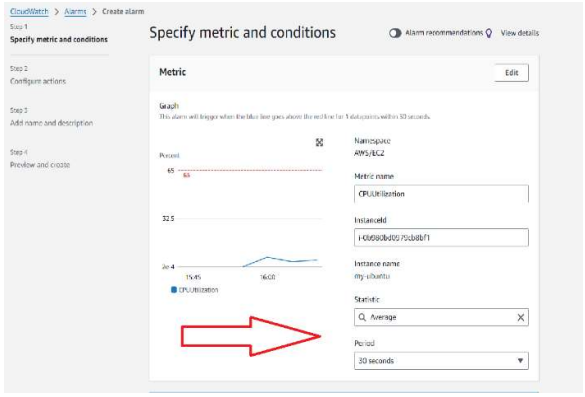


2) Click select metric and choose EC2 then choose cpu-utilization metric and click select metric.

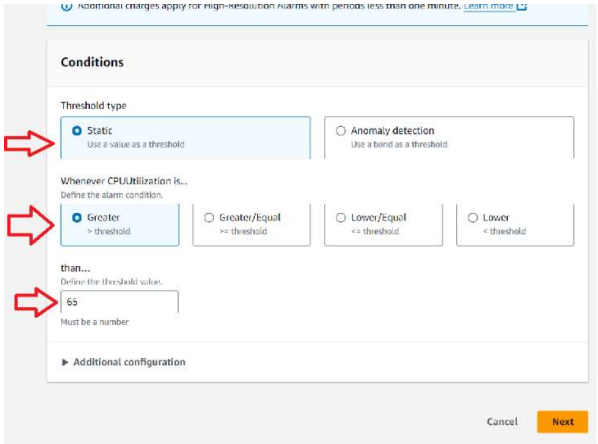




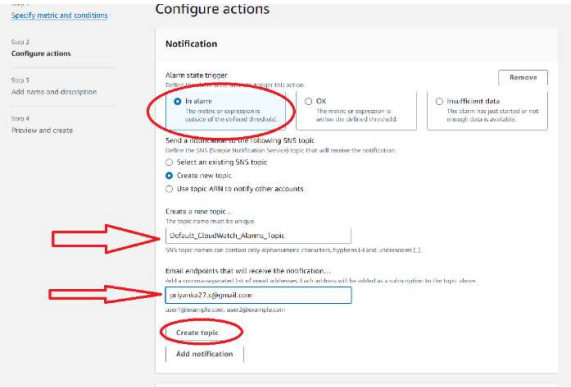
3) Under Specify metric and conditions, for Statistic choose Average, Choose a period



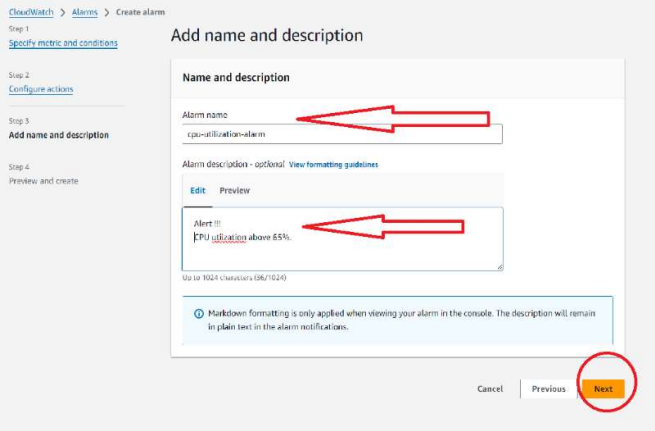
4) Under Conditions, specify : For Threshold type, choose Static. Whenever CPU Utilization is, specify the threshold that is to trigger the alarm to go to ALARM state if the CPU utilization exceeds this percentage. For example, 65



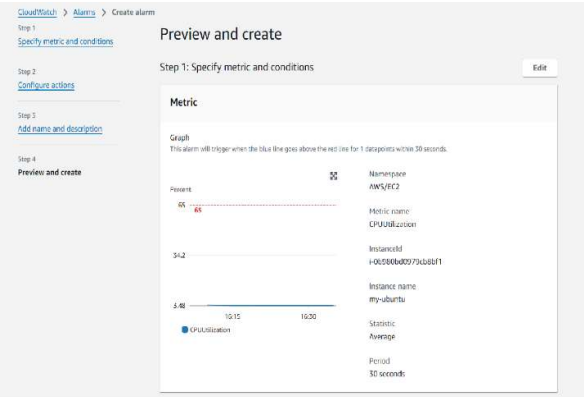
5) Under Notification, choose In alarm and select an SNS topic or create a new topic to notify when the alarm is in ALARM state. Give the topic name and the email where the notification will be send and click create topic.



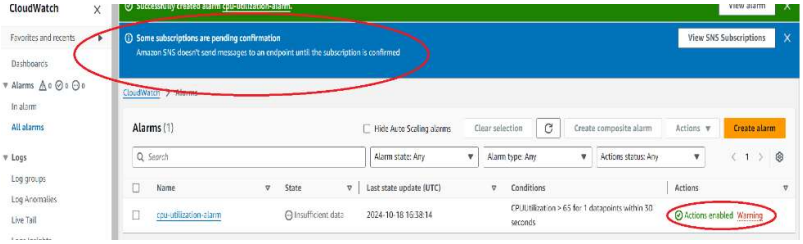
6) Give an alarm name and write the description in alarm notification. Click next.



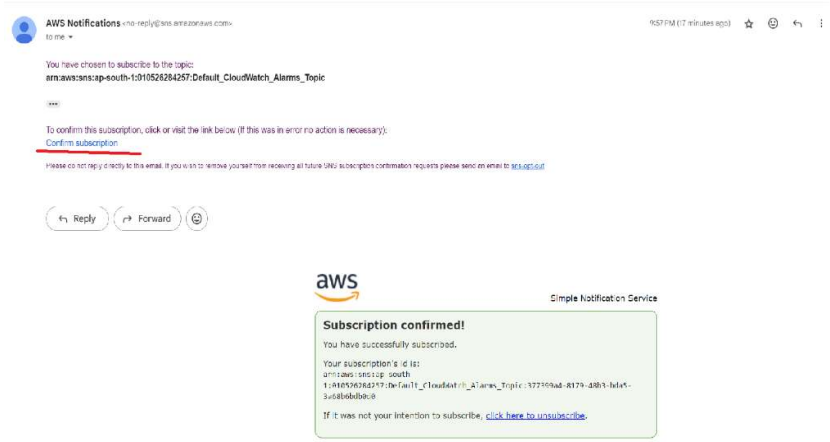
7) Preview and create the alarm.



8) We can see actions enabled warning which means we have to confirm the SNS confirmation send to the email mentioned while creating the topic.

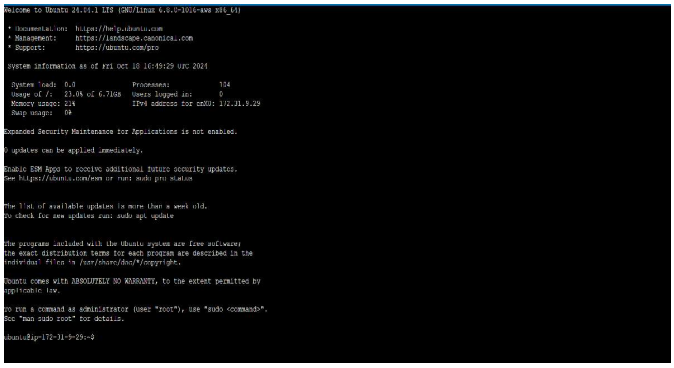


9) Go to the mail and confirm the subscription.

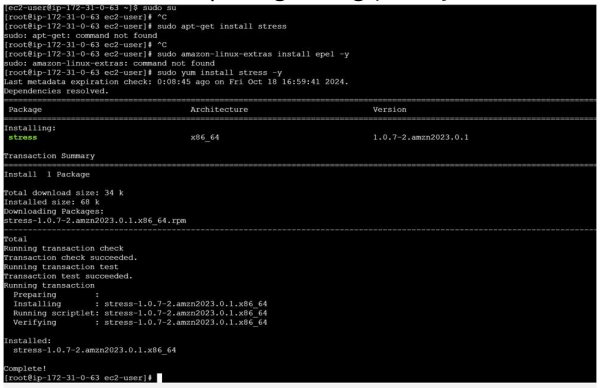


10) Subscription is confirmed.

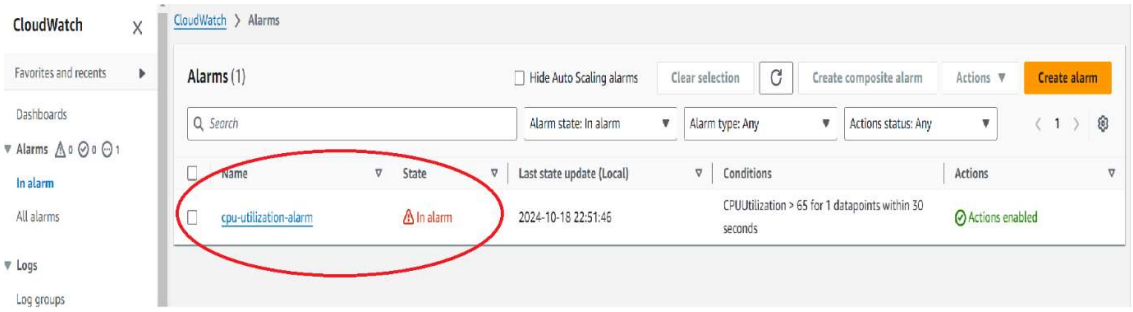
11) Now connect to the instance.



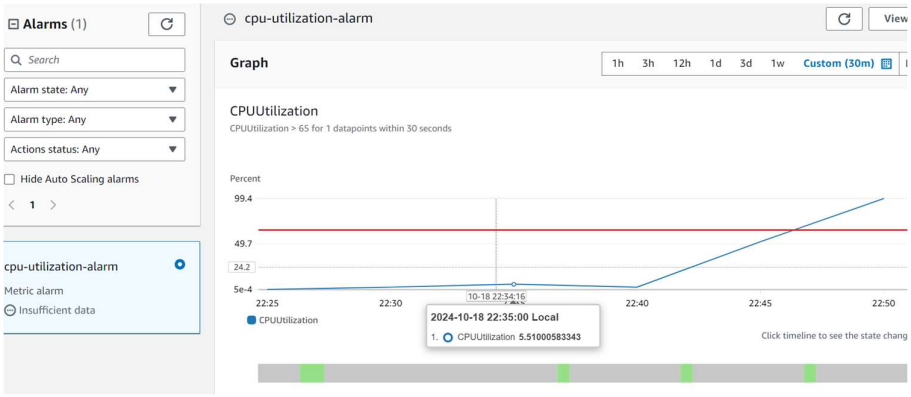
12) Then install stress package using (`sudo yum install stress -y`)command



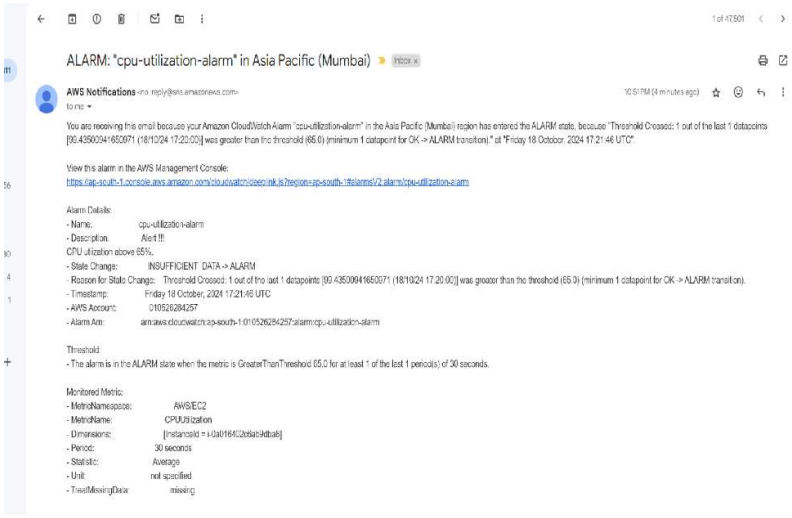
13) Give stress to your instance (stress --cpu 1) command and after some time we can see our alarm in alarm state.



14) We can see the cloudwatch metric graph crossing the threshold value.



15) An email is received stating about the alarm state.



ALARM: "cpu-utilization-alarm" in Asia Pacific (Mumbai) Inbox x

AWS Notifications <no-reply@sns.amazonaws.com> 10:51 PM (4 minutes ago)
to me

You are receiving this email because your Amazon CloudWatch Alarm "cpu-utilization-alarm" in the Asia Pacific (Mumbai) region has entered the ALARM state, because "Threshold Crossed: 1 out of the last 1 datapoints [99.43500941650971 (18/10/24 17:20:00)] was greater than the threshold (65.0) (minimum 1 datapoint for OK -> ALARM transition)." at "Friday 18 October, 2024 17:21:46 UTC".

View this alarm in the AWS Management Console:
https://ap-south-1.console.aws.amazon.com/cloudwatch/deeplink.js?region=ap-south-1#alarmsV2:alarm/cpu-utilization-alarm

Alarm Details:
- Name: cpu-utilization-alarm
- Description: Alert !!!
CPU utilization above 65%.
- State Change: INSUFFICIENT_DATA -> ALARM
- Reason for State Change: Threshold Crossed: 1 out of the last 1 datapoints [99.43500941650971 (18/10/24 17:20:00)] was greater than the threshold (65.0) (minimum 1 datapoint for OK -> ALARM transition).
- Timestamp: Friday 18 October, 2024 17:21:46 UTC
- AWS Account: 010526284257
- Alarm Arn: arn:aws:cloudwatch:ap-south-1:010526284257:alarm:cpu-utilization-alarm

Threshold:
- The alarm is in the ALARM state when the metric is GreaterThanThreshold 65.0 for at least 1 of the last 1 period(s) of 30 seconds.

Monitored Metric:
- MetricNamespace: AWS/EC2
- MetricName: CPUUtilization
- Dimensions: [InstanceId = i-0ab1641f2d6ab9dbab]
- Period: 30 seconds
- Statistic: Average
- Unit: not specified
- TreatMissingData: missing