threshold, you can use Auto Scaling to dynamically add or remove EC2 instances or send you a notification.

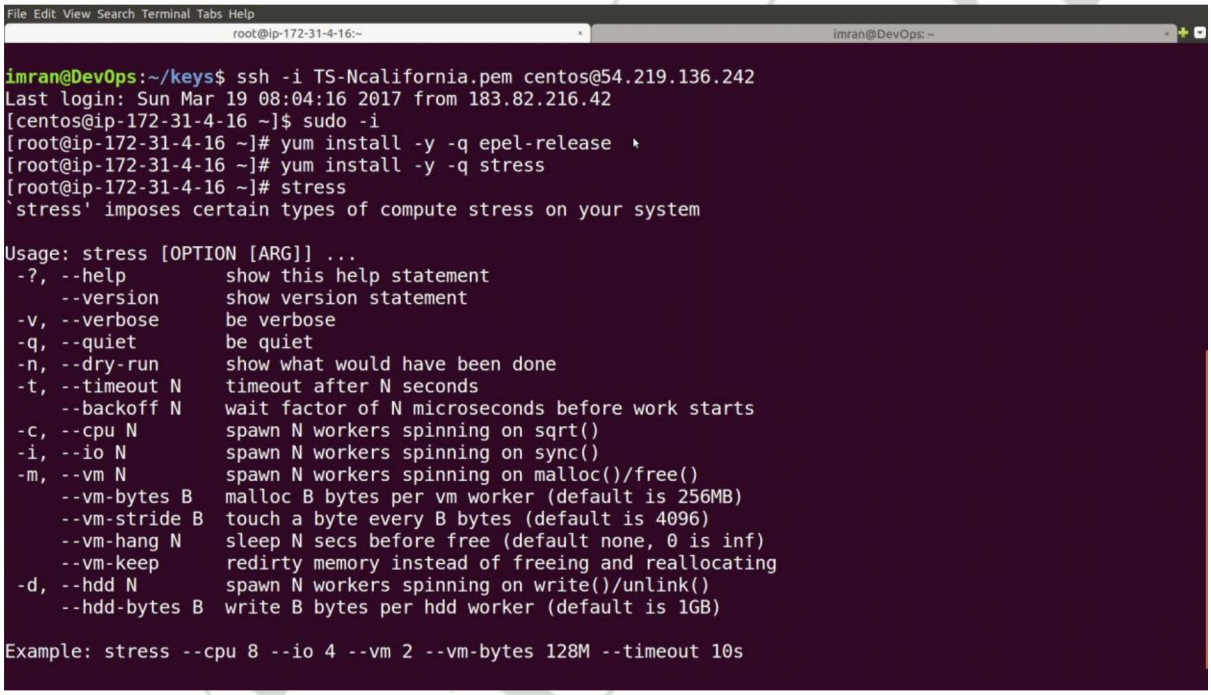
- **View Graphs and Statistics** - Amazon Cloudwatch Dashboards enable you to create re-usable graphs of AWS resources and custom metrics so you can quickly monitor operational status and identify issues at a glance.
- **Monitor and React to Resource Changes** - CloudWatch Events provides a stream of events describing changes to your AWS resources. You can easily build workflows that automatically take actions you define, such as invoking an AWS Lambda function, when an event of interest occurs.

Monitoring AWS EC2 instance CPU Utilization:

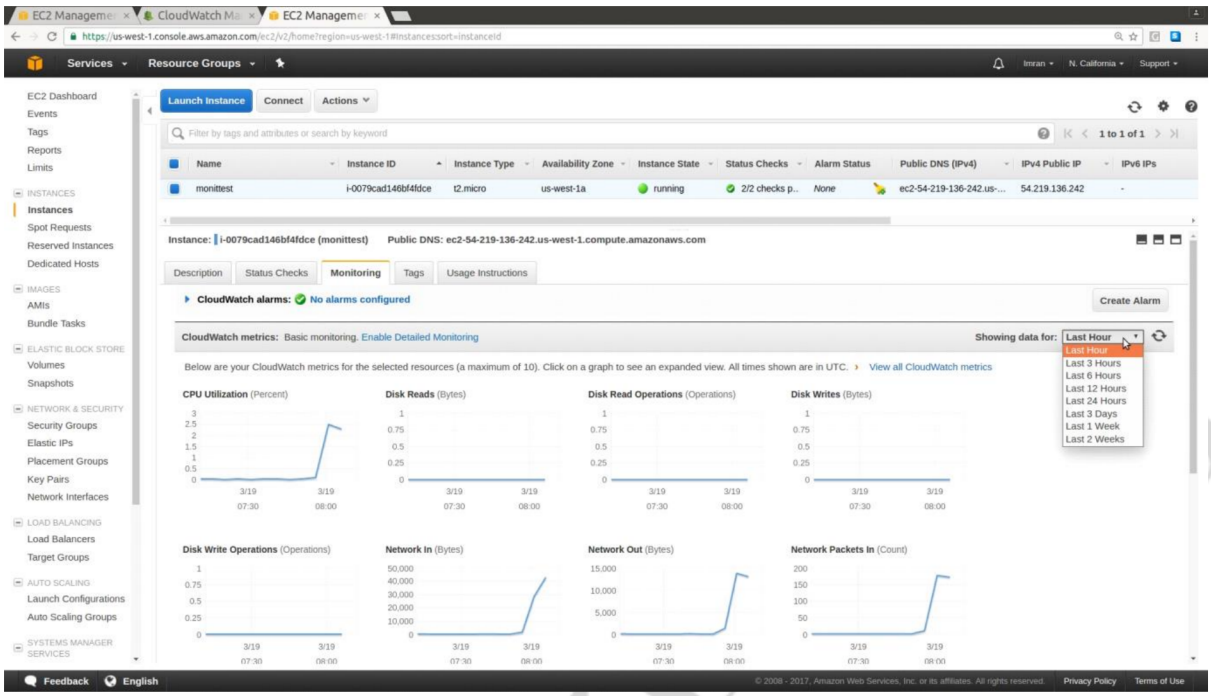
In order to monitor CPU Utilization we need an ec2 instance where we will cause high cpu load and test.

I have created a centos 6 ec2 instance with tag Name: monittest and login to the instance.

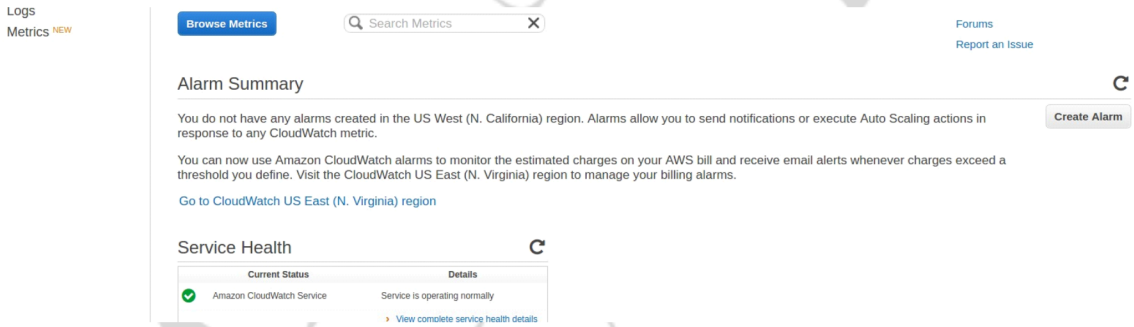
For testing purpose Install stress tool, which can create a high CPU usage.



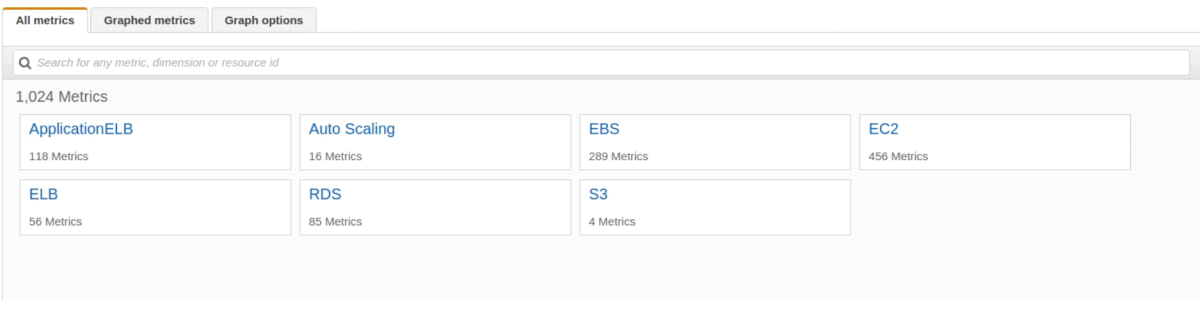
We can check lots of metrics by selecting the instance monitoring tab. All those graphs for CPU, Disk & network usage collected by Cloudwatch monitoring tool by default. You can see data from last hour to last two weeks.



Click on CloudWatch service from AWS main dashboard.
Go to Metrics

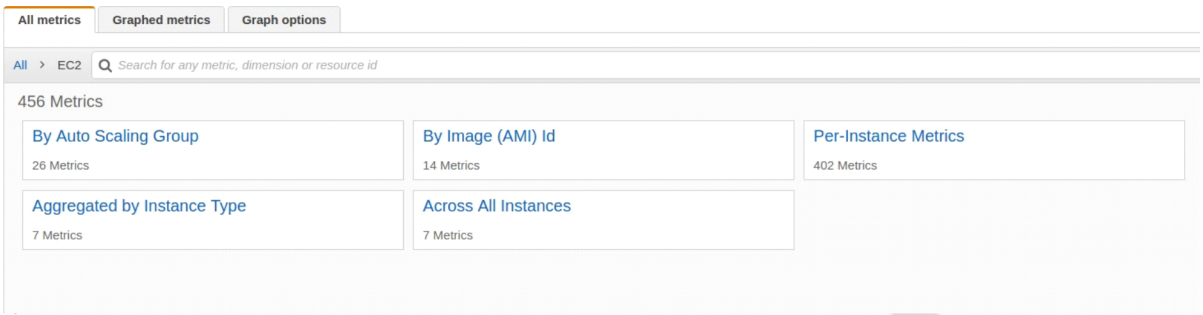


You can see some AWS services available here. Click on Ec2

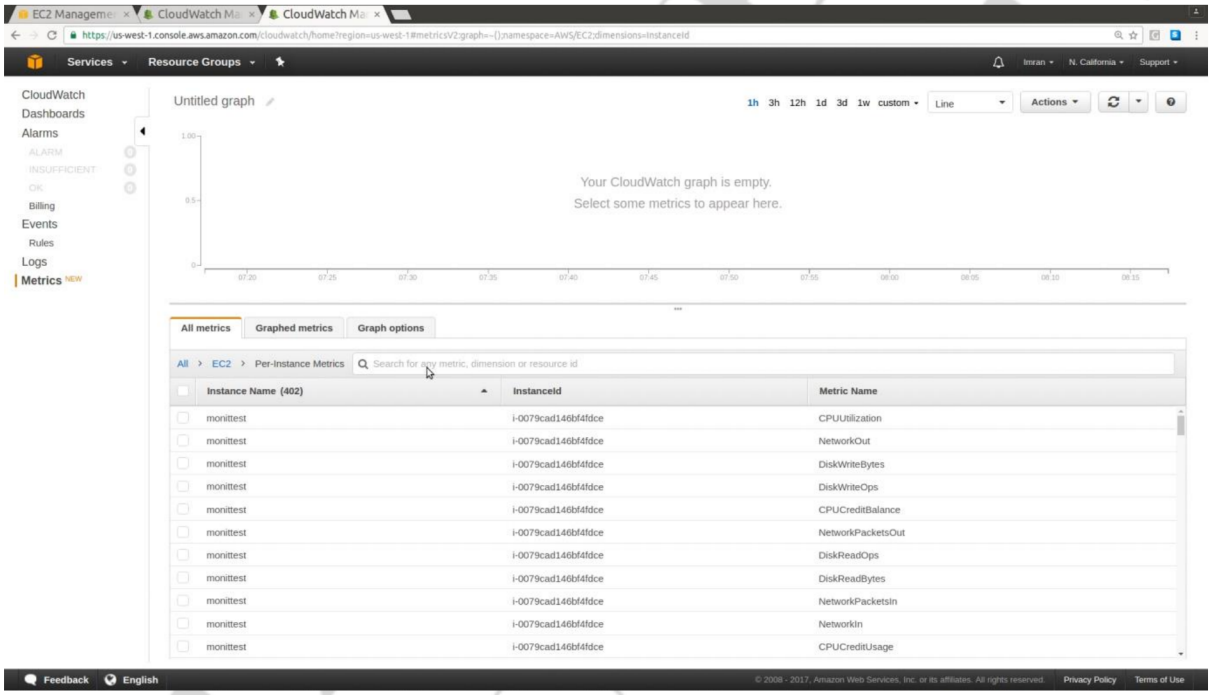


There are some metrics available in EC2. Select Per-Instance metrics.

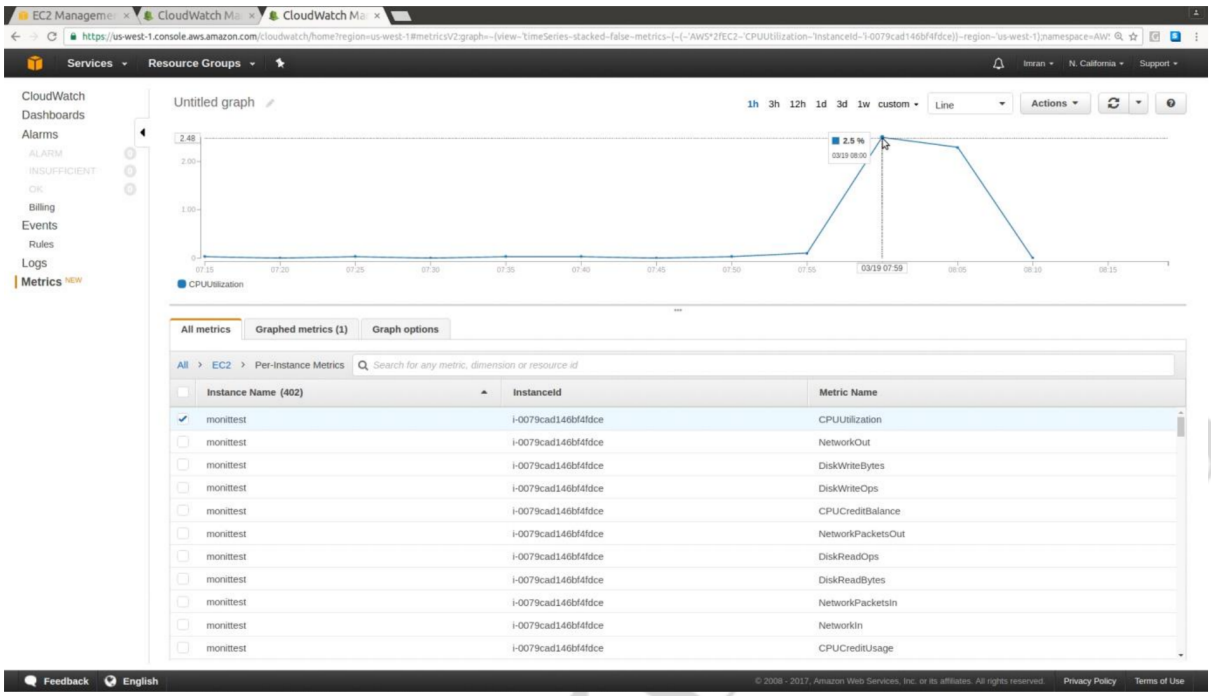
Visualpath Training & Consulting.
Flat no: 205, Nilgiri Block,Aditya Enclave, Ameerpet, Hyderabad, Phone No: - +91-970 445 5959, 961 824 5689 E-Mail ID : online.visualpath@gmail.com, Website : www.visualpath.in.



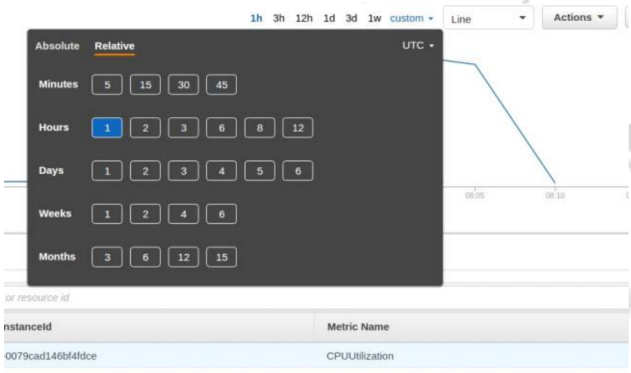
You can see the instance which we created along with the metrics attached to it.



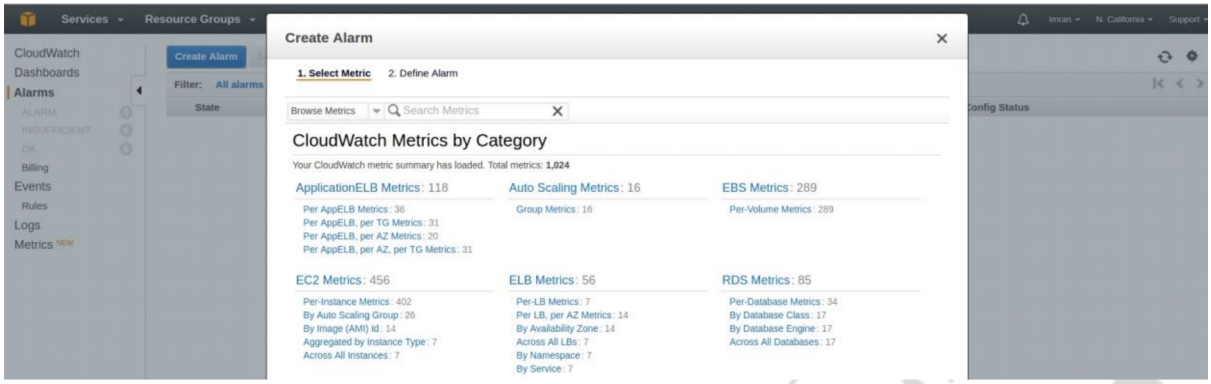
Select the instance monittest with CPU utilization

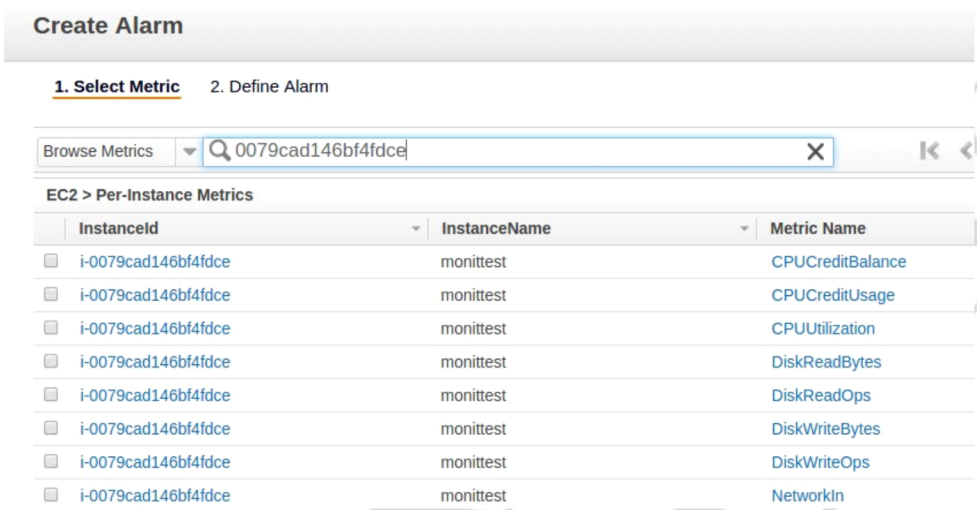


As you can see above for instance monittest its showing cpu utilization graph for last 1 hour.
We can customize the graph display.
Click custom and select relative or absolute time to see graph details as per your wish.

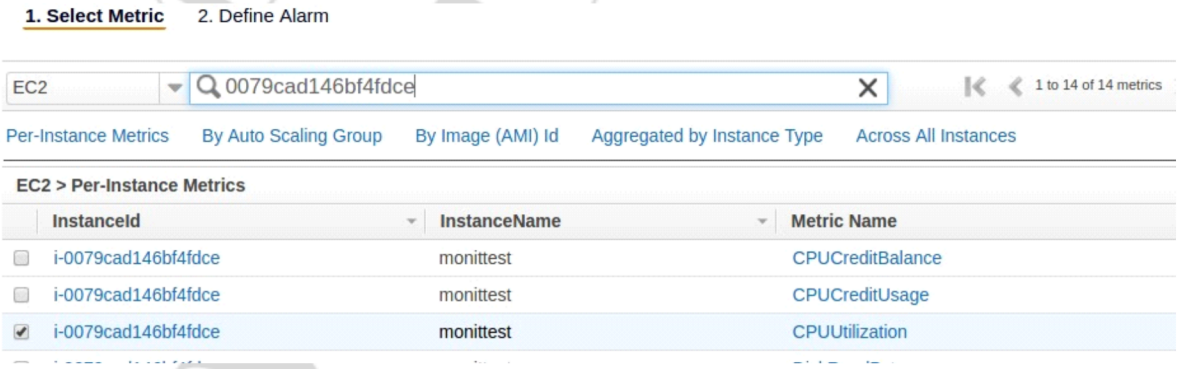


Setting up Alarm.
Click on Alarms and select Create Alarm.

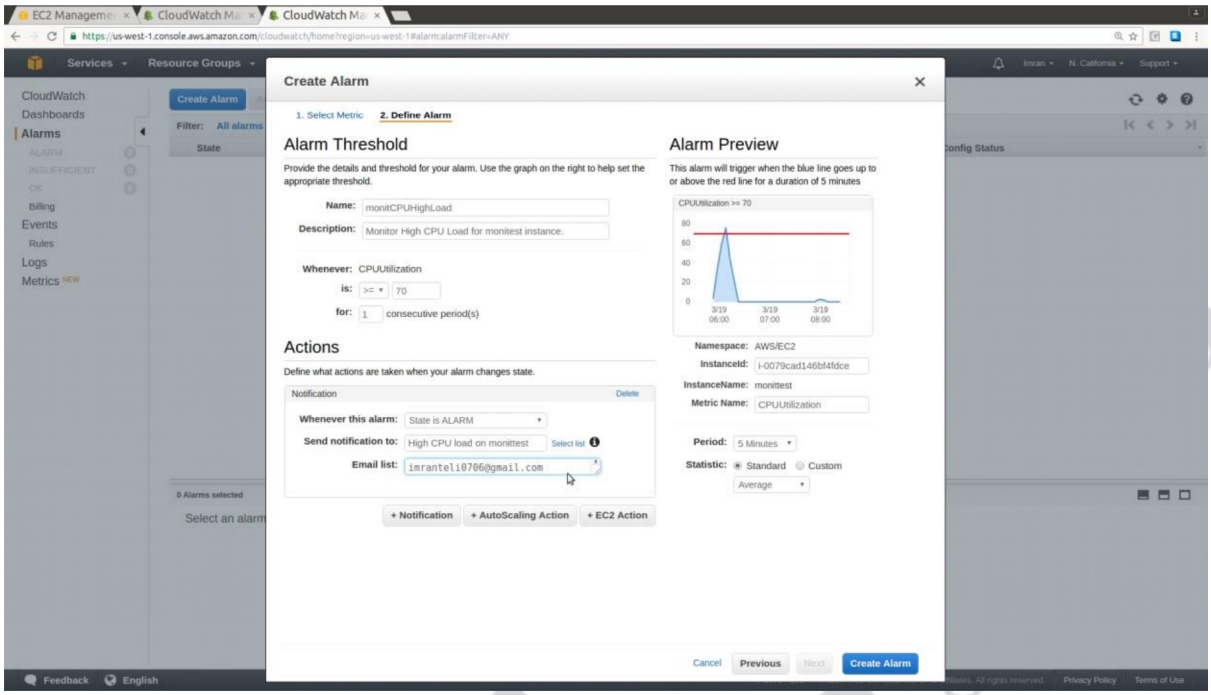




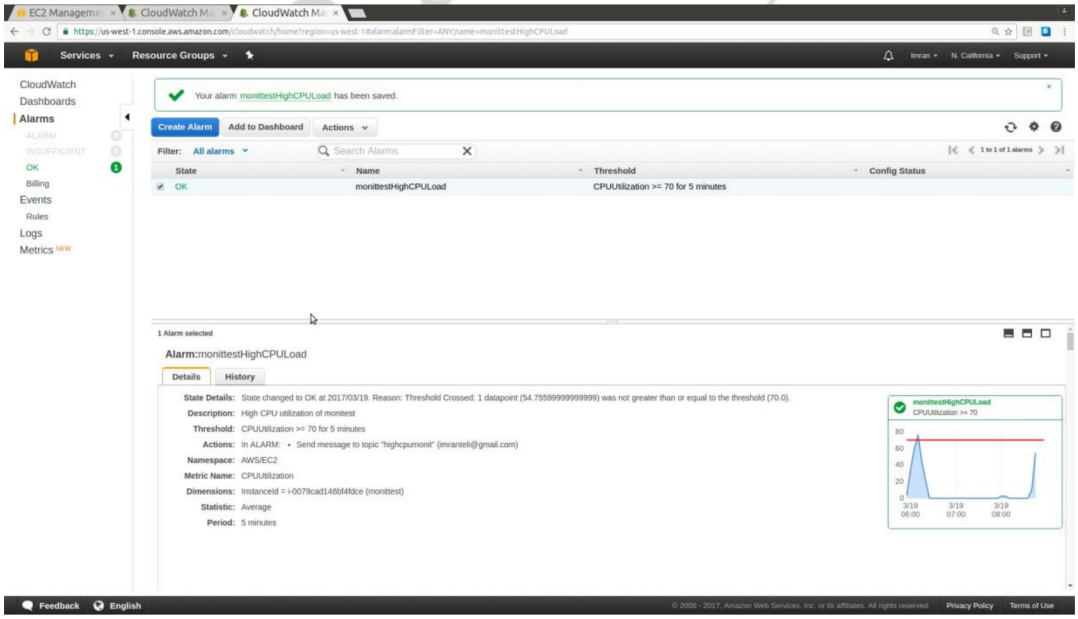
Search with instance ID to find all the metrics related to our instance.
Put a check mark on CPU Utilization against monittest.



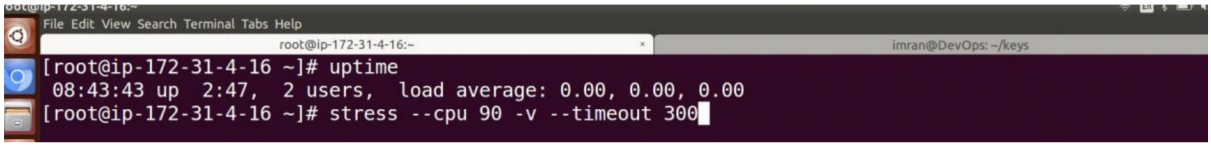
Click on next. You have to give some details related to threshold and provide some name and description to alarm.
In the actions section you have to specify the email id to which the notification to be received. Click Create Alarm, once done.



You will get an email from AWS for verifying email address, once its verified you will start receiving email alert whenever the instance cpu load crosses beyond 70 %.
Alarm has been created successfully for monittest instance.

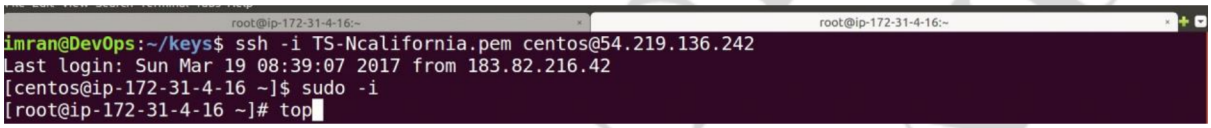


To test that we can use stress utility and cause high cpu on our instance. For this follow the commands shown in the below screenshot.

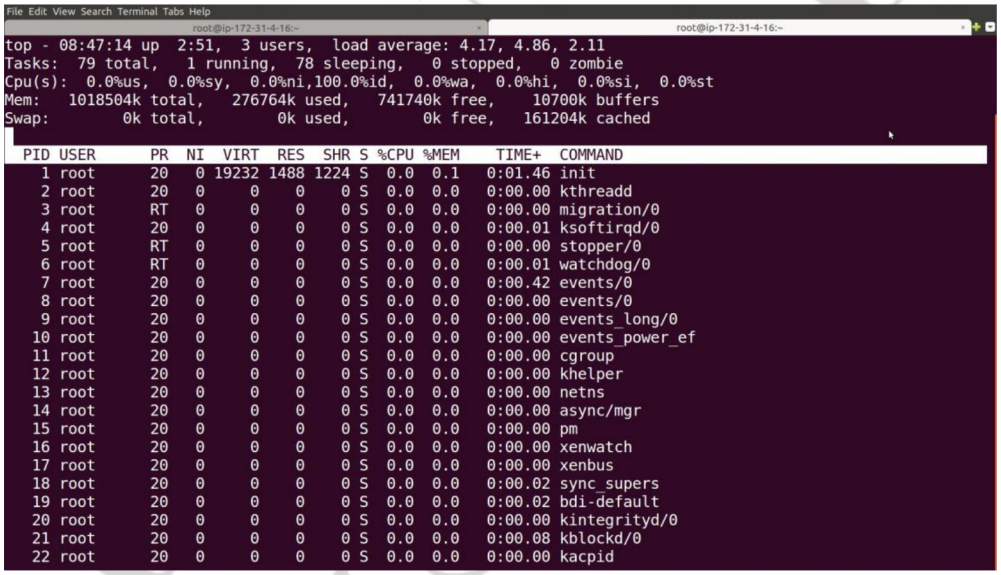



```
stress: dbug: [5638] --> hogcpu worker 10 [5719] forked
stress: dbug: [5638] using backoff sleep of 27000us
stress: dbug: [5638] setting timeout to 180s
stress: dbug: [5638] --> hogcpu worker 9 [5720] forked
stress: dbug: [5638] using backoff sleep of 24000us
```

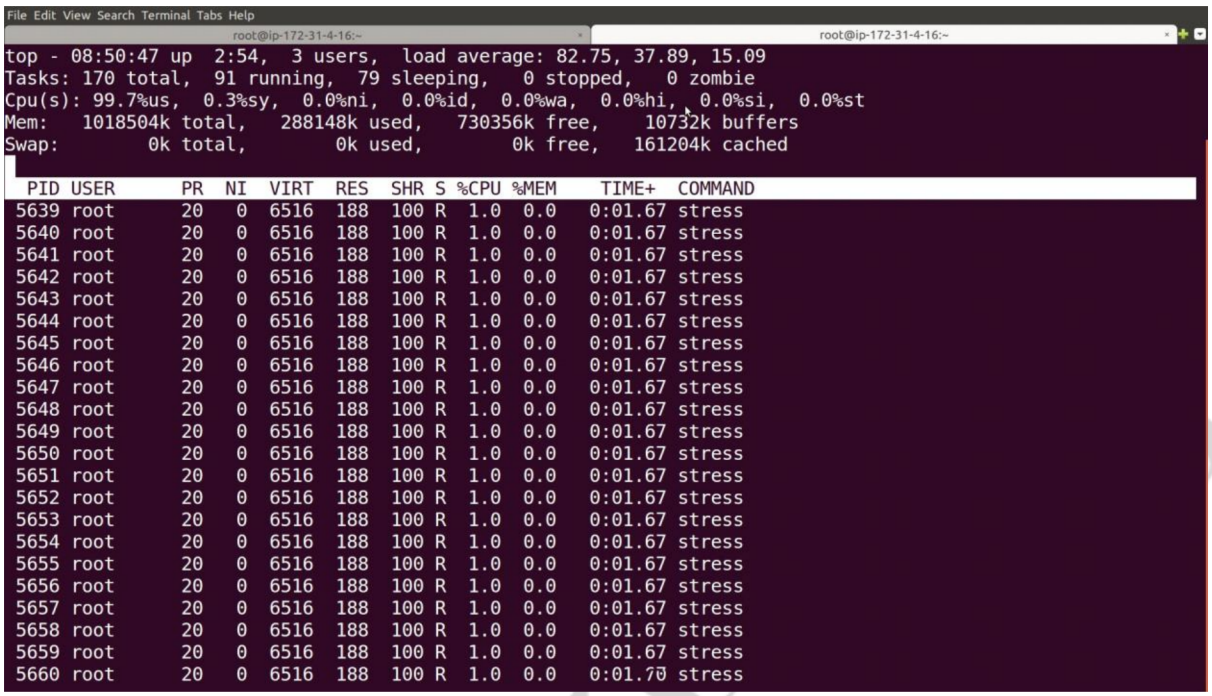
Login from another tab and run top command to see it real time from the system.



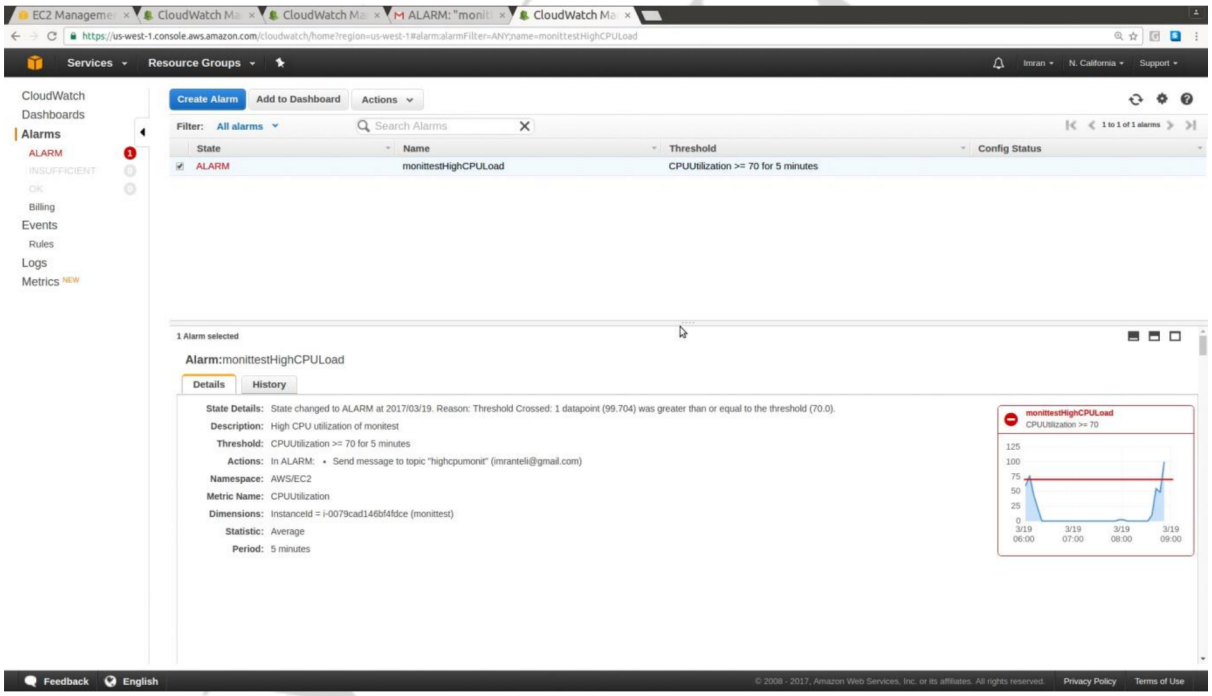
Top command shows the current load average, running, sleeping and stopped processes of the system.



Observe the load average, if it is above 80 then all the processes are stressed.



After few minutes you will receive an email in your inbox which shows Alarm and graph in red colour.
It also gives an indication on alarm dashboard that the CPU utilization >=70 for 5 minutes.



Email from AWS

ALARM: "monittestHighCPULoad" in US West - N. California

AWS Notifications no-reply@sns.amazonaws.com via amazonses.com
to me

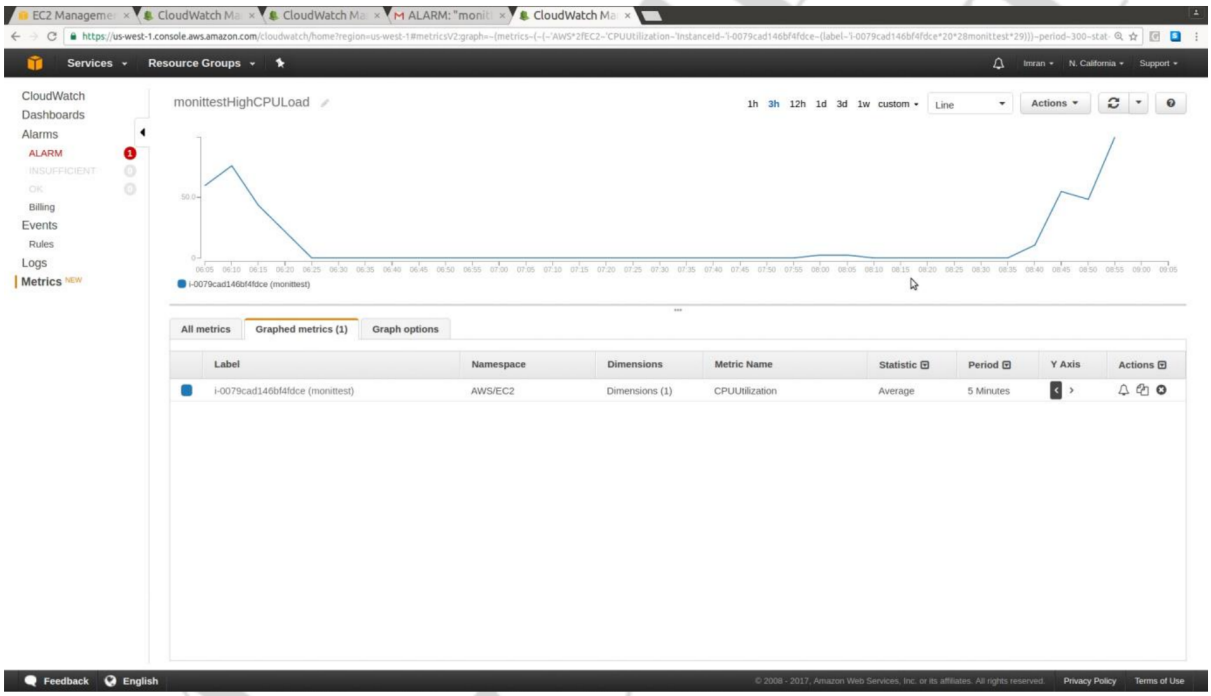
You are receiving this email because your Amazon CloudWatch Alarm "monittes
California region has entered the ALARM state, because "Threshold Crossed: 1
equal to the threshold (70.0)." at "Sunday 19 March, 2017 09:01:21 UTC".

View this alarm in the AWS Management Console:
https://console.aws.amazon.com/cloudwatch/home?region=us-west-1#s=Alarms

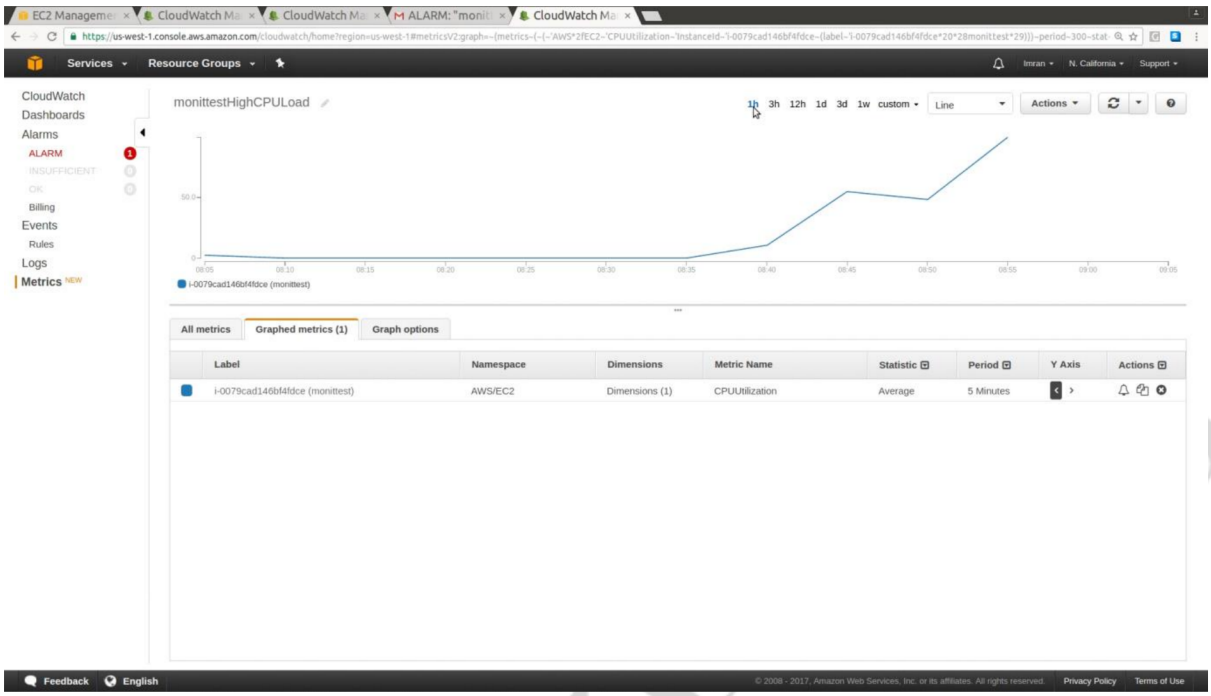
Alarm Details:
- Name: monittestHighCPULoad
- Description: High CPU utilization of monitest
- State Change: OK -> ALARM
- Reason for State Change: Threshold Crossed: 1 datapoint (99.704) was grea
(70.0).
- Timestamp: Sunday 19 March, 2017 09:01:21 UTC
- AWS Account: 171225278948

Threshold:
- The alarm is in the ALARM state when the metric is GreaterThanOrEqualToTh

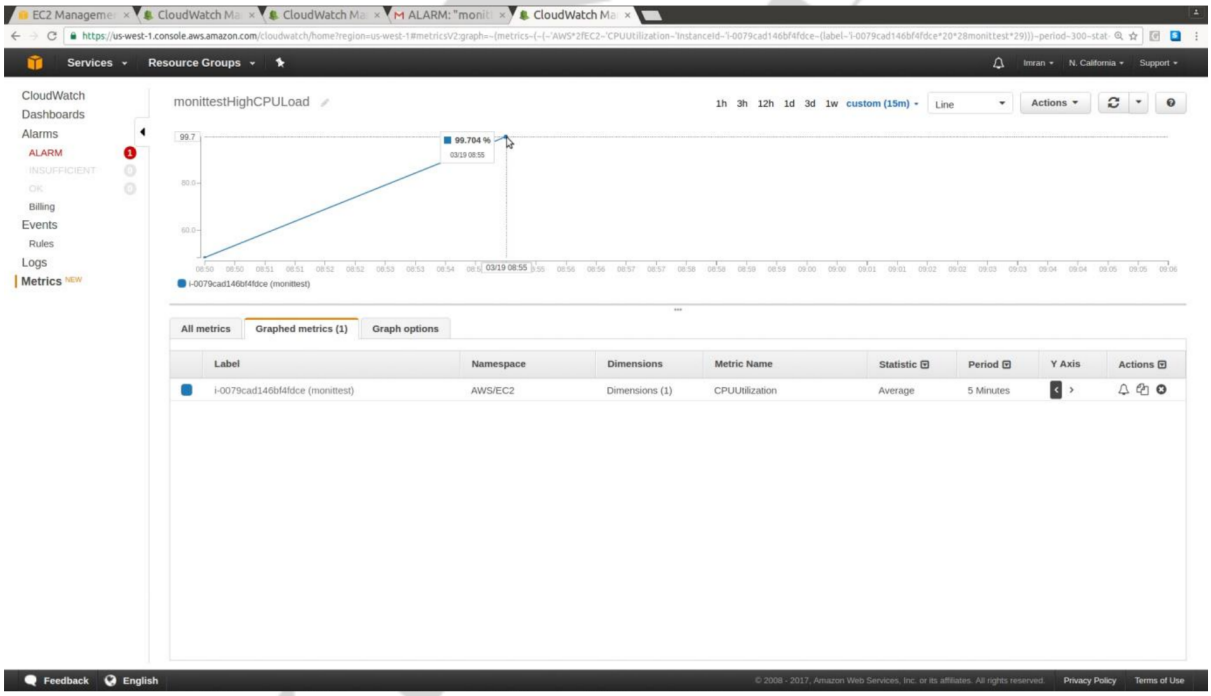
Graph for our CPU Utilization last 3 hours.



Graph for our CPU Utilization last 1 hour.



Graph for our CPU Utilization last 15 minues.



You can also change/add the actions of alarms like EC2 actions to stop/reboot/terminate instance.