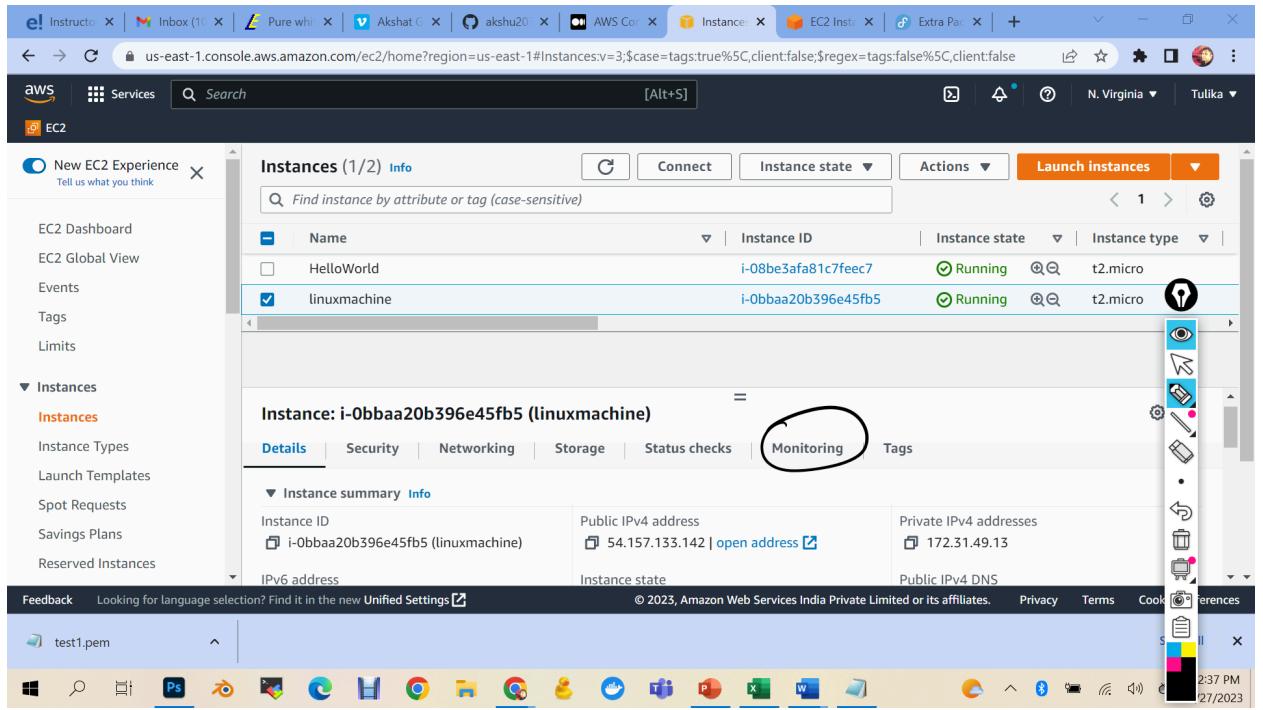


1

## LAB: CLOUDWATCH

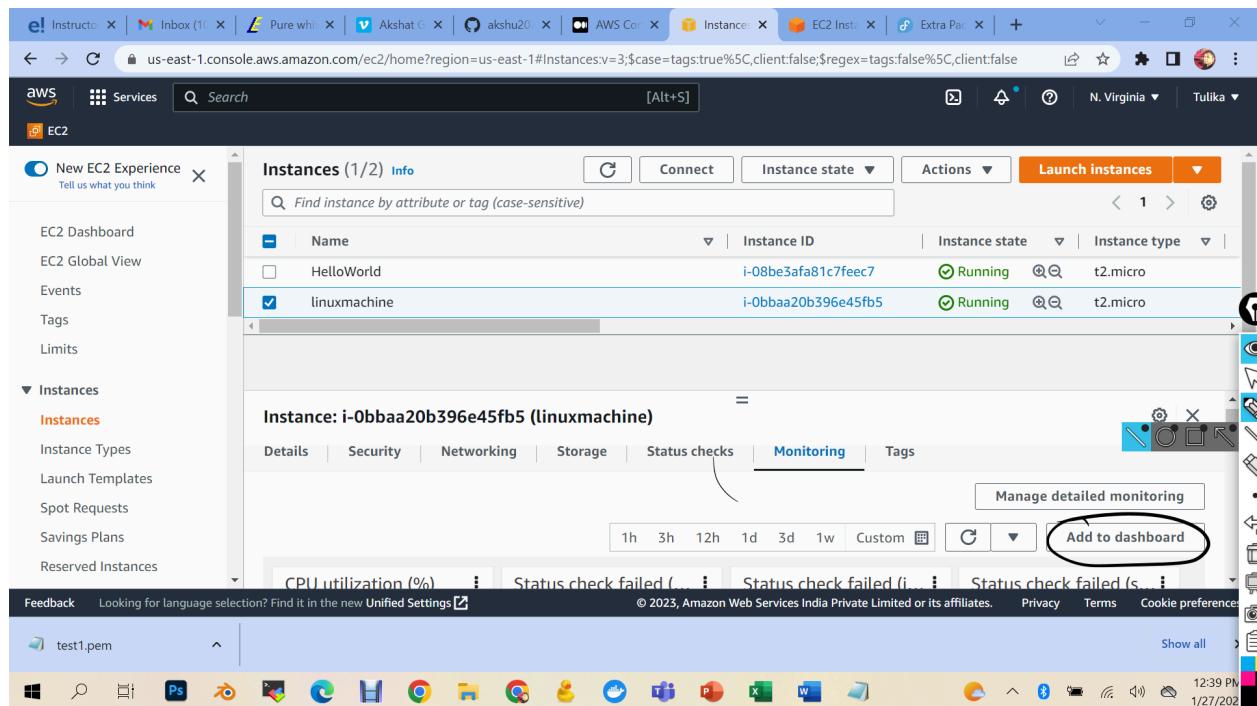
Create a alarm and receive mail in the case the CPU utilization goes above a particular limit

### 1) Launch a linux machine



The screenshot shows the AWS CloudWatch Instances page. On the left, there's a sidebar with options like EC2 Dashboard, EC2 Global View, Events, Tags, Limits, and Instances (with sub-options like Instance Types, Launch Templates, Spot Requests, Savings Plans, and Reserved Instances). The main area displays 'Instances (1/2) Info'. Two instances are listed: 'HelloWorld' (Instance ID: i-08be3afa81c7feec7, State: Running, Type: t2.micro) and 'linuxmachine' (Instance ID: i-0bbaa20b396e45fb5, State: Running, Type: t2.micro). Below the instances, the details for 'linuxmachine' are shown, including its Public IPv4 address (54.157.133.142), Private IPv4 addresses (172.31.49.13), and Public IPv4 DNS. The 'Monitoring' tab is circled in red. At the bottom, there's a navigation bar with icons for Feedback, test1.pem, and various Windows applications.

2)



This screenshot is from the same AWS CloudWatch Instances page as the previous one, but it shows the 'Monitoring' tab being used. The 'linuxmachine' instance is selected, and its monitoring details are displayed. A 'Manage detailed monitoring' button is visible. Below the instance details, there are tabs for CPU utilization (%), Status check failed (1h, 3h, 12h, 1d, 3d, 1w, Custom), and Status check failed (i...). A prominent 'Add to dashboard' button is circled in red. The interface includes a feedback section, language selection, and a standard Windows taskbar at the bottom.

The pop up will come cancel it

This screenshot shows the AWS CloudWatch Metrics dashboard. On the left, there's a sidebar with 'CloudWatch' at the top, followed by 'Favorites and recent' links (All alarms, Billing), 'Logs' (Log groups, Logs Insights), and 'Metrics' (All metrics, Explorer, Streams). The 'All metrics' link is circled in red. The main area shows 'Custom dashboards (2)' with a table:

Name	Sharing	Favorite	Last update (UTC)
dash		☆	2022-12-13 16:03
newdash		☆	2023-01-27 06:59

At the bottom of the dashboard, there's a message: 'Feedback Looking for language selection? Find it in the new Unified Settings'.

This screenshot shows the AWS CloudWatch Metrics dashboard. The sidebar has 'CloudWatch' at the top, followed by 'Metrics' (Untitled graph), 'Actions', and 'Queries'. The 'Metrics' section is highlighted with a large black oval. The main area shows a grid of metrics with labels and arrows:

- Backup**: 16 (with an arrow pointing to the 'NameSpace' label)
- Billing**: 33
- CodeBuild**: 75
- DynamoDB**: 127
- EBS**: 198
- EC2**: 248

Each metric entry includes a link to 'View automatic dashboard'. At the bottom of the dashboard, there's a message: 'Feedback Looking for language selection? Find it in the new Unified Settings'.

Click on ec2

Per instance metrics

Search your machine

Instance name	InstanceId	Metric name
linuxmachine	i-0bbaa20b396e45fb5	NetworkPacketsIn
linuxmachine	i-0bbaa20b396e45fb5	NetworkPacketsOut
linuxmachine	i-0bbaa20b396e45fb5	CPUUtilization
linuxmachine	i-0bbaa20b396e45fb5	NetworkIn

Instance name	InstanceId	Metric name
linuxmachine	i-0bbaa20b396e45fb5	NetworkPacketsIn
linuxmachine	i-0bbaa20b396e45fb5	NetworkPacketsOut
linuxmachine	i-0bbaa20b396e45fb5	CPUUtilization
linuxmachine	i-0bbaa20b396e45fb5	NetworkIn

Untitled graph

CloudWatch > Metrics

1h 3h 12h 1d 3d 1w Custom Line Actions

**Graphed metrics (1)**

Instance name	InstanceId	Metric name
100/248	i-0bbaa20b396e45fb5	NetworkPacketsIn
linuxmachine	i-0bbaa20b396e45fb5	NetworkPacketsOut
linuxmachine	i-0bbaa20b396e45fb5	CPUUtilization
linuxmachine	i-0bbaa20b396e45fb5	NetworkIn

Untitled graph

CloudWatch > Metrics

1h 3h 12h 1d 3d 1w Custom Line Actions

**Graphed metrics (1)**

Label	Details	Statistic	Period	Y axis	Actions
CPUUtilization	EC2 • CPUUtilization • InstanceId: i-0bbaa20b396e45fb5	Average	5 minutes		

You can create alarm from here also

CloudWatch > Metrics

Untitled graph

1h 3h 12h 1d 3d 1w Custom Line Actions

Browse Query Graped metrics (1) Options Source Add math Add query

Add dynamic label Info

Label	Details	Statistic	Period	Y axis	Actions
CPUUtilization	EC2 • CPUUtilization • InstanceId: i-0bbaa20b	Average	5 minutes		

Or else we can create alarm from

CloudWatch > Metrics

Untitled graph

1h 3h 12h 1d 3d 1w Custom Line Actions

Browse Query Graped metrics (1) Options Source Add math Add query

Add dynamic label Info

Label	Details	Statistic	Period
CPUUtilization	EC2 • CPUUtilization • InstanceId: i-0bbaa20b	Average	5 minutes

Favorites and recent

Alarms 12 37 1

In alarm

All alarms

Logs

Log groups

Logs Insights

Metrics

All metrics

Explorer

Streams

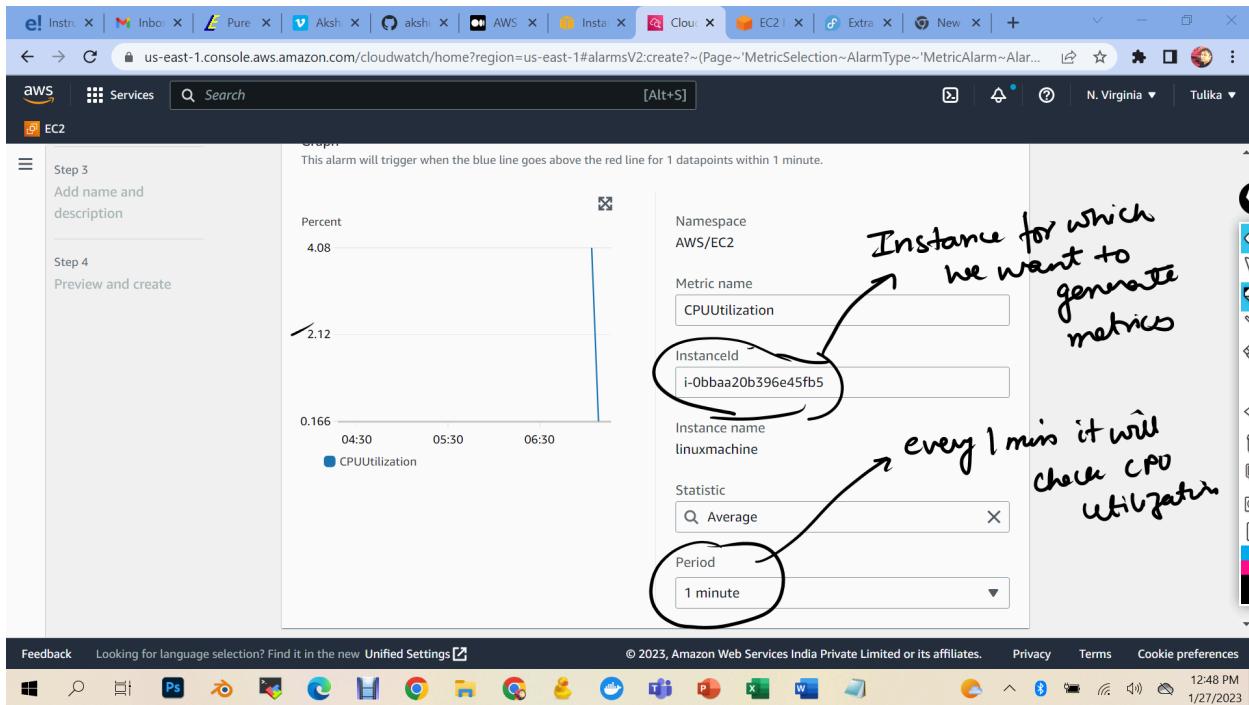
Create alarm

## Select metric

### Select ec2

The screenshot shows the 'Select metric' step in the CloudWatch Metrics Selection interface. The left sidebar lists steps: Step 1: Specify condition, Step 2: Configure, Step 3: Add name and description, and Step 4: Preview. The main area has tabs: Browse, Query, Graphed metrics (1), Options, and Source. The 'Graphed metrics (1)' tab is selected, showing a list of metrics for instance i-0bbaa20b396e45fb5. The 'CPUUtilization' metric is selected and highlighted with a blue border. Other metrics listed include NetworkPacketsIn, NetworkPacketsOut, and NetworkIn. At the bottom right are 'Cancel' and 'Select metric' buttons.

The screenshot shows the 'Step 3: Add name and description' and 'Step 4: Preview and create' sections of the CloudWatch Metrics Selection interface. On the left, there's a graph titled 'Graph' showing CPUUtilization over time (04:30 to 06:30). The graph has three data series: Percent, CPUUtilization, and NetworkIn. The CPUUtilization series shows values around 0.166, 2.12, and 4.08. To the right of the graph, configuration fields are displayed: Namespace (AWS/EC2), Metric name (CPUUtilization), InstanceId (i-0bbaa20b396e45fb5), Instance name (linuxmachine), Statistic (Average), and Period (5 minutes). The interface also includes a 'Feedback' bar at the bottom.



No

Conditions

Threshold type

Static  
Use a value as a threshold

Anomaly detection  
Use a band as a threshold

Whenever CPUUtilization is...

Define the alarm condition.

Greater  
> threshold

Greater/Equal  
>= threshold

Lower/Equal  
<= threshold

Lower  
< threshold

than...

Define the threshold value.

0.43

Must be a number

► Additional configuration

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**Notification**

**Alarm state trigger**  
Define the alarm state that will trigger this action.

**In alarm**  
The metric or expression is outside of the defined threshold.

**OK**  
The metric or expression is within the defined threshold.

**Insufficient data**  
The alarm has just started or not enough data is available.

**Send a notification to the following SNS topic**  
Define the SNS (Simple Notification Service) topic that will receive the notification.

Select an existing SNS topic  
 **Create new topic**  
 Use topic ARN to notify other accounts

**Create a new topic...**  
The topic name must be unique.  
**test-akshat**

SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (\_).

**Email endpoints that will receive the notification...**

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**Create new topic**

**Create new topic**  
 Use topic ARN to notify other accounts

**Create a new topic...**  
The topic name must be unique.  
**test-akshat**

SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (\_).

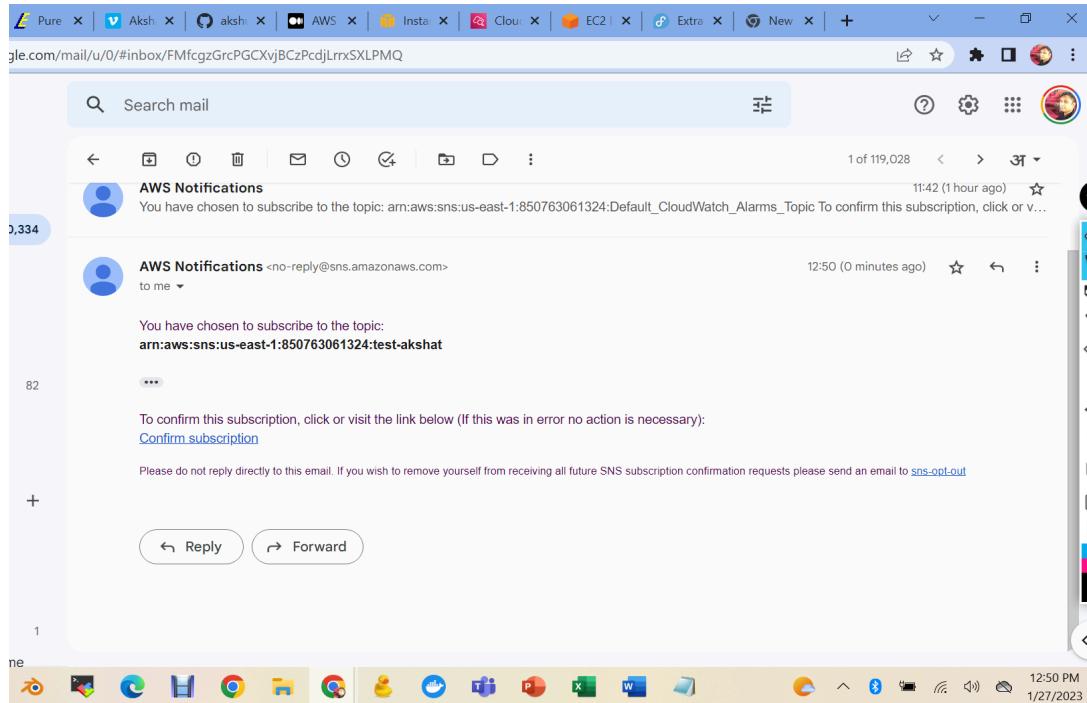
**Email endpoints that will receive the notification...**  
Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.  
**akshu20791@gmail.com**

user1@example.com, user2@example.com

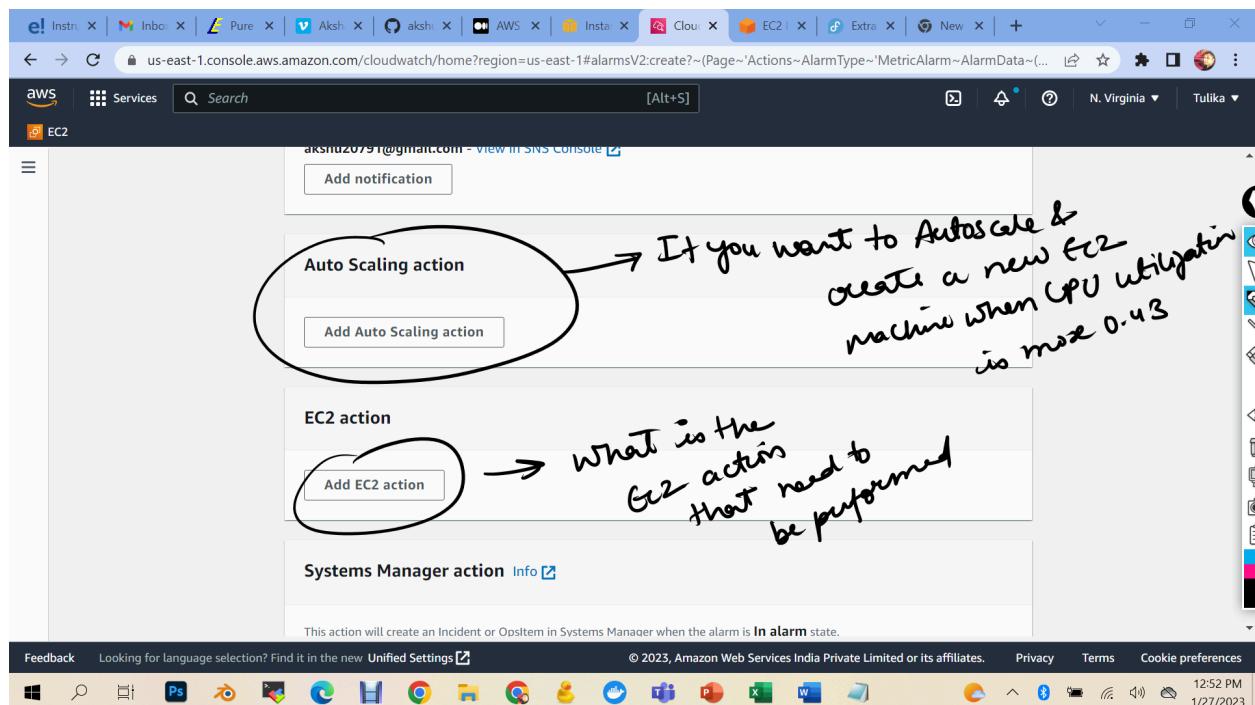
**Create topic**   **Add notification**

**Auto Scaling action**

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## Confirm subscription



(do not select them)

## Next

The screenshot shows the AWS CloudWatch Metrics console with the URL [https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~\(Page~Details~AlarmType~MetricAlarm~AlarmData~...](https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~(Page~Details~AlarmType~MetricAlarm~AlarmData~...). The page is titled "Add name and description". On the left, there's a sidebar with steps: Step 1 (Specify metric and conditions), Step 2 (Configure actions), Step 3 (Add name and description - currently selected), and Step 4 (Preview and create). The main area has a "Name and description" section with an "Alarm name" input field containing "project-alarm". Below it is an "Alarm description - optional" section with a "View formatting guidelines" link. A text area contains sample text: "# This is an H1", "\*\*double asterisks will produce strong character\*\*", and "This is [an example](https://example.com/) inline link.". The status bar at the bottom shows the date and time as 12:52 PM 1/27/2023.

## Create alarm

The screenshot shows the AWS CloudWatch Metrics console with the URL <https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:alarm/project-alarm?>. The sidebar on the left shows "CloudWatch" with sections for "Dashboards", "Alarms" (with 12 alerts, 37 metrics, and 1 log group), "Logs", and "Metrics". The "Metrics" section is expanded, showing "All metrics", "Explorer", and "Streams". The main area shows a "Graph" for "CPUUtilization" over time. The graph has a red baseline at 0.166%. At approximately 07:00, the utilization drops sharply to about 0.212%, then immediately drops to 0.166%. The status bar at the bottom shows the date and time as 12:52 PM 1/27/2023.

Now lets put some stress onto the machine

Login to your machine

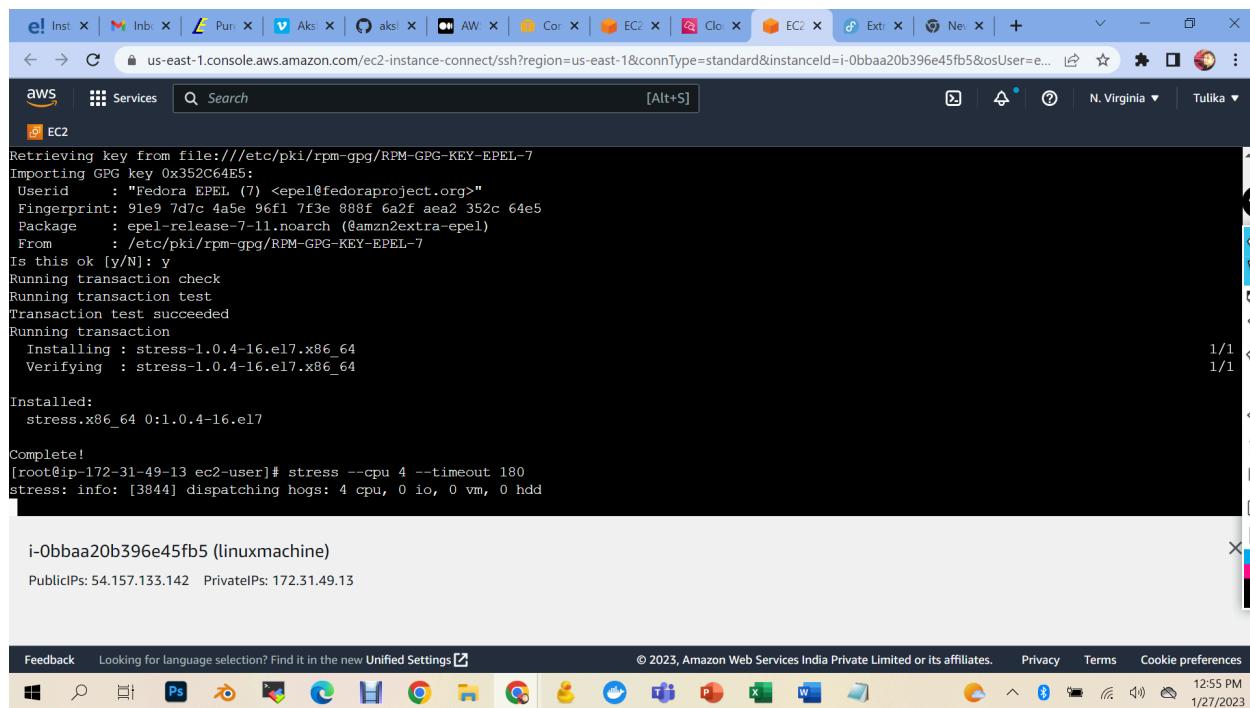
`sudo su`

`yum install`

```
https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

`yum install stress -y`

`stress --cpu 4 --timeout 180`



The screenshot shows a terminal window within the AWS CloudWatch interface. The user is installing the stress package via yum and then running it with four CPU cores for 180 seconds. The terminal output is as follows:

```

Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Importing GPG key 0x352C64E5:
Userid      : "Fedora EPEL (7) <epel@fedoraproject.org>"
Fingerprint: 91e9 7d/c 4a5e 96f1 7f3e 808f 6a2f aea2 352c 64e5
Package     : epel-release-7-11.noarch (@amzn2extra-epel)
From       : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Is this ok [y/N]: y
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : stress-1.0.4-16.el7.x86_64          1/1
  Verifying  : stress-1.0.4-16.el7.x86_64          1/1

Installed:
  stress.x86_64 0:1.0.4-16.el7

Complete!
[root@ip-172-31-49-13 ec2-user]# stress --cpu 4 --timeout 180
stress: info: [3844] dispatching hogs: 4 cpu, 0 io, 0 vm, 0 hdd

```

Below the terminal, the AWS CloudWatch metrics dashboard is visible, showing various monitoring metrics for the instance.

