Prometheus and Grafana module

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L1 - Create Grafana Dashboard to Monitor CPU and Memory Utilization of Jenkins Build Server using Prometheus Data source

STEP1: CREATE INSTANCE

• CREATE TWO EC2 INSTANCE

1. jenkins machine

2. Grafana and prometheus machine

• Add configuration With inbound rule

1. Port 9090

2. Port 3000

3. Port9100

STEP2: CONNECT TWO INSTANCES

STEP3: INSTALLATION

• INSTALL PROMETHEUS IN DOCKER MACHINE

(wget https://github.com/prometheus/prometheus/releases/download/v2.34.0/promet heus-2.34.0.linux-amd64.tar.gz)

• INSTALL GRAFANA IN GRAFANA MACHINE

(wget https://dl.grafana.com/enterprise/release/grafana-enterprise-8.4.4.linux amd64.tar.gz)

AFTER INSTALLING UNZIP THE TAR FILE IN RESPECTIVE MACHINE

1. tar -zxvf grafana-enterprise-8.4.4.linux-amd64.tar.gz

2. tar zxvf prometheus-2.34.0.linux-amd64.tar.gz

STEP 4: START THE RESPECTIVE MACHINE

• GO TO THE DIRECTORY WHERE FILE HAD

1. cd grafana-8.4.4 2.
2. cd prometheus -2.34.0.linux-amd64

STEP 5: GO TO LOGIN PAGE

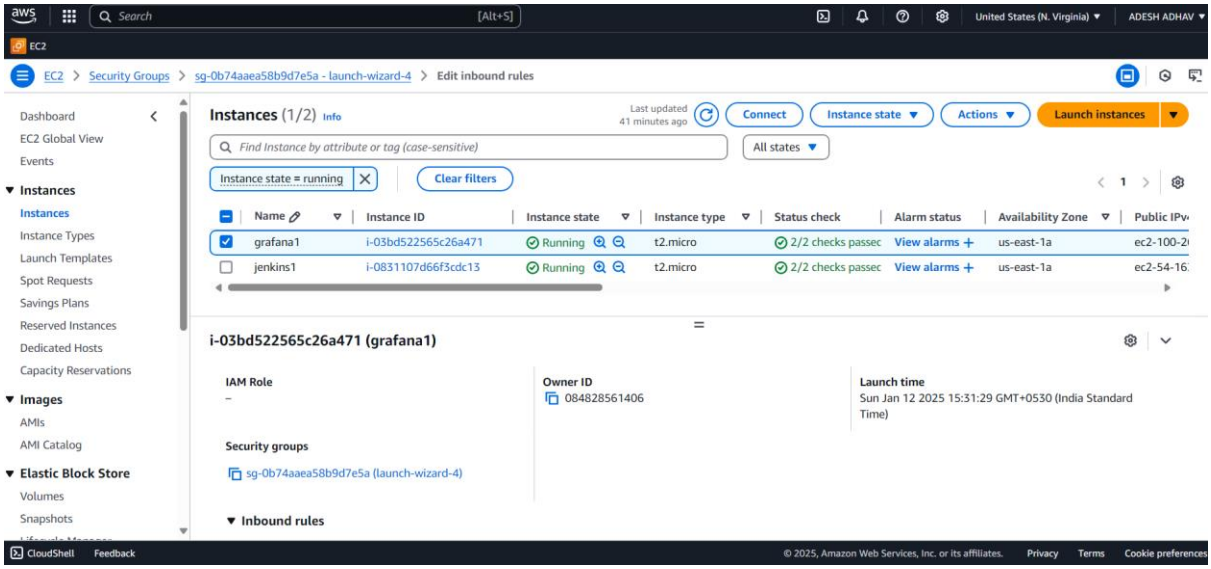
1. grafana(100.26.100.74:3000)
2. prometheus(100.26.100.74:3000)

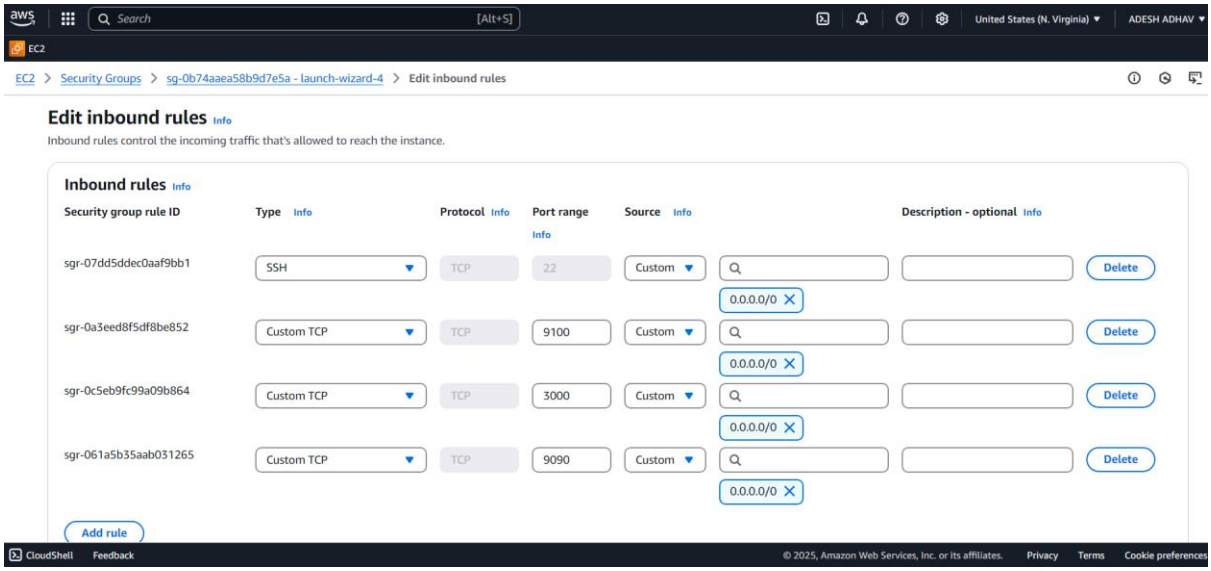
STEP6: ADD RESOURCE CODE

COPY THE PUBLIC IP OF PROTHEUS TO GRAFANA TO CREATE RESOURCE DATA

STEP 7: CREAT DASHBOARD

1. Create a New Dashboard: o Click Add new panel.
2. Add CPU Utilization Panel: o In the Query section, enter the Prometheus query for CPU utilization
3. Add Memory Utilization Panel: o In the Query section, enter the Prometheus query for memory utilization




Search [Alt+S]
United States (N. Virginia)
ADESH ADHAV
EC2
EC2 > Security Groups > sg-0b74aaea58b9d7e5a - launch-wizard-4 > Edit inbound rules
Edit inbound rules Info
Inbound rules control the incoming traffic that's allowed to reach the instance.
Inbound rules Info
Security group rule ID
Type Info
Protocol Info
Port range Info
Source Info
Description - optional Info
sgr-07dd5ddec0aaf9bb1
SSH
TCP
22
Custom
0.0.0.0/0
Delete
sgr-0a3eed8f5df8be852
Custom TCP
TCP
9100
Custom
0.0.0.0/0
Delete
sgr-0c5eb9fc99a09b864
Custom TCP
TCP
3000
Custom
0.0.0.0/0
Delete
sgr-061a5b35aab031265
Custom TCP
TCP
9090
Custom
0.0.0.0/0
Delete
Add rule
CloudShell
Feedback
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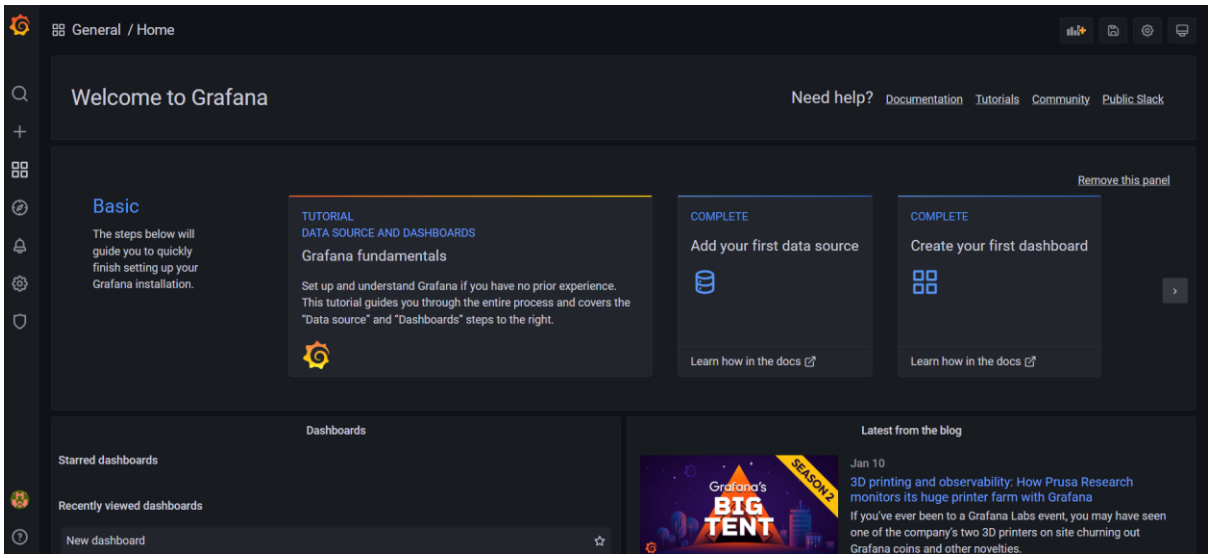
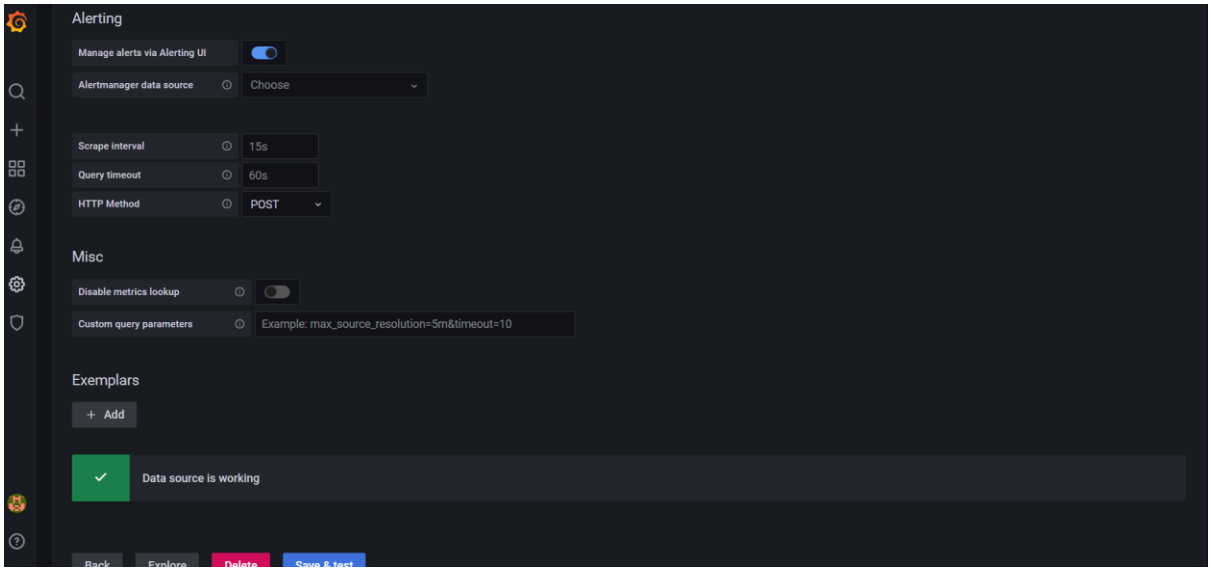

General / Home
Welcome to Grafana
Need help?
Documentation
Tutorials
Community
Public Slack
Remove this panel
Basic
The steps below will guide you to quickly finish setting up your Grafana installation.
TUTORIAL
DATA SOURCE AND DASHBOARDS
Grafana fundamentals
Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.
COMPLETE
Add your first data source
Learn how in the docs
COMPLETE
Create your first dashboard
Learn how in the docs
Dashboards
Starred dashboards
Recently viewed dashboards
New dashboard
Latest from the blog
Grafana's BIG TENT
SEASON 2
Jan 10
3D printing and observability: How Prusa Research monitors its huge printer farm with Grafana
If you've ever been to a Grafana Labs event, you may have seen one of the company's two 3D printers on site churning out Grafana coins and other novelties.


Alerting
Manage alerts via Alerting UI
Alertmanager data source
Choose
Scrape interval
15s
Query timeout
60s
HTTP Method
POST
Misc
Disable metrics lookup
Custom query parameters
Example: max_source_resolution=5m&timeout=10
Exemplars
+ Add
Data source is working
Back
Explore
Delete
Save & test

```
# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 0
go_gc_duration_seconds{quantile="0.25"} 0
go_gc_duration_seconds{quantile="0.5"} 0
go_gc_duration_seconds{quantile="0.75"} 0
go_gc_duration_seconds{quantile="1"} 0
go_gc_duration_seconds_sum 0
go_gc_duration_seconds_count 0
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 8
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
go_info{version="go1.22.5"} 1
# HELP go_memstats_alloc_bytes Number of bytes allocated and still in use.
# TYPE go_memstats_alloc_bytes gauge
go_memstats_alloc_bytes 824048
# HELP go_memstats_alloc_bytes_total Total number of bytes allocated, even if freed.
# TYPE go_memstats_alloc_bytes_total counter
go_memstats_alloc_bytes_total 824048
# HELP go_memstats_buck_hash_sys_bytes Number of bytes used by the profiling bucket hash table.
# TYPE go_memstats_buck_hash_sys_bytes gauge
go_memstats_buck_hash_sys_bytes 1.4489e+06
# HELP go_memstats_frees_total Total number of frees.
# TYPE go_memstats_frees_total counter
go_memstats_frees_total 701
# HELP go_memstats_gc_sys_bytes Number of bytes used for garbage collection system metadata.
# TYPE go_memstats_gc_sys_bytes gauge
go_memstats_gc_sys_bytes 1.55452e+06
# HELP go_memstats_heap_alloc_bytes Number of heap bytes allocated and still in use.
# TYPE go_memstats_heap_alloc_bytes gauge
go_memstats_heap_alloc_bytes 824048
# HELP go_memstats_heap_idle_bytes Number of heap bytes waiting to be used.
# TYPE go_memstats_heap_idle_bytes gauge
go_memstats_heap_idle_bytes 1.818624e+06
# HELP go_memstats_heap_inuse_bytes Number of heap bytes that are in use.
# TYPE go_memstats_heap_inuse_bytes gauge
go_memstats_heap_inuse_bytes 2.113536e+06
# HELP go_memstats_heap_objects Number of allocated objects.
```

Prometheus Alerts Graph Status Help

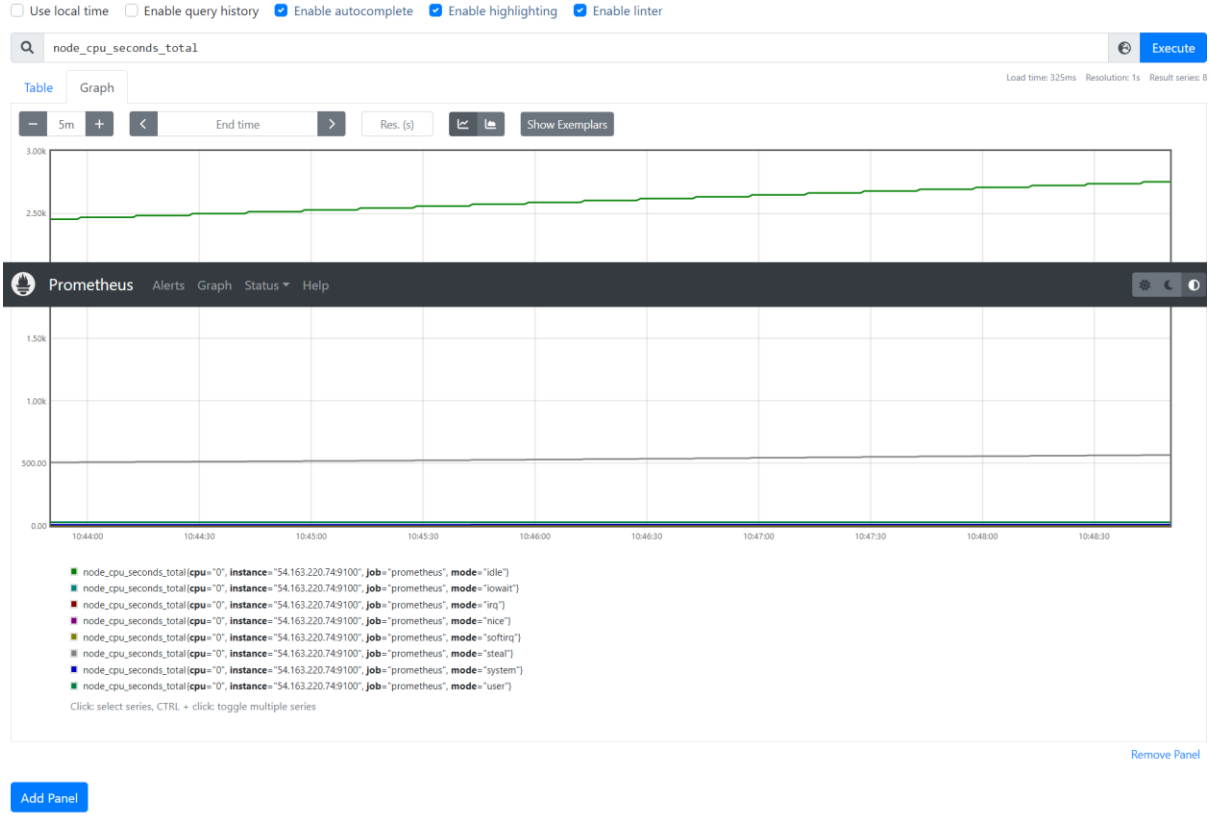
Targets

All Unhealthy Collapse All

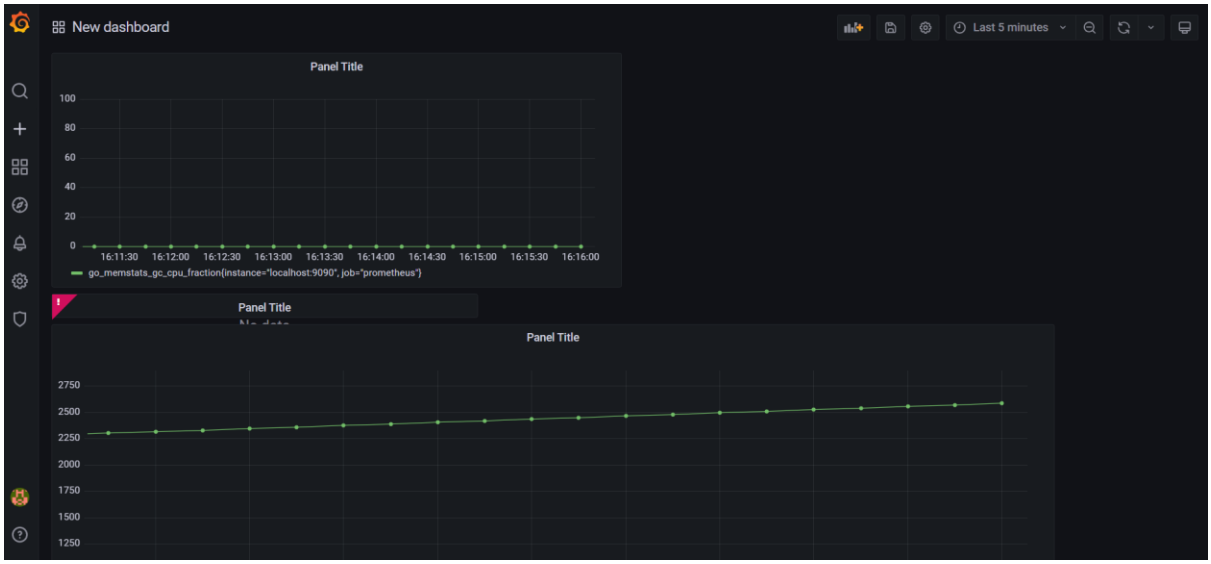
Filter by endpoint or labels

prometheus (2/2 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	8.772s ago	6.316ms	
http://54.163.220.74:9100/metrics	UP	instance="54.163.220.74:9100" job="prometheus"	6.172s ago	11.261ms	


Use local time
Enable query history
Enable autocomplete
Enable highlighting
Enable linter
node_cpu_seconds_total
Execute
Table
Graph
Load time: 325ms
Resolution: 1s
Result series: 8
5m
End time
Res. (s)
Show Exemplars
Prometheus
Alerts
Graph
Status
Help
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="idle"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="iowait"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="irq"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="nice"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="softirq"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="steal"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="system"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="user"}
Click: select series, CTRL + click: toggle multiple series
Remove Panel
Add Panel


New dashboard
Last 5 minutes
Panel Title
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="idle"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="iowait"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="irq"}
node_cpu_seconds_total{cpu="0", instance="54.163.220.74:9100", job="prometheus", mode="nice"}


New dashboard
Last 5 minutes
Panel Title
100
80
60
40
20
0
16:11:30
16:12:00
16:12:30
16:13:00
16:13:30
16:14:00
16:14:30
16:15:00
16:15:30
16:16:00
go_memstats_gc_cpu_fraction{instance="localhost:9090", job="prometheus"}
Panel Title
Panel Title
2750
2500
2250
2000
1750
1500
1250