

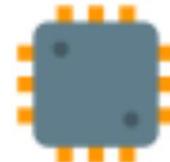


Module 10: Continuous Monitoring using Prometheus and Grafana



~ ABHIJIT ZENDE

- Install, Configure & Setup Prometheus, Node Exporter & Grafana on AWS.
- Create Grafana Dashboard to Monitor CPU and Memory Utilization of Jenkins Build Server using Prometheus Data source



Detailed notes, Guide & promql queries on my GitHub #
<https://github.com/Abhiz2411/Prometheus-Grafana-Monitoring-Masterclass>

1. L0 & L1 – Install, Configure & Setup Prometheus, Node Exporter & Grafana. Create Grafana Dashboard to Monitor CPU and Memory Utilization of Jenkins Build Server using Prometheus Data source

Ans.

(*** Note: Screen shots attached to end of each question ***)

- 1) Install Prometheus on Monitoring Server:** Set up Prometheus and configure it to monitor the Jenkins Build Server.
- 2) Add Node Exporter:** Install and configure Node Exporter on the Jenkins Build Server to expose CPU and memory metrics.
- 3) Update Prometheus Targets:** Edit the prometheus.yml file to add the Jenkins Build Server's Node Exporter as a target.
- 4) Restart Prometheus:** Restart the Prometheus service to apply changes.
- 5) Install Grafana:** Set up Grafana on the Monitoring Server if not already done.
- 6) Add Prometheus as Data Source:** Configure Prometheus as a data source in Grafana.
- 7) Create Dashboard:** Create a new Grafana dashboard and add panels for CPU and memory utilization.
- 8) Visualize Metrics:** Use PromQL queries to display CPU and memory usage in the panels.

9) Save and Verify: Save the dashboard and ensure metrics are displayed correctly.

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main area displays four instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
build_server	i-09a1c99ed46e7f4bb	Running	t2.medium	2/2 checks passed	View alarms	ap-south-1
master_server	i-091912f1fc5419060	Running	t2.medium	2/2 checks passed	View alarms	ap-south-1
monitoring_server	i-0eb6c8a29dfaee88	Running	t2.micro	Initializing	View alarms	ap-south-1
prod_server	i-0b19d37b829491a34	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1

A red arrow points from the "monitoring_server" row to the "Details" tab of its instance summary. The "Details" tab shows:

- Instance ID: i-0eb6c8a29dfaee88
- Public IPv4 address: 3.111.30.103
- Private IPv4 addresses: 172.31.14.104
- Public IPv4 DNS: ec2-3-111-30-103.ap-south-1.compute.amazonaws.com
- Instance state: Running

The screenshot shows the MobaXterm interface with several sessions open:

- Master Server
- Build server
- Build server
- Build server
- Prod server

A red arrow points to the "Session settings" dialog box for the "Build server" session. The dialog box shows the following configuration:

- Session type: SSH
- Remote host: 3.111.30.103
- Specify username: ubuntu
- Port: 22
- X11-Forwarding: checked
- Compression: checked
- Remote environment: Interactive shell
- Execute command: (empty)
- SSH-browser type: SFTP protocol
- Use private key: E:\Softwares\DevOps\StarAgile Dr (checked)
- Expert SSH settings button

The screenshot shows a browser window displaying the Prometheus download page (<https://prometheus.io/download/>) and a terminal window showing the download process.

Browser Screenshot:

- URL:** prometheus.io/download/
- Content:** A list of Prometheus releases and their checksums. A red arrow points from the browser's address bar to the top of the list.

File name	OS	Arch	Size	SHA256 Checksum
prometheus-3.0.0-rc.1.darwin-amd64.tar.gz	darwin	amd64	108.36 MiB	2b8cf57af59417fe9f7cc640c990558146272ffdf6b09fa710e00a85f30310f0
prometheus-3.0.0-rc.1.darwin-arm64.tar.gz	darwin	arm64	104.86 MiB	f497a1ce9661b0c2fd47b0c0dc2b2625350f70fe61b0950c21d81948f48f4f1d8
prometheus-3.0.0-rc.1.linux-amd64.tar.gz	linux	amd64	107.76 MiB	493567874ce6d0dd64c06c380c0e95d851acd33e9e1b618d80971a36164c4107
prometheus-3.0.0-rc.1.windows-amd64.zip	windows	amd64	110.30 MiB	5b02cfb7b0f06089640d08252323799ff17ca180c67889855f33cf54f180fc

Terminal Screenshot:

```

Monitoring server
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... 16. Master Server 32. Build server 30. Prod server 33. Monitoring server
root@ip-172-31-14-104:~# wget https://github.com/prometheus/prometheus/releases/download/v3.0.0-rc.1/prometheus-3.0.0-rc.1.linux-amd64.tar.gz
--2024-11-13 21:34:47-- https://github.com/prometheus/prometheus/releases/download/v3.0.0-rc.1/prometheus-3.0.0-rc.1.linux-amd64.tar.gz
Resolving github.com (github.com) ... 20.207.73.82
Connecting to github.com (github.com) |20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/7c2f993c-acc9-4ba5-ab3e-2c9350f8e095?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T134477Z&X-Amz-Expires=300S&X-Amz-Signature=e999da7e189f72b4faad4f269e7321a75e82b5047ee6b&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-3.0.0-rc.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream (following)
--2024-11-13 21:34:48-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/7c2f993c-acc9-4ba5-ab3e-2c9350f8e095?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T134477Z&X-Amz-Expires=300S&X-Amz-Signature=e999da7e189f72b4faad4f269e7321a75e82b5047ee6b&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-3.0.0-rc.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com) (objects.githubusercontent.com) |185.199.110.133|:443... connected.
Connecting to objects.githubusercontent.com (objects.githubusercontent.com) |185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 112992848 (108M) [application/octet-stream]
Saving to: 'prometheus-3.0.0-rc.1.linux-amd64.tar.gz'

prometheus-3.0.0-rc.1.linux-amd64.tar.g 100%[=====] 107.76M 36.1MB/s in 3.0s
2024-11-13 21:34:52 (36.1 MB/s) - 'prometheus-3.0.0-rc.1.linux-amd64.tar.gz' saved [112992848/112992848]

root@ip-172-31-14-104:~#

```

Bottom Status Bar:

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

The screenshot shows a terminal window with several tabs open, including '16. Master Server', '32. build server', '30. Prod server', and '33. Monitoring server'. The current tab, '33. Monitoring server', displays the following command and its output:

```
root@ip-172-31-14-104:~# wget https://github.com/prometheus/prometheus/releases/download/v3.0.0-rc.1/prometheus-3.0.0-rc.1.linux-amd64.tar.gz
--2024-11-13 21:34:47 -> https://github.com/prometheus/prometheus/releases/download/v3.0.0-rc.1/prometheus-3.0.0-rc.1.linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production/release-asset-2e65be/6838921/7c2f993c-acc9-4ba5-ab3e-2c9350f8e0957X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F5%2Faws4_request&X-Amz-Date=20241113T213447Z&X-Amz-Expires=3006X-Amz-Signature=e999da7ec80f7123fbaf7f181cc89072b4fa4f269e7321a75ec82b5947ea6b5X-Amz-SignedHeaders=host&response-content-disposition=attachment%3Bfilename%20filename%3Dprometheus-3.0.0-rc.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream (following)
--2024-11-13 21:34:48 -> https://objects.githubusercontent.com/github-production/release-asset-2e65be/6838921/7c2f993c-acc9-4ba5-ab3e-2c9350f8e0957X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F5%2Faws4_request&X-Amz-Date=20241113T213447Z&X-Amz-Expires=3006X-Amz-Signature=e999da7ec89f3143ebfa7f181cc89072b4fa4f269e321a75ec82b5947ea6b5X-Amz-SignedHeaders=host&response-content-disposition=attachment%3Bfilename%20filename%3Dprometheus-3.0.0-rc.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.108.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 112992848 (108M) [application/octet-stream]
Saving to: "prometheus-3.0.0-rc.1.linux-amd64.tar.gz"

prometheus-3.0.0-rc.1.linux-amd64.tar.gz 100%[=====] 107.76M 36.1MB/s in 3.0s

2024-11-13 21:34:52 (36.1 MB/s) - 'prometheus-3.0.0-rc.1.linux-amd64.tar.gz' saved [112992848/112992848]

root@ip-172-31-14-104:~# tar -zxf prometheus-3.0.0-rc.1.linux-amd64.tar.gz
prometheus-3.0.0-rc.1.linux-amd64/
prometheus-3.0.0-rc.1.linux-amd64/promtool
prometheus-3.0.0-rc.1.linux-amd64/LICENSE
prometheus-3.0.0-rc.1.linux-amd64/prometheus
prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml
prometheus-3.0.0-rc.1.linux-amd64/NOTICE
root@ip-172-31-14-104:~# echo 'yes'
yes
root@ip-172-31-14-104:~# sudo vi /etc/systemd/system/prometheus.service
root@ip-172-31-14-104:~#
```

The screenshot shows the X server interface with several windows open. The main window is a terminal displaying a configuration file for a Prometheus service. The file includes sections for [Unit], [Service], and [Install]. The [Unit] section specifies a description as 'Prometheus Server' and documentation as 'https://prometheus.io/docs/introduction/overview/'. The [Service] section sets the User to 'root' and Restart policy to 'on-failure'. The ExecStart command starts the service with the command '/root/prometheus-3.0.0-rc.1.linux-amd64/prometheus --config.file=/root/prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml'. The [Install] section marks it as wanted by 'multi-user.target'. On the left, there's a sidebar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. Below the terminal, there are status indicators for 'Remote monitoring' and 'Follow terminal folder'. At the bottom, there's a command line input field with ':wq' typed in. The top right corner has 'X server' and 'Exit' buttons.

Monitoring server

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect... 16. Master Server 32. Build server 30. Prod server 33. Monitoring server X server Exit

```
2024-11-13 21:34:52 (36.1 MB/s) - 'prometheus-3.0.0-rc.1.linux-amd64.tar.gz' saved [112992848/112992848]

root@ip-172-31-14-104:~# tar -zxf prometheus-3.0.0-rc.1.linux-amd64.tar.gz
prometheus-3.0.0-rc.1.linux-amd64/
prometheus-3.0.0-rc.1.linux-amd64/promtool
prometheus-3.0.0-rc.1.linux-amd64/LICENSE
prometheus-3.0.0-rc.1.linux-amd64/prometheus
prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml
prometheus-3.0.0-rc.1.linux-amd64/NOTICE
root@ip-172-31-14-104:~# echo 'yes'
yes
root@ip-172-31-14-104:~# sudo vi /etc/systemd/system/prometheus.service
root@ip-172-31-14-104:~# sudo systemctl daemon-reload
root@ip-172-31-14-104:~# sudo systemctl status prometheus
● prometheus.service - Prometheus Server
  Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: enabled)
    Active: inactive (dead)
      Docs: https://prometheus.io/docs/introduction/overview/
root@ip-172-31-14-104:~# sudo systemctl start prometheus
root@ip-172-31-14-104:~# sudo systemctl status prometheus
● prometheus.service - Prometheus Server
  Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-11-13 21:43:53 UTC; 3s ago
    Docs: https://prometheus.io/docs/introduction/overview/
  Main PID: 1052 (prometheus)
    Tasks: 6 (limit: 1130)
      Memory: 15.4M
        CPU: 49ms
      CGroup: /system.slice/prometheus.service
           └─1052 /root/prometheus-3.0.0-rc.1.linux-amd64/prometheus --config.file=/root/prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml

Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.699Z level=INFO source=head.go:723 msg="Replaying WAL, this may take a while" component=tedb
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.699Z level=INFO source=head.go:795 msg="WAL segment loaded" component=tedb segment=1
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.699Z level=INFO source=head.go:832 msg="WAL replay completed" component=tedb checked=1
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.701Z level=INFO source=main.go:1261 msg="filesystem information" fs_type=EXT4_SUP
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.701Z level=INFO source=main.go:1264 msg="TSDB started"
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.701Z level=INFO source=main.go:1447 msg="Loading configuration file" filename=/root/prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.705Z level=INFO source=main.go:1486 msg="updated GOGC old=100 new=75"
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.705Z level=INFO source=main.go:1496 msg="Completed loading of configuration file"
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.705Z level=INFO source=main.go:1225 msg="Server is ready to receive web requests."
Nov 13 21:43:53 ip-172-31-14-104 prometheus[1052]: time=2024-11-13T21:43:53.705Z level=INFO source=manager.go:168 msg="Starting rule manager..." component=ruler
root@ip-172-31-14-104:~# sudo systemctl enable prometheus
Created symlink /etc/systemd/system/multi-user.target.wants/prometheus.service → /etc/systemd/system/prometheus.service.
root@ip-172-31-14-104:~#
```

Remote monitoring Follow terminal folder

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Not secure 3.111.30.103:9090 query?g0.expr=up&g0.show_tree=0&g0.tab=table&g0.range_input=1h&g0.re...

Prometheus Query Alerts Status

Table Graph Explain

Evaluation time

Load time: 105ms Result series: 1

up{instance="localhost:9090", job="prometheus"}

+ Add query

```
root@ip-172-31-14-104:~# sudo apt-get install -y apt-transport-https software-properties-common wget
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'apt' instead of 'apt-transport-https'
apt is already the newest version (2.4.13).
apt set to manually installed.
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
wget is already the newest version (1.21.2-2ubuntu1.1).
wget set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@ip-172-31-14-104:~# sudo mkdir -p /etc/apt/keyrings/
wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
root@ip-172-31-14-104:~# echo "deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list
deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main
root@ip-172-31-14-104:~# # Updates the list of available packages
sudo apt-get update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 https://apt.grafana.com stable InRelease [7661 B]
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://security.ubuntu.com/ubuntu jammy/universe Translation-en [129 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:8 https://apt.grafana.com stable/main amd64 Packages [312 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2149 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [367 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2633 kB]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [455 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1134 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [265 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.8 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [388 B]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [28.8 kB]
Get:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:31 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [672 B]
Get:32 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1932 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [309 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2573 kB]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [444 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [580 B]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [913 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [181 kB]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.5 kB]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
```

```
root@ip-172-31-14-104:~# # Updates the list of available packages
sudo apt-get update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 https://apt.grafana.com stable InRelease [7661 B]
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://security.ubuntu.com/ubuntu jammy/universe Translation-en [129 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:8 https://apt.grafana.com stable/main amd64 Packages [312 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2149 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [367 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2633 kB]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [455 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1134 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [265 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.8 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [28.8 kB]
Get:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:31 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [672 B]
Get:32 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1932 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [309 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2573 kB]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [444 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [580 B]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [913 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [181 kB]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.5 kB]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Monitoring server

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

X server Exit

Quick connect...

16. Master Server 32. Build server 30. Prod server 34. Monitoring server

```
Get:43 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:44 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [224 B]
Fetched 34.7 MB in 40s (863 kB/s)
Reading package lists... Done
root@ip-172-31-14-104:~# # Installs the latest OSS release:
sudo apt-get install grafana
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  musl
The following NEW packages will be installed:
  grafana musl
0 upgraded, 2 newly installed, 0 to remove and 16 not upgraded.
Need to get 127 MB of archives.
After this operation, 470 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 musl amd64 1.2.2-4 [407 kB]
Get:2 https://apt.grafana.com/stable/main amd64 grafana amd64 11.3.0-01 [126 MB]
Fetched 127 MB in 18s (6887 kB/s)
Selecting previously unselected package musl:amd64.
(Reading database ... 65783 files and directories currently installed.)
Preparing to unpack .../musl_1.2.2-4_amd64.deb ...
Unpacking musl:amd64 (1.2.2-4) ...
Selecting previously unselected package grafana.
Preparing to unpack .../grafana_11.3.0-01_amd64.deb ...
Unpacking grafana (11.3.0-01) ...
Setting up musl:amd64 (1.2.2-4) ...
Setting up grafana (11.3.0-01) ...
Adding system user 'grafana' (UID 115) ...
Adding new user "grafana" (UID 115) with group `grafana' ...
Not creating home directory '/usr/share/grafana'
## NOT starting on installation, please execute the following statements to configure grafana to start automatically using systemd
sudo /bin/systemctl daemon-reload
sudo /bin/systemctl enable grafana-server
## You can start grafana-server by executing
sudo /bin/systemctl start grafana-server
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
```

Remote monitoring

Follow terminal folder

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Monitoring server

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

X server Exit

Quick connect...

16. Master Server 32. Build server 30. Prod server 34. Monitoring server

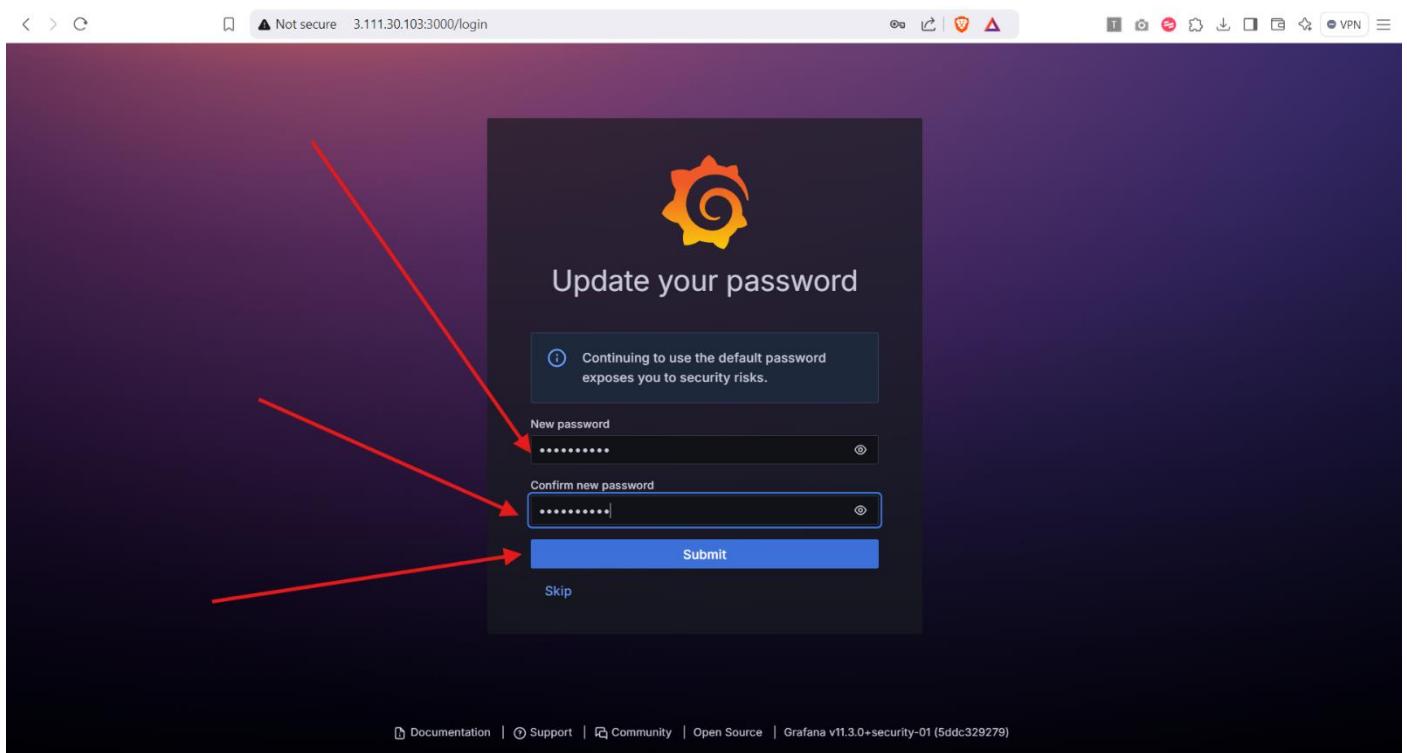
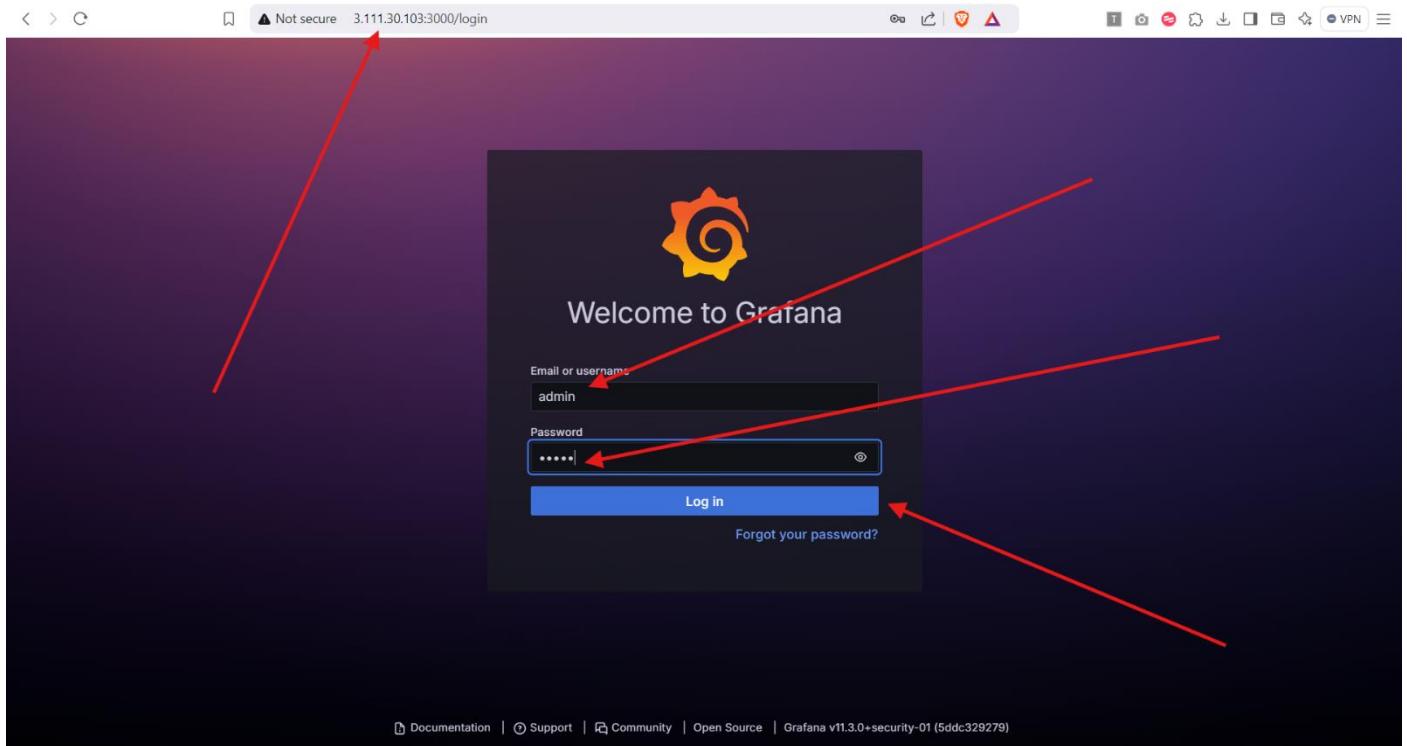
```
root@ip-172-31-14-104:~# systemctl enable grafana-server.service
Synchronizing state of grafana-server.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable grafana-server
Created symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service → /lib/systemd/system/grafana-server.service.
root@ip-172-31-14-104:~# systemctl status grafana-server
● grafana-server.service - Grafana instance
  Loaded: loaded (/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
    Active: inactive (dead)
      Docs: http://docs.grafana.org
root@ip-172-31-14-104:~# systemctl start grafana-server.service
root@ip-172-31-14-104:~# systemctl status grafana-server.service
● grafana-server.service - Grafana instance
  Loaded: loaded (/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-11-13 22:02:56 UTC; 5s ago
    Docs: http://docs.grafana.org
      Main PID: 2427 (grafana)
         Tasks: 6 (limit: 1130)
        Memory: 155.3M
          CPU: 1.261s
        CGroup: /system.slice/grafana-server.service
                └─2427 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/run/grafana/grafana-server.pid --packaging=deb cfg:de

Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.160406579Z level=info msg="Migration successfully executed" id="Add index"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.168303423Z level=info msg="Executing migration" id="update group index"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.168822554Z level=info msg="Migration successfully executed" id="update group index"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.175184525Z level=info msg="Executing migration" id="managed folder permission"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.175493662Z level=info msg="Migration successfully executed" id="managed folder permission"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.181909935Z level=info msg="Executing migration" id="admin only folder permission"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.182497057Z level=info msg="Migration successfully executed" id="admin only folder permission"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.188797253Z level=info msg="Executing migration" id="add action column to dashboard"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.195464861Z level=info msg="Migration successfully executed" id="add action column to dashboard"
Nov 13 22:03:02 ip-172-31-14-104 grafana[2427]: logger=migrator t=2024-11-13T22:03:02.20326336Z level=info msg="Executing migration" id="add scope column to dashboard"
root@ip-172-31-14-104:~#
```

Remote monitoring

Follow terminal folder

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>



```

ubuntu@ip-172-31-42-226:~$ sudo -i
root@ip-172-31-42-226:~# wget https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
--2024-11-13 22:21:49-- https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
Resolving github.com (github.com)... 140.82.113.3
Connecting to github.com (github.com) |140.82.113.3|:443... connected.
HTTP request sent, awaiting response... 304 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/a7e04f41-5543-40e2-9060-26fe32bb4b?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T221507Z&X-Amz-Expires=300&X-Amz-Signature=e65c8a20a435ef2bd6d0e5a2e0052c5fec0e5703fd90bb5d93e6X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2024-11-13 22:21:50-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/a7e04f41-5543-40e2-9060-26fe32bb4b?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T221507Z&X-Amz-Expires=300&X-Amz-Signature=e65c8a20a435ef2bd6d0e5a2e0052c5fec0e5703fd90bb5d93e6X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.111.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10676343 (10M) [application/octet-stream]
Saving to: 'node_exporter-1.8.2.linux-amd64.tar.gz'

node_exporter-1.8.2.linux-amd64.tar.gz 100%[=====] 10.18M 30.6MB/s in 0.3s

2024-11-13 22:21:52 (30.6 MB/s) - 'node_exporter-1.8.2.linux-amd64.tar.gz' saved [10676343/10676343]

root@ip-172-31-42-226:~# tar -zvxf node_exporter-1.8.2.linux-amd64.tar.gz
node_exporter-1.8.2.linux-amd64/
node_exporter-1.8.2.linux-amd64/NOTICE
node_exporter-1.8.2.linux-amd64/node_exporter
node_exporter-1.8.2.linux-amd64/LICENSE
root@ip-172-31-42-226:~#

```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

```

Prod server
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
16. Master Server x 35. Build server x 36. Prod server x 34. Monitoring server x
/home/ubuntu/
Name
.. .cache .bash_history .bash_logout .profile .sudo_as_admin_successful .xauthority
Sessions View X server Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Prod server
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
16. Master Server x 35. Build server x 36. Prod server x 34. Monitoring server x
ubuntu@ip-172-31-6-141:~$ sudo -i
root@ip-172-31-6-141:~# wget https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
--2024-11-13 22:21:53-- https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com) |20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/a7e04f41-5543-40e2-9060-26fe32bb4b?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T221547Z&X-Amz-Expires=300&X-Amz-Signature=fdf8872cd7daa5289cae34b9d39ff69f21daa823f7cb9ebd40f736f7f1446X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2024-11-13 22:21:54-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/a7e04f41-5543-40e2-9060-26fe32bb4b?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241113%2Fus-east-1%2F%2Faws4_request&X-Amz-Date=20241113T221547Z&X-Amz-Expires=300&X-Amz-Signature=fdf8872cd7daa5289cae34b9d39ff69f21daa823f7cb9ebd40f736f7f1446X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.108.133, 185.199.109.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10676343 (10M) [application/octet-stream]
Saving to: 'node_exporter-1.8.2.linux-amd64.tar.gz'

node_exporter-1.8.2.linux-amd64.tar.gz 100%[=====] 10.18M ---KB/s in 0.1s

2024-11-13 22:21:55 (68.7 MB/s) - 'node_exporter-1.8.2.linux-amd64.tar.gz' saved [10676343/10676343]

root@ip-172-31-6-141:~# tar -zvxf node_exporter-1.8.2.linux-amd64.tar.gz
tar: option requires an argument ... '-f'
Try 'tar --help' or 'tar --usage' for more information.
root@ip-172-31-6-141:~# tar -zvxf node_exporter-1.8.2.linux-amd64.tar.gz
node_exporter-1.8.2.linux-amd64/
node_exporter-1.8.2.linux-amd64/NOTICE
node_exporter-1.8.2.linux-amd64/node_exporter
node_exporter-1.8.2.linux-amd64/LICENSE
root@ip-172-31-6-141:~#

```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

The screenshot shows a MobaXterm window with a dark theme. The title bar says "Build server". The menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help, Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. The toolbar has icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. The status bar at the bottom says "UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net".

The terminal content is a Prometheus configuration file:

```
[Unit]
Description=Prometheus Server
Documentation=https://prometheus.io/docs/introduction/overview/
After=network-online.target

[Service]
User=root
Restart=on-failure
ExecStart=/root/node_exporter-1.8.2.linux-amd64/node_exporter
[Install]
WantedBy=multi-user.target
```

The screenshot shows a MobaXterm window with a dark theme. The title bar says "Prod server". The menu bar and toolbar are identical to the first window. The status bar at the bottom says "UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net".

The terminal content is a modified Prometheus configuration file, starting with a line number:

```
^[[200~[Unit]
Description=Prometheus Server
Documentation=https://prometheus.io/docs/introduction/overview/
After=network-online.target

[Service]
User=root
Restart=on-failure
ExecStart=/root/node_exporter-1.8.2.linux-amd64/node_exporter
[Install]
WantedBy=multi-user.target
```

The screenshot shows a terminal window titled '35. Build server' with several tabs open. The current tab displays the command-line session:

```
Length: 10676343 (10M) [application/octet-stream]
Saving to: 'node_exporter-1.8.2.linux-amd64.tar.gz'

node_exporter-1.8.2.linux-amd64.tar.gz 100%[=====] 10.18M 30.6MB/s in 0.3s

2024-11-13 22:21:52 (30.6 MB/s) - 'node_exporter-1.8.2.linux-amd64.tar.gz' saved [10676343/10676343]

root@ip-172-31-42-226:~# tar -zxfv node_exporter-1.8.2.linux-amd64.tar.gz
node_exporter-1.8.2.linux-amd64/
node_exporter-1.8.2.linux-amd64/NOTICE
node_exporter-1.8.2.linux-amd64/node_exporter
node_exporter-1.8.2.linux-amd64/LICENSE
root@ip-172-31-42-226:~# sudo cp /etc/systemd/system/node_exporter.service
root@ip-172-31-42-226:~# sudo systemctl daemon-reload
root@ip-172-31-42-226:~# sudo systemctl status node_exporter
● node_exporter.service - Prometheus Server
    Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
    Active: inactive (dead)
      Docs: https://prometheus.io/docs/introduction/overview/
root@ip-172-31-42-226:~# sudo systemctl start node_exporter
root@ip-172-31-42-226:~# sudo systemctl status node_exporter
● node_exporter.service - Prometheus Server
    Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
    Active: active (running) since Wed 2024-11-13 22:28:32 UTC; 14s ago
      Docs: https://prometheus.io/docs/introduction/overview/
    Main PID: 6251 (node_exporter)
       Tasks: 5 (limit: 4676)
     Memory: 2.6M
        CPU: 7ms
       CGroup: /system.slice/node_exporter.service
               └─6251 /root/node_exporter-1.8.2.linux-amd64/node_exporter

Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=time
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=timenix
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=udp_queues
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=uname
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=winstat
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=watchdog
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=zfs
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=node_exporter.go:118 level=info collector=zfs
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=tsl_config.go:313 level=info msg="Listening on" address=[::]:9100
Nov 13 22:28:32 ip-172-31-42-226 node_exporter[6251]: ts=2024-11-13T22:28:32.523Z caller=tsl_config.go:316 level=info msg="TLS is disabled." http2=false addr=[::]
root@ip-172-31-42-226:~# sudo systemctl enable node_exporter
Created symlink /etc/systemd/system/multi-user.target.wants/node_exporter.service → /etc/systemd/system/node_exporter.service.
root@ip-172-31-42-226:~#
```

Red arrows highlight the commands: `sudo cp /etc/systemd/system/node_exporter.service`, `sudo systemctl daemon-reload`, and `sudo systemctl start node_exporter`.

The screenshot shows the Proxterm application window with several tabs open:

- Terminal
- Sessions
- View
- X server
- Tools
- Games
- Settings
- Macros
- Help

Session tabs include:

- 16. Master Server
- 35. Build server
- 36. Prod server
- 34. Monitoring server

File browser sidebar:

- Quick connect...
- Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
- /home/ubuntu/
- Name
- ..
- .ansible
- .cache
- .ssh
- .bash_history
- .bash_logout
- .bashrc
- .profile
- .sudo_as_admin_successful
- .xauthority

Content of the Prod server terminal (Tab 36):

```
root@ip-172-31-6-141:~# tar -zxf node_exporter-1.8.2.linux-amd64.tar.gz
node_exporter-1.8.2.linux-amd64
node_exporter-1.8.2.linux-amd64/NOTICE
node_exporter-1.8.2.linux-amd64/node_exporter
node_exporter-1.8.2.linux-amd64/LICENSE
root@ip-172-31-6-141:~# sudo vi /etc/systemd/system/node_exporter.service
root@ip-172-31-6-141:~# sudo systemctl daemon-reload
root@ip-172-31-6-141:~# sudo systemctl status node_exporter
● node_exporter.service
    Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
      Active: inactive (dead)

Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:1: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:2: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:3: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:4: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:1: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:2: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:3: Assignment outside of section. Ignoring.
Nov 13 22:28:09 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:4: Assignment outside of section. Ignoring.
root@ip-172-31-6-141:~# sudo systemctl start node_exporter
root@ip-172-31-6-141:~# sudo systemctl status node_exporter
● node_exporter.service
    Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
      Active: active (running) since Wed 2024-11-13 22:28:39 UTC; 12s ago
        Main PID: 9021 (node_exporter)
          Tasks: 3 (limit: 1130)
         Memory: 2.0M
            CPU: 7ms
           CGroup: /system.slice/node_exporter.service
                   └─ 9021 /root/node_exporter-1.8.2.linux-amd64/node_exporter

Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.983Z caller=node_exporter.go:118 level=info collector=vmsstat
Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.983Z caller=node_exporter.go:118 level=info collector=watchdog
Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.983Z caller=node_exporter.go:118 level=info collector=xfs
Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.983Z caller=node_exporter.go:118 level=info collector=zfs
Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.984Z caller=tls_config.go:313 level=info msg="listening on" address=[::]:9100
Nov 13 22:28:39 ip-172-31-6-141 node_exporter[9021]: ts=2024-11-13T22:28:39.984Z caller=tls_config.go:316 level=info msg="TLS is disabled." http2=false address=[::]
Nov 13 22:28:52 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:1: Assignment outside of section. Ignoring.
Nov 13 22:28:52 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:2: Assignment outside of section. Ignoring.
Nov 13 22:28:52 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:3: Assignment outside of section. Ignoring.
Nov 13 22:28:52 ip-172-31-6-141 systemd[1]: /etc/systemd/system/node_exporter.service:4: Assignment outside of section. Ignoring.
root@ip-172-31-6-141:~# sudo systemctl enable node_exporter
Created symlink /etc/systemd/system/multi-user.target.wants/node_exporter.service → /etc/systemd/system/node_exporter.service.
root@ip-172-31-6-141:~#
```

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main area displays a table of instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
build_server	i-09a1c99ed46e7f4bb	Running	t2.medium	2/2 checks passed	View alarms +	ap-south-1
master_server	i-091912f1fc5419060	Running	t2.medium	2/2 checks passed	View alarms +	ap-south-1
monitoring_server	i-0eb6c8a29dfaece88	Running	t2.micro	Initializing	View alarms +	ap-south-1
prod_server	i-0b19d37b829491a34	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1

Below the table, the details for the **i-09a1c99ed46e7f4bb (build_server)** instance are shown. A red arrow points from the Public IPv4 address (13.232.17.86) to the browser address bar.

Details tab (selected):

- Instance summary:
 - Instance ID: i-09a1c99ed46e7f4bb
 - IPv6 address: -
 - Instance state: Running
- Public IPv4 address: 13.232.17.86 | open address
- Private IPv4 addresses: 172.31.42.226
- Public IPv4 DNS: ec2-13-232-17-86.ap-south-1.compute.amazonaws.com | open address

Prometheus Node Exporter

Version: (version=1.8.2, branch=HEAD, revision=f1e0e8360aa60b6cb5e5cc1560bed348fc2c1895)

- [Metrics](#)

The screenshot shows the AWS EC2 Instances page with the following details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
build_server	i-09a1c99ed46e7f4bb	Running	t2.medium	2/2 checks passed	View alarms +	ap-south-1
master_server	i-091912f1fc5419060	Running	t2.medium	2/2 checks passed	View alarms +	ap-south-1
monitoring_server	i-0eb6c8a29dfaee88	Running	t2.micro	Initializing	View alarms +	ap-south-1
prod_server	i-0b19d37b829491a34	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1

On the right side of the prod_server row, there is a red arrow pointing to the "Public IPv4 address copied" link. Below the table, the instance details are shown:

i-0b19d37b829491a34 (prod_server)

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

Instance summary

Instance ID: i-0b19d37b829491a34
IPv6 address: -
Public IPv4 address: 13.234.21.13 | [open address](#)

Private IPv4 addresses: 172.31.6.141
Public IPv4 DNS: ec2-13-234-21-13.ap-south-1.compute.amazonaws.com | [open address](#)

Instance state: Running

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

The screenshot shows the Node Exporter metrics page with the following details:

Not secure 13.234.21.13:9100

Node Exporter

Prometheus Node Exporter

Version: (version=1.8.2, branch=HEAD, revision=f1e0e8360aa60b6cb5e5cc1560bed348fc2c1895)

- [Metrics](#)

```
ubuntu@ip-172-31-14-104:~$ sudo -i
root@ip-172-31-14-104:~# cd /root/prometheus-3.0.0-rc.1.linux-amd64/
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64# vi prometheus.yml
```

```
# my global config
global:
  scrape_interval: 15s # Set the scrape interval to every 15 seconds. Default is every 1 minute.
  evaluation_interval: 15s # Evaluate rules every 15 seconds. The default is every 1 minute.
  # scrape_timeout is set to the global default (10s).

# Alertmanager configuration
alerting:
  alertmanagers:
    - static_configs:
        - targets:
            - # - alertmanager:9093

# Load rules once and periodically evaluate them according to the global 'evaluation_interval'.
rule_files:
  # - "first_rules.yml"
  # - "second_rules.yml"

# A scrape configuration containing exactly one endpoint to scrape:
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label `job=<job_name>` to any timeseries scraped from this config.
  - job_name: "prometheus"

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
      - targets: ["localhost:9090"]

    - job_name: "node_exporter"

      static_configs:
        - targets: ["13.232.17.86:9100"]
        - targets: [13.234.21.13:9100]
```

```

ubuntu@ip-172-31-14-104:~$ sudo -i
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64/
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64# vi prometheus.yml
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64# sudo systemctl restart prometheus
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64# sudo systemctl status prometheus
● prometheus.service - Prometheus Server
    Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: enabled)
      Active: active (running) since Wed 2024-11-13 22:37:28 UTC; 31s ago
        Docs: https://prometheus.io/docs/introduction/overview/
        Main PID: 2635 (prometheus)
          Tasks: 6 (limit: 1130)
            Memory: 27.0M
              CPU: 165ms
            CGroup: /system.slice/prometheus.service
                    └─2635 /root/prometheus-3.0.0-rc.1.linux-amd64/prometheus --config.file=/root/prometheus-3.0.0-rc.1.linux-amd64/prometheus.yml

Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.935Z level=INFO source=head.go:795 msg="WAL segment loaded" component=tsdb segment=0
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.935Z level=INFO source=head.go:795 msg="WAL segment loaded" component=tsdb segment=1
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.935Z level=INFO source=head.go:832 msg="WAL replay completed" component=tsdb check=0
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.937Z level=INFO source=main.go:1261 msg="filesystem information" fs_type=EXT4_SUP
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.937Z level=INFO source=main.go:1264 msg="TSDB started"
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.937Z level=INFO source=main.go:1447 msg="Loading configuration file" filename=/root/prometheus.yml
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.942Z level=INFO source=main.go:1486 msg="updated GOGC old=100 new=75"
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.942Z level=INFO source=main.go:1496 msg="Completed loading of configuration file"
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.942Z level=INFO source=main.go:1225 msg="Server is ready to receive web requests."
Nov 13 22:37:28 ip-172-31-14-104 prometheus[2635]: time=2024-11-13T22:37:28.942Z level=INFO source=manager.go:168 msg="Starting rule manager..." component=ruler
root@ip-172-31-14-104:~/prometheus-3.0.0-rc.1.linux-amd64#

```

Remote monitoring Follow terminal folder

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Prometheus

Query: `_ up` Execute

Table Graph Explain

Evaluation time: Load time: 110ms Result series: 3

<code>up{instance="localhost:9090",job="prometheus"}</code>	1
<code>up{instance="13.234.21.13:9100",job="node_exporter"}</code>	1
<code>up{instance="13.232.17.86:9100",job="node_exporter"}</code>	1

+ Add query

Screenshot of the Prometheus web interface showing the 'Targets' page. The page displays two scrape pools: 'node_exporter' and 'prometheus'. Each pool lists endpoints with their labels, last scrape time, and state.

Scrape Pool	Endpoints	Labels	Last scrape	State
node_exporter	http://13.232.17.86:9100/metrics	instance="13.232.17.86:9100" job="node_exporter"	3.889s ago	10ms UP
	http://13.234.21.13:9100/metrics	instance="13.234.21.13:9100" job="node_exporter"	11.176s ago	12ms UP
prometheus	http://localhost:9090/metrics	instance="localhost:9090" job="prometheus"	668ms ago	4ms UP

Screenshot of the Grafana web interface showing the 'Data sources' page. The left sidebar shows navigation links, and the main area displays a 'Data sources' section with a 'No data sources defined' message and an 'Add data source' button. Red arrows point from the 'Connections' link in the sidebar to the 'Data sources' section, and from the 'Add new connection' link in the sidebar to the 'Add data source' button.

The screenshot shows the 'Add data source' interface in Grafana. On the left, a sidebar menu is open with 'Data sources' selected. The main area is titled 'Add data source' and 'Choose a data source type'. Under 'Time series databases', the 'Prometheus' option is highlighted with a red arrow pointing to its icon. Other options listed are Graphite, InfluxDB, and OpenTSDB.

The screenshot shows the 'Edit data source' page for 'prometheus'. The 'Type' is set to 'Prometheus' and 'Alerting' status is 'Supported'. A modal window titled 'Configure your Prometheus data source below' provides instructions to skip configuration or use the Cloud plan. Below the modal, the 'Connection' section is visible, containing a field 'Prometheus server URL *' with the value 'http://localhost:9090' entered. A red arrow points to this input field.

Not secure 3.111.30.103:3000/connections/datasources/edit/ae3v5m1tixrlsb

Authentication

Authentication methods

Choose an authentication method to access the data source

No Authentication

TLS settings

Additional security measures that can be applied on top of authentication

Add self-signed certificate ⓘ
 TLS Client Authentication ⓘ
 Skip TLS certificate validation ⓘ

HTTP headers

Pass along additional context and metadata about the request/response

Advanced settings

Additional settings are optional settings that can be configured for more control over your data source.

Advanced HTTP settings

Allowed cookies	<input type="radio"/>	New cookie (hit enter to add)	Add
Timeout	<input type="radio"/>	Timeout in seconds	

Alerting

Not secure 3.111.30.103:3000/connections/datasources/edit/ae3v5m1tixrlsb

Manage alerts via Alerting UI

Interval behaviour

Scrape interval 15s
Query timeout 60s

Query editor

Default editor Builder
Disable metrics lookup

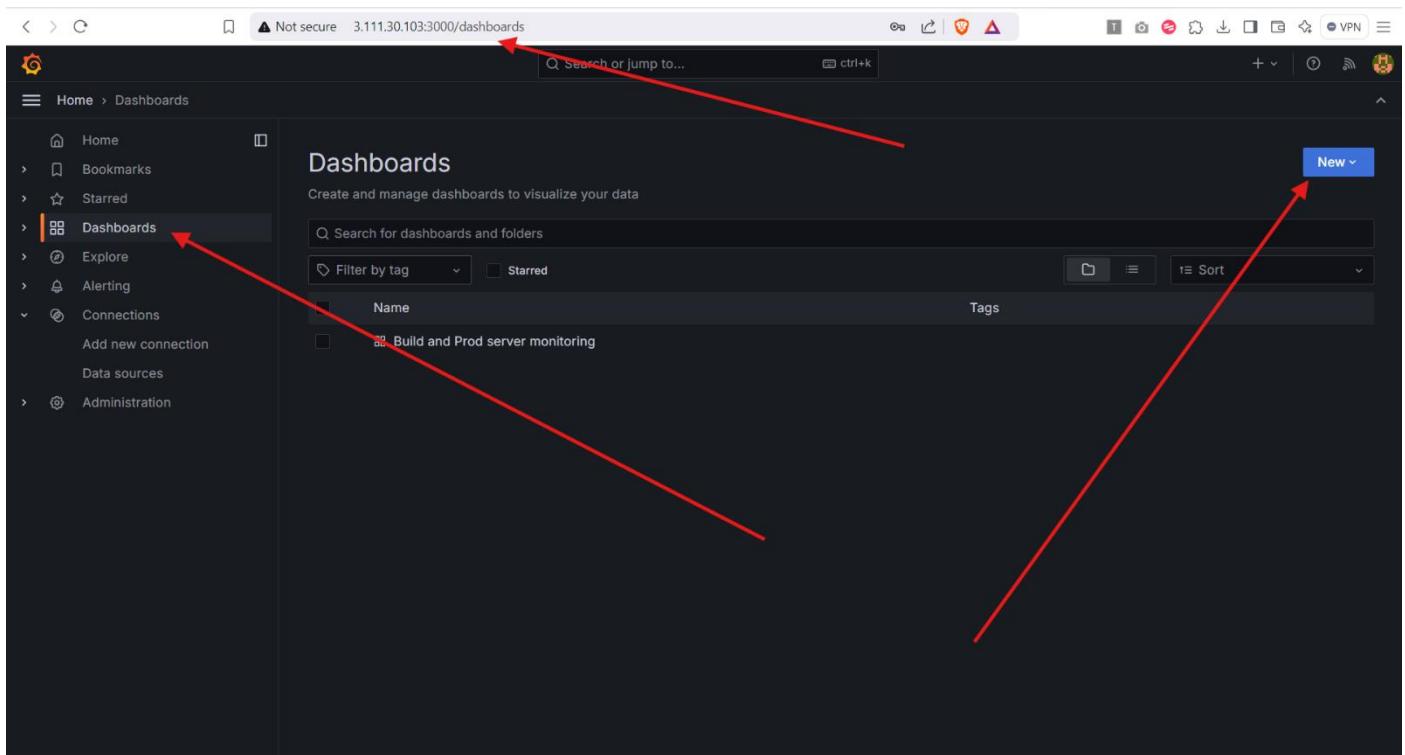
Performance

Prometheus type Choose
Cache level Low
Incremental querying (beta)
Disable recording rules (beta)

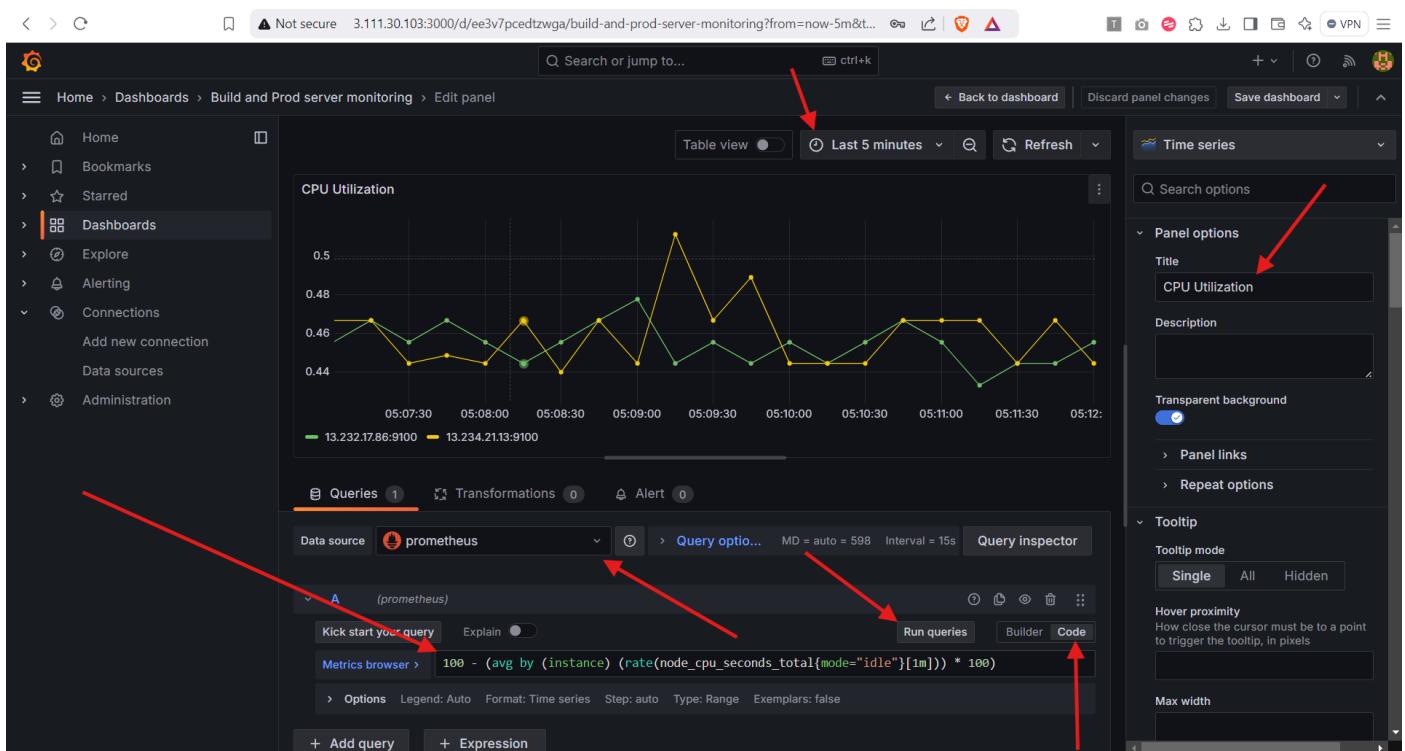
Other

The screenshot shows the Grafana interface for managing data sources. The left sidebar is collapsed, showing options like Home, Bookmarks, Starred, Dashboards, Explore, Alerting, Connections (with 'Add new connection' and 'Data sources' selected), and Administration. The main panel is titled 'Connections > Data sources > prometheus'. It contains several configuration sections: 'Default editor' set to 'Builder', 'Disable metrics lookup' toggle off, 'Performance' section with 'Prometheus type' dropdown set to 'Choose', 'Cache level' set to 'Low', 'Incremental querying (beta)' toggle off, and 'Disable recording rules (beta)' toggle off; 'Other' section with 'Custom query parameters' input field containing 'Example: max_source_resolution=5m&timeout=' and 'HTTP method' dropdown set to 'POST'; 'Exemplars' section with a '+ Add' button; and a bottom row with 'Delete' and 'Save & test' buttons. A red arrow points from the text 'Successfully queried the Prometheus API.' in the second screenshot down to the 'Save & test' button here.

This screenshot shows the same configuration page after clicking the 'Save & test' button. A green success message at the bottom states: '✓ Successfully queried the Prometheus API.' Below it, a note says: 'Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#)'. A red arrow points from this message back up to the 'Save & test' button in the first screenshot.



The screenshot shows the Grafana Dashboards page. At the top, the URL bar displays "Not secure 3.111.30.103:3000/dashboards". The left sidebar has a "Dashboards" section highlighted with a red arrow. The main area is titled "Dashboards" with the sub-instruction "Create and manage dashboards to visualize your data". A search bar at the top says "Search for dashboards and folders". Below it is a table with columns "Name" and "Tags", showing one entry: "Build and Prod server monitoring". A blue "New" button with a dropdown arrow is located in the top right corner.



The screenshot shows the "Edit panel" view for the "Build and Prod server monitoring" dashboard. The URL bar now shows "Not secure 3.111.30.103:3000/d/ee3v7pcedtzwa/build-and-prod-server-monitoring?from=now-5m&to=now". The left sidebar remains the same. The main area features a chart titled "CPU Utilization" showing CPU usage over time for two instances: 13.232.17.86:9100 (green line) and 13.234.21.13:9100 (yellow line). The chart has a "Last 5 minutes" time range selector. Below the chart is the "Queries" editor. It includes a "Data source" dropdown set to "prometheus", a "Metrics browser" input field containing the query `100 - (avg by (instance) (rate(node_cpu_seconds_total{mode="idle"}[1m])) * 100)`, and buttons for "Run queries", "Builder", and "Code". To the right of the chart is a "Panel options" sidebar with fields for "Title" (set to "CPU Utilization"), "Description", "Transparent background", "Panel links", "Repeat options", and "Tooltip" settings. Red arrows point from the "Title" field in the sidebar back to the "Title" field in the panel header, and from the "Metrics browser" input field to the "Code" button.

