Install Moba extrem ssh client software

Link- <https://mobaxterm.mobatek.net/download-home-edition.html>

Download extract and install

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Open the application.

This application is used in real tome to have multiple ssh connection on different server.

This provides flexibility to rename the session have user defined color for the session that helps a lot to improve to confession to run different commands on different servers at the same time.

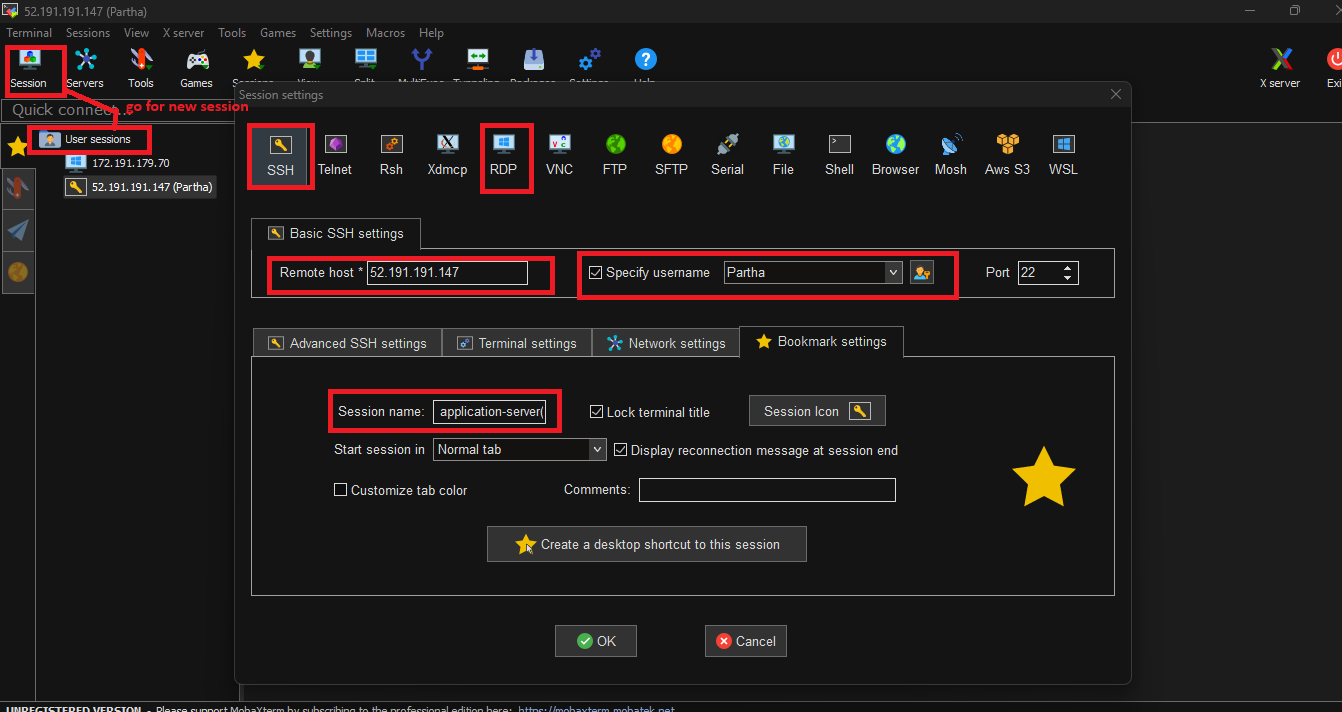
Another advantage of it is that, it’s works GUI based. Once to provide details for the server such as server IP, username and password/key location. It remembers that. And the next time we are connecting to the server it will run the command automatically from backend. We can avoid to write connection command for all time “ssh -i key-location username@serverIP”.

To connect to

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If want to rename the session.



If other server have the same key/ password, user name we can duplicate and change the IP to connect to another server.

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Install Prometheus (follow github documents - <https://github.com/Parthasarathi-P/Devops/blob/main/Stories%203%20Infra%20metrics%20-%20Node%20Exporter%20-%20Prometheus%20-%20Grafana.pdf>)

sudo apt update -y && sudo apt upgrade -y

7 clear

8 sudo wget https://github.com/prometheus/prometheus/releases/down

9 sudo groupadd --system prometheus

10 sudo useradd -s /sbin/nologin --system -g prometheus prometheus

11 sudo mkdir /var/lib/prometheus

12 sudo mkdir -p /etc/prometheus/rules

13 sudo mkdir -p /etc/prometheus/rules.s

14 sudo mkdir -p /etc/prometheus/files\_sd

15 sudo wget https://github.com/prometheus/prometheus/releases/download/v3.2.1/prometheus-3.2.1.darwin-arm64.tar.gz

16 sudo groupadd --system prometheus

17 sudo useradd -s /sbin/nologin --system -g prometheus prometheus

18 sudo mkdir /var/lib/prometheus

19 sudo mkdir -p /etc/prometheus/rules

20 sudo mkdir -p /etc/prometheus/rules.s

21 sudo mkdir -p /etc/prometheus/files\_sd

22 ls

23 sudo tar xvf prometheus-3.2.1.darwin-arm64.tar.gz

24 clear

25 ls

26 cd prometheus-3.2.1.darwin-arm64

27 sudo mv prometheus promtool /usr/local/bin/

28 sudo mv prometheus.yml /etc/prometheus/prometheus.yml

29 sudo tee /etc/systemd/system/prometheus.service<<EOF

[Unit]

Description=Prometheus

Documentation=https://prometheus.io/docs/introduction/overview/

Wants=network-online.target

After=network-online.target

[Service]

Type=simple

User=prometheus

Group=prometheus

ExecReload=/bin/kill -HUP $MAINPID

ExecStart=/usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml --storage.tsdb.path=/var/lib/prometheus --web.console.templates=/etc/prometheus/consoles --web.console.libraries=/etc/prometheus/console\_libraries --web.listen-address=0.0.0.0:9090 --web.external-url=

SyslogIdentifier=prometheus

Restart=always

[Install]

WantedBy=multi-user.target

EOF

46 sudo chown -R prometheus:prometheus /etc/prometheus

47 sudo chown -R prometheus:prometheus /etc/prometheus/\*

48 sudo chmod -R 775 /etc/prometheus

49 sudo chmod -R 755 /etc/prometheus/\*

50 sudo chown -R prometheus:prometheus /var/lib/prometheus/

51 sudo chown -R prometheus:prometheus /var/lib/prometheus/\*

52 sudo systemctl daemon-reload

53 sudo systemctl start prometheus

54 sudo systemctl enable prometheus

Issue – Prometheus service is not running it goes to failed state.

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Reason for the error-

It looks like you downloaded the **Darwin (macOS) ARM64** version of Prometheus (prometheus-3.2.1.darwin-arm64.tar.gz) and tried running it on a Linux system. That’s why you’re getting the **Exec format error**—it’s an incompatible binary.

To completely remove Prometheus from your system and do a clean reinstallation, follow these steps:

**Step 1: Stop and Disable Prometheus**

bash

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sudo systemctl stop prometheus

sudo systemctl disable prometheus

**Step 2: Remove Prometheus Binary and Configuration Files**

bash

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sudo rm -rf /usr/local/bin/prometheus

sudo rm -rf /usr/local/bin/promtool

sudo rm -rf /etc/prometheus

sudo rm -rf /var/lib/prometheus

**Step 3: Remove Prometheus System User and Group**

bash

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sudo userdel -r prometheus

sudo groupdel prometheus

**Step 4: Remove Systemd Service File**

bash

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sudo rm -f /etc/systemd/system/prometheus.service

Then reload systemd:

bash

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sudo systemctl daemon-reload

**Step 5: Verify Removal**

Check if Prometheus is completely removed:

bash

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which prometheus # Should return nothing

systemctl status prometheus # Should say "Unit prometheus.service could not be found"

Correct command to install Prometheus

92. sudo apt update

93 wget https://github.com/prometheus/prometheus/releases/download/v2.45.0-rc.0/prometheus-2.45.0-rc.0.linux-amd64.tar.gz

94 sudo groupadd --system prometheus

95 sudo useradd -s /sbin/nologin --system -g prometheus prometheus

96 sudo mkdir /var/lib/prometheus

97 sudo mkdir -p /etc/prometheus/rules

98 sudo mkdir -p /etc/prometheus/rules.s

99 sudo mkdir -p /etc/prometheus/files\_sd

100 sudo tar xvf prometheus-2.45.0-rc.0.linux-amd64.tar.gz

101 cd prometheus-2.45.0-rc.0.linux-amd64

102 sudo mv prometheus promtool /usr/local/bin/

103 sudo mv prometheus.yml /etc/prometheus/prometheus.yml

104 sudo tee /etc/systemd/system/prometheus.service<<EOF

[Unit]

Description=Prometheus

Documentation=https://prometheus.io/docs/introduction/overview/

Wants=network-online.target

After=network-online.target

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Type=simple

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Group=prometheus

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ExecStart=/usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml --storage.tsdb.path=/var/lib/prometheus --web.console.templates=/etc/prometheus/consoles --web.console.libraries=/etc/prometheus/console\_libraries --web.listen-address=0.0.0.0:9090 --web.external-url=

SyslogIdentifier=prometheus

Restart=always

[Install]

WantedBy=multi-user.target

EOF

105 sudo chown -R prometheus:prometheus /etc/prometheus

106 sudo chown -R prometheus:prometheus /etc/prometheus/\*

107 sudo chmod -R 775 /etc/prometheus

108 sudo chmod -R 755 /etc/prometheus/\*

109 sudo chown -R prometheus:prometheus /var/lib/prometheus/

110 sudo chown -R prometheus:prometheus /var/lib/prometheus/\*

111 sudo systemctl daemon-reload

112 sudo systemctl start prometheus

113 sudo systemctl enable prometheus

114 sudo mkdir -p /var/lib/prometheus

115 sudo chown -R prometheus:prometheus /var/lib/prometheus

116 sudo chmod -R 775 /var/lib/prometheus

117 sudo chown -R prometheus:prometheus /var/lib/prometheus/\*

118 sudo systemctl daemon-reload

119 sudo systemctl start prometheus

120 sudo systemctl enable prometheus

121 systemctl status prometheus

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Now get the Prometheus on browser by IP and port.

Prometheus runs on default port 9090 make sure port is allowed on NSG.

To get public IP of the server using cmd.

>> 40.91.67.70



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Once we are done with setup on Prometheus. We need to install node exporter on working nodes. Prometheus acts like the centralized server for collected Metrix data, it collects data from all servers and stores to it’s database.

We can analyze the data by using PROMql or we can integrate with Grafana server to have Grafana dashboard.

Install node exporter to servers, those acts like agent to collect data and send to Prometheus server.

Official document-

[Download | Prometheus](https://prometheus.io/download/#node_exporter)

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Follow document to install.

Note- make sure you are installing this on correct severs, ie. The servers you want to monitor.

>>

sudo wget <https://github.com/prometheus/node_exporter/releases/download/v1.9.0/node_exporter-1.9.0.linux-amd64.tar.gz>

commad to install node exporter

sudo wget https://github.com/prometheus/node\_exporter/releases/download/v1.9.0/node\_exporter-1.9.0.linux-amd64.tar.gz

7 ls

8 sudo groupadd --system prometheus

9 sudo useradd -s /sbin/nologin --system -g prometheus prometheus

10 sudo mkdir /var/lib/node

11 sudo tar xvf node\_exporter-1.9.0.linux-amd64.tar.gz

12 cd node\_exporter-1.6.0.linux-amd64

13 ls

14 cd node\_exporter-1.9.0.linux-amd64

15 sudo mv node\_exporter /var/lib/node

16 sudo tee /etc/systemd/system/node.service<<EOF

[Unit]

Description=Prometheus Node Exporter

Documentation=https://prometheus.io/docs/introduction/overview/

Wants=network-online.target

After=network-online.target

[Service]

Type=simple

User=prometheus

Group=prometheus

ExecReload=/bin/kill -HUP $MAINPID

ExecStart=/var/lib/node/node\_exporter

SyslogIdentifier=prometheus\_node\_exporter

Restart=always

[Install]

WantedBy=multi-user.target

EOF

17 vi script.sh

18 cd ~

19 vi script.sh

20 cat script.sh

21 sudo chmod 777 script.sh

22 ls

23 sudo ./script.sh

24 systemctl status nodeexporter

25 systemctl status node

A screen shot of a computer

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Node exporter runs on default port 9100.

Check it.

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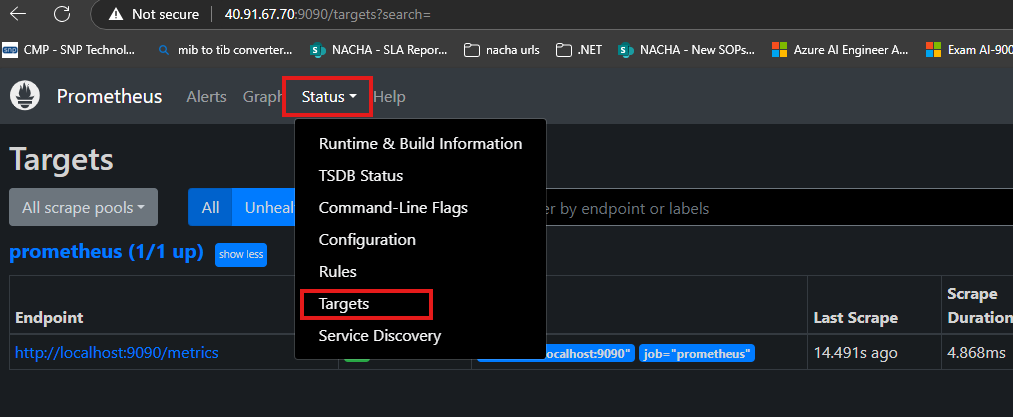
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On metrices we can see what all metrices will be captured.

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To see targets from Prometheus



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Once the node exporter installation is done, we need to set up the server to Prometheus for monitoring.

Go to the server where Prometheus is installed and configure the monitoring server on yaml file.

Go to Prometheus server.

>> sudo vi /etc/prometheus/prometheus.yml

Edit the file and provide the server details need to monitor

Ex-

# 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: "server1"

static\_configs:

- targets: ["52.191.191.147:9100"]

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How many servers those many job will be added. In job section provide server details need to monitor.

Provide unique job name for identifying server,

Save the file 🡪 restart Prometheus service.

>> sudo systemctl restart Prometheus

If want to validate the Prometheus configuration.

>> promtool check config /etc/prometheus/prometheus.yml

To check Prometheus service tergets from the cmd itself.

>> curl -s http://localhost:9090/api/v1/status/config | grep targets

Verify the metrices are getting properly

>> curl -v <http://52.191.191.147:9100/metrics>

If want to verify the targeted servers status from cmd

>> sudo apt update && sudo snap install jq

>> curl -s http://localhost:9090/api/v1/targets | jq .data.activeTargets

To see error logs on Prometheus

>> journalctl -u prometheus.service -b --no-pager | tail -50

A computer screen shot of a program

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Go to Prometheus browser and navigate to targets page.

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Make sure no filter applied else it might not show all servers.

Go to graph and write query to get results.

Note- if you want result as table format keep table else go to graph.

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Graph

>> up{job="server1"}

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Table-

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Few more queries-

>> node\_cpu\_seconds\_total

>> node\_memory\_MemAvailable\_bytes

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The metrices name we can get from node exporter metrices.

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Now Go ahead to setup Grafana for easy monitoring and graphical representation.

Go to official site of Grafana and download and install Grafana.

url- <https://grafana.com/grafana/download>

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Follow the given commands to download and setup Grafana.

Once installation done enable and start Grafana service.

Grafana service name is “grafana-server”.

>> sudo systemctl start grafana-server

>> sudo systemctl enable grafana-server

>> sudo systemctl status grafana-server

Grafana runs on port 3000, so enable port on NSG.

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Default username and password is admin. We need to reset password on first login.

Add data source to Grafana

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We can add any data source such as data dog, azure monitor, aws etc..

In this case will add Prometheus as a data source.

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Add Prometheus server address (ip and port) on connection url.

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Save and test.

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Now we can build dashboard from here or can navigate back to home and navigate to create dashboard.

Choose the data source (Prometheus). Or if any.

Note- we can add multiple data source as well.

Once the dashboard is created go to metrices and run query to get data.

Keep adding how many queries you want.

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Save to dashboard.

Go to dashboard to monitor.

Based on required panel such as cpu memory or any other keep adding new Pannel.

Here also we can take form multiple data source.

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From time series we can choose graph type

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Backlog from above-

Very difficult process of setting up Prometheus and node exporter,

Resolution-

Next we will avoid those and do those installation by using docker container. Prometheus will run in a container.

url- <https://github.com/Parthasarathi-P/Devops/blob/main/storie%204%20Deploying%20Prometheus%20%2C%20grafana%20and%20nodejs%20on%20docker%20-%20Infra%20Metrics.pdf>

Mubeen github link-

<https://github.com/mubeen507/prometheus-grafana-app-monitoring.git>

do it manually first and then use above compose for automation.

Creating container and mapping target nodes for infra metrices.

Here’s a step-by-step guide to setting up Prometheus and Grafana using Docker containers, ensuring a clean configuration:

**Step 1: Create Required Directories**

Ensure you have a dedicated directory for Prometheus and Grafana configurations.

>> mkdir -p ~/monitoring/prometheus

>> mkdir -p ~/monitoring/grafana

>> cd ~/monitoring

**Step 2: Create Prometheus Configuration File**

Create a prometheus.yml file inside ~/monitoring/prometheus/.

>> nano ~/monitoring/prometheus/prometheus.yml

Add the following content:

yaml

CopyEdit

global:

scrape\_interval: 15s

scrape\_configs:

- job\_name: "prometheus"

static\_configs:

- targets: ["localhost:9090"]

- job\_name: "node\_exporter"

static\_configs:

- targets: ["<YOUR\_NODE\_EXPORTER\_IP>:9100"]

Save and exit.

**Step 3: Create Docker Compose File**

Create a docker-compose.yml file inside ~/monitoring/.

>> nano ~/monitoring/docker-compose.yml

Add the following content:

yaml

CopyEdit

version: '3.8'

services:

prometheus:

image: prom/prometheus:latest

container\_name: prometheus

restart: unless-stopped

volumes:

- ./prometheus/prometheus.yml:/etc/prometheus/prometheus.yml

ports:

- "9090:9090"

command:

- "--config.file=/etc/prometheus/prometheus.yml"

networks:

- monitoring

grafana:

image: grafana/grafana:latest

container\_name: grafana

restart: unless-stopped

ports:

- "3000:3000"

volumes:

- grafana-storage:/var/lib/grafana

depends\_on:

- prometheus

networks:

- monitoring

networks:

monitoring:

volumes:

grafana-storage:

Save and exit.

**Step 4: Deploy the Containers**

Run the following command to start the services:

>> cd ~/monitoring

>> docker-compose up -d

**Step 5: Verify the Setup**

Check if the containers are running:

>> docker ps

Access Prometheus: http://localhost:9090  
Access Grafana: http://localhost:3000 (default login: admin/admin)

**To Dynamically Update Targets (Without Restarting Prometheus)**

1. Instead of manually editing prometheus.yml, you can use a separate file for targets:

yaml

CopyEdit

scrape\_configs:

- job\_name: "node\_exporter"

file\_sd\_configs:

- files:

- "/etc/prometheus/targets.json"

1. Create a targets.json file:

>> nano ~/monitoring/prometheus/targets.json

[

{ "targets": ["<YOUR\_NODE\_EXPORTER\_IP>:9100"], "labels": { "job": "node\_exporter" } }

]

To have multiple node for monitoring. Use ‘ , ’

[

{ "targets": ["192.168.1.101:9100"], "labels": { "job": "node\_exporter", "server": "server1" } },

{ "targets": ["192.168.1.102:9100"], "labels": { "job": "node\_exporter", "server": "server2" } },

{ "targets": ["192.168.1.103:9100"], "labels": { "job": "node\_exporter", "server": "server3" } }

]

1. Mount it in docker-compose.yml:

volumes:

- ./prometheus/prometheus.yml:/etc/prometheus/prometheus.yml

- ./prometheus/targets.json:/etc/prometheus/targets.json

Restart containers to apply changes-

>> docker-compose down

>> docker-compose up -d

Note- make sure on targeted nodes node exporter is installed successfully and port 9100 is allowed.

A screenshot of a computer

AI-generated content may be incorrect.

How to install node exporter on windows server?