

# Monitoring Setup with Prometheus, Grafana, Node Exporter, Loki, and Promtail

## Step 1: Update System and Install Grafana

```
dnf update -y
dnf install -y https://dl.grafana.com/enterprise/release/grafana-enterprise-11.1.4-1.x86_64.rpm
```

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## Step 2: Install Prometheus and Node Exporter

### Download Prometheus and Node Exporter

```
wget
https://github.com/prometheus/prometheus/releases/download/v2.53.2/prometheus-2.53.2.linux-
amd64.tar.gz
wget
https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.lin
ux-amd64.tar.gz
```

### Extract Files

```
tar -xvf prometheus-2.53.2.linux-amd64.tar.gz
tar -xvf node_exporter-1.8.2.linux-amd64.tar.gz
```

### Move Binaries to System Path

```
cp -rvf prometheus-2.53.2.linux-amd64/prom* /usr/local/bin
cp -rvf node_exporter-1.8.2.linux-amd64/node_exporter /usr/local/bin
```

### Configure Prometheus

```
mkdir -p /etc/prometheus
cp -rvf prometheus-2.53.2.linux-amd64/prometheus.yml /etc/prometheus/
```

Edit the Prometheus configuration file:

```
nano /etc/prometheus/prometheus.yml
```

Append the following:

```
- job_name: "node_exporter"
  static_configs:
    - targets: ["localhost:9100"]
```

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## Step 3: Configure Firewall Rules

```
firewall-cmd --add-port=3000/tcp --permanent
firewall-cmd --add-port=9100/tcp --permanent
firewall-cmd --add-port=9090/tcp --permanent
firewall-cmd --reload
```

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## Step 4: Create Systemd Units for Prometheus and Node Exporter

### Prometheus Service File

```
nano /etc/systemd/system/prometheus.service
```

Add the following content:

```
[Unit]
Description=Prometheus Service
[Service]
User=root
ExecStart=/usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml
Restart=on-failure
[Install]
WantedBy=multi-user.target
```

```
root@redhat:~ -- nano /etc/systemd/system/prometheus.service
GNU nano 5.6.1 /etc/systemd/system/prometheus.service
[Unit]
Description=prometheus@9010
[Service]
User=root
ExecStart=/usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml --web.enable-admin-api --web.listen-address=:9010
Restart=on-failure
[Install]
WantedBy=multi-user.target
EOF
```

## Node Exporter Service File

`nano /etc/systemd/system/node_exporter.service`

Add the following content:

```
[Unit]
Description=Node Exporter Service
[Service]
User=root
ExecStart=/usr/local/bin/node_exporter
Restart=on-failure
[Install]
WantedBy=multi-user.target
```

```
root@redhat:~# nano /etc/systemd/system/node_exporter.service
GNU nano 5.6.1 /etc/systemd/system/node_exporter.service
[Unit]
Description=node_exporter@9100

[Service]
User=root
ExecStart=/usr/local/bin/node_exporter
Restart=on-failure

[Install]
WantedBy=multi-user.target
EOF
```

Help Exit Write Out Read File Where Is Replace Cut Paste Read 11 lines Execute Justify Location Go To Line Undo Redo Set Mark Copy To Bracket Where Was

## Reload and Start Services

```
systemctl daemon-reload
systemctl start prometheus.service
systemctl start node_exporter.service
systemctl enable prometheus.service
systemctl enable node_exporter.service
systemctl start grafana-server
```

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## Step 5: SELinux Configuration

```
semanage port -a -t http_port_t -p tcp 9090
semanage port -a -t http_port_t -p tcp 9100
semanage port -a -t http_port_t -p tcp 3000
```

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## Step 6: Grafana Dashboard Setup

1. Open Grafana in your browser: <http://localhost:3000>.
2. Add Prometheus as a data source with the URL <http://localhost:9090>.
3. Import Dashboard:
  - Go to Dashboards > Import.

- Enter ID **1860** and click **Load**.
  - Select the Prometheus data source and click **Import**.
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## Step 7: Install and Configure Loki and Promtail

### Install Loki and Promtail

```
wget -q -O gpg.key https://rpm.grafana.com/gpg.key  
rpm --import gpg.key  
nano /etc/yum.repos.d/grafana.repo
```

Add the following content:

```
[grafana]  
name=grafana  
baseurl=https://rpm.grafana.com  
repo_gpgcheck=1  
enabled=1  
gpgcheck=1  
gpgkey=https://rpm.grafana.com/gpg.key  
sslverify=1  
sslcacert=/etc/pki/tls/certs/ca-bundle.crt
```

Install Loki and Promtail:

```
dnf update  
dnf install loki promtail
```

### Start and Enable Services

```
systemctl start loki  
systemctl enable loki  
systemctl start promtail  
systemctl enable promtail
```

Edit Promtail Configuration:

```
nano /etc/promtail/config.yml
```

Add log file paths:

```
/var/log/messages -> /var/log/*
```

## Update Firewall Rules

```
firewall-cmd --add-port=3100/tcp --permanent  
firewall-cmd --add-port=9080/tcp --permanent  
firewall-cmd --reload
```

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## Step 8: Grafana Logs Dashboard

1. Add Loki as a data source in Grafana.
  2. Use the visualization option to query logs.
  3. Apply changes and save the dashboard.
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## Step 9: Install PHPMyAdmin

```
dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-9.noarch.rpm  
dnf update  
dnf install httpd phpmyadmin mysql-server -y
```

Edit Apache Configuration:

```
nano /etc/httpd/conf.d/phpMyAdmin.conf
```

Update Directory Permissions:

```
<Directory /usr/share/phpMyAdmin/>  
  AddDefaultCharset UTF-8  
  Require all granted  
</Directory>
```

Restart Services:

```
systemctl restart httpd  
systemctl enable --now mysqld  
mysql_secure_installation  
mysql -u root -p
```

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## Verification

Ensure all services are active:

```
systemctl status prometheus.service  
systemctl status node_exporter.service  
systemctl status loki.service  
systemctl status promtail.service  
systemctl status grafana-server
```

- 1.
2. Test Grafana dashboards for metrics and logs.

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**Note:** Add screenshots for each major step, especially for Grafana configuration, dashboard imports, and log queries.