

Monitoring Stack Guide: Prometheus, Grafana, Node Exporter & cAdvisor

This guide will help you set up a complete monitoring solution using **Docker Compose**.

Project Structure

Create a folder for your project and set up the following structure:

```
monitoring/
```

```
├── docker-compose.yml
```

```
└── prometheus.yml
```

```
mkdir monitoring && cd monitoring
```

```
touch docker-compose.yml prometheus.yml
```

Prometheus Configuration

Create the prometheus.yml file. This tells Prometheus where to "scrape" (collect) the data from.

```
global:
  scrape_interval: 15s

scrape_configs:
  - job_name: 'prometheus'
    static_configs:
      - targets: ['localhost:9090']

  - job_name: 'node-exporter'
    static_configs:
      - targets: ['node-exporter:9100']

  - job_name: 'cadvisor'
    static_configs:
      - targets: ['cadvisor:8080']
```

Docker Compose File

Create the docker-compose.yml file. Note the port mapping has been adapted to Resilmesh platform.

```
services:
prometheus:
  image: prom/prometheus:latest
  container_name: prometheus
  volumes:
    - ./prometheus.yml:/etc/prometheus/prometheus.yml
  command:
    - '--config.file=/etc/prometheus/prometheus.yml'
  ports:
    - "9090:9090"
  networks:
    - monitoring
```

```
grafana:
  image: grafana/grafana:latest
  container_name: grafana
  ports:
    - "3500:3000"
  environment:
    - GF_SECURITY_ADMIN_PASSWORD=admin
  networks:
    - monitoring
```

```
node-exporter:
  image: prom/node-exporter:latest
  container_name: node-exporter
  restart: unless-stopped
  volumes:
    - /proc:/host/proc:ro
    - /sys:/host/sys:ro
    - /:/rootfs:ro
  command:
    - '--path.procfs=/host/proc'
    - '--path.rootfs=/rootfs'
    - '--path.sysfs=/host/sys'
    - '--collector.filesystem.mount-points-exclude=^/(sys|proc|dev|host|etc)($$|/)'
  networks:
    - monitoring
```

```
cadvisor:
  image: gcr.io/cadvisor/cadvisor:latest
  container_name: cadvisor
  ports:
    - "8088:8080"
  volumes:
    - /:/rootfs:ro
    - /var/run:/var/run:ro
    - /sys:/sys:ro
    - /var/lib/docker:/var/lib/docker:ro
    - /dev/disk:/dev/disk:ro
  networks:
    - monitoring
```

```
networks:
  monitoring:
    driver: bridge
```

Deployment Steps

Launch the stack: Open your terminal in the project folder and run:

```
$ docker-compose up -d
```

Access the services:

- **Prometheus:** <http://localhost:9090>
- **Grafana:** <http://localhost:3500> (User: admin / Pass: admin)
- **cAdvisor:** <http://localhost:8088>

Configure Grafana:

- Login to Grafana.
- Go to **Connections > Data Sources**.
- Click **Add data source** and select **Prometheus**.
- In the URL field, enter: *http://prometheus:9090* (since they are in the same Docker network).
- Click **Save & Test**.

Import Dashboards: Go to **Dashboards > New > Import** and use these IDs:

- **1860:** To monitor the Server (Node Exporter).
- **14282:** To monitor Containers (cAdvisor).

A quick tip: If you don't see any data when trying to view cAdvisor metrics, make sure the container has sufficient permissions (that's why we add `privileged: true` in the compose file), as access to Docker stats is more restricted in some modern Linux distributions.