

# Grafana Integration with Azure Monitor: Lab Steps

---

## Objective:

To set up and configure Grafana on an Azure Virtual Machine, integrate it with Azure Monitor, and create custom dashboards to visualize Azure resources' performance metrics.

## Section 1: Setting Up Grafana on Azure Virtual Machine

### Step 1: Create an Azure Virtual Machine

1. Log in to the Azure Portal (<https://portal.azure.com>).
2. Navigate to Virtual Machines and click + Add.
3. Fill in the necessary details:
  - Subscription: Select your subscription.
  - Resource Group: Select or create a resource group.
  - Virtual Machine Name: Enter a name for your VM (e.g., GrafanaVM).
  - Region: Select a region close to you.
  - Image: Select Ubuntu as the operating system.
  - Size: Choose a VM size (e.g., Standard B1s).
  - Authentication type: Select SSH public key or Password. Provide credentials.
4. Click Review + Create and then click Create after reviewing the settings.

### Step 2: Open Ports for Grafana Access

1. After the VM is created, go to the Networking tab of the VM.
2. Under Inbound port rules, click + Add inbound port rule.
3. Add a rule for port 3000 (the default Grafana port).
4. Click Add to save the rule.

### Step 3: Connect to the Virtual Machine via SSH

1. Once the VM is created, click Connect and select SSH.
2. Follow the instructions to SSH into the VM using the provided command:

```
``bash
ssh <your-username>@<your-public-ip>
``
```

## Section 2: Installing Grafana on Ubuntu

### Step 4: Install Grafana

1. Update the package repository:

```
bash
```

[Copy code](#)

```
sudo apt-get update
```

2. Install the necessary dependencies:

```
bash
```

[Copy code](#)

```
sudo apt-get install -y software-properties-common
```

3. Add the Grafana APT repository:

```
bash
```

[Copy code](#)

```
sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable main"
```

4. Install Grafana:

```
bash
```

[Copy code](#)

```
sudo apt-get install grafana
```

### Step 5: Start and Enable Grafana

1. Start the Grafana service:

```
bash
```

[Copy code](#)

```
sudo systemctl start grafana-server
```

2. Enable Grafana to start on boot:

```
bash
```

[Copy code](#)

```
sudo systemctl enable grafana-server
```

### Step 6: Verify Grafana is Running

Check the status of Grafana:

```
bash
```

[Copy code](#)

```
sudo systemctl status grafana-server
```

- The status should show active (running).

```
grafana-server.service - Grafana instance
Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; p>
Active: active (running) since Fri 2024-11-29 09:35:00 UTC; 18s ago
Docs: http://docs.grafana.org
Main PID: 3760 (grafana)
```

## Section 3: Configuring Grafana

### Step 7: Access Grafana Dashboard

1. Open a web browser and go to `http://<your-public-ip>:3000`.
2. Log in with the default credentials:
  - Username: admin
  - Password: admin

### Step 8: Change the Admin Password

1. Once logged in, you will be prompted to change the admin password. Set a new password and click Save.

### Step 9: Add Azure Monitor as a Data Source

1. In the Grafana dashboard, click on the gear icon (Configuration) and select Data Sources.
2. Click Add data source and search for Azure Monitor.
3. Select Azure Monitor and fill in the required fields:
  - Subscription ID: Your Azure subscription ID.
  - Tenant ID: Your Azure Active Directory tenant ID.
  - Client ID: Your Azure AD application's client ID.
  - Client Secret: The client secret you created for the Azure AD application.
4. Click Save & Test to verify the connection.

## Section 4: Integrating Grafana with Azure Monitor

### Step 10: Create a Grafana Dashboard

1. From the Grafana homepage, click + in the left sidebar and select Dashboard.
2. Click Add new panel to create a new visualization.
3. Select Azure Monitor as the data source and choose the desired metric (e.g., CPU Usage, Memory Usage).
4. Customize the panel (graph, gauge, table, etc.) as per your requirements.

### Step 11: Configure Alerts for Azure Monitor Metrics

1. In the panel settings, click Alert to configure alerts.
2. Set up conditions, thresholds, and notification channels (email, Slack, etc.).
3. Click Save to apply the alert settings.

## Section 5: Finalizing and Testing

### Step 12: Save the Dashboard

1. After configuring all the panels, click Save Dashboard at the top.
2. Provide a name for the dashboard and click Save.

### Step 13: Verify the Data Visualization

1. Ensure that Grafana is displaying the real-time metrics from Azure Monitor.
2. Test the dashboard for accuracy, ensuring it reflects the correct data and visualizations.

### Conclusion:

Grafana is successfully integrated with Azure Monitor, and custom dashboards have been created to visualize key metrics. Alerts and notifications are set up to proactively monitor performance issues in Azure resources. The solution is now ready to provide real-time monitoring insights and ensure optimal performance.