

# CST8919 - Lab 3

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## Task 1-2: Prepare Your Ubuntu Server and Install Grafana

### 1. Creating an Ubuntu Virtual Machine on Azure: No redundancy, Standard Security, Ubuntu Server 24.04 (Later changed to 22.04)

The screenshot shows the 'Create a virtual machine' wizard in Microsoft Azure. The current step is 'Instance details'. Key fields include:

- Resource group:** CST8919-LAB3
- Virtual machine name:** VM-Ha000070
- Region:** (Canada) Canada Central
- Availability options:** No infrastructure redundancy required
- Security type:** Standard
- Image:** Ubuntu Server 24.04 LTS - x64 Gen2
- VM architecture:** x64

At the bottom, there are navigation buttons: < Previous, Next : Disks >, and Review + create.

Use SSH (remember to download key) to connect to the VM later

The screenshot shows the 'Create a virtual machine' wizard in Microsoft Azure. The current step is 'Administrator account'. Key fields include:

- Authentication type:** SSH public key
- Username:** azureuser
- SSH public key source:** Generate new key pair
- SSH Key Type:** RSA SSH Format

A note states: "Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine." At the bottom, there are navigation buttons: < Previous, Next : Disks >, and Review + create.

Microsoft Azure

Search resources, services, and docs (G+/)

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Home > Virtual machines >

### Create a virtual machine

Help me create a low cost VM Help me create a VM optimized for high availability Help me choose the right VM size for my workload

SSH public key source: Generate new key pair RSA SSH Format (selected) Ed25519 SSH Format

SSH Key Type: RSA SSH Format

Key pair name \*: VM-Ha000070\_key

Inbound port rules:

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports \*: Allow selected ports

Select inbound ports \*: HTTP (80), HTTPS (443), SSH (22)

**Warning:** This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

< Previous Next : Disks > Review + create Give feedback

## Virtual Machine Overview:

Microsoft Azure

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Home >

### VM-Ha000070

Virtual machine

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Insights

Alerts

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

**Essentials**

Resource group (move): CST8919-LAB3	Operating system: Linux (ubuntu 24.04)
Status: Running	Size: Standard B1s (1 vcpu, 0.5 GiB memory)
Location: Canada Central	Public IP address: 4.205.245.181
Subscription (move): Azure for Students	Virtual network/subnet: VM-Ha000070-vnet/default
Subscription ID: 68bc7947-18d3-4475-b568-0794e595cbe6	DNS name: Not configured
	Health state: -
	Time created: 3/18/2025, 6:19 AM UTC

Tags (edit): Add tags JSON View

**Properties** Monitoring Capabilities (7) Recommendations Tutorials

**Virtual machine**

Computer name: VM-Ha000070
Operating system: Linux (ubuntu 24.04)
VM generation: V2

**Networking**

Public IP address: 4.205.245.181 ( Network interface vm-ha000070352 )
Public IP address (IPv6): -
Private IP address: 10.0.0.4

## 2. Add inbound security rule to the Virtual Machine's Network Security Group (NSG)

Should have Port 3000 enabled, protocol: TCP, Action: Allow, Priority: 310

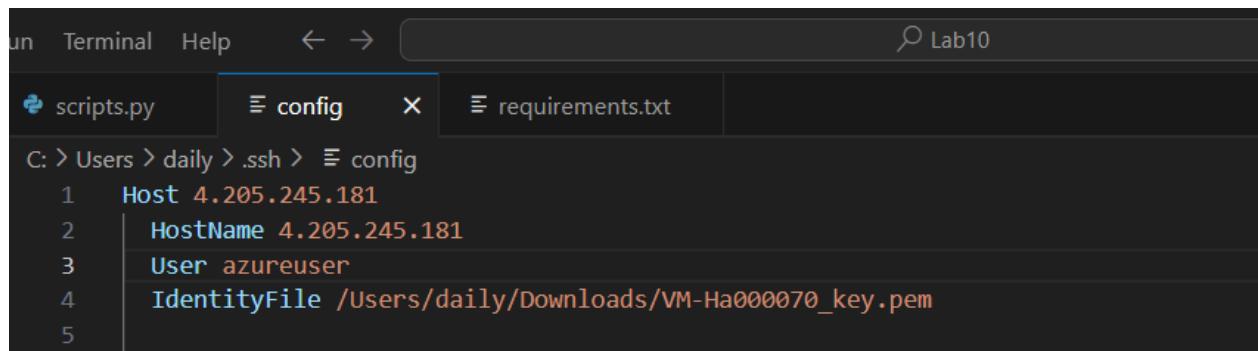
The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing the 'Networking' section selected under 'Network settings'. The main content area displays the 'VM-Ha000070 | Network settings' page. It shows basic information like Hub IP address (4.20.240.181), Private IP address (10.0.0.4), and Admin security rules (0). A 'Rules' section lists existing inbound port rules, including SSH (Priority 300, Port 22, TCP), HTTPS (Priority 320, Port 443, TCP), HTTP (Priority 340, Port 80, TCP), and several Azure-defined rules (Priority 65000-65500). To the right, a modal dialog titled 'Add inbound security rule' is open. It allows setting the Source (Any), Source port ranges (\*), Destination (Any), Service (Custom), Destination port ranges (3000), Protocol (TCP), Action (Allow), and Priority (310). The 'Add' button is at the bottom.

New inbound rule successfully added to NSG.

The screenshot shows the 'VM-Ha000070 | Network settings' page after the new rule has been added. The 'Rules' section now shows a total of 7 inbound port rules. The new rule, 'AllowAnyCustom3000Inbound', is listed with a priority of 310, port 3000, TCP protocol, and an 'Allow' action. The rest of the rules remain the same as in the previous screenshot. The 'Create port rule' button is visible at the top right of the rules table.

### 3. Connect to the VM using SSH (copy the IP address)

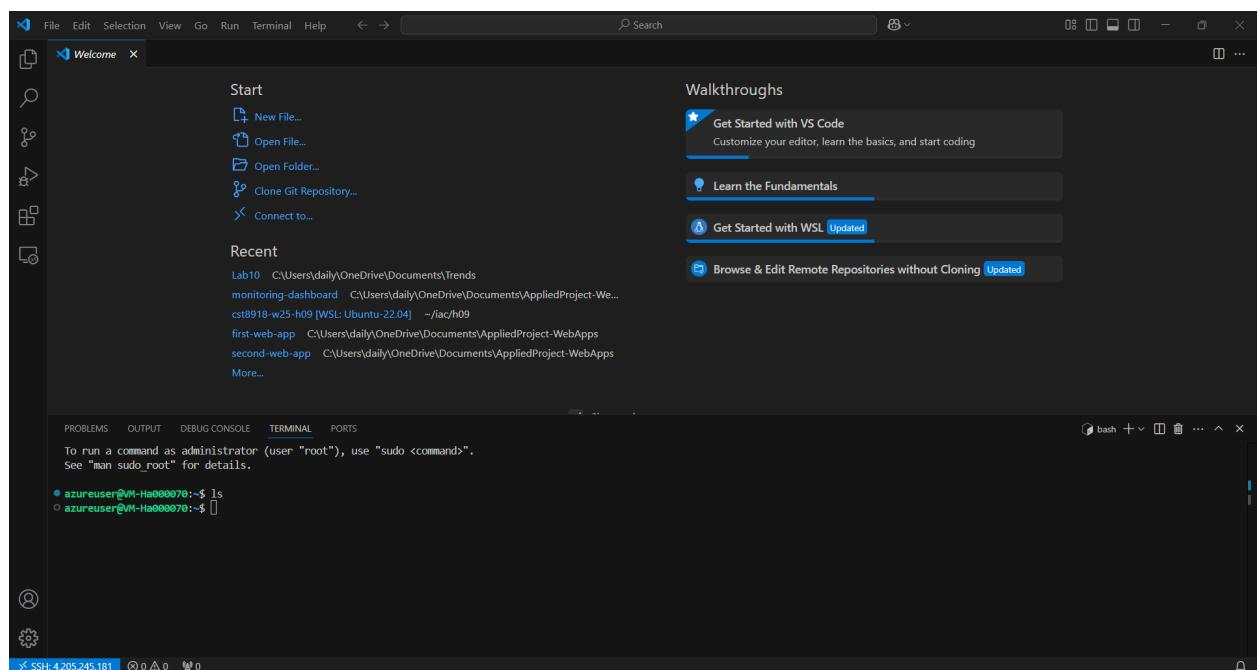
Using Visual Studio code, create a new host using IP address and private key downloaded in previous steps



A screenshot of a terminal window in Visual Studio Code. The title bar says "Lab10". There are three tabs open: "scripts.py", "config", and "requirements.txt". The "config" tab is active and contains the following text:

```
C: > Users > daily > .ssh > config
1 Host 4.205.245.181
2   HostName 4.205.245.181
3   User azureuser
4   IdentityFile /Users/daily/Downloads/VM-Ha000070_key.pem
5
```

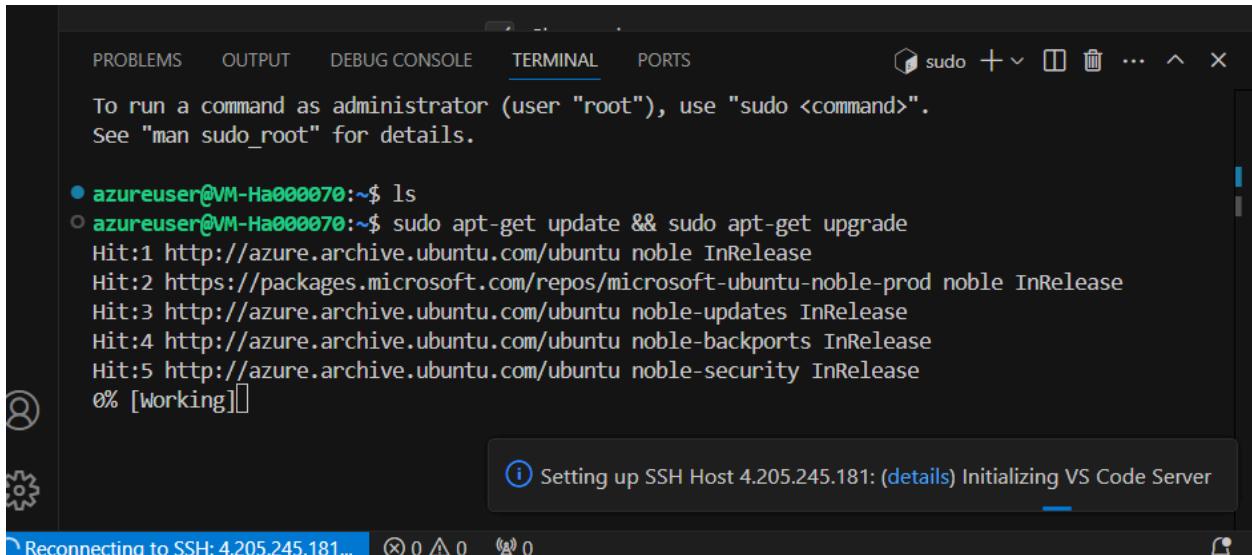
Connected



A screenshot of the Visual Studio Code interface. The title bar says "Welcome". The left sidebar shows icons for file operations like New File, Open File, and Clone Git Repository. The center pane shows a "Start" section with links to New File, Open File, Open Folder, Clone Git Repository, and Connect to... It also shows a "Recent" section with entries for "Lab10", "monitoring-dashboard", "ct8918-w25-h09", "first-web-app", "second-web-app", and "More...". The right sidebar has a "Walkthroughs" section with links to "Get Started with VS Code", "Learn the Fundamentals", "Get Started with WSL", and "Browse & Edit Remote Repositories without Cloning". The bottom pane is a terminal window titled "SSH: 4.205.245.181" showing the command "ls" being run. The output shows two entries: a blue dot next to "azureuser" and a black circle next to "azur...". The status bar at the bottom indicates 0 errors, 0 warnings, and 0 info messages.

#### 4. Install Grafana on the VM

sudo apt-get update && sudo apt-get upgrade not working because the size of the VM is too small.

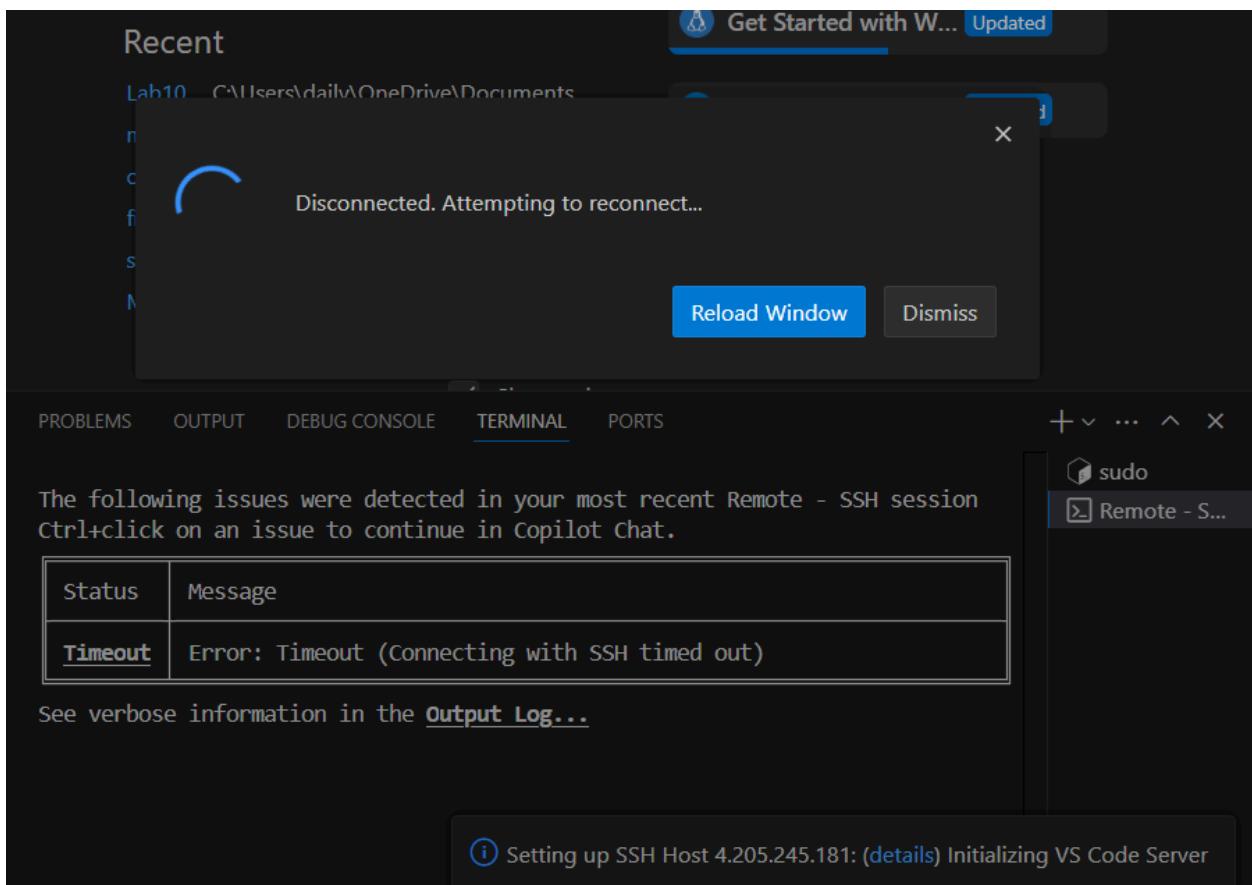


To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

```
● azureuser@VM-Ha000070:~$ ls
○ azureuser@VM-Ha000070:~$ sudo apt-get update && sudo apt-get upgrade
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:5 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease
0% [Working]
```

Setting up SSH Host 4.205.245.181: (details) Initializing VS Code Server

Reconnecting to SSH: 4.205.245.181... × 0 ▲ 0 ⌂ 0



Recent

Lab10 C:\Users\daily\OneDrive\Documents

Disconnected. Attempting to reconnect...

Get Started with W... Updated

Reload Window Dismiss

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS + ... ^ X

The following issues were detected in your most recent Remote - SSH session Ctrl+click on an issue to continue in Copilot Chat.

Status	Message
Timeout	Error: Timeout (Connecting with SSH timed out)

See verbose information in the [Output Log...](#)

Setting up SSH Host 4.205.245.181: (details) Initializing VS Code Server

## Changing the size from B1 to B2s

The screenshot shows the Microsoft Azure portal interface for selecting a virtual machine size. The URL is [VM-Ha000070 | Size](#). The search bar at the top contains "size". The main content area displays a table of VM sizes, with the "B-Series" section expanded. The "B2s" row is selected, showing details: Type: General purpose, vCPUs: 2, RAM (GiB): 4, Data disks: 4, Max IOPS: 1280, Local storage (GiB): 8 (SCSI), Premium disk: Supported, and Cost/month: \$33.87. A note at the top states: "If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes." Filter options include "b2s", "vCPUs: All", "RAM (GiB): All", and "Display cost: Monthly". A "Resize" button is visible at the bottom left.

The screenshot shows the Microsoft Azure portal interface for the VM-Ha000070 overview. The URL is [VM-Ha000070](#). The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Connect, Networking, Network settings, Load balancing, Application security groups, Network manager, Settings, Availability + scale, Size, and Availability + scaling. The "Overview" tab is selected. The main content area displays the VM's essentials information: Resource group (CST8919-LAB3), Status (Updating), Location (Canada Central), Subscription (Azure for Students), Subscription ID (68bcf947-18d3-4475-b568-0794e595cbe6), and Tags (Tags (edit) Add tags). It also shows the operating system (Linux), size (Standard B2s (1 vcpu, 0.5 GiB memory)), public IP address (4.205.245.181), virtual network/subnet (VM-Ha000070-nat/default), DNS name (Not configured), health state (-), and time created (3/18/2025, 6:19 AM UTC). The "Networking" section lists the public IP address (4.205.245.181) and network interface (vm-ha000070352). The right side features a "Notifications" panel with a log entry: "Resizing virtual machine" (Running X) - "Resizing virtual machine 'VM-Ha000070' to size 'Standard B2s'. 4 minutes ago".

sudo apt-get update && sudo apt-get upgrade is now working

The screenshot shows a terminal window titled "Lab10" with the path "C:\Users\daily\OneDrive\Documents...". The tab bar includes PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is selected), and PORTS. The status bar at the bottom shows "SSH: 4.205.245.181" and "azureuser@VM-Ha000070:~\$". The terminal output is as follows:

```
Running kernel seems to be up-to-date.

Restarting services...
/etc/needrestart/restart.d/systemd-manager
systemctl restart chrony.service multipathd.service polkit.service ssh.service systemd-journal
d.service systemd-networkd.service systemd-resolved.service systemd-udevd.service udisks2.servi
ce walinuxagent.service

Service restarts being deferred:
systemctl restart ModemManager.service
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
azureuser @ session #2: sshd[1133]
azureuser @ user manager service: systemd[1140]

No VM guests are running outdated hypervisor (qemu) binaries on this host.

azur
euser@VM-Ha000070:~$
```

## Installing Grafana

The screenshot shows a terminal window with the same setup as the previous one. The tab bar includes PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (selected), and PORTS. The status bar shows "SSH: 4.205.245.181" and "azureuser@VM-Ha000070:~\$". The terminal output is as follows:

```
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
azureuser @ session #2: sshd[1133]
azureuser @ user manager service: systemd[1140]

No VM guests are running outdated hypervisor (qemu) binaries on this host.

deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main
bash: /etc/apt/sources.list.d/grafana.list: No such file or directory
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease
Hit:5 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package grafana

azur
euser@VM-Ha000070:~$
```

sudo systemctl daemon-reload gives an error saying “Grafana.service does not exist”.

I do the commands one by one this time.

In this command

```
```wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee  
/etc/apt/keyrings/grafana.gpg > /dev/null  
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  
```
```

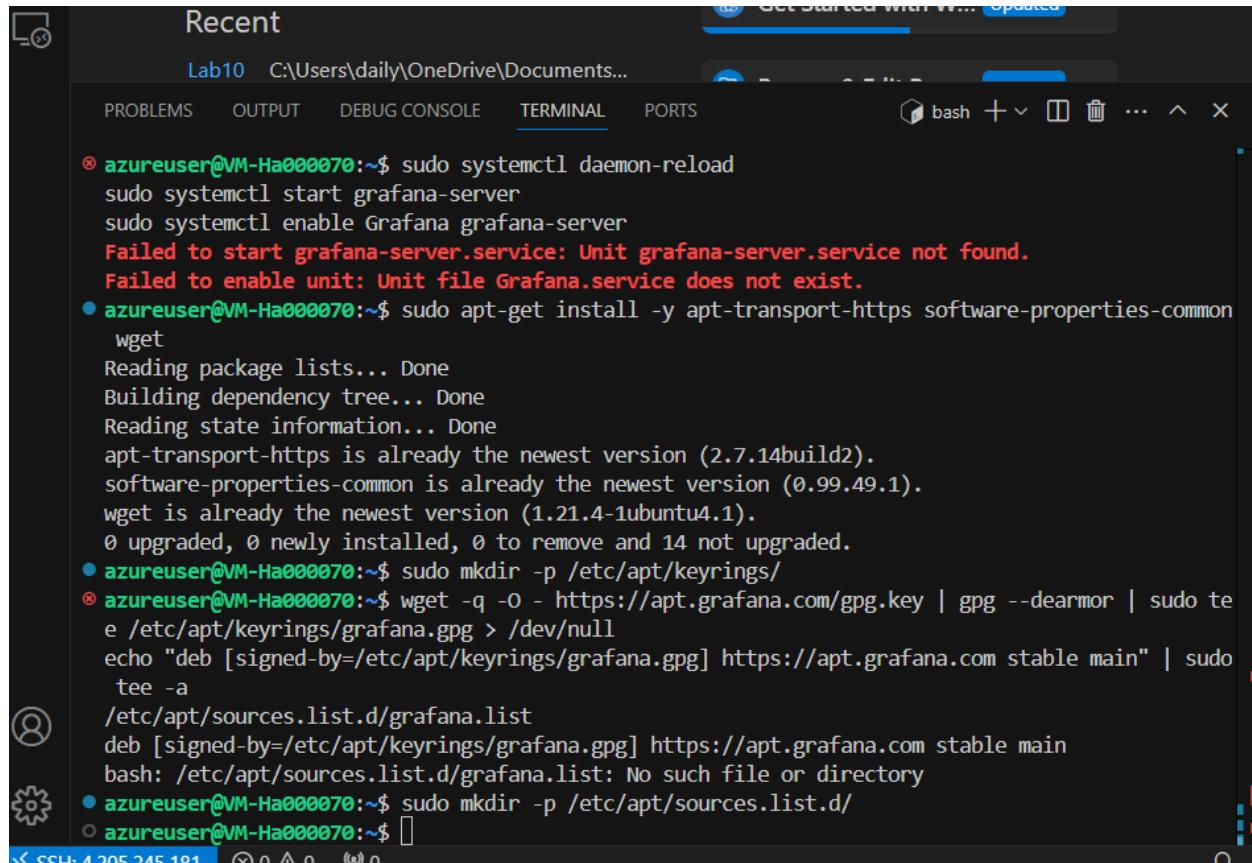
there is an error saying there is no such file or directory for source.list.d/grafana.list.

To fix the issue, make a directory using the following command:

```

```
sudo mkdir -p /etc/apt/sources.list.d/
```

```



```
Recent Lab10 C:\Users\daily\OneDrive\Documents... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS bash + □ ✎ ... ^ X  
① azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload  
sudo systemctl start grafana-server  
sudo systemctl enable Grafana grafana-server  
Failed to start grafana-server.service: Unit grafana-server.service not found.  
Failed to enable unit: Unit file Grafana.service does not exist.  
● azureuser@VM-Ha000070:~$ sudo apt-get install -y apt-transport-https software-properties-common  
wget  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
apt-transport-https is already the newest version (2.7.14build2).  
software-properties-common is already the newest version (0.99.49.1).  
wget is already the newest version (1.21.4-1ubuntu4.1).  
0 upgraded, 0 newly installed, 0 to remove and 14 not upgraded.  
● azureuser@VM-Ha000070:~$ sudo mkdir -p /etc/apt/keyrings/  
② azureuser@VM-Ha000070:~$ wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee  
/etc/apt/keyrings/grafana.gpg > /dev/null  
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  
bash: /etc/apt/sources.list.d/grafana.list: No such file or directory  
● azureuser@VM-Ha000070:~$ sudo mkdir -p /etc/apt/sources.list.d/  
○ azureuser@VM-Ha000070:~$
```

The previous wget command was not working, so I switched with this command:

```

```
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
```

```
bash: /etc/apt/sources.list.d/grafana.list: No such file or directory
● azureuser@VM-Ha000070:~$ sudo mkdir -p /etc/apt/sources.list.d/
● azureuser@VM-Ha000070:~$ wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
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
bash: /etc/apt/sources.list.d/grafana.list: No such file or directory
● azureuser@VM-Ha000070:~$ 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
○ azureuser@VM-Ha000070:~$ 
```

Everything now installs correctly.

Lab10 C:\Users\daily\OneDrive\Documents...

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

bash + × ☰ ... ^ x

```
sudo /bin/systemctl start grafana-server
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Running kernel seems to be up-to-date.

Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
azureuser @ session #2: sshd[1133]
azureuser @ user manager service: systemd[1140]

No VM guests are running outdated hypervisor (qemu) binaries on this host.

azureuser@VM-Ha000070:~$
```

Error: cannot start server because Unit file Grafana.service does not exist

A screenshot of a terminal window in the Visual Studio Code interface. The title bar shows "Recent" and "Lab10 C:\Users\daily\OneDrive\Documents...". The tab bar includes "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL" (which is selected), and "PORTS". The bottom status bar shows "SSH: 4.205.245.181" and some icons.

```
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
azureuser @ session #2: sshd[1133]
azureuser @ user manager service: systemd[1140]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
.azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload
sudo systemctl start grafana-server
sudo systemctl enable Grafana grafana-server
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
Failed to enable unit: Unit file Grafana.service does not exist.
.azureuser@VM-Ha000070:~$ 
```

No containers need to be restarted.

User sessions running outdated binaries:

```
azureuser @ session #2: sshd[1133]
azureuser @ user manager service: systemd[1140]
```

No VM guests are running outdated hypervisor (qemu) binaries on this host.

```
az azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload
sudo systemctl start grafana-server
sudo systemctl enable Grafana grafana-server
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
Failed to enable unit: Unit file Grafana.service does not exist.

● az azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload
● az azureuser@VM-Ha000070:~$ sudo systemctl start grafana-server
● az azureuser@VM-Ha000070:~$ sudo systemctl enable grafana-server
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
Created symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service → /usr/lib/systemd/system/grafana-server.service.

az azureuser@VM-Ha000070:~$
```

(Changed grafana capital G to lower to fix error)

## Grafana status:

```
File Edit Selection View Go Run Terminal Help ⏎ Search
Welcome Start Walkthroughs
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
az azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload
sudo systemctl start grafana-server
sudo systemctl enable grafana-server
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
Failed to enable unit: Unit file Grafana.service does not exist.

az azureuser@VM-Ha000070:~$ sudo systemctl daemon-reload
az azureuser@VM-Ha000070:~$ sudo systemctl start grafana-server
az azureuser@VM-Ha000070:~$ sudo systemctl enable grafana-server
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-03-18 07:06:09 UTC; 1min 48s ago
       Docs: http://docs.grafana.org
      Main PID: 10311 (grafana)
        Tasks: 16 (limit: 4687)
       Memory: 120.4M (peak: 122.2M)
          CPU: 5.097s
         CGroup: /system.slice/grafana-server.service
            10311 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/run/grafana/grafana-server.pid --packaging-deb cfg:default.paths.logs=/var/log/grafana cfg:default.paths.data=/var/lib/grafana

Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.installer t=2025-03-18T07:06:21.222135297 level=info msg="Installing plugin" pluginId=grafana-lokiexplorer-app version=v1.0.0
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.installer.t=2025-03-18T07:06:21.395673732 level=info msg="Downloaded and extracted grafana-lokiexplorer-app v1.0.0 zip successfully to /var/lib/grafana"
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugins.registration t=2025-03-18T07:06:21.482762916Z level=info msg="Plugin registered" pluginId=grafana-lokiexplorer-app
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgroundinstaller t=2025-03-18T07:06:21.482843816Z level=info msg="Plugin successfully installed" pluginId=grafana-lokiexplorer-app version=v1.0.0
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgroundinstaller t=2025-03-18T07:06:21.482872017Z level=info msg="Installing plugin" pluginId=grafana-pyroscope-app version=v1.2.0
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.installer t=2025-03-18T07:06:21.640305679Z level=info msg="Installing plugin" pluginId=grafana-pyroscope-app version=v1.2.0
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-installer.fs t=2025-03-18T07:06:21.70825786Z level=info msg="Downloaded and extracted grafana-pyroscope-app v1.2.0 zip successfully to /var/lib/grafana"
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugins.registration t=2025-03-18T07:06:21.798687147Z level=info msg="Plugin registered" pluginId=grafana-pyroscope-app
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgroundinstaller t=2025-03-18T07:06:21.798687147Z level=info msg="Plugin successfully installed" pluginId=grafana-pyroscope-app version=v1.2.0
Mar 18 07:07:16 VM-Ha000070 grafana[10311]: logger-infra.usagesstats t=2025-03-18T07:06:21.678275662Z level=info msg="Usage stats are ready to report"
~
lines 1-21/21 (END) ...skipping...
grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; preset: enabled)
```

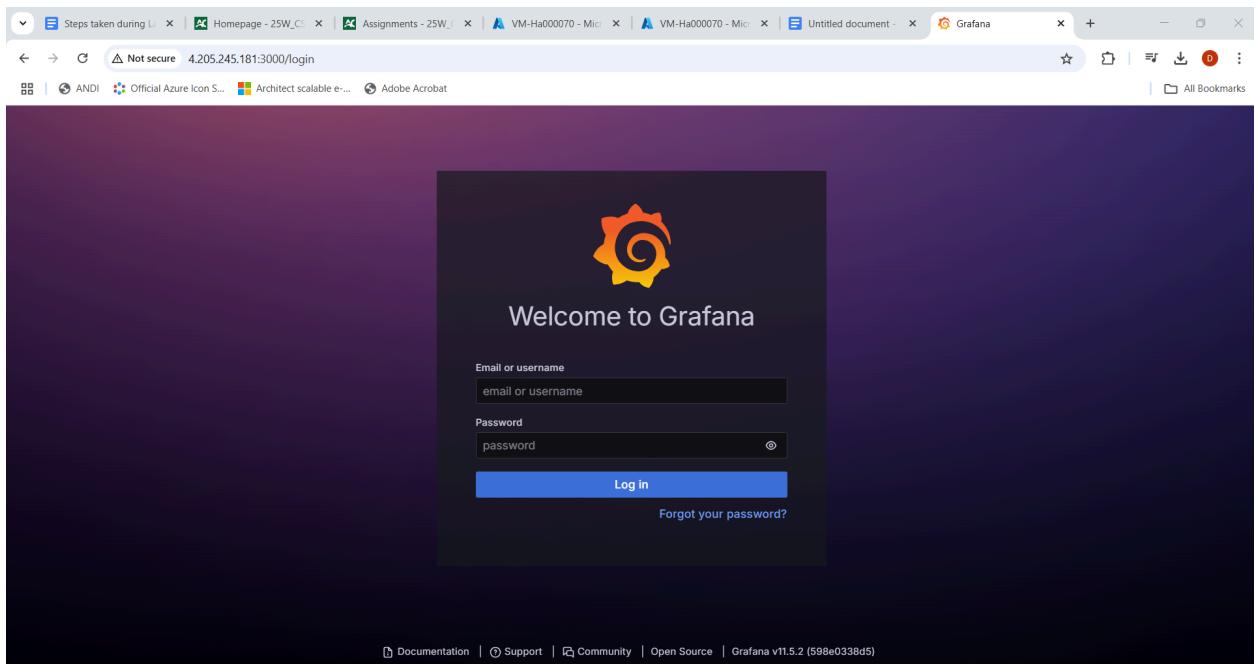
```

~ 
~ 
~ 
~ 
~ 
~ 
[lines 1-21/21 (END)...skipping...
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-03-18 07:06:09 UTC; 1min 48s ago
     Docs: http://docs.grafana.org
 Main PID: 10311 (grafana)
   Tasks: 16 (limit: 4687)
  Memory: 120.4M (peak: 122.2M)
    CPU: 5.097s
   CGroup: /system.slice/grafana-server.service
           └─10311 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/run/grafana/grafana-server.pid --packaging=deb cfg=default.paths.logs=/var/log/grafana cfg=default.paths.data=/var/lib/grafana

Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.installer t=2025-03-18T07:06:21.222132529Z level=info msg="Installing plugin" pluginId=grafana-lokiexplore-app version=
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-installer.fs t=2025-03-18T07:06:21.395673773Z level=info msg="Downloaded and extracted grafana-lokiexplore-app v1.0.8 zip successfully to /var/lib/grafana/plugins"
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugins.registration t=2025-03-18T07:06:21.482762916Z level=info msg="Plugin registered" pluginId=grafana-lokiexplore-app
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgroundinstaller t=2025-03-18T07:06:21.482843616Z level=info msg="Plugin successfully installed" pluginId=grafana-lokiexplore-app version=
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgrounder t=2025-03-18T07:06:21.482872617Z level=info msg="Installing plugin" pluginId=grafana-pyroscope-app version=
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.installer t=2025-03-18T07:06:21.546385679Z level=info msg="Installing plugin" pluginId=grafana-pyroscope-app version=
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-installer.fs t=2025-03-18T07:06:21.708257882Z level=info msg="Downloaded and extracted grafana-pyroscope-app v1.2.0 zip successfully to /var/lib/grafana/plugins"
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugins.registration t=2025-03-18T07:06:21.798607147Z level=info msg="Plugin registered" pluginId=grafana-pyroscope-app
Mar 18 07:06:21 VM-Ha000070 grafana[10311]: logger-plugin.backgroundinstaller t=2025-03-18T07:06:21.798685847Z level=info msg="Plugin successfully installed" pluginId=grafana-pyroscope-app version=
Mar 18 07:07:16 VM-Ha000070 grafana[10311]: logger-infra.usagestats t=2025-03-18T07:07:16.678275662Z level=info msg="Usage stats are ready to report"
~ 
~ 

```

## Grafana is now running on the VM



## Task 3: Connect Grafana To Azure Monitor

### 1. FAILED: Set managed Identity for Grafana data source set up

For VM, go to Security > Identity, then enable (turn status to ON)

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home > Resource groups > CST8919-LAB3 > VM-Ha000070

VM-Ha000070 | Identity

Virtual machine

System assigned   User assigned

A system assigned managed identity is restricted to one per resource and is tied to the lifecycle of this resource. You can grant permissions to the managed identity by using Azure role-based access control (Azure RBAC). The managed identity is authenticated with Microsoft Entra ID, so you don't have to store any credentials in code.

Save   Discard   Refresh   Got feedback?

Status: On

Object (principal) ID: 9c5f7907-8e3c-4a63-a603-4cf5dd3d616c

Permissions: Azure role assignments

This resource is registered with Microsoft Entra ID. The managed identity can be configured to allow access to other resources. Be careful when making changes to the access settings for the managed identity because it can result in failures. [Learn more](#)

Identity

Microsoft Defender for Cloud

Backup + disaster recovery

Operations

Monitoring

Set roles (not shown because they were incorrect), then restart Grafana server

```

;snapshot_folder = ""
# Link to form to give feedback on the feature
;feedback_url = ""
# How frequently should the frontend UI poll for changes while resources are migrating
;frontend_poll_interval = 2s
# Controls how Alert Rules are migrated. Available choices: "paused" and "unchanged". Default: "paused".
# With "paused", all Alert Rules will be created in Paused state. This is helpful to avoid double notifications.
# With "unchanged", all Alert Rules will be created with the pause state unchanged coming from the source instance.
;alert_rules_state = "paused"

#####
# Frontend development configuration #####
# Warning! Any settings placed in this section will be available on process.env.frontend_dev_{foo} within frontend code
# Any values placed here may be accessible to the UI. Do not place sensitive information here.
[frontend dev]
# Should UI tests fail when console log/warn/erroring?
# Does not affect the result when running on CI - only for allowing devs to choose this behaviour locally
;fail_tests_on_console = true
azureuser@VM-Ha000070:~$ sudo code /etc/grafana/grafana.ini
sudo: code: command not found
azureuser@VM-Ha000070:~$ sudo nano /etc/grafana/grafana.ini
● azureuser@VM-Ha000070:~$ sudo nano /etc/grafana/grafana.ini
○ azureuser@VM-Ha000070:~$ 

```

Set managed\_identity\_enabled = true in /etc/grafana/grafana.ini

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS 7
GNU nano 7.2                               /etc/grafana/grafana.ini *
;
;           "portal":      "https://portal.azure.cloud1.contoso.com",
;           "prometheusResourceId": "https://prometheus.monitor.azure.cloud1.contoso.com",
;           "resourceManager":   "https://management.azure.cloud1.contoso.com"
;       }
;

# Specifies whether Grafana hosted in Azure service with Managed Identity configured (e.g. Azure Virtual Machines instance)
# If enabled, the managed identity can be used for authentication of Grafana in Azure services
# Disabled by default, needs to be explicitly enabled
;managed_identity_enabled = false

# Client ID to use for user-assigned managed identity
# Should be set for user-assigned identity and should be empty for system-assigned identity
;managed_identity_client_id =

# Specifies whether Azure AD Workload Identity authentication should be enabled in datasources that support it
# For more documentation on Azure AD Workload Identity, review this documentation:
# https://azure.github.io/azure-workload-identity/docs/

```

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS 7
GNU nano 7.2                               /etc/grafana/grafana.ini *
;
;           "portal":      "https://portal.azure.cloud1.contoso.com",
;           "prometheusResourceId": "https://prometheus.monitor.azure.cloud1.contoso.com",
;           "resourceManager":   "https://management.azure.cloud1.contoso.com"
;       }
;

# Specifies whether Grafana hosted in Azure service with Managed Identity configured (e.g. Azure Virtual Machines instance)
# If enabled, the managed identity can be used for authentication of Grafana in Azure services
# Disabled by default, needs to be explicitly enabled
;managed_identity_enabled = true

# Client ID to use for user-assigned managed identity
# Should be set for user-assigned identity and should be empty for system-assigned identity
;managed_identity_client_id =

# Specifies whether Azure AD Workload Identity authentication should be enabled in datasources that support it
# For more documentation on Azure AD Workload Identity, review this documentation:
# https://azure.github.io/azure-workload-identity/docs/

```

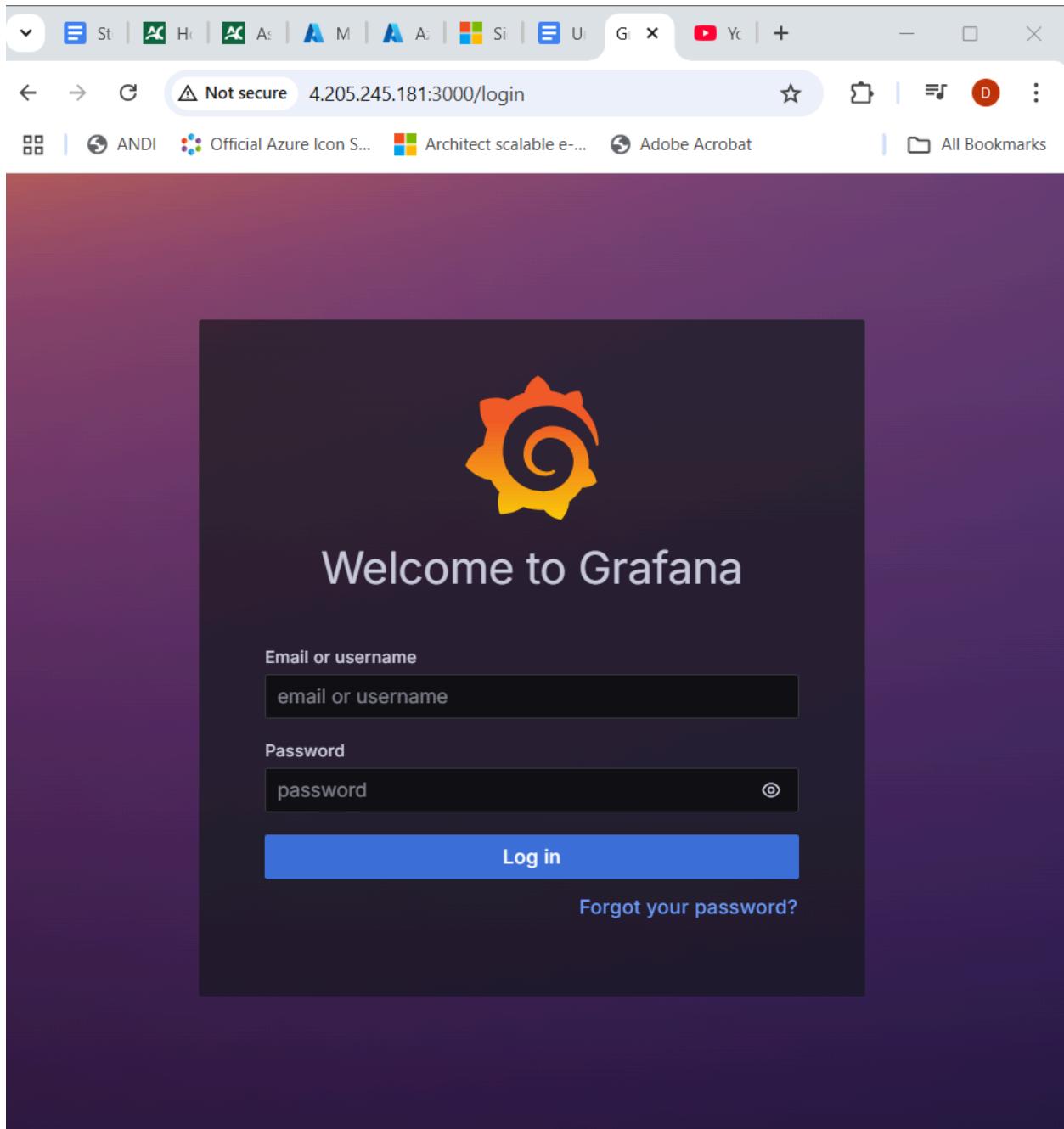
Restart server

```

azureuser@VM-Ha000070:~$ sudo nano /etc/grafana/grafana.ini
azureuser@VM-Ha000070:~$ sudo nano /etc/grafana/grafana.ini
azureuser@VM-Ha000070:~$ sudo systemctl stop grafana-server
azureuser@VM-Ha000070:~$ sudo systemctl start grafana-server
azureuser@VM-Ha000070:~$ 

```

205.245.181    ⑧ 0 △ 0 ⑨ 7



Welcome to Grafana

Need help? Documentation Tutorials Community Public Slack

**Basic**

The steps below will guide you to quickly finish setting up your Grafana installation.

**TUTORIAL**  
DATA SOURCE AND DASHBOARDS  
Grafana fundamentals  
Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

**DATA SOURCES**  
Add your first data source

**DASHBOARDS**  
Create your first dashboard

Remove this panel

Learn how in the docs ↗

Learn how in the docs ↗

Dashboards

Starred dashboards

Recently viewed dashboards

Latest from the blog

Mar 16 How to build the ultimate March Madness dashboard in Grafana

March Madness is here! Time for buzzer beaters, Cinderellas,

## Go to add data source on Grafana

Grafana

Home > Connections > Data sources > Add data source

Search or jump to... ctrl+k

Add new connection

Data sources

Administration

Add data source

Choose a data source type

Filter by name or type

Cancel

Time series databases

Prometheus

Open source time series database & alerting

Core

Graphite

Open source time series database

Core

InfluxDB

Open source time series database

Core

OpenTSDB

Open source time series database

Core

## Add Azure Monitor as a data source

The screenshot shows the Grafana interface with the URL <http://4.205.245.181:3000/connections/datasources/new>. The left sidebar is dark-themed and includes sections for Home, Bookmarks, Starred, Dashboards, Explore, Alerting, Connections, Data sources (which is currently selected), and Administration. The main content area has a search bar at the top with the placeholder "Search or jump to...". Below it, a search result for "monitor" is shown, with "Azure Monitor" being the first item. The "Azure Monitor" entry includes a blue square icon with a white triangle, the text "Azure Monitor", "Data source for Microsoft Azure Monitor & Application Insights", and a "Core" button.

Authentication needed 3 different IDs that were unavailable in the current subscription.

The screenshot shows the Grafana interface with the URL <http://4.205.245.181:3000/connections/datasources/edit/beg6ue1fvur5sf>. The left sidebar is identical to the previous screenshot. The main content area shows a configuration page for the "grafana-azure-monitor-datasource". At the top, it says "Type: Azure Monitor" and "Alerting Supported". Below this, there are tabs for "Settings" (which is selected) and "Dashboards". A "Name" field contains "grafana-azure-monitor-datasource" with a "Default" toggle switch turned on. A note below says: "Before you can use the Azure Monitor data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#)". A note below that says "Fields marked \* are required". The "Authentication" section starts with "Azure Cloud" set to "Azure". Under "Directory (tenant) ID \*", a placeholder "XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX" is shown, and a red error message "⚠ Tenant ID is required" is displayed. Under "Application (client) ID \*", another placeholder "XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX" is shown.

## Tried to enable insights on the VM

The screenshot shows the Microsoft Azure portal interface for a virtual machine named 'VM-Ha000070'. The left sidebar navigation bar is visible, with 'Insights' selected under the 'Monitoring' category. The main content area displays a message: 'Deployment in progress... Deployment to resource group 'CST8919-LAB3' is in progress.' Below this, there is a diagram of a virtual machine with various monitoring components like Application security groups, Network manager, Settings, Availability + scale, Security (Identity, Microsoft Defender for Cloud), Backup + disaster recovery, Operations, Monitoring, and Insights. A callout box provides information about the map data set collected with Azure Monitor for VMs. A prominent blue button labeled 'Enable' is present, along with a warning message: 'Having difficulties enabling Azure Monitors for VM? Troubleshoot'. At the bottom, there are links for 'Have more questions?' and 'FAQ'.

## Notifications

The screenshot shows the 'Notifications' page in the Microsoft Azure portal. It displays a single notification: 'Deployment succeeded' with a checkmark icon. The message states: 'Deployment 'VMInsightsOnboardingDeployment-c90c3bda-f125-4a5b-a827-a33de59ec' to resource group 'CST8919-LAB3' was successful.' Below the message are two buttons: 'Pin to dashboard' and 'Go to resource group'. The timestamp 'a few seconds ago' is shown at the bottom right. The top navigation bar includes icons for search, Copilot, and user authentication, along with the email address 'ha000070@algonquinlive...' and the institution 'ALGONQUIN COLLEGE (ALGONQ...)'.

Microsoft Azure

Home > Monitor

## Monitor | Virtual Machines

Search Refresh Provide Feedback

Get started Overview Performance Map

Filter by name... Subscription : 2 subscriptions Resource group : All resource groups Type : All types Location : All locations Group by : Subscription, Resource group

Monitored (1) Not monitored (0) Workspace configuration Other onboarding options

Name	Monitor Coverage	Data collection rule
Azure for Students	1 of 1	
cst8919-lab3	1 of 1	
VM-Ha000070	Enabled	MSVMI-DefaultWorkspace-68bc7947-18d3-4475-b568-0794e595cbe6...

Search Overview Activity log Alerts Metrics Logs Change Analysis Service health Workbooks Investigator (preview) Insights Applications Virtual Machines Storage accounts Containers Networks Azure Cosmos DB Key Vaults Azure Cache for Redis

## Created default workspace

Microsoft Azure

Home > Monitor | Virtual Machines >

## MSVMI-DefaultWorkspace-68bc7947-18d3-4475-b568-0794e595cbe6-EUS

Data collection rule

Search Delete Move Feedback Configure DCE

Overview

Activity log Access control (IAM) Tags Resource visualizer Settings Configuration Data sources Resources Automation Security Monitoring Help

Essentials

Resource group (move)	: DefaultResourceGroup-EUS
Status	: Provisioned
Location	: East US
Subscription (move)	: Azure for Students
Subscription ID	: 68bc7947-18d3-4475-b568-0794e595cbe6
Tags (edit)	: Add tags

Immutable Id : dcr-f376ef2164bd4d08a88810ae5e94adec  
Data Sources : 1  
Connected resources : 1  
Platform type : All  
Data Collection Endpoint : [Edit](#)

JSON View

Collect, Scope and Route your Resource Monitoring Data

Azure Monitor Data Collection Rules allow you to select what monitoring data you want to collect from which Resources and where you want that data to go. [Learn more](#)

Resources Select which resources to collect data from for monitoring.

Data sources Define what data you want to collect and where you want that data to go.

[View resources](#) [View data sources](#)

## Added role monitoring reader to monitoring workspace

Microsoft Azure Search resources, services, and docs (G+/) Copilot ...

... > MSVMI-DefaultWorkspace-68bc7947-18d3-4475-b568-0794e595cbe6-EUS | Access control (IAM) >

### Add role assignment

X

**Role** **Members\*** **Conditions** **Review + assign**

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

**Job function roles** Privileged administrator roles

Grant access to Azure resources based on job function, such as the ability to create virtual machines.

Name ↑↓	Description ↑↓	Type ↑↓	Category ↑↓	Details
Log Analytics Contribu...	Log Analytics Contributor can re...	BuiltInRole	Analytics	<a href="#">View</a>
Log Analytics Reader	Log Analytics Reader can view a...	BuiltInRole	Analytics	<a href="#">View</a>
Monitoring Contributor	Can read all monitoring data an...	BuiltInRole	Monitor	<a href="#">View</a>
Monitoring Metrics Pu...	Enables publishing metrics agai...	BuiltInRole	Monitor	<a href="#">View</a>
Monitoring Reader	Can read all monitoring data.	BuiltInRole	Monitor	<a href="#">View</a>

Showing 1 - 5 of 5 results.

Microsoft Azure Search resources, services, and docs (G+/) Copilot ...

... > MSVMI-DefaultWorkspace-68bc7947-18d3-4475-b568-0794e595cbe6-EUS | Access control (IAM) >

## Add role assignment

Role **Members** Conditions Review + assign

**Selected role**  
Monitoring Reader

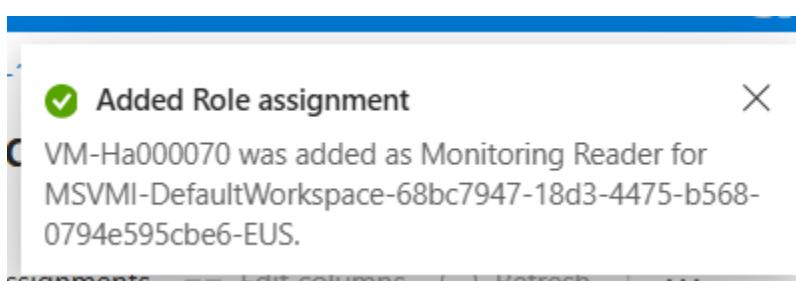
**Assign access to**  
 User, group, or service principal  
 Managed identity

**Members**  
+ Select members

Name	Object ID	Type
VM-Ha000070	9c5f7907-8e3c-4a63-a603-4cf5...	Virtual machine ⓘ

**Description**  
Optional

Review + assign Previous Next



## Added role to current subscription

Microsoft Azure Search resources, services, and docs (G+) Copilot ...

Home > Azure for Students

### Azure for Students | Access control (IAM) ...

Subscription

Search Add Download role assignments Edit columns Refresh ...

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Security Resource visualizer Events Cost Management Billing Settings Help

**Action required:** As of August 31, 2024, Azure classic administrator roles (along with Azure classic resources, Azure Service Manager) are retired and are no longer supported. If you still have active Co-Administrator or Service Administrator role assignments, convert these roles to Azure RBAC immediately. [Learn more](#)

**Check access** Role assignments Roles Deny assignments ...

**Check access** Looking for the previous check access view? [Click here.](#)

**Check access** Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

**Check access**

#### Donna Ha Assignments

Active ⓘ Eligible ⓘ Deny ⓘ

3 0

Search by role name or membership

Role Name ↑↓ Scope ↑↓ Membership ↑↓ Condition ↑↓

Microsoft Azure  Copilot ...

Home > Azure for Students | Access control (IAM) > Add role assignment ...

Role Members Conditions Assignment type Review + assign

**Role**  
Reader

**Scope**  
[/subscriptions/68bc7947-18d3-4475-b568-0794e595cbe6](#)

**Members**

Name	Object ID	Type
Donna Ha	8afb0eef-48b0-4207-9a1b-3f4e41d2e038	User

**Description**  
No description

**Assignment type**  
Eligible

**Assignment duration**  
Time bound

**Start date and time**  
3/18/2025, 3:40:09 AM

**End date and time**

[Review + assign](#) [Previous](#) [Next](#) [Feedback](#)

... Adding Role assignment  
Donna Ha is being added as Reader for Azure for Students.

Microsoft Azure Search resources, services, and docs (G+/-) Copilot ...

Home > Azure for Students | Access control (IAM) >

## Add role assignment X

[Role](#) [Members](#) [Conditions](#) [Assignment type](#) [Review + assign](#)

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

**Job function roles** [Privileged administrator roles](#)

Grant access to Azure resources based on job function, such as the ability to create virtual machines.

Name ↑↓	Description ↑↓	Type ↑↓	Category ↑↓	Details
Reader	View all resources, but does ...	BuiltInRole	General	<a href="#">View</a>
AcrQuarantineReader	acr quarantine data reader	BuiltInRole	Containers	<a href="#">View</a>



Home > Azure for Students | Access control (IAM) >

## Add role assignment

X

Role    **Members**    Conditions    Assignment type    Review + assign

### Selected role

Reader

### Assign access to

- User, group, or service principal  
 Managed identity

### Members

+ Select members

Name	Object ID	Type
VM-Ha000070	9c5f7907-8e3c-4a63-a603-4cf5...	Virtual machine ⓘ

### Description

Optional

A screenshot of the Microsoft Azure portal showing the details for a virtual machine named 'VM-Ha000070'. The left sidebar shows the 'Overview' tab selected. The main pane displays the 'Essentials' section with details like Resource group (move), Status (Running), Location (Canada Central), Subscription (move), and Tags. The right side shows a 'Notifications' panel with three recent events: 'Successfully restarted virtual machine' (4 minutes ago), 'Deployment succeeded' (21 minutes ago), and 'Resized virtual machine' (an hour ago). The top navigation bar includes the 'Copilot' icon and a user profile icon.

Even with a VM restart, the managed identity authentication did not appear on Grafana.

```
[2] * Azure for Students 68bc7947-18d3-4475-b568-0794e595cbe6 Algonquin College
The default is marked with an *; the default tenant is 'Algonquin College' and subscription is 'Azure for Students' (68bc7947-18d3-4475-b568-0794e595cbe6).
Select a subscription and tenant (Type a number or Enter for no changes):
Tenant: Algonquin College
Subscription: Azure for Students (68bc7947-18d3-4475-b568-0794e595cbe6)

[Announcements]
With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?linkid=2271236
If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

PS C:\Users\Daily> az ad sp create-for-rbac --name "Grafana-Azure-Monitor" --role "Reader" --scopes "/subscriptions/{68bc7947-18d3-4475-b568-0794e595cbe6}" --query "{client_id: appId, client_secret: password, tenant_id: tenantId}" --output json
>>
Directory permission is needed for the current user to register the application. For how to configure, please refer 'https://docs.microsoft.com/azure/azure-resource-manager/resource-group-create-service-principal-portal'. Original error: Insufficient privileges to complete the operation.
PS C:\Users\Daily> []
```

## 2. SUCCESS: Set managed Identity for Grafana data source set up

Note: After switching the CDO subscription, I followed the same steps (minus the role assignment), so I did not re screenshot those steps.

Request quota increase for VM size B2s\_v2

The screenshot shows the Microsoft Azure portal interface. On the left, the 'Create a virtual machine' wizard is displayed, showing options for security type (Standard), image (Ubuntu Server 22.04 LTS - x64 Gen2), VM architecture (x64 selected), and size (Standard\_B2s\_v2 - 2 vcpus, 8 GiB memory selected). A 'Request quota' button is visible at the bottom right of this section. On the right, a 'New support request' dialog is open, specifically step 4: 'Review + create'. It shows basic information: Issue type (Service and subscription limits (quotas)), Subscription (ha000070(DONNA HA)), Quota type (Compute-VM (cores-vCPUs)), and a note about subscription limit increases. Below this, there's a section for 'Terms, conditions, and privacy policy' with links to terms and conditions and privacy policy. At the bottom of the dialog, there are 'Request Summary' and 'New Limit' buttons, and a progress bar indicating the request is 2% complete.

## New Virtual Machine overview

This screenshot shows the Microsoft Azure Virtual Machine Overview page for a VM named 'VM-Ha000070'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Connect, Networking, Network settings, Load balancing, Application security groups, Network manager, Settings, Disks, Extensions + applications, and Microsoft Defender for Cloud. The main content area displays the VM's details under the 'Essentials' section, including its resource group (CST8919-Lab3), status (Running), location (Canada Central), subscription (ha000070/DONNA HA), and various system properties like operating system, size, public IP address, and DNS name. A 'Tags (edit)' section allows adding tags, and a 'Properties' tab provides detailed information about the VM's configuration and networking.

## Set managed identity to ON

This screenshot shows the Microsoft Azure Virtual Machine Identity page for the same VM. The left sidebar includes the same navigation links as the previous screen. The main content area shows the 'System assigned' managed identity is enabled. A success message indicates the identity has been registered with Microsoft Entra ID. The 'Status' is set to 'On', and the 'Object (principal) ID' is listed as 8460c637-bd34-4ec5-9596-45ce5e962fbf. The 'Permissions' section shows 'Azure role assignments'.

Go to Microsoft Entra ID to find and copy the necessary IDs that Grafana authentication requires (I never was able to switch to managed identity)

To get the IDs, go to Microsoft Entra ID > App registrations > New registration, then create a new registration.

The screenshot shows the Microsoft Azure portal interface with the title 'Register an application'. The 'Name' field is filled with 'Grafana Azure Monitor'. Under 'Supported account types', the first option ('Accounts in this organizational directory only') is selected. The 'Redirect URI (optional)' field is empty. At the bottom, there is a link to 'Microsoft Platform Policies' and a blue 'Register' button.

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home > Cloud Development and Operations | Overview >

## Register an application

\* Name

The user-facing display name for this application (this can be changed later).

Grafana Azure Monitor

Supported account types

Who can use this application or access this API?

Accounts in this organizational directory only (Cloud Development and Operations only - Single tenant)

Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant)

Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)

Personal Microsoft accounts only

Help me choose...

Redirect URI (optional)

We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

Select a platform e.g. https://example.com/auth

By proceeding, you agree to the Microsoft Platform Policies ↗

Register

Once the application is registered, go to the overview page to copy the Directory (tenant) ID, and the Application (client) ID. To get the client secret, go to Certificates and Secrets, click new client secret, and create a new secret. Once added, it will give a client secret value to copy.

The screenshot shows the Microsoft Azure portal interface. On the left, a sidebar lists various application management options like Overview, Quickstart, Integration assistant, Diagnose and solve problems, Manage, Branding & properties, Authentication, Certificates & secrets (which is selected), Token configuration, API permissions, Expose an API, App roles, Owners, Roles and administrators, and Manifest. The main content area shows the 'Certificates & secrets' tab selected. It displays a message about application registration credentials and lists 'Certificates (0)', 'Client secrets (0)', and 'Federated credentials (0)'. Below this, a note says 'A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.' A table shows a single row for a new client secret: Description (Grafana Client Secret), Expires (Custom), Value (hidden), and Secret ID (also hidden). At the bottom right of the modal are 'Add' and 'Cancel' buttons.

## Enter the IDs in the Grafana authentication

The screenshot shows the Grafana configuration interface for the 'grafana-azure-monitor-datasource' connection. In the 'Authentication' section, the 'Azure Cloud' dropdown is set to 'Azure'. The 'Directory (tenant) ID' field contains the value 'e39de75c-b796-4bdd-888d-f3d21250910c'. The 'Application (client) ID' field contains the value '8a1dc3d-e887-4942-8085-b7899e9c7f1d'. The 'Client Secret' field contains the value 'nPS8Q~dCx0T2BzI0cUC3NS4JPzlaqBfWlkN-cTC'. Below these fields, there is a 'Default Subscription' section with a 'Choose' dropdown set to 'Choose' and a 'Load Subscriptions' button. A note about enabling basic logs is present, stating that it incurs Azure Monitor per-query costs. At the bottom are 'Delete' and 'Save & test' buttons. A green success message 'Datasource updated' is displayed in the top right corner.

Error: did not work originally because I copied the wrong client secret value, and also it did not have the correct permissions.

The screenshot shows the Grafana configuration interface for an Azure Monitor datasource. It includes fields for Directory (tenant) ID, Application (client) ID, Client Secret, and Default Subscription. A prominent error message at the bottom states: "One or more health checks failed. See details below." followed by a list of errors related to connecting to the Azure Resource Graph endpoint.

```
One or more health checks failed. See details below.
▼ Details
1. Successfully connected to Azure Monitor endpoint.
2. No Log Analytics workspaces found.
3. Error connecting to Azure Resource Graph endpoint: {"error":{"code":"BadRequest","message":"Please provide below info when asking for support: timestamp = 2025-03-18T09:39:20.1736729Z, correlationId = 672c45b5-e755-477a-be60-8d9fca7e7945","details":[{"code":"SubscriptionsContainInvalidGuids","message":"Subscription ids have to be valid GUIDs. Given: '*'"}]}
```

Added **Monitoring Reader** role for the monitor workspace.

A screenshot of the Azure portal showing a successful role assignment notification. It states: "Grafana Ha000070 Monitor was added as Monitoring Reader for DefaultWorkspace-75ddd692-f58b-466b-bc1d-b0e52a8cc36c-EUS."

Added **Log Analytics Reader** role for the monitor workspace. (This is important and fixed the permissions error)

A screenshot of the Azure portal showing another successful role assignment notification. It states: "Grafana Ha000070 Monitor was added as Log Analytics Reader for DefaultWorkspace-75ddd692-f58b-466b-bc1d-b0e52a8cc36c-EUS." Below it, another notification for the Monitoring Reader role is shown.

More events in the activity log → Dismiss all ▾

Added Role assignment ×  
Grafana Ha000070 Monitor was added as Log Analytics Reader for DefaultWorkspace-75ddd692-f58b-466b-bc1d-b0e52a8cc36c-EUS.  
a few seconds ago

Added Role assignment ×  
Grafana Ha000070 Monitor was added as Monitoring Reader for DefaultWorkspace-75ddd692-f58b-466b-bc1d-b0e52a8cc36c-EUS.  
a minute ago

## Grafana authentication now works.

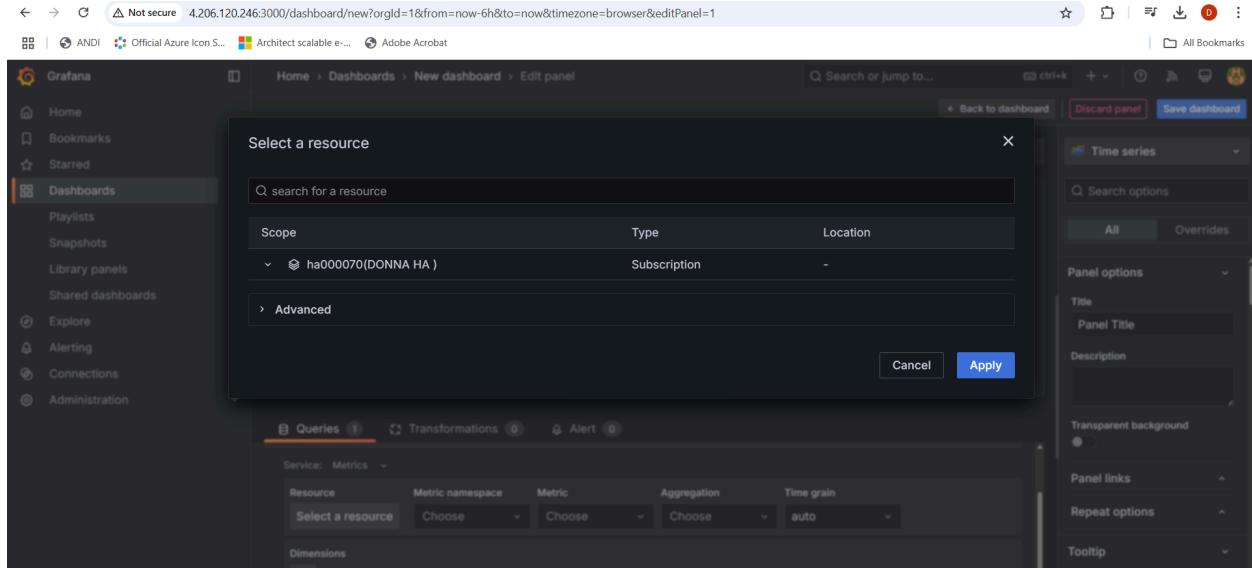
The screenshot shows the 'Data sources' configuration page in Grafana. Under the 'Authentication' section, the 'Azure Cloud' dropdown is set to 'Azure'. The 'Directory (tenant) ID' field contains 'e39de75c-b796-4bdd-888d-f3d21250910c'. The 'Application (client) ID' field contains '2d1e9b3c-8e84-40c8-8d29-583f8e484ca5'. The 'Client Secret' field has 'configured' selected. Under 'Default Subscription', 'Choose' is selected. A note about 'Enable Basic Logs' is present, stating that enabling it incurs Azure Monitor per-query costs. A success message at the bottom says 'Successfully connected to all Azure Monitor endpoints.'

## Task 4: Create a Dashboard in Grafana

1. Click on create dashboard/visualization, then add the azure monitor as the data source

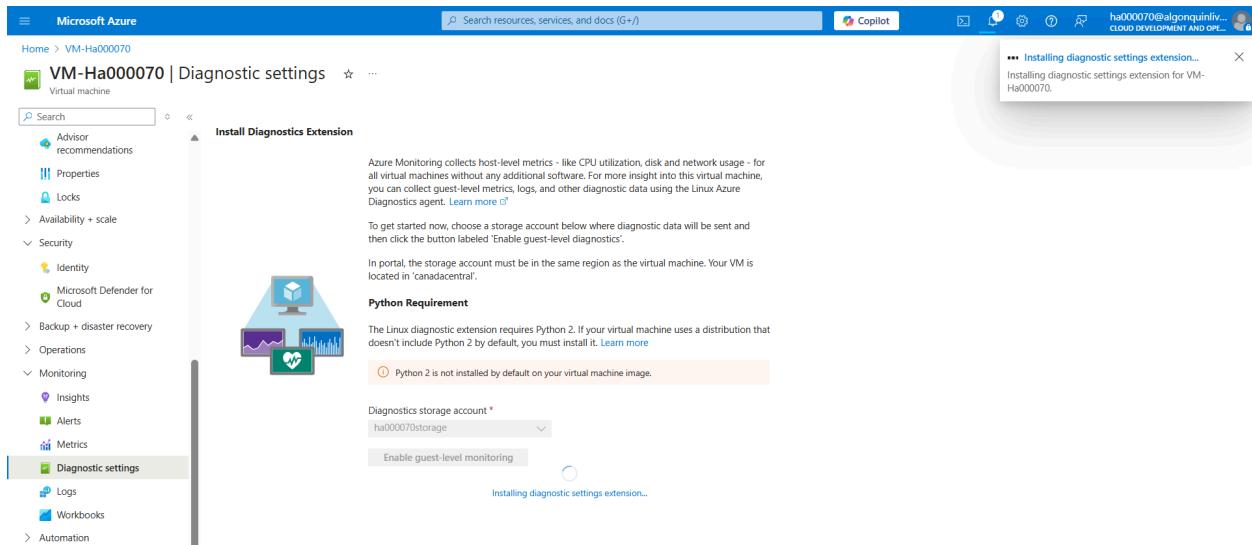
The screenshot shows the 'Edit panel' interface in Grafana. On the left, the sidebar is expanded, showing 'Dashboards' selected. In the main area, a 'Select data source' dropdown is open, showing 'grafana-azure-monitor-datasource' as the selected option. Other options include '-- Mixed --', '-- Dashboard --', and '-- Grafana --'. At the bottom of the panel, there are buttons for 'Open a new tab and configure a data source' and 'Configure a new data source'.

After the dashboard is created, the queries section shows the resource as my subscription, but it does not see anything in it. (Error: I cannot click on the VM which should be the source)



The screenshot shows the Grafana interface with a 'Select a resource' dialog open. The dialog lists a single resource 'ha000070(DONNA HA)' under the 'Scope' column. The 'Type' column shows 'Subscription' and the 'Location' column shows a dropdown menu. Below the dialog, the 'Queries' tab is selected in the main interface, which includes fields for Service: Metrics, Resource, Metric namespace, Metric, Aggregation, and Time grain.

Attempting to fix the previous error by enabling Diagnostic settings (and installing Python 2 on the VM)



The screenshot shows the Microsoft Azure portal with the 'VM-Ha000070 | Diagnostic settings' page. The left sidebar shows the 'Diagnostic settings' option selected. The main area displays the 'Install Diagnostics Extension' wizard. It shows a progress bar indicating 'Installing diagnostic settings extension...' and a status message 'Installing diagnostic settings extension for VM-Ha000070.' A tooltip also appears stating 'Python 2 is not installed by default on your virtual machine image.' The storage account 'ha000070storage' is selected for diagnostics storage.

Previous error is fixed by adding the subscription as a **Log Analytics Reader** role as well.

The screenshot shows the Azure Notifications page. At the top, there are several icons: a square with a checkmark, a bell, a gear, a question mark, and a person icon. To the right of these icons, the email address "ha000070@alonquinlive..." and the text "CLOUD DEVELOPMENT AND OPE..." are displayed. Below the header, the title "Notifications" is centered, and a close button "X" is on the right.

Below the title, there is a message: "More events in the activity log →" followed by a "Dismiss all" button with a dropdown arrow.

The main content area contains two notifications, each with a green checkmark icon:

- Added Role assignment**  
Grafana Ha000070 Monitor was added as Log Analytics Reader for ha000070(DONNA HA).  
a few seconds ago
- Added Role assignment**  
Grafana Ha000070 Monitor was added as Reader for ha000070(DONNA HA).  
a few seconds ago

All resources now show and the VM can be selected.

The screenshot shows the Grafana interface. On the left, there is a sidebar with navigation links: Home, Bookmarks, Starred, Dashboards (which is currently selected), Playlists, Snapshots, Library panels, Shared dashboards, Explore, Alerting, Connections, and Administration. The main area shows a "Select a resource" dialog box. The dialog has a search bar at the top with the placeholder "Q. search for a resource". Below the search bar is a table with columns: Scope, Type, and Location. The table contains the following data:

Scope	Type	Location
ha000070(DONNA HA)	Subscription	-
CST8919-Lab3	Resource Group	-
DefaultResourceGroup-EUS	Resource Group	-

At the bottom of the dialog are "Cancel" and "Apply" buttons. To the right of the dialog, there is a "Time series" section with a "Search options" input field. Further down, there are sections for "Panel options" (Title: "Panel Title", Description: "Transparent background"), "Overrides", and "Panel links".

## 2. Select the VM as the resource in the dashboard

The screenshot shows the 'Select a resource' dialog. At the top, there's a search bar labeled 'search for a resource'. Below it, a table lists resources under 'Scope':

Scope	Type	Location
ha000070(DONNA HA)	Subscription	-
CST8919-Lab3	Resource Group	-
<input checked="" type="checkbox"/> VM-Ha000070_OsDisk_1_ba01ddb35e44...	Disks	canadacentral

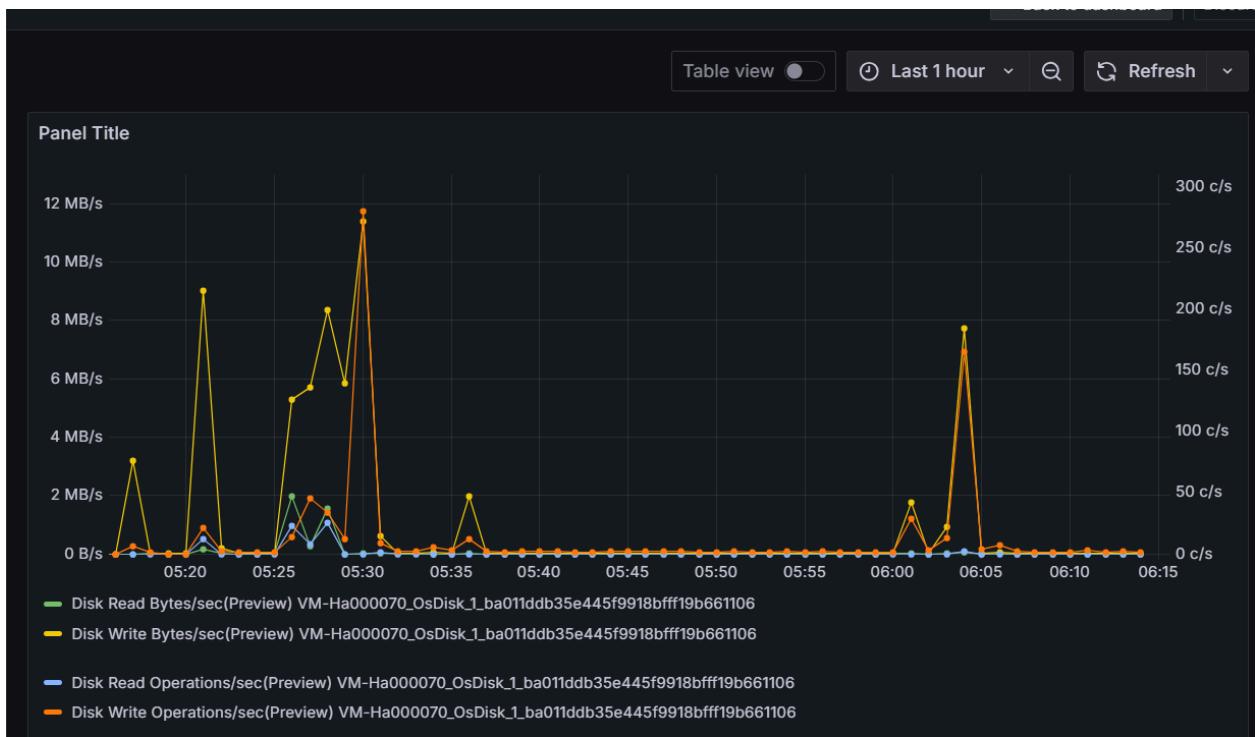
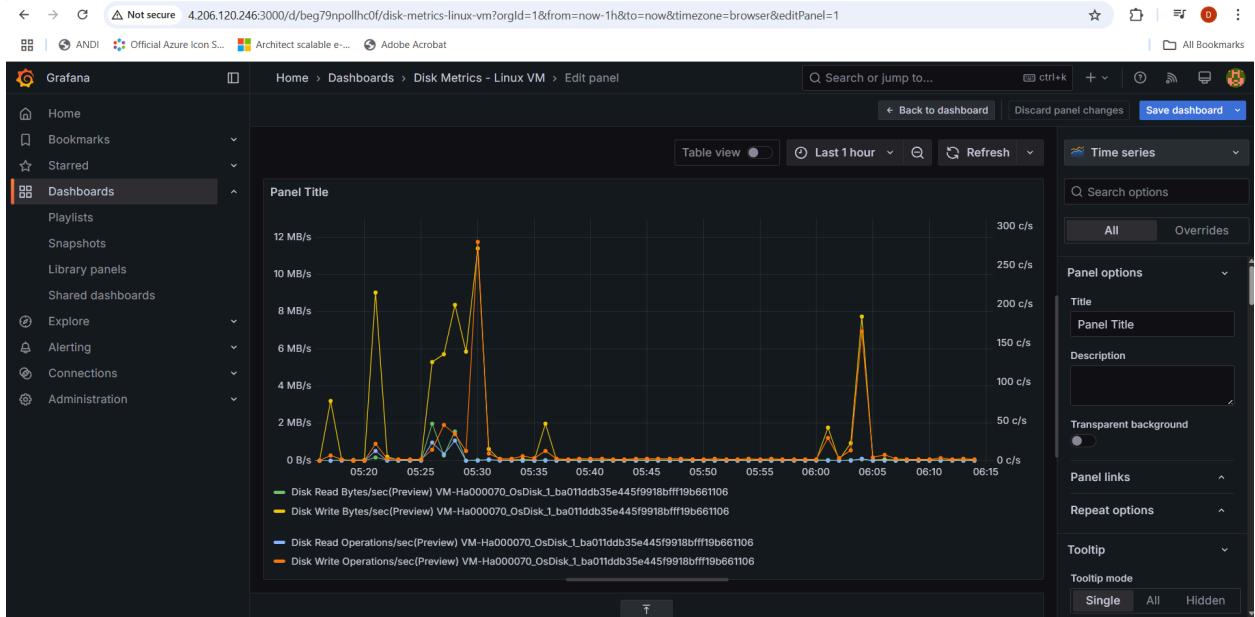
Below the table, under 'Selection', there's another row:

<input checked="" type="checkbox"/>	VM-Ha000070_OsDisk_1_ba01ddb35e445f9918bf...	Disks	canadacentral
-------------------------------------	----------------------------------------------	-------	---------------

At the bottom right are 'Cancel' and 'Apply' buttons.

## 3. Create a dashboard (using Disk Read/Write as the metrics) and customize the panel with thresholds, colors, and labels.

The screenshot shows the Grafana interface with a dark theme. On the left is a sidebar with navigation links like Home, Bookmarks, Starred, Dashboards, Explore, Alerting, Connections, and Administration. The main area is titled 'Panel Title' and displays two time series: 'Disk Read Bytes/sec(Preview)' and 'Disk Write Bytes/sec(Preview)'. The chart shows data from 05:20 to 06:15. The legend indicates the green line is 'Disk Read Bytes/sec(Preview)' and the yellow line is 'Disk Write Bytes/sec(Preview)'. The Y-axis ranges from 0 B/s to 12 MB/s. The X-axis shows time in minutes. To the right of the chart are various configuration panels for the dashboard panel, including 'Panel options' (Title: 'Panel Title', Description: empty), 'Transparent background' (disabled), 'Panel links', 'Repeat options', 'Tooltip' (Single, All, Hidden), and 'Save dashboard' and 'Discard panel' buttons at the top right.



**A** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Read Bytes/sec(Preview)	Average	Auto

Dimensions

Field == Select value(s) +

Top Legend format Alias patterns

**B** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Write Bytes/sec(Preview)	Average	Auto

Dimensions

+ Top Legend format Alias patterns

**C** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Read Operations/sec(Preview)	Average	Auto

Dimensions

+ Top Legend format Alias patterns

**D** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Write Operations/sec(Preview)	Average	Auto

Dimensions

+ Top Legend format Alias patterns

**C** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Read Operations/sec(Preview)	Average	Auto

Dimensions

+ Top Legend format Alias patterns

**D** (grafana-azure-monitor-datasource)

Service: Metrics

Resource	Metric namespace	Metric	Aggregation	Time grain
VM-Ha000070_OsDisk_1_ba01ddb35...	microsoft.compute/disks	Disk Write Operations/sec(Preview)	Average	Auto

Dimensions

+ Top Legend format Alias patterns

Not secure 4.206.120.246:3000/d/beg79npollhc0/disk-metrics-linux-vm?orgId=1&from=now-1h&to=now&timezone=browser&editPanel=1

Home > Dashboards > Disk Metrics - Linux VM > Edit panel

Panel Title

Table view Last 1 hour Refresh

Time series

Search options All Overrides

Graph styles Lines Bars Points

Style Lines Bars Points

Line interpolation

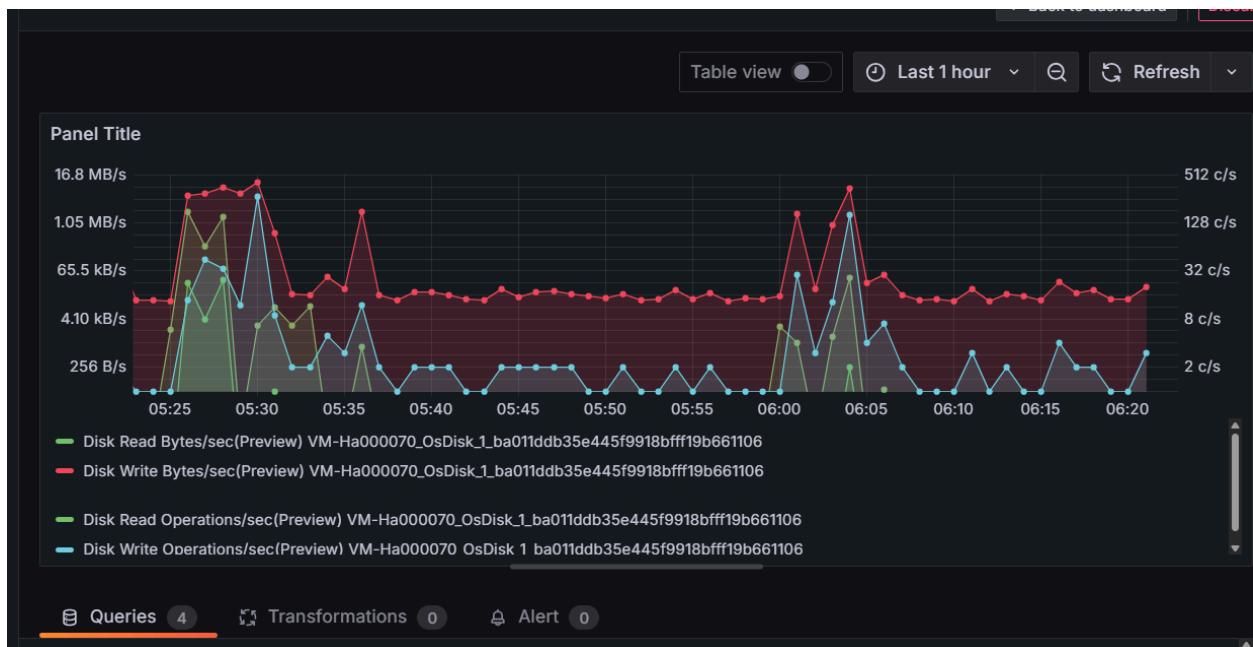
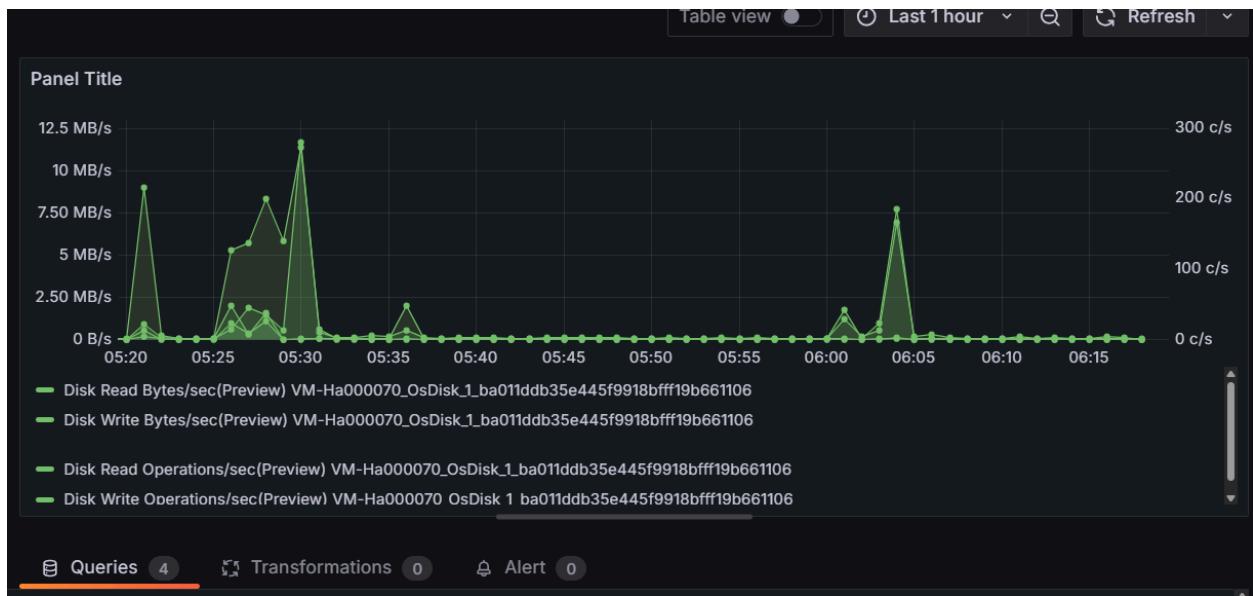
Line width 3

Fill opacity 29

Gradient mode None Opacity Hue

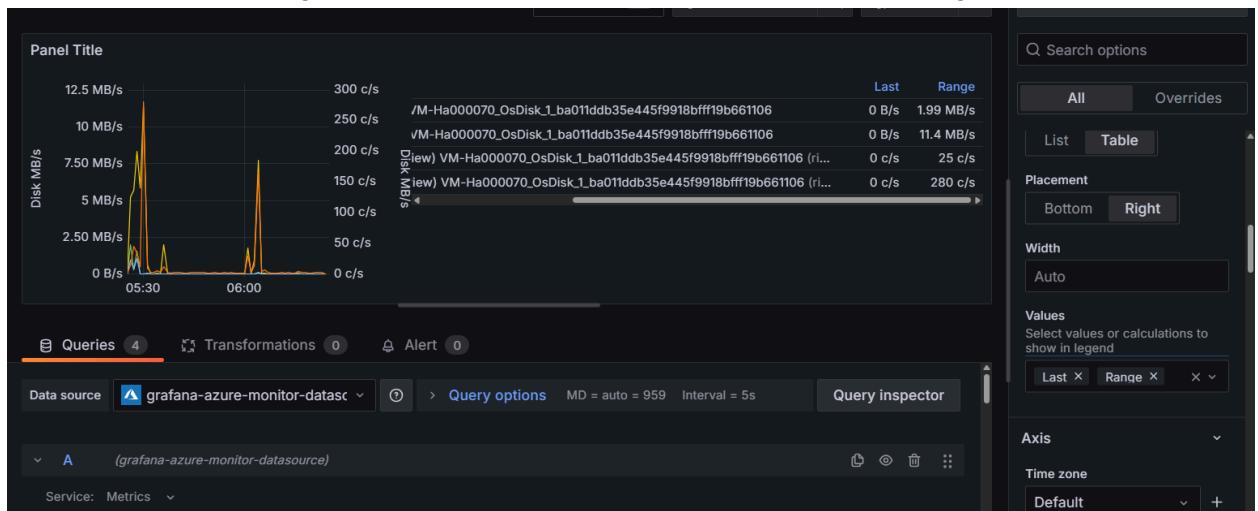
Queries 4 Transformations 0 Alert 0

Data source grafana-azure-monitor-datasource Query options MD = auto = 959 Interval = 5s Query inspector





Label, placement change, table instead of list, values include last and range



## Task 5: Delete Resources

The screenshot shows the Azure Notifications page. At the top, there are icons for Home, Notifications, Settings, Help, and Profile, followed by the email address 'ha000070@algonquinlive.com' and the text 'CLOUD DEVELOPMENT AND OPE...'. Below this, the title 'Notifications' is displayed with a close button 'X'.

Below the title, there is a link 'More events in the activity log →' and a 'Dismiss all' button with a dropdown arrow.

The main content area lists three notifications, each with a green checkmark icon:

- Deleted resource group CST8919-Lab3**  
Deleted resource group CST8919-Lab3  
a few seconds ago
- Deleted resource group NetworkWatcherRG**  
Deleted resource group NetworkWatcherRG  
a few seconds ago
- Deleted resource group DefaultResourceGroup-EUS**  
Deleted resource group DefaultResourceGroup-EUS  
a few seconds ago