

CST 8912- Cloud Solution Architecture

LAB 1

by: Obaida Kandakji

These are all the following steps that I completed for this lab followed by screenshots of everything to prove their completion.

1. I created a new instance of the resource (Azure Virtual Machine) and selected the Ubuntu Server 18.04 LTS image from the marketplace. Azure refused to use Ubuntu Server 18.04 LTS on the student account and so I was forced to use Ubuntu Server 24.04 LTS instead to complete this lab. This does not have any effect on anything for this lab other than using a newer version. I included the error message

2. I configured and launched a VM for the Canada Central region with SKU size Standard_B1s (1 vCPU, 1 GiB memory) and used an SSH public key as the authentication type.

3. I configured the disk type as Premium SSD.

4. I configured networking to create a virtual network and kept the default settings.

5. I kept the default options on the management, advanced, and tags tabs.

6. I performed basic VM controls (start, stop, restart, delete).

7. I created a Log Analytics workspace and configured it with the same region as the existing resources.

8. I connected my virtual machine to Log Analytics to monitor the virtual machine's health:

a. I created a data collection rule and selected the VM created in scope.

b. In the collect and deliver tab, I selected "Linux syslog" as the data source.

c. I went to "Insights" and saw monitoring information from the VM selected.

d. I switched to the health/agents tabs to get more details on the VM monitored.

9. After the demo, I deleted all the resources created during the lab and documented all the steps performed in the lab in a report.

Errors



Summary Raw Error

ERROR DETAILS



Offer with PublisherId: 'bansirllc1619470302579', OfferId: 'vm-ban-lin-ubuntu-1804' cannot be purchased due to validation errors. For more information see details. Correlation Id: '40724000-fc97-4aac-a495-633fab83cd1d' The 'nopi_check' payment instrument(s) is not supported for offer with OfferId: 'vm-ban-lin-ubuntu-1804', PlanId 'ubuntu1804'. Correlation Id '40724000-fc97-4aac-a495-633fab83cd1d'. The offer with PublisherId: 'bansirllc1619470302579', OfferId: 'vm-ban-lin-ubuntu-1804' and PlanId: 'ubuntu1804' cannot be used on selected subscription to purchase paid marketplace offers. Please choose another subscription or update this one to allow purchases. Learn more <https://aka.ms/UpgradeFreeSub>, <https://aka.ms/Switch-Azure-Offer> and <https://aka.ms/Change-Credit-Card> about updating subscriptions in Azure, Correlation Id: '40724000-fc97-4aac-a495-633fab83cd1d'. [{"The 'nopi_check' payment instrument(s) is not supported for offer with OfferId: 'vm-ban-lin-ubuntu-1804', PlanId 'ubuntu1804'. Correlation Id '40724000-fc97-4aac-a495-633fab83cd1d'.": "StoreApi"}], {"The offer with PublisherId: 'bansirllc1619470302579', OfferId: 'vm-ban-lin-ubuntu-1804' and PlanId: 'ubuntu1804' cannot be used on selected subscription to purchase paid marketplace offers. Please choose another subscription or update this one to allow purchases. Learn more <https://aka.ms/UpgradeFreeSub>, <https://aka.ms/Switch-Azure-Offer> and <https://aka.ms/Change-Credit-Card> about updating subscriptions in Azure, Correlation Id: '40724000-fc97-4aac-a495-633fab83cd1d'.": "StoreApi"}]}

(Code: BadRequest)

WAS THIS HELPFUL?

Explain with Copilot

Figure 1: error for using old ubuntu

Basics

Subscription	Azure for Students
Resource group	CST8912
Virtual machine name	CST8912-VM
Region	Canada Central
Availability options	No infrastructure redundancy required
Zone options	Self-selected zone
Security type	Standard
Image	Ubuntu Server 24.04 LTS - Gen2
VM architecture	x64
Size	Standard B1s (1 vcpu, 1 GiB memory)
Enable Hibernation	No
Authentication type	SSH public key
Username	azureuser
SSH Key format	RSA
Key pair name	CST8912-VM_key
Public inbound ports	SSH
Azure Spot	No

Figure 2: completed steps

Disks

OS disk size	Image default
OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled
Ephemeral OS disk	No

Networking

Virtual network	vnet-canadacentral
Subnet	snet-canadacentral-1
Public IP	(new) CST8912-VM-ip
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete public IP and NIC when VM is deleted	Disabled

Management

Microsoft Defender for Cloud	Basic (free)
System assigned managed identity	Off
Login with Microsoft Entra ID	Off
Auto-shutdown	Off
Backup	Disabled
Enable periodic assessment	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

Figure 3: completed setup

Monitoring



Alerts	Off
Boot diagnostics	On
Enable OS guest diagnostics	Off
Enable application health monitoring	Off

Advanced






Extensions	None
VM applications	None
Cloud init	No
User data	No
Disk controller type	SCSI
Proximity placement group	None
Capacity reservation group	None

Figure 4: completed setup

✓ Your deployment is complete

 Deployment name: CreateVm-canonical.ubuntu-24-lts-server-2... Start time: 9/13/2025, 12:33:32 AM
Subscription: [Azure for Students](#) Correlation ID: 7c9fa1b6-26d5-485c-a7fa-1afe17cd21c4 
Resource group: CST8912

Deployment details

Resource	Type	Status	Operation details
 CST8912-VM	Microsoft.Compute/virtualMachines	Created	Operation details
 cst8912-vm251	Microsoft.Network/networkInterfaces	Created	Operation details
 network-interface-associated-virtual-network-2025091300	Microsoft.Resources/deployments	OK	Operation details
 CST8912-VM-nsg	Microsoft.Network/networkSecurityGroups	OK	Operation details
 CST8912-VM-ip	Microsoft.Network/publicIpAddresses	OK	Operation details

Next steps

[Setup auto-shutdown](#) Recommended

[Monitor VM health, performance and network dependencies](#) Recommended

[Run a script inside the virtual machine](#) Recommended

[Go to resource](#)

[Create another VM](#)

Figure 5: deployment completed

Connect

Start

Restart

Stop

Hibernate

Capture

Delete

Refresh

Open in mobile

Feedback

CLI / PS

Essentials

Resource group (move) : CST8912

Status : Running

Location : Canada Central

Subscription (move) : Azure for Students

Subscription ID : b88fb9c1-006f-4642-9cdb-0a981901cf97

Operating system : Linux (ubuntu 24.04)

Size : Standard B1s (1 vcpu, 1 GiB memory)

Primary NIC public IP : 4.206.121.148

Virtual network/subnet : vnet-canadacentral/snet-canadacentral-1

DNS name : Not configured

Health state : -

Time created : 9/13/2025, 4:33 AM UTC

Tags (edit) : Add tags

Properties

Monitoring

Capabilities (7)

Recommendations

Tutorials

Virtual machine

Computer name : CST8912-VM

Operating system : Linux (ubuntu 24.04)

VM generation : V2

VM architecture : x64

Agent status : Ready

Agent version : 2.14.0.1

Hibernation : Disabled

Host group : -

Host : -

Proximity placement group : -

Colocation status : N/A

Capacity reservation group : -

Disk controller type : SCSI

Networking

Public IP address : 4.206.121.148 (Network interface cst8912-vm251)

Public IP address (IPv6) : -

Private IP address : 172.16.0.4

Private IP address (IPv6) : -

Virtual network/subnet : vnet-canadacentral/snet-canadacentral-1

DNS name : Configure

Size

Size : Standard B1s

vCPUs : 1

RAM : 1 GiB

Source image details

Figure 6: Starting for VM

04-Its-server-20250913003203 | Overview

Help me copy this VM in any region

Manage this VM with Azure CLI

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) : CST8912

Status : Running

Location : Canada Central

Subscription (move) : Azure for Students

Subscription ID : b88fb9c1-006f-4642-9cdb-0a981901cf97

Operating system : Linux (ubuntu 24.04)

Size : Standard B1s (1 vcpu, 1 GiB memory)

Primary NIC public IP : 4.206.121.148

Virtual network/subnet : vnet-canadacentral/snet-canadacentral-1

DNS name : Not configured

Health state : -

Time created : 9/13/2025, 4:33 AM UTC

Tags (edit) : Add tags

Properties

Monitoring

Capabilities (7)

Recommendations

Tutorials

Virtual machine

Computer name : CST8912-VM

Operating system : Linux (ubuntu 24.04)

VM generation : V2

VM architecture : x64

Agent status : Ready

Agent version : 2.14.0.1

Hibernation : Disabled

Host group : -

Host : -

Proximity placement group : -

Colocation status : N/A

Capacity reservation group : -

Disk controller type : SCSI

Networking

Public IP address : 4.206.121.148 (Network interface cst8912-vm251)

Public IP address (IPv6) : -

Private IP address : 172.16.0.4

Private IP address (IPv6) : -

Virtual network/subnet : vnet-canadacentral/snet-canadacentral-1

DNS name : Configure

Size

Size : Standard B1s

vCPUs : 1

RAM : 1 GiB

Source image details

Source image publisher : canonical

Figure 7: restarting VM

CST8912-VM

Virtual machine

Help me copy this VM in any region

Manage this VM with Azure CLI

Search

Help me copy this VM in any region

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Connect

Start

Restart

Stop

Hibernate

Capture

Delete

Refresh

Open in mobile

Feedback

CLI / PS

Essentials

Resource group (move)

CST8912

Status

: Stopped (deallocated)

Location

: Canada Central

Subscription (move)

: Azure for Students

Subscription ID

: b88fb9c1-006f-4642-9cdb-0a981901cf97

Operating system

: Linux

Size

: Standard B1s (1 vcpu, 1 GiB memory)

Primary NIC public IP

: 4.206.121.148

1 associated public IPs

Virtual network/subnet

: vnet-canadacentral/snet-canadacentral-1

DNS name

: Not configured

Health state

: -

Time created

: 9/13/2025, 4:33 AM UTC

Tags (edit)

: Add tags

Properties

Monitoring

Capabilities (7)

Recommendations

Tutorials

Virtual machine

Computer name

CST8912-VM

Operating system

Linux

VM generation

V2

VM architecture

x64

Hibernation

Disabled

Host group

-

Host

-

Proximity placement group

-

Colocation status

N/A

Capacity reservation group

-

Disk controller type

SCSI

Azure Spot

Azure Spot

-

Networking

Public IP address

4.206.121.148 (Network interface cst8912-vm251)

1 associated public IPs

Public IP address (IPv6)

-

Private IP address

172.16.0.4

Private IP address (IPv6)

-

Virtual network/subnet

vnet-canadacentral/snet-canadacentral-1

DNS name

Configure

Size

Size

Standard B1s

vCPUs

1

RAM

1 GiB

Source image details

Source image publisher

canonical

Add or remove favorites by pressing Ctrl+Shift+F

Figure 8: Stopping VM


Create Log Analytics workspace ...

✓ Validation passed

Basics

Tags

Review + Create

 **Log Analytics workspace**
by Microsoft

Basics

Subscription

Resource group

Name

Region

Azure for Students

CST8912

CST8912-LOG

Canada Central

Pricing

Pricing tier

Pay-as-you-go (Per GB 2018)


The cost of your workspace depends on the volume of data ingested and how long it is retained. Regional pricing details are available on the [Azure Monitor pricing page](#). You can change to a different pricing tier after the workspace is created. [Learn more](#) about Log Analytics pricing models.

Tags

None

Figure 9: creating log analytics

✓ Your deployment is complete

 Deployment name : Microsoft.LogAnalyticsOMS


Subscription : [Azure for Students](#)

Resource group : [CST8912](#)

Start time : 9/13/2025, 12:38:24 AM

Correlation ID : b9b51dca-b00d-417a-845d-9262fbd0dc35

Deployment details

Resource	Type	Status	Operation details
✓ CST8912-LOG	 Log Analytics workspace	OK	Operation details

Next steps

Figure 10:deployment of LOG

Create Data Collection Rule ...

Data collection rule management

 Validation passed

- Basics
- Resources
- Collect and deliver
- Tags
- Review + create**

Basics

Data rule name	CST8912-RULE
Subscription	Azure for Students
Resource Group	CST8912

Selected resources

Resources	Type
cst8912-vm	microsoft.compute/virtualmachines

Showing 1 - 1 of 1 results.

Configurations

Data source	Destination(s)
Linux Syslog	Azure Monitor Logs

Platform Type

Platform	Linux
----------	-------

Figure 11:data collection rule settings

Microsoft.DataCollectionRules | Overview ...

Deployment

Search x <

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.DataCollectionRules

Subscription : Azure for Students

Resource group : CST8912

Start time : 9/13/2025, 12:44:21 AM

Correlation ID : 8e91eb29-1815-4ffa-b8db-544e543fac43

Deployment details

Resource	Type	Status	Operation details
✓ CST8912-RULE	Data collection rule	OK	Operation details

Next steps

[Go to resource](#)

Figure 12: deployment of rule

Resource Health (not affected by the time range)

Availability State	Reported Time	Summary
✓ Available	9/13/2025, 12:48:45.749 AM	No workspace issues detected.

Operational errors and warnings

✓ No operational errors or warnings

Figure 13: Health tab

CST8912-LOG | Insights ...

Log Analytics workspace

Search x <

Workbooks Customize Auto refresh: Off

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Logs

Resource visualizer

Settings

Classic

Monitoring

Insights

Alerts

Metrics

Diagnostic settings

Advisor recommendations

Workbooks

Automation

Help

Time Range

Last 24 hours

Overview Usage Health Agents Query Audit Data Collection Rules Change Log

Azure Monitor Agents

1

Direct Agents

0

Gateway Agents

0

SCOM Agents

0

SCOM Management servers

0

Agents State

1 ✓

Select agents

43 agents Healthy Unhealthy

Resource	Resource type	Computer	OS	Agent category	Agent version	Heartbeats trend	Agent state	Details	Subscription
cst8912-vm	virtualMachines	CST8912-VM	Linux (Ubuntu)	Azure Monitor Agent	1.36.3		Healthy		b89b9c1-00

Figure 14: Monitor agents

CreateManage view

You are viewing a new version of Browse experience. Click here to access the old experience.

Name ?

CST8912

NetworkWatcherRG

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Cost Management

Monitoring

Automation

Help

Essentials

Subscription (msop)

Access for Students

Subscription ID

8d8f9c1-006f-4642-9c0b-0a981901cf97

Tags (ndf)

Add tags

Deployments

4 Succeeded

Location

Canada Central

Resources

Recommendations

Filter for any field...

type equals all

Location equals all

Add filter

Showing 0 to 0 of 0 records.

Show hidden types

No grouping

List view

Name ↑

Type ↑

Location ↑

No resources match your filters

Try changing or clearing your filters.

Create resources

Clear filters

Learn more

Executed delete command on 9 selected items

Succeeded: 9, Failed: 0, Canceled: 0

a few seconds ago

Successfully initiated extension installation

Successfully initiated extension installation for Resource:CST8912-VM. Check the extensions blade of the resource for installation status.

9 minutes ago

Create Data Collection Rule Association Succeeded

Successfully created Data Collection Rule Association. Changes may take a minute or more to reflect in the portal. Association created with resource: /subscriptions/8d8f9c1-006f-4642-9c0b-0a981901cf97/resourceGroups/CST8912/providers/Microsoft.Comput...

9 minutes ago

Successfully enabled system assigned managed identity

Successfully enabled system assigned managed identity for Resource:CST8912-VM

9 minutes ago

Create Data Collection Rule Association Succeeded

Successfully created Data Collection Rule Association for Data Collection Rule: CST8912-RULE

14 minutes ago

Deployment succeeded

Deployment 'Microsoft.DataCollectionRules' to resource group 'CST8912' was successful.

Go to resource

Go to resource group

14 minutes ago

Figure 15: Deleting all resources