Lab 11

CST8912_011

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Submitted to :

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Lab Report Format

Title

Azure Cloud Monitoring and Metrics Lab

Introduction or Purpose

Cloud Monitoring helps manage and track resources in a cloud environment by collecting metrics, events, and metadata. It automatically detects resources and offers visualization tools. In this lab, you'll install the Cloud Monitoring agent, create an uptime check, set up an alert policy, and visualize CPU metrics for a Compute Engine instance.

Steps covered in the lab

• Create an uptime check for your resources (storage account and virtual machine) in Canada Central region.

• Define an alert policy for specific events.

• Create a chart to show CPU metrics for your instance on the Cloud Monitoring dashboard.

• Use log queries to interact with data.

• Create an Azure Data Factory in Canada Central region.

• Create an Azure Log Analytics workspace in the same region.

• Configure Diagnostic settings for Azure Data Factory.

• Create and review a Log Solution for Azure Data Factory.

• Set up Monitor Alerts for Azure Data Factory.

• Delete all resources after the demo.

Results

Create Resources in Canada Central

Home >

lab11
Resource group

Search

- Overview
- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events
- Settings
  - Deployments
  - Security
  - Deployment stacks
  - Policies
  - Properties
  - Locks
- Cost Management
- Monitoring
- Automation
  - Export template
- Help
  - Support + Troubleshooting

+ Create | Manage view ∨ | Delete resource group | Refresh | Export to CSV | Open query | Assign tags | → Move ∨ | Delete | Export template | Open in mobile

∧ Essentials   JSON View

Subscription (move) : Azure for Students   Deployments : No deployments
Subscription ID   : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1   Location : Canada Central
Tags (edit)   : Add tags

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

♡ Give feedback

Home > salab11march082025_1741486908825 | Overview >

salab11march082025
Storage account

Search

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data migration
- Events
- Storage browser
- Storage Mover
- Partner solutions
- Resource visualizer
- Data storage
  - Containers
  - File shares
  - Queues
  - Tables
- Security + networking
  - Networking
  - Front Door and CDN
  - Access keys
  - Shared access signature
  - Encryption
  - Microsoft Defender for Cloud

↑ Upload | Open in Explorer | Delete | Move ∨ | Refresh | Open in mobile | CLI / PS | Feedback

∧ Essentials   JSON View

Resource group (move)   : lab11   Performance   : Standard
Location   : canadacentral   Replication   : Read-access geo-redundant storage (RA-GRS)
Primary/Secondary Location   : Primary: Canada Central, Secondary: Canada East   Account kind : StorageV2 (general purpose v2)
Subscription (move)   : Azure for Students   Provisioning state : Succeeded
Subscription ID   : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1   Created : 3/8/2025, 9:21:54 PM
Disk state   : Primary: Available, Secondary: Available

Tags (edit)   : Add tags

Properties   Monitoring   Capabilities (7)   Recommendations (0)   Tutorials   Tools + SDKs

☰ Blob service

Hierarchical namespace	Disabled
Default access tier	Hot
Blob anonymous access	Disabled
Blob soft delete	Enabled (7 days)
Container soft delete	Enabled (7 days)
Versioning	Disabled
Change feed	Disabled
NFS v3	Disabled
Allow cross-tenant replication	Disabled
Storage tasks assignments	None

☰ File service

Large file share	Enabled
Identity-based access	Not configured
Default share-level permissions	Disabled

🔒 Security

Require secure transfer for REST API operations	Enabled
Storage account key access	Enabled
Minimum TLS version	Version 1.2
Infrastructure encryption	Disabled

🌐 Networking

Allow access from	All networks
Private endpoint connections	0
Network routing	Microsoft network routing
Access for trusted Microsoft services	Yes
Endpoint type	Standard

Create an Alert

Home > Monitor

Monitor | Alerts
Microsoft

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
  - Azure Data Explorer Clusters
  - Log Analytics workspaces
  - Azure Local
  - Service Bus (preview)

View as timeline (preview) + Create ∨ Alert rules Action groups Alert processing rules Prometheus rule groups Change user response Actions ∨ Refresh

Alert rule
Action group   Alert rule
Alert processing rule

Search   lected   Time range : Past 24 hours   Alert condition : Fired ✕   Severity : all ✕   Add filter

Total alerts	Critical	Error	Warning	Informational	Verbose
0	0	0	0	0	0

No grouping

Name ↑↓	Severity ↑↓	Affected resource ↑↓	Alert condition ↑↓	User response ↑↓	Fire time ↑↓

No alerts found

Try changing your search or choose a
different scope level if you don't see what
you're looking for.

Clear filters

Home > Monitor | Alerts

Create an alert rule

Select a resource

Scope   Condition   Actions   Details   Tags   Review + create

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. Learn more

+ Select scope

Resource	Hierarchy
No resource selected yet	

Browse   Recent

Subscription	Resource types	Locations
All subscriptions	All resource types	All locations

Search to filter items...

Resource	Resource type	Location
☐ AVD-Prod	Subscription	-
☑ Azure for Students	Subscription	-

ℹ Metric and Log signals might not be available if the scope includes multiple resources.

Refine scope

Resource type	Location
Virtual machines	Canada Central

∧ **Selected resources** 1 scope

Azure for Students	Subscription	-	🗑

Review + create   Previous   Next: Condition >

Apply   Cancel   Clear all selections

Create an alert rule   ...

Scope   **Condition**   Actions   Details   Tags   Review + create

Configure when the alert rule should trigger by selecting a signal and defining its logic.

Signal name * ⓘ

Chart CPU usage trends   ⌄

See all signals

Define the logic for triggering an alert. Use the chart to view trends in the data. Learn more

The query to run on this resource's logs. The results returned by this query are used to populate the alert definition below.

Search query *   ✓

```
// To create an alert for this query, click '+ New alert rule'
Perf
| where CounterName == "% Processor Time"
| where ObjectName == "Processor"
| summarize avg(CounterValue) by bin(TimeGenerated, 15min), Computer, _ResourceId // bin is used to set the time grain to
15 minutes
| render timechart
// Perf table stores performance counters for Windows and Linux computers
// Counters are specified using ObjectName (performance object), InstanceName and CounterName
```

View result and edit query in Logs 🗗

Measurement

Select how to summarize the results. We try to detect summarized data from the query results automatically.

Measure ⓘ

avg_CounterValue   ⌄

Aggregation type ⓘ

Average   ⌄

Aggregation granularity ⓘ

5 minutes   ⌄

Split by dimensions

Review + create   Previous   Next: Actions >

Create an alert rule   ...

Use dimensions to monitor specific time series and provide context to the fired alert. Dimensions can be either number or string columns. If you select more than one dimension value, each time series that results from the combination will trigger its own alert and will be charged separately. ⓘ

Dimension name	Operator	Dimension values	Include all future values
Select dimension ⌄	= ⌄	0 selected ⌄	☐

Add custom value

Alert logic

Operator ⓘ

Greater than   ⌄

Threshold value * ⓘ

80   ⌄

Frequency of evaluation * ⓘ

5 minutes   ⌄

ⓘ Estimated monthly cost **Variable (USD)**

⌄ Advanced options

Preview

Select time series ⓘ   Time range ⓘ

Select time series   ⌄   Over the last 30 minutes   ⌄

80 --

60

40

Review + create   Previous   Next: Actions >

Home > Monitor | Alerts >

Create an alert rule

Scope   Condition   **Actions**   Details   Tags   Review + create

An action group is a set of actions that can be applied to an alert rule. Learn more

Select actions

○ Use quick actions (preview)
Select one or more of the quick actions.

● Use action groups
Add an existing action group or create a new one.

○ None

Action groups

Action group name	Contains actions	
High CPU Alert Group	1 Email, 1 SMS message	✕

Manage action groups

[Review + create] [Previous] [Next: Details >]

Text Message • SMS
Today 9:46 PM

All done. You're in HighCPUAlert group. Reply 'STOP' to stop all, 'Disable HighCPUAlert' to stop grp, 'HELP' for info. Msg&data rates apply.

Home > Monitor

Monitor | Alerts
Microsoft

🔍 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
  - Azure Data Explorer Clusters
  - Log Analytics workspaces
  - Azure Local
  - Service Bus (preview)

⊞ View as timeline (preview) | + Create ∨ | ⊞ Alert rules | Action groups | Alert processing rules | Prometheus rule groups | ✓ Change user response | ⚡ Actions ∨ | ↻ Refresh

🔍 Search   Subscription : **2 selected**   Time range : **Past 24 hours**   Alert condition : **Fired** ✕   Severity : **all** ✕   ⊞ Add filter

Total alerts	Critical	Error	Warning	Informational	Verbose
0	0	0	0	0	0

No grouping ▾

Name ↑↓	Severity ↑↓	Affected resource ↑↓	Alert condition ↑↓	User response ↑↓	Fire time ↑↓

No alerts found

Try changing your search or choose a different scope level if you don't see what you're looking for.

[Clear filters]

✓ Alert rule created
Successfully created alert rule High CPU Alert. It might take a few minutes for changes to be shown.

Create action group

Basics   Notifications   Actions   Tags   Review + create

An action group invokes a defined set of notifications and actions when an alert is triggered. Learn more

Project details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription ⓘ	Azure for Students
Resource group * ⓘ	lab11
	Create new
Region *	Global

Instance details

Action group name * ⓘ	Storage Alert
Display name * ⓘ	StorageAlert

The display name is limited to 12 characters

[Review + create]   [Previous]   [Next: Notifications >]

Create an alert rule

Scope   Condition   Actions   Details   Tags   Review + create

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. Learn more

＋ Select scope

Resource	Hierarchy
No resource selected yet	

[Review + create]   [Previous]   [Next: Condition >]

Select a resource

Browse   Recent

Subscription	Resource types	Locations
All subscriptions	All resource types	All locations

🔍 Search to filter items...

Resource	Resource type	Location
☐ > 🔑 AVD-Prod	Subscription	-
☑ > 🔑 Azure for Students	Subscription	-

ⓘ Metric and Log signals might not be available if the scope includes multiple resources.

Refine scope

Resource type	Location
Storage accounts	Canada Central

⌄ **Selected resources** 1 scope

⌄ 🔑 Azure for Students	Subscription	-	🗑
⌄ ▣ lab11	Resource group	-	

[Apply]   [Cancel]   Clear all selections

Create a Chart for CPU Metrics in Cloud Monitoring
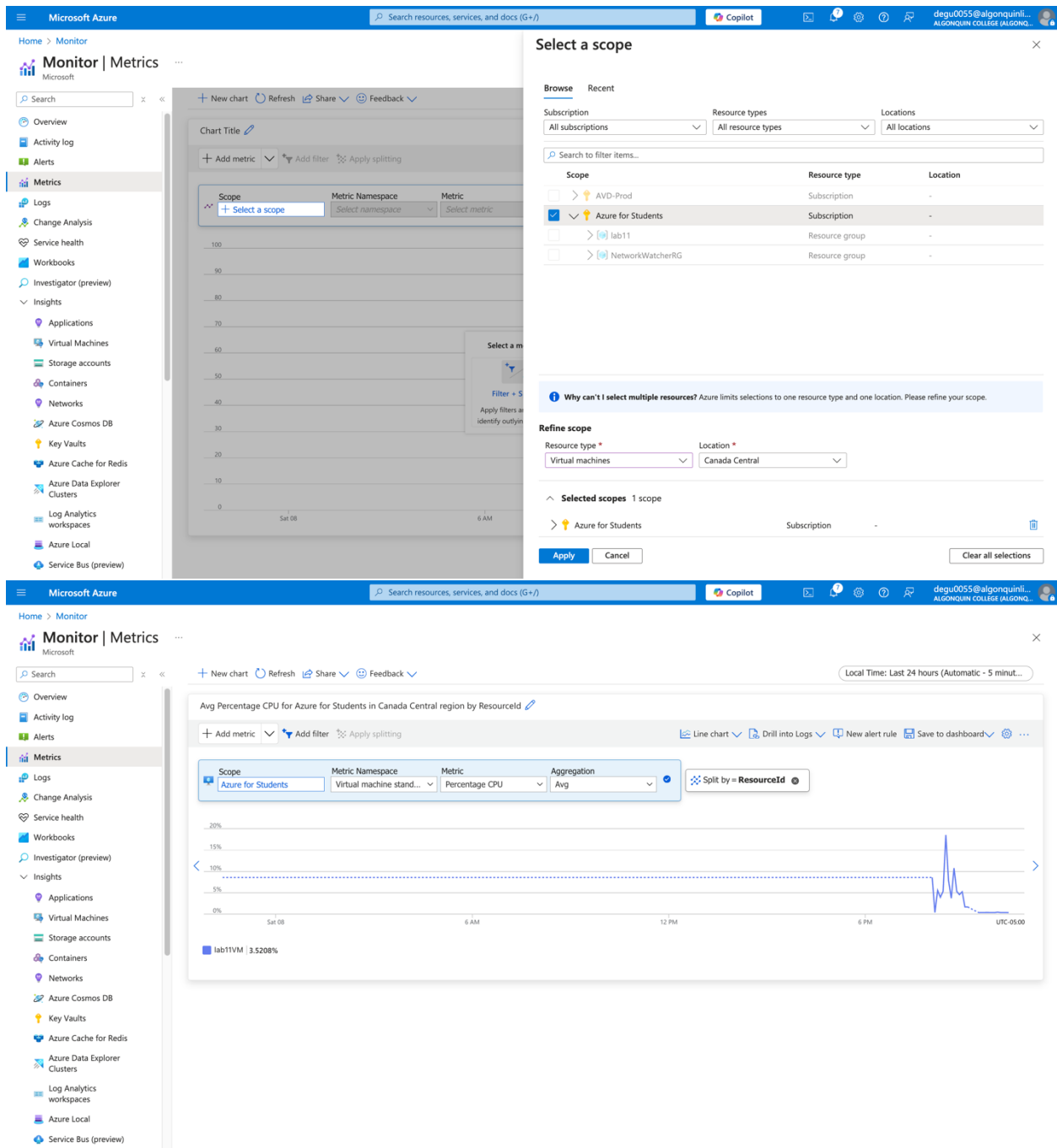
Use Log Queries to Interact with Data
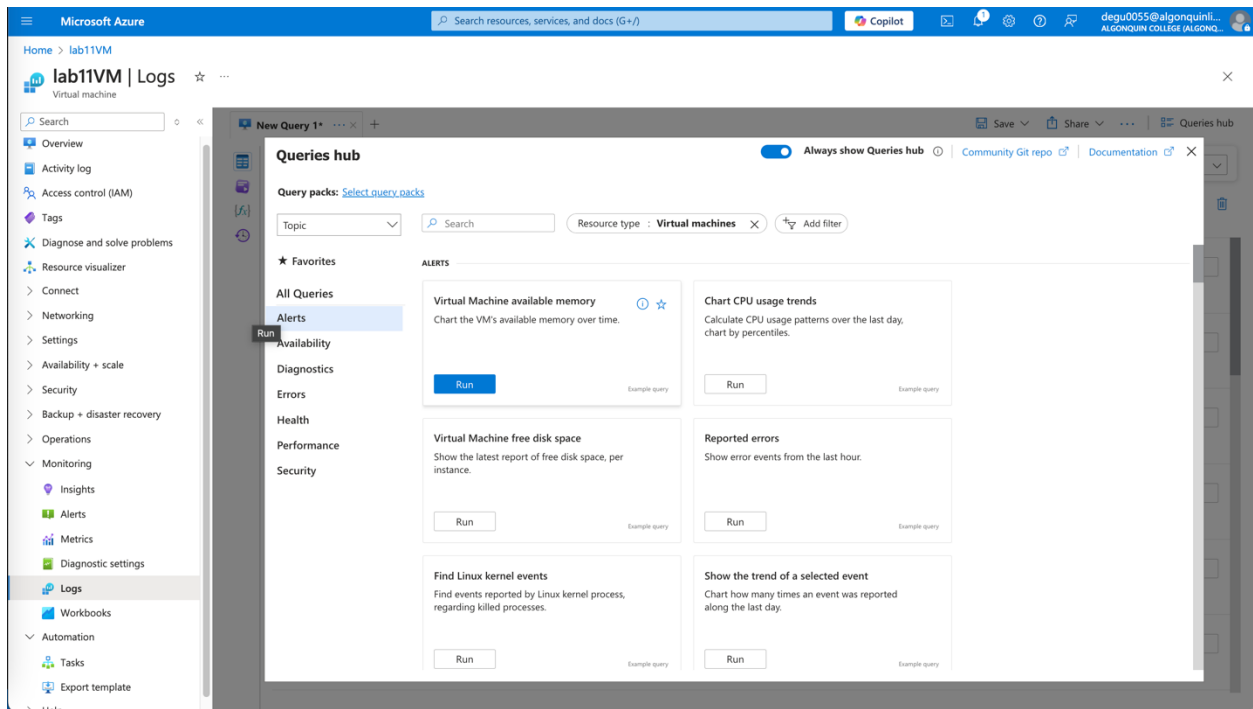
Create azure data factory in Canada central region
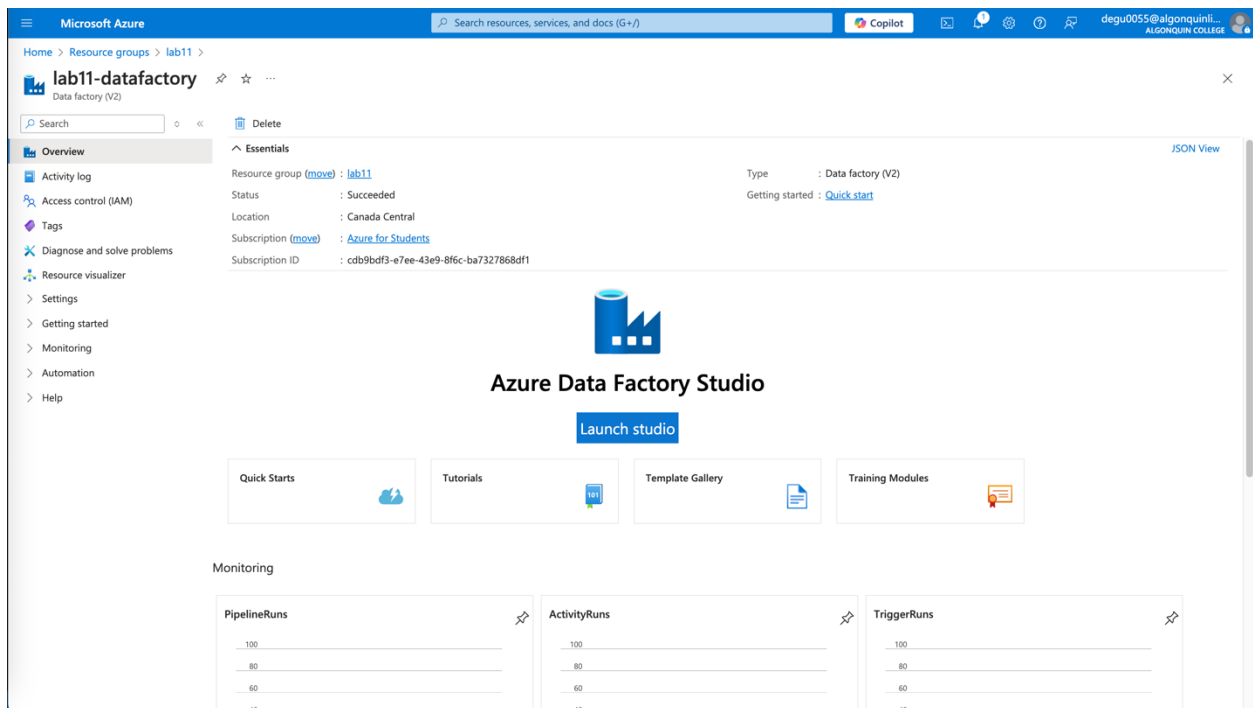
Create Azure Log Analytics workspace in same region as other resources

Configure Diagnostic settings for Azure Data Factory

Create and review a Log Solution for the Azure Data Factory

Setup Monitor Alerts for Azure Data Factory

Microsoft Azure   Search resources, services, and docs (G+/)   Copilot   degu0055@algonquinli...
ALGONQUIN COLLEGE

🔍 Search

- Overview
- Activity log
- **Alerts**
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  - 📍 Applications
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  - 📍 Networks
  - Azure Cosmos DB
  - Key Vaults
  - Azure Cache for Redis
  - Azure Data Explorer Clusters
  - Log Analytics workspaces
  - Azure Local
  - Service Bus (preview)

📅 View as timeline (preview)   + Create ∨   🔔 Alert rules   🗔 Action groups   🗔 Alert processing rules   🔵 Prometheus rule groups   ✓ Change user response   ⚡ Actions ∨   🔄 Refresh

Alert rule
Action group
Alert processing rule

🟣 **New:** We value your feedback!   complete a short survey. Your insights will help us improve our services.   ✕

🔍 Search | Subscription : **2 selected** | Time range : **Past 24 hours** | Alert condition : **Fired** ✕ | Severity : **all** ✕ | + Add filter

Total alerts	Critical	Error	Warning	Informational	Verbose
🟢 0	0	0	0	0	0

No grouping ▼

Name ↑↓	Severity ↑↓	Affected resource ↑↓	Alert condition ↑↓	User response ↑↓	Fire time ↑↓

No alerts found

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different scope level if you don't see what
you're looking for.

Clear filters

Microsoft Azure   Search resources, services, and docs (G+/)   Copilot   degu0055@algonquinli...
ALGONQUIN COLLEGE

Create an alert rule   ···

Select a resource   ✕

Scope	Condition	Actions	Details	Tags	Review + create

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. Learn more

Browse   Recent

+ Select scope

Subscription	Resource types	Locations
All subscriptions ▼	All resource types ▼	All locations ▼

Resource	Hierarchy

No resource selected yet

🔍 Search to filter items...

Resource	Resource type	Location
> 🔑 AVD-Prod	Subscription	-
∨ 🔑 Azure for Students	Subscription	-
> ⊙ DefaultResourceGroup-EUS	Resource group	-
∨ ⊙ lab11	Resource group	-
◇ endpoint	Data collection endpoint	Canada Central
🔲 High CPU Alert	Log alert rule	Canada Central
🔳 High CPU Alert Group	Action group	Global
✅ 🔷 lab11-datafactory	Data factory (V2)	Canada Central
🖥 lab11VM	Virtual machine	Canada Central
lab11VM-ip	Public IP address	Canada Central
🛡 lab11VM-nsg	Network security group	Canada Central
↔ lab11VM-vnet	Virtual network	Canada Central
📇 lab11vm392_z1	Network Interface	Canada Central
💾 lab11VM_disk1_650147f6ebd04f7b93bea730...	Disk	Canada Central
🔑 lab11VM_key	SSH key	Canada Central

∧ **Selected resources** 1 data factory (V2)

🔷 lab11-datafactory	Data factory (V2)	Canada Central	🗑

Review + create	Previous	Next: Condition >

Apply   Cancel   Clear all selections

Create an alert rule ...

Scope   Condition   Actions   Details   Tags   Review + create

Configure when the alert rule should trigger by selecting a signal and defining its logic.

Signal name * ⓘ

[📊 Airflow Integration Runtime Cpu Usage   ⌄]

See all signals

Alert logic

Threshold type ⓘ	⦿ Static ◯ Dynamic
Aggregation type ⓘ	[Average ⌄]
Value is ⓘ	[Greater than ⌄]
Threshold * ⓘ	[80 ✓]

Preview $0.10 USD/month

Whenever the average Airflow Integration Runtime Cpu Usage is greater than 80

[Preview time range : **Over the last 6 hours**]   [Time series : **Aggregate**]

0.09c
0.08c ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ■
0.07c
0.06c
0.05c
0.04c
0.03c
0.02c
0.01c
0c
9 PM   10 PM   11 PM   Mar 9   1 AM   3 AM   UTC-04:00

🟦 Airflow Integration Runtime Cpu Usage (Avg), lab11-datafactory --

Split by dimensions

Use dimensions to monitor specific time series and provide context to the fired alert. About monitoring multiple time series

Dimension name	Operator	Dimension values	Include all future values
[Select dimension ⌄]	[= ⌄]	[0 selected ⌄]	☐
		Add custom value	

When to evaluate

Check every ⓘ	[1 minute ⌄]
Lookback period ⓘ	[5 minutes ⌄]

[Review + create]   [Previous]   [Next: Actions >]

Create an alert rule ...

Scope   Condition   Actions   Details   Tags   Review + create

An action group is a set of actions that can be applied to an alert rule. Learn more

Select actions

◯ Use quick actions (preview)
    Select one or more of the quick actions.

⦿ Use action groups
    Add an existing action group or create a new one.

◯ None

Action groups

Action group name	Contains actions	
High CPU Alert Group	1 Email, 1 SMS message	✕

Manage action groups

[Review + create]   [Previous]   [Next: Details >]

After demo delete all the resources created in the lab