

Secure Azure Web App Integration with MySQL on Linux VM

Objective

To deploy a PHP-based web application in Azure App Service connected securely to a MySQL database hosted on a Linux Virtual Machine through VNet integration, ensuring full governance, monitoring, and backup configurations.

Tools & Technologies Used

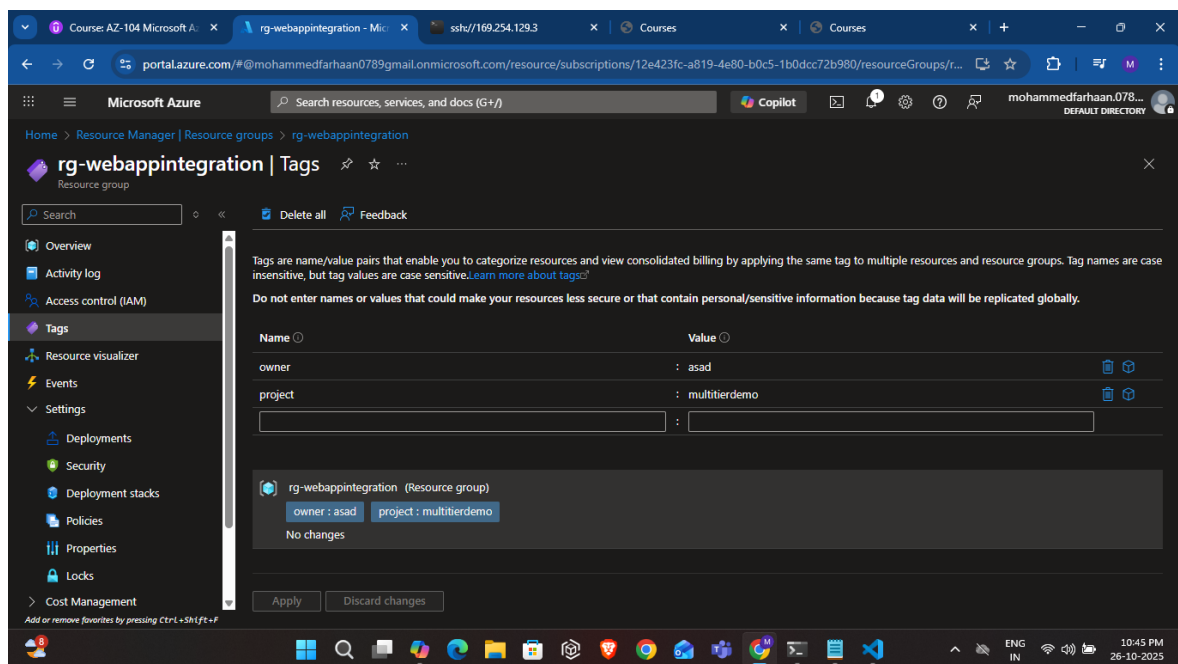
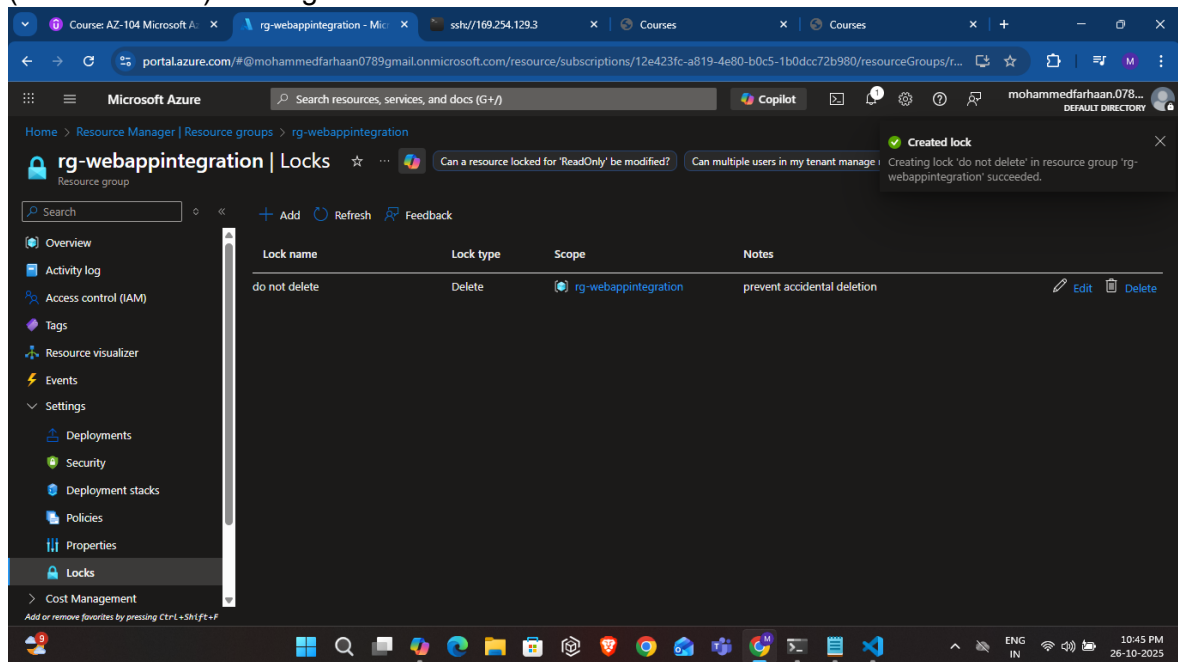
- 1 Microsoft Azure Portal
- 2 Azure Virtual Network (VNet)
- 3 Azure App Service (Linux Plan)
- 4 Linux VM (Ubuntu) with MySQL Server
- 5 Azure Recovery Services Vault (RSV)
- 6 Azure Monitor & Log Analytics Workspace
- 7 Azure Alerts & Action Groups
- 8 NSG, Tags, Locks, and RBAC Roles

AZ-104 Domains Covered

- 1 Manage Azure identities and governance (RBAC, Locks, Tags)
- 2 Implement and manage storage & compute resources (VM, Disks, Backup)
- 3 Configure and manage virtual networking (VNet, Subnets, NSG)
- 4 Manage App Services (Deployment, Monitoring, Alerts)

Deployment Steps

- 1 Created Resource Group **rg-webappintegration** and applied resource lock (CanNotDelete) and tags.



2 Added a new Azure AD user and assigned Reader role at the Resource Group level.

The screenshot shows the 'Access control (IAM)' page for the resource group 'rg-webappintegration'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Resource visualizer, Events, Settings (Deployments, Security, Deployment stacks, Policies, Properties, Locks), and Cost Management. The main content area shows a table of role assignments:

Name	Type	Role	Scope	Condition
Owner (2)				
MA 486a854e-5620-4a5a-9...	User	Owner	Subscription (Inherited)	None
MA 486a854e-5620-4a5a-9...	User	Owner	Management group (Inhe...	None
Reader (1)				
user01 222d946c-4c87-41ba-8...	User	Reader	This resource	None
StorageCustomReader (1)				
Unknown fb901c72-d86e-4dbe-...	Unknown	StorageCustomReader	Subscription (Inherited)	None
User Access Administrator (1)				
MA 486a854e-5620-4a5a-9...	User	User Access Administrator	Root (Inherited)	None

Showing 1 - 5 of 5 results.

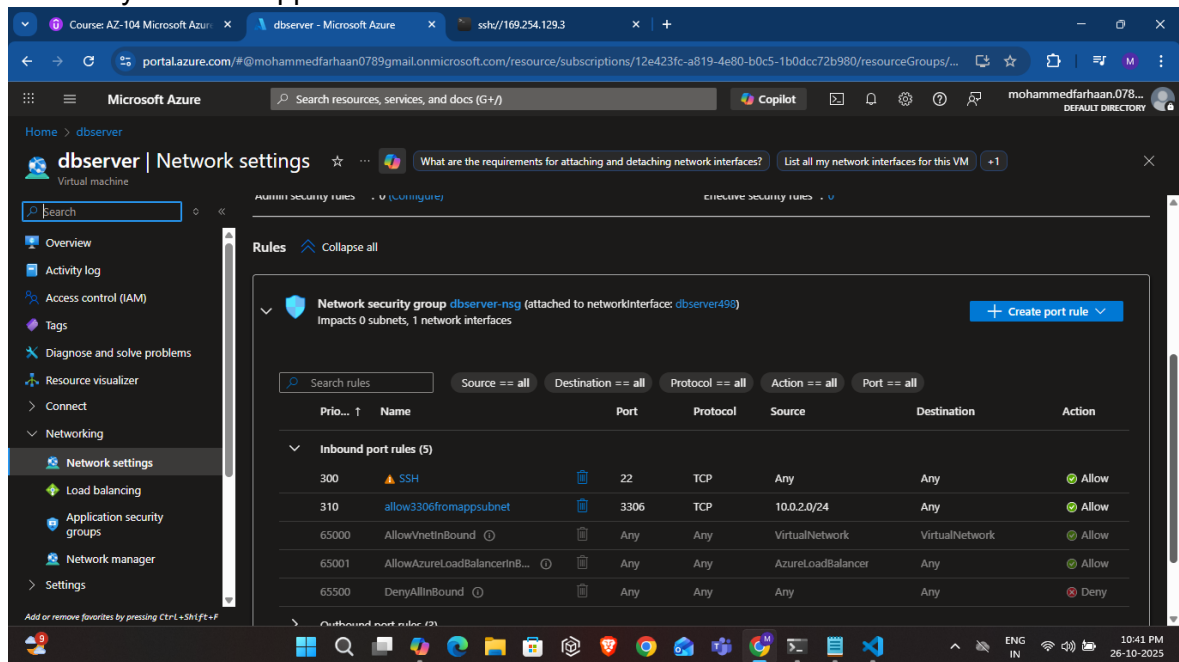
3 Deployed Virtual Network **vnet-webappintegration** with two subnets: one for VM and one delegated to Microsoft.Web/serverfarms for App Service VNet integration.

The screenshot shows the 'Subnets' page for the virtual network 'vnet-webappintegration'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings (Address space, Connected devices), Subnets, Bastion, DDoS protection, Firewall, and Microsoft Defender for. The main content area shows a table of subnets:

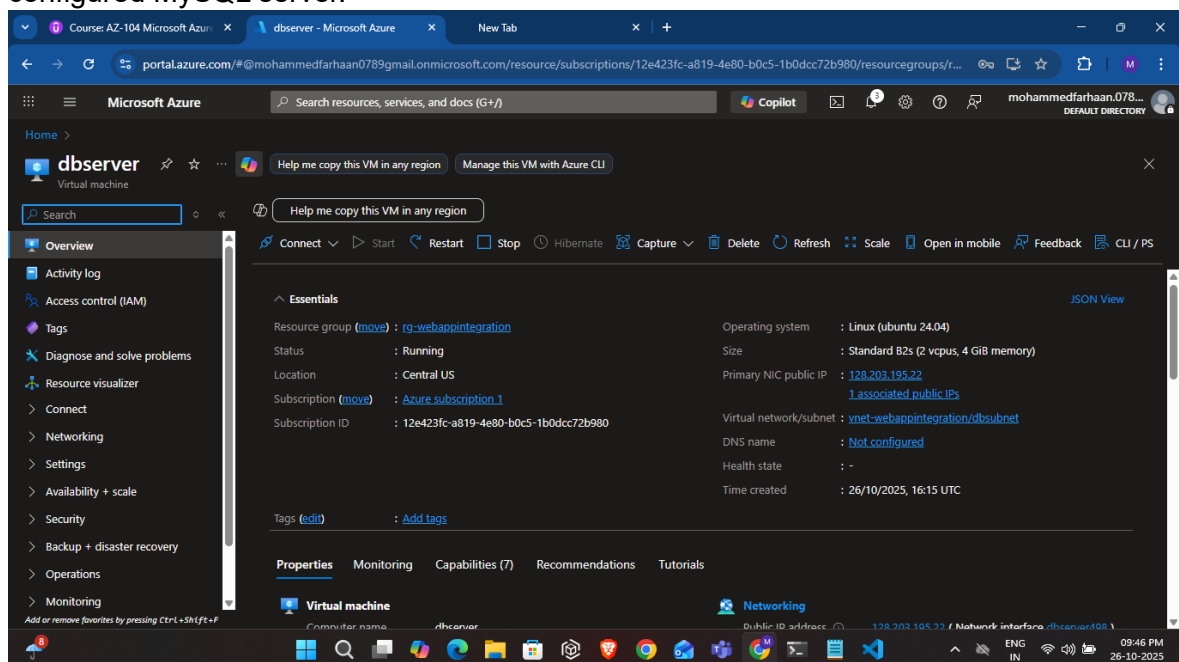
Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
dbsubnet	10.0.1.0/24	-	250	-	-	-
subnet-webappint...	10.0.2.0/24	-	251	Microsoft...	-	-

Showing 2 subnets

- 4 Created Network Security Group ****dbserver-nsg**** and allowed inbound MySQL port 3306 only from the App Service subnet.



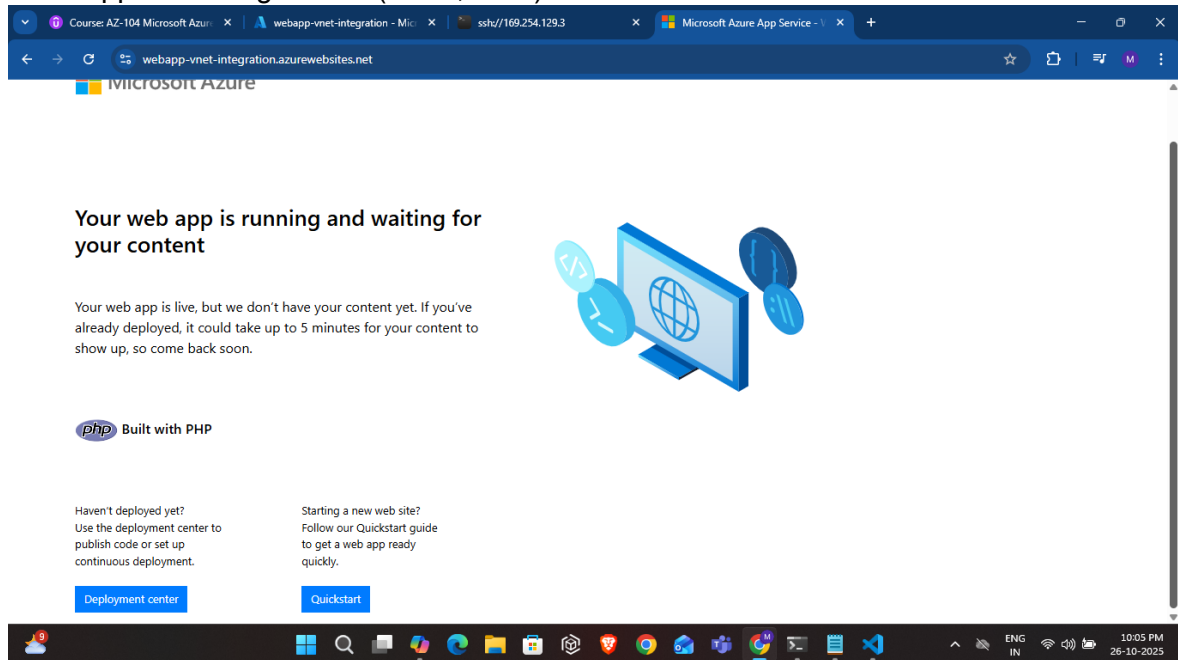
- 5 Deployed Linux Virtual Machine ****dbserver**** with public IP ****dbserver-ip****, and configured MySQL server.



- 6 Created MySQL user, granted privileges, and set bind-address to VM's private IP in MySQL configuration. Inserted sample data into the MySQL table and disassociate public ip of a vm.

➤ **view commands.**

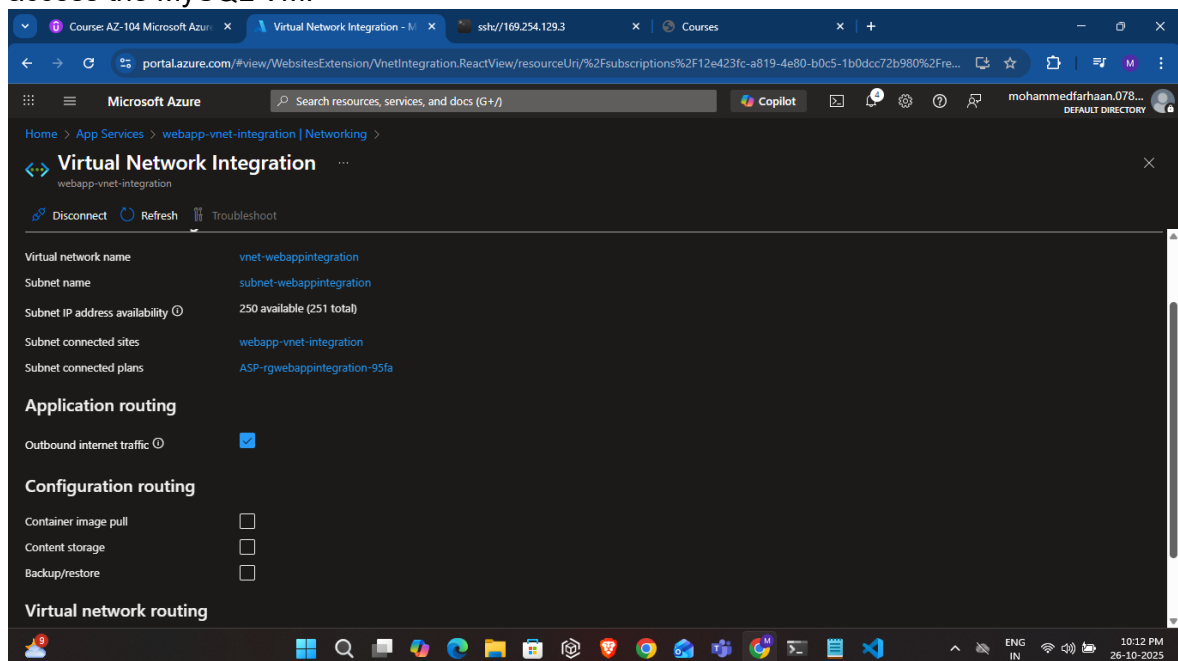
- 7 Deployed App Service Plan ****ASP-rgwebappintegration-95fa**** and Web App ****webapp-vnet-integration**** (Linux, PHP).



- 8 Manually deployed PHP application via SSH and configured DB connection in code with VM IP, user, DB name, and password.

➤ [view source code](#)

- 9 Enabled VNet Integration between App Service and delegated subnet to securely access the MySQL VM.



Course: AZ-104 Microsoft Azure | webapp-vnet-integration - Microsoft | ssh://169.254.129.3 | Courses

webapp-vnet-integration.azurewebsites.net/index.php

List of Courses

This is a list of Courses

Course ID	Course Name	Rating
1	Docker and Kubernetes	4.5
2	AI-102 Azure AI Engineer	4.6
3	AZ-104 Azure Administrator	4.7

10:12 PM 26-10-2025

10 Configured custom domain ****anonymous.rest**** for the web app and verified successful data connection through index.php.

Course: AZ-104 Microsoft Azure | webapp-vnet-integration - Microsoft | ssh://169.254.129.3 | Courses | Domain Portfolio: anonymous.rest

portal.azure.com/#@mohammedfarhaan0789gmail.onmicrosoft.com/resource/subscriptions/12e423fc-a819-4e80-b0c5-1b0dcc72b980/resourceGroups/...

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

Home > webapp-vnet-integration

webapp-vnet-integration | Custom domains

Web App

Search Refresh Troubleshoot

Starting July 28, upcoming changes may impact the issuance and renewals of your App Service Managed Certificates. Review the guidance to ensure your certificates aren't impacted. [Learn more](#)

IP address: 13.89.172.22

Custom Domain Verification ID: B06F886A858E1180C0D5E3D22DE2F482158EC44560C9FC...

Filter by keywords Add filter

2 items

+ Add custom domain + Buy App Service domain Delete

Custom domains	Status	Solution	Binding type	Certificate used	A...
<input type="checkbox"/> anonymous.rest	Secured	-	SNI SSL	anonymous.rest-webapp-vnet-int...	...
<input type="checkbox"/> webapp-vnet-integration.azurewe...	Secured	-	-	-	-

< Previous Items per page: 50 Page 1 of 1 Next >

Add or remove favorites by pressing Ctrl+Shift+F

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Course: AZ-104 Micro x webapp-vnet-integr x ssh://169.254.129.3 x Courses x Domain Portfolio: an x Courses x + -

anonymous.rest

List of Courses

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1	Docker and Kubernetes	4.5
2	AI-102 Azure AI Engineer	4.6
3	AZ-104 Azure Administrator	4.7

ENG IN 10:22 PM 26-10-2025

11 Created Recovery Services Vault **webapprsv** and enabled VM backup with a manual restore point trigger.

Course: AZ-104 Microsoft A x Backup Jobs - Microsoft Az x ssh://169.254.129.3 x Courses x Courses x + -

portal.azure.com/#view/Microsoft_Azure_DataProtection/V1JobListBlade/vaultId/%2Fsubscriptions%2F12e423fc-a819-4e80-b0c5-1b0dcc72b980%2Fres...

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

Copilot mohammedfarhaan.078... DEFAULT DIRECTORY

Backup Jobs

Choose columns Filter Export jobs Refresh Feedback

Analyze all job failures for this vault

Filtered by: Item Type - All, Operation - All, Status - All, Start Time - 25/10/2025, 22:55:08, End Time - 26/10/2025, 22:55:08

All data fetched from the service.

Filter items ...

Workload name ↑↓	Operation	Status	Type	Start time ↑↓	Total Duration ↑↓	Details
dbserver	Backup	In progress	Azure Virtual Machine	26/10/2025, 22:54:54	00:00:15	View details
dbserver	Configure backup	Completed	Azure Virtual Machine	26/10/2025, 22:53:21	00:00:30	View details

< Previous Page 1 of 1 Next >

ENG IN 10:55 PM 26-10-2025

Course: AZ-104 Microsoft A... x dbserver - Microsoft Azure x ssh://169.254.129.3 x Courses x Courses x + -

portal.azure.com/#@mohammedfarhaan0789gmail.onmicrosoft.com/resource/subscriptions/12e423fc-a819-4e80-b0c5-1b0dcc72b980/resourceGroups/rg-we...

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

Home > dbserver

dbserver | Backup Virtual machine

Backup now Restore VM File Recovery Stop backup Resume backup Delete backup data Restore to Secondary Region Undelete

Backup + disaster recovery Backup

Essentials

Recovery services vault : [webapprsrv](#)

Subscription (move) : [Azure subscription 1](#)

Subscription ID : 12e423fc-a819-4e80-b0c5-1b0dcc72b980

Alerts (in last 24 hours) : [View alerts](#)

Jobs (in last 24 hours) : [View jobs](#)

Backup Pre-Check : [Passed](#)

Last backup status : [Success 01/01/2001, 05:30:00](#)

Backup policy : [policyA \(Enhanced\)](#)

Oldest restore point : 26/10/2025, 22:55:02 (17 minute(s) ago)

Included disk(s) : [All disks](#)

Recovery points

This list is filtered for last 30 days of recovery points. To recover from recovery point older than 30 days, as well as vault-archive, [click here](#).

Long term recovery points can be moved to vault-archive. To move all 'recommended recovery points' to vault-archive tier, [click here](#).

CRASH CONSISTENT 0 APPLICATION CONSISTENT 0 FILE-SYSTEM CONSISTENT 1

Creation time	Consistency	Recovery type
26/10/2025, 22:55:02	File-system Consistent	Snapshot

https://portal.azure.com/# using Ctrl+Shift+F

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12 Deployed Log Analytics Workspace ****webapplaw**** and connected App Service diagnostics to send HTTP error logs.

Course: AZ-104 Microsoft A... x webapplaw - Microsoft Azure x ssh://169.254.129.3 x Courses x Courses x + -

portal.azure.com/#@mohammedfarhaan0789gmail.onmicrosoft.com/resource/subscriptions/12e423fc-a819-4e80-b0c5-1b0dcc72b980/resourceGroups/r...

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

Home > Microsoft.LogAnalyticsOMS | Overview

webapplaw Log Analytics workspace

What is exports failed (preview) in this Log Analytics workspace? Show me bytes exported metrics for this Log Analytics workspace

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Logs Resource visualizer Settings Classic Monitoring Automation Help

Azure Monitor will enforce TLS versions 1.2 and above starting March 1, 2026. To avoid data loss and service disruption please [upgrade to AMA](#) and ensure your OS supports TLS 1.2 or higher. [Learn More About TLS](#) [Learn More About Agents](#)

Essentials

Resource group (move) : [rg-webappintegration](#)

Status : Active

Location : Central US

Subscription (move) : [Azure subscription 1](#)

Subscription ID : 12e423fc-a819-4e80-b0c5-1b0dcc72b980

Tags : [Add tags](#)

Workspace Name : webapplaw

Workspace ID : 0c2aca4e-6dd8-46b1-8989-2a2238a1bac5

Pricing tier : Pay-as-you-go

Access control mode : Use resource or workspace permissions

Operational issues : [OK](#)

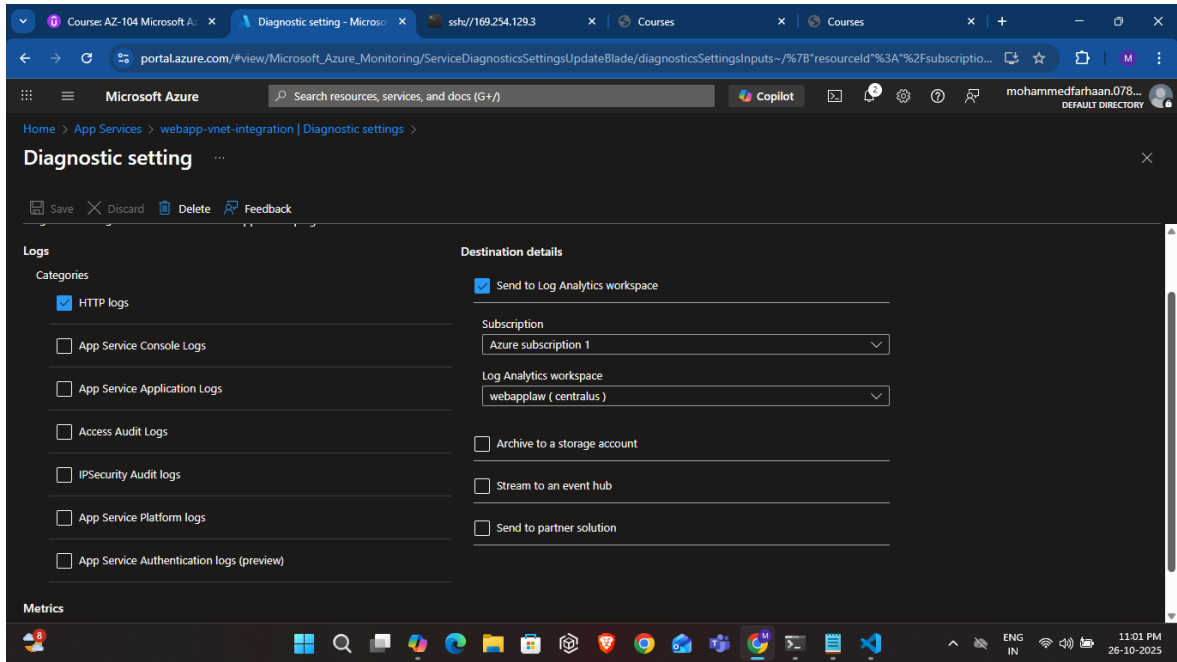
Get Started Recommendations

Get started with Log Analytics

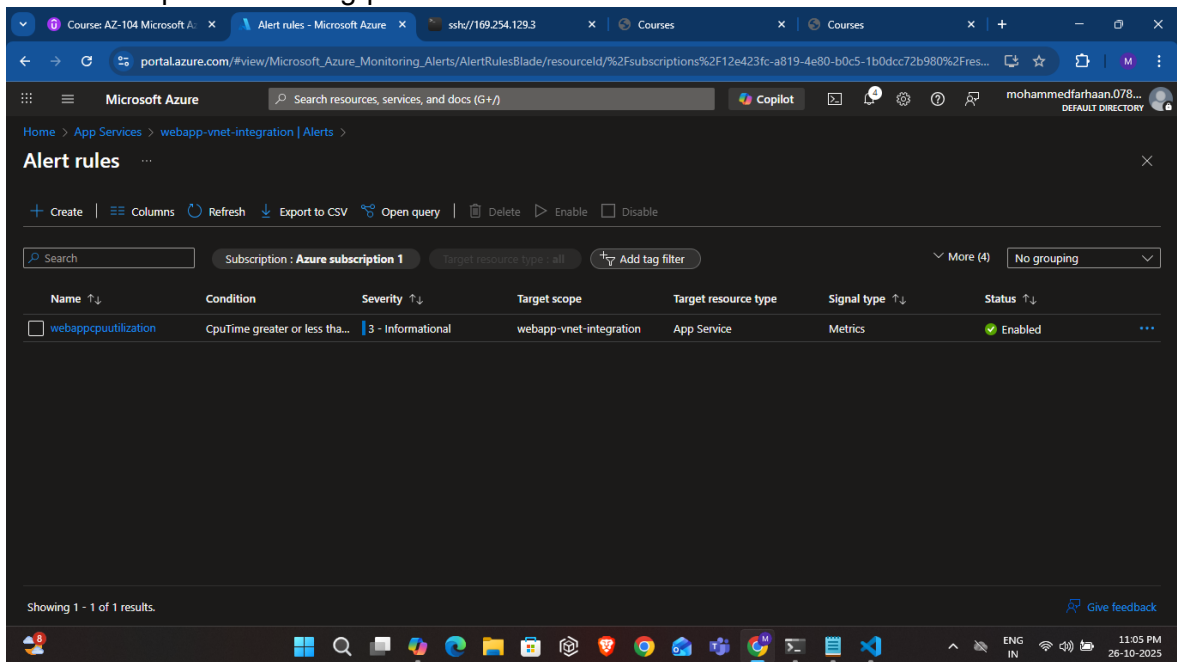
Log Analytics collects data from a variety of sources and uses a powerful query language to give you insights into the operation of your applications and resources. Use Azure Monitor to access the complete set of tools for monitoring all of your Azure resources.

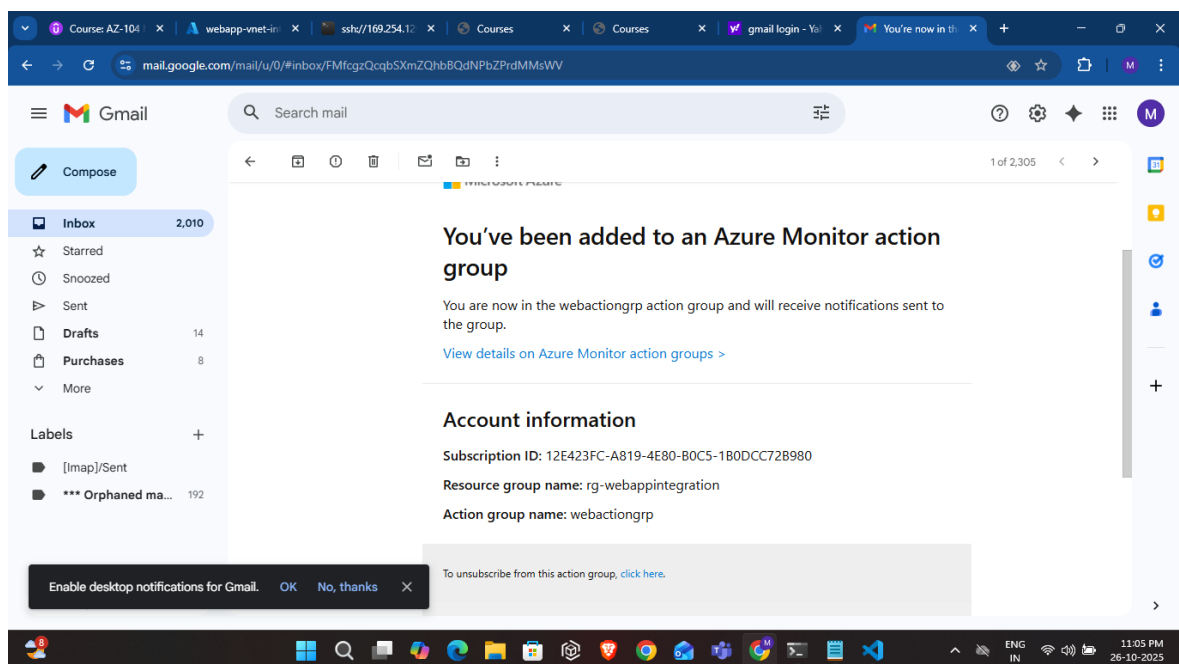
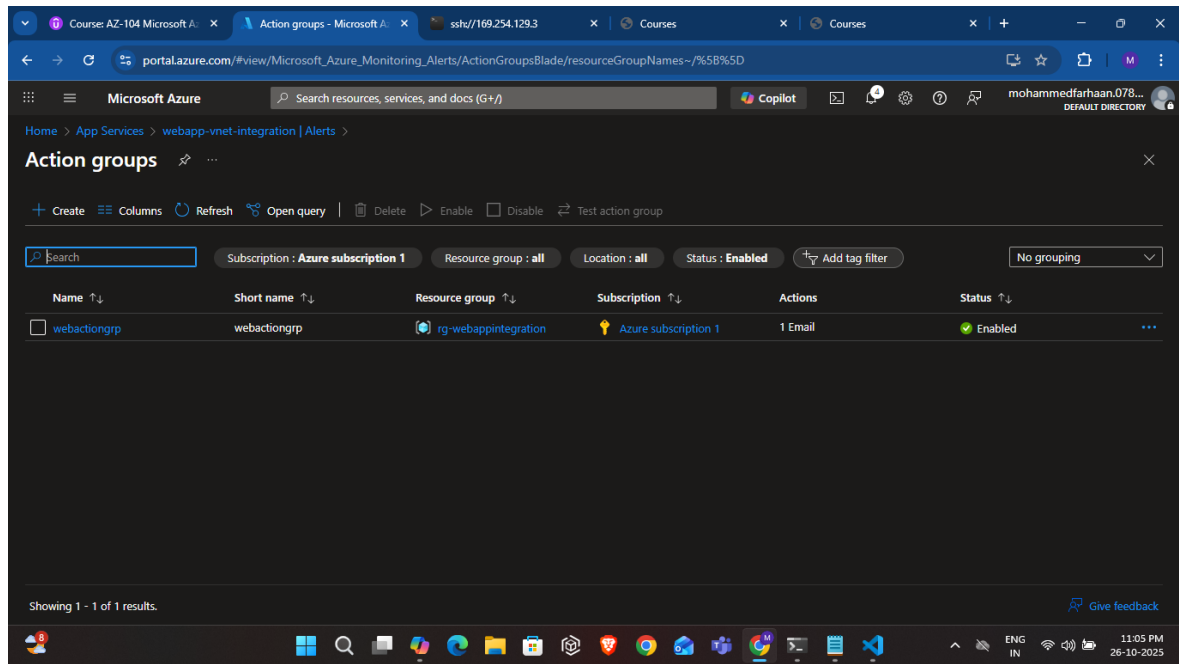
Add or remove favorites by pressing Ctrl+Shift+F

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13 Configured Alert Rule **webappcpuutilization** with signal metric 'CPU Time' and Action Group **webactiongrp** linked to email notifications.





Outcome

The PHP web application successfully connected to the MySQL database hosted on Azure Linux VM through secure VNet integration. All resources were governed, monitored, and protected with backup and alert configurations.

Skills Demonstrated

- 1 Azure Networking (VNet, NSG, Subnets)
- 2 App Service Deployment & Configuration
- 3 Linux VM & MySQL Database Administration
- 4 Backup & Recovery Configuration using RSV
- 5 Monitoring & Alerts using Log Analytics and Action Groups
- 6 Governance using RBAC, Tags, and Locks

■ Subscription Used

Microsoft Azure Subscription (pay as-you-go)