

**Practical Task 6: Set Up a Scalable Web Server with VM, Storage, and Networking****Requirements:****• Create a Resource Group**

- Use Azure CLI to create a resource group named WebServerGroup in the East US region.

**• Deploy a Virtual Network (VNet) and Subnet**

- Use Azure CLI to create a virtual network named WebVNet in WebServerGroup.
- Add a subnet named WebSubnet.

**• Create a Storage Account for Logs**

- Use Azure PowerShell to create a storage account named webserverlogs in WebServerGroup.
- Enable blob storage and set up a container named logs for storing application logs.

**• Deploy a Virtual Machine as a Web Server**

- Use Azure CLI to create a virtual machine named WebVM in WebServerGroup.
- Configure WebVM to use the WebVNet and WebSubnet.
- Open port 80 on the VM for web traffic.

**• Install and Configure Nginx on the VM**

- Use Azure CLI to execute a script on WebVM that installs and configures **Nginx** as a web server.

**• Enable Diagnostics and Store Logs in Storage Account**

- Use Azure PowerShell to enable diagnostics on WebVM, directing logs to webserverlogs storage account.

**• Verify the Web Server is Running**

- Retrieve the **public IP** of WebVM using Azure CLI.

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OverviewActivity logTagsDiagnose and solve problemsAccess Control (IAM)Data migrationEventsStorage browserStorage MoverPartner solutionsData storageContainersFile sharesQueuesTablesSecurity + networkingNetworkingFront Door and CDN

webserverlogs3782

- Favorites
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- Tables
  - DiagnosticsLogs
  - LinuxSyslogVer2v0
  - WADMetricsPT1MP10...
- View all

+ Add entity Refresh Delete Edit columns

Tables > WADMetricsPT1MP10DV2S20250207

Authentication method: Access key (Switch to Microsoft Entra user account)

Add filter Advanced filters

Showing the first 100 items

	PartitionKey	RowKey	Timestamp	Average	Count
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	4
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	1
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	2
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	1
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	2078.3407407407408	3
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	3
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.0	3
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.28518518518518515	3
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	2078.3407407407408	3
<input type="checkbox"/>	:002Fsubscriptions:002F...	2516632885799999999_...	2025-02-08T10:58:16.83...	0.28518518518518515	3

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Dashboard > Resource groups > devWebServerGroup > webserverlogs3782

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Data migration

Events

Storage browser

Storage Mover

Partner solutions

Data storage

Containers

File shares

Queues

Tables

Security + networking

Networking

+ Table Refresh Delete Give feedback

Authentication method: Access key (Switch to Microsoft Entra user account)

Search tables by prefix

Table	Url
<input type="checkbox"/> DiagnosticLogs	https://webserverlogs3782.table.core.windows.net/DiagnosticLogs
<input type="checkbox"/> LinuxSyslogVer2v0	https://webserverlogs3782.table.core.windows.net/LinuxSyslogVer2v0
<input type="checkbox"/> WADMetricsPT1MP10DV2S20250207	https://webserverlogs3782.table.core.windows.net/WADMetricsPT1MP10DV2S20250207

Search

- [+ Create](#)
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[🏷️ Assign tags](#)
[➡️ Move](#)
[🗑️ Delete](#)
[⬇️ Export template](#)

Resources	Recommendations (1)
-----------	---------------------

Filter for any field...

Type equals all X

Location equals all X

+  Add filter

Showing 1 to 7 of 7 records. ☐ Show hidden types ⓘ

No grouping

List view

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Dashboard > WebVM

WebVM | Activity log

Virtual machine

Search

Activity

Edit columns

Refresh

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Insights

Feedback

Pin current filters

Reset filters

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Tags

Diagnose and solve problems

Connect

Connect

Bastion

Networking

Network settings

Load balancing

Application security groups

Network manager

Settings

Disks

Extensions +

Looking for Log Analytics? In Log Analytics you can search for performance, diagnostics, health logs, and more. [Visit Log Analytics](#)

Search

Quick Insights

Management Group : None

Subscription : Azure subscription 1

Event severity : All

Timespan : Last 6 hours

Resource group : devWebServerGroup

Resource : WebVM

Add Filter

5 items.

Operation name	Status	Time	Time stamp	Subscription	Event initiated by
Create or Update Virtual Machine Extension	Succeeded	4 minutes a...	Sat Feb 08 2...	Azure subscription 1	StanislavKostenich@dmyt...
Create or Update Virtual Machine Extension	Started	6 minutes a...	Sat Feb 08 2...	Azure subscription 1	StanislavKostenich@dmyt...
Create or Update Virtual Machine Extension	Accepted	6 minutes a...	Sat Feb 08 2...	Azure subscription 1	StanislavKostenich@dmyt...
Create or Update Virtual Machine	Succeeded	7 minutes a...	Sat Feb 08 2...	Azure subscription 1	StanislavKostenich@dmyt...
Create or Update Virtual Machine	Succeeded	7 minutes a...	Sat Feb 08 2...	Azure subscription 1	StanislavKostenich@dmyt...

Switch to Bash

Restart

Manage files

New session

Editor

Web preview

Settings

Help

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Logs

Workbooks

Automation

Tasks

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Help

Resource health

Boot diagnostics

Serial console

Reset password

Overview

Metrics

Syslog

Sinks

Agent

Azure Diagnostics Agent Settings

Configure the settings for the diagnostics agent itself. [Learn more](#)

Storage account 

webserverlogs3782

Remove Azure Diagnostics agent

If diagnostic data isn't being collected or you're having trouble viewing it in the portal, reinstalling the agent might help. This removes the agent, but keeps all existing diagnostic data in your storage account. After the agent is removed, you can re-enable diagnostics for this virtual machine.

Remove

Apply

Discard changes

Give feedback

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devWebServerGroup VM running 172.173.200.210.0.0.460-45-BD-F1-0A-CC eastus

Opening Port 80 for Web Traffic...

Location	Name	ProvisioningState	ResourceGroup	ResourceGuid
eastus	WebVMNSG	Succeeded	devWebServerGroup	e11a186c-1d8a-437d-b788-64e80f55eeaf

Enabling system-assigned identity on the VM...

RequestId :  
IsSuccessStatusCode : True  
StatusCode : OK  
ReasonPhrase :

Getting public settings template for diagnostics...  
Generating SAS token for diagnostics...  
Installing LinuxDiagnostic extension...

RequestId :  
IsSuccessStatusCode : True  
StatusCode : OK  
ReasonPhrase :

Diagnostics successfully enabled on the VM.  
Retrieving Public IP...  
Web server running at: http://172.173.200.2  
Press Enter to delete all resources...  
Press Enter to delete all resources...:

diagnostics.jsonПоказать все



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BlobContainerClient

:

Azure.Storage.Blobs.BlobContainerClient

BlobContainerProperties

:

Azure.Storage.Blobs.Models.BlobContainerProperties

Context

:

Microsoft.WindowsAzure.Commands.Storage.Common.AzureStorageContext

Name

:

logs

Creating Table Storage...

CloudTable

:

DiagnosticLogs

TableClient

:

Azure.Data.Tables.TableClient

Uri

:

https://webserverlogs3782.table.core.windows.net/DiagnosticLogs

Context

:

Microsoft.WindowsAzure.Commands.Storage.Common.AzureStorageContext

Name

:

DiagnosticLogs

Creating Virtual Machine with Cloud-Init...

Consider upgrading security for your workloads using Azure Trusted Launch VMs. To know more about Trusted Launch, please visit [https://aka.ms/Trusted Launch](https://aka.ms/TrustedLaunch).

ResourceGroup	PowerState	PublicIpAddress	Fqdns	PrivateIpAddress	MacAddress	Location	Zones
devWebServerGroup	VM running	172.173.200.2		10.0.0.4	60-45-BD-F1-0A-CC	eastus	

Opening Port 80 for Web Traffic...

Location	Name	ProvisioningState	ResourceGroup	ResourceGuid
eastus	WebVMNSG	Succeeded	devWebServerGroup	e11a186c-1d8a-437d-b788-64e80f55eeaf

Enabling system-assigned identity on the VM...

RequestId

:

IsSuccessStatusCode

:

True

diagnostics.json

Показать все



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Help

```
PS /home/stanislav> ./scalableWebServer.ps1
Setting up variables...
Creating Resource Group...
Location      Name
-----
eastus        devWebServerGroup
Creating Virtual Network and Subnet...

Creating Storage Account...

StorageAccountName ResourceGroupName PrimaryLocation SkuName      Kind      AccessTier CreationTime      ProvisioningState EnableHttpsTrafficOnly
-----
webserverlogs3782  devWebServerGroup eastus          Standard_LRS StorageV2  Hot         2/8/2025 10:41:14 AM Succeeded         True
Retrieving Storage Account Key...
Creating Blob Container...

CloudBlobContainer : Microsoft.Azure.Storage.Blob.CloudBlobContainer
Permission          : Microsoft.Azure.Storage.Blob.BlobContainerPermissions
AccessPolicy        :
PublicAccess        : Off
LastModified        : 2/8/2025 10:41:43 AM +00:00
ContinuationToken   :
IsDeleted           :
VersionId           :
BlobContainerClient : Azure.Storage.Blobs.BlobContainerClient
BlobContainerProperties : Azure.Storage.Blobs.Models.BlobContainerProperties
```

diagnostics.json

Показать все

```

55 az vm open-port --port 80 --resource-group $resourceGroup --name $vmName --output table
56
57 echo "Enabling system-assigned identity on the VM..."
58 $vm = Get-AzVM -Name $vmName -ResourceGroupName $resourceGroup
59 Update-AzVM -ResourceGroupName $resourceGroup -VM $vm -IdentityType SystemAssigned
60
61 echo "Getting public settings template for diagnostics..."
62 $publicSettings = (Invoke-WebRequest -Uri "https://raw.githubusercontent.com/Azure/azure-linux-extensions/master/DiagnosticSettings/StorageAccountSasToken.json")
63 $publicSettings = $publicSettings.Replace('__DIAGNOSTIC_STORAGE_ACCOUNT__', $storageAccountName)
64 $publicSettings = $publicSettings.Replace('__VM_RESOURCE_ID__', $vm.Id)
65
66 echo "Generating SAS token for diagnostics..."
67 $sasToken = New-AzStorageAccountSASToken -Service Blob,Table -ResourceType Service,Container,Object -Permission "racw" -StorageAccountName $storageAccountName -ExpiryTime (Get-Date).AddHours(24)
68
69 # Build the protected settings (storage account SAS token)
70 $protectedSettings = '{"storageAccountName': '$storageAccountName', 'storageAccountSasToken': '$sasToken'}'
71
72 echo "Installing LinuxDiagnostic extension..."
73 Set-AzVMExtension -ResourceGroupName $resourceGroup -VMName $vmName -Location $vm.Location -ExtensionType LinuxDiagnostic -Publisher Microsoft.Azure.Diagnostics -ProtectedSettings $protectedSettings
74
75 echo "Diagnostics successfully enabled on the VM."
76
77 echo "Retrieving Public IP..."
78 $publicIp = az vm list-ip-addresses --resource-group $resourceGroup --name $vmName --query "[0].virtualMachine.network[0].publicIpAddress"
79 echo "Web server running at: http://$publicIp"
80
81 echo "Press Enter to delete all resources..."
82 Read-Host "Press Enter to delete all resources..."
83

```

.\* Aa " " ☰ ☐ StorageAccount

Find

Find Prev

Find All

☐ 19 matches

Tab Size: 4

Bourne Again Shell (bash)