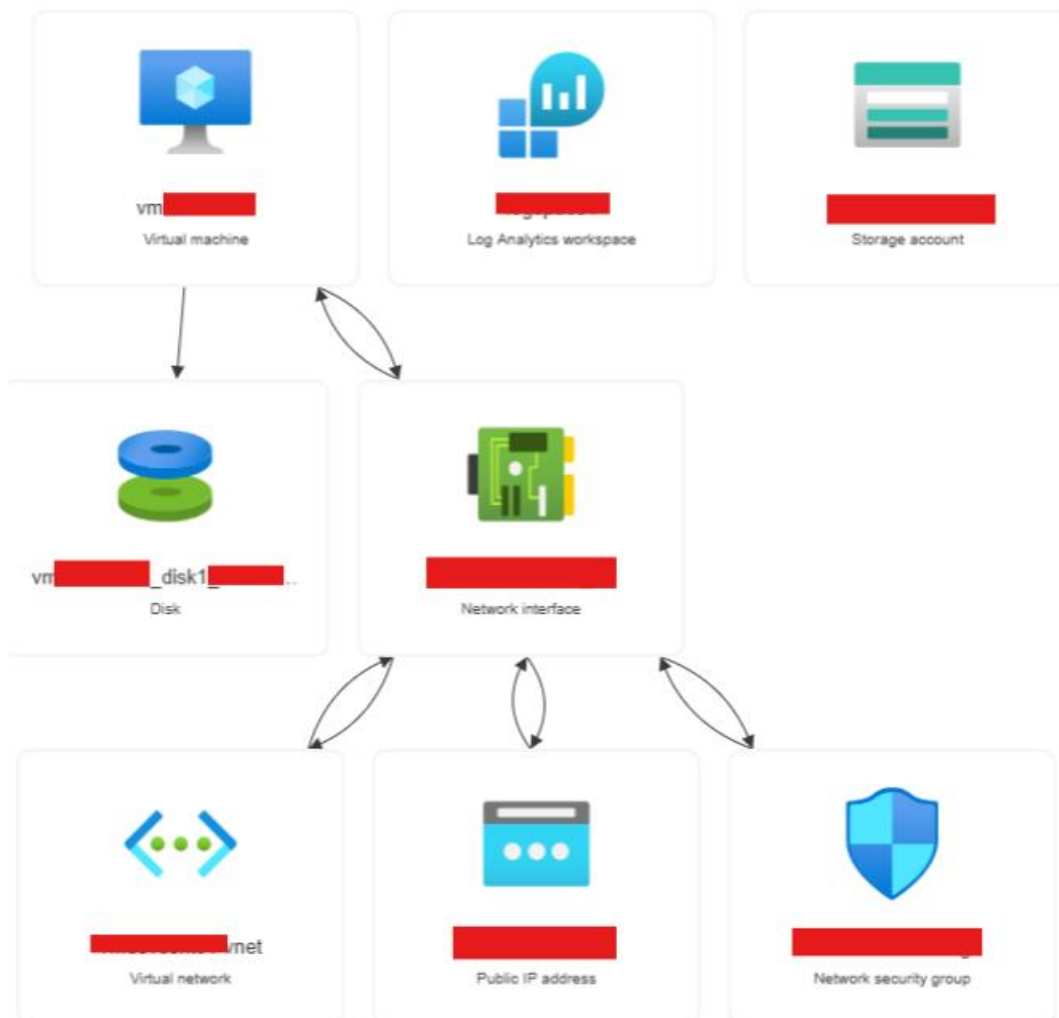# How to check Disk utilization (Logical Used %) for a Disk attached to an Azure Virtual Machine using Log Analytics

❖ Part 1: Understanding the Architecture

- Navigate to 'Resource group' and click 'Resource Visualizer' to retrieve the below diagram.

- Navigate to 'virtual network' and click on 'topology' to retrieve and understand the network topology configured.

❖ Part 2: Creating a Azure Virtual Machine (type Windows) in Azure Portal and retrieving details through Microsoft Visual Studio Code

• Step 1: Create a VM

Pre-req
- There should be an Azure account and active subscription

Implementation Steps

- Select 'Create a new VM'
- Create a new resource group or select existing one.
- Select image available in that region (here, type Windows and a suitable image was selected)
- Allow inbound port rules
- Select OS Disk.
- Select existing virtual network or create a new virtual network.
- Enable boot diagnostics and OS guest diagnostics

Kindly refer: Quickstart - Create a Windows VM in the Azure portal - Azure Virtual Machines | Microsoft Learn

• Step 2: Retrieve details of VM using PowerShell in Visual Studio Code on a Windows machine

Pre-req

- Install Visual Studio Code
- Install the PowerShell extension
- Update the PowerShell Module (if required)

Implementation Steps

- Login to Visual Studio Code
- Check PowerShell version

```
PS C:\Users\rohit> $PSVersionTable.PSVersion

Major   Minor   Patch   PreReleaseLabel BuildLabel
-----   -----   -----   --------------- ----------
7       4       2
```

- Install Az Module
  Install-Module -Name Az -AllowClobber -Repository PSGallery -Force

- Update Az Module
  Install-Module -Name Az -AllowClobber -Repository PSGallery -Force

- Check the installed version of Az module

```
PS C:\Users\rohit> Get-InstalledModule -Name Az -AllVersions | Select-Object -Property Name,Version

Name Version
---- -------
Az   12.0.0
```

- Connect to Azure Account

```
PS C:\Users\rohit> Connect-AzAccount
Please select the account you want to login with.
```

Please select the account to authenticate and login to the Azure account

- Check the details of Azure subscription
  Get-AzSubscription

- Check if the VM is created

```
PS C:\Users\rohit> Get-AzVm -ResourceGroupName RG_DEV_CENT01

ResourceGroupName        Name        Location      VmSize         OsType        NIC ProvisioningState Zone
-----------------        ----        --------      ------         ------        --- ---------------- ----
RG_DEV_CENT01    vmdevcent01 centralindia Standard_DS1_v2 Windows                   Succeeded     1
```

- Get details of Azure VM

```
PS C:\Users\rohit> Get-AzVm -ResourceGroupName RG_DEV_CENT01 vmdevcent01


ResourceGroupName   :
Id                  : /subscriptions/                                    esourceGroups/         roviders/Microsoft.Compute/virtualMachines/vmdevcent01
VmId                :
Name                : vmdevcent01
Type                : Microsoft.Compute/virtualMachines
Location            : centralindia
Tags                : {}
DiagnosticsProfile  : {BootDiagnostics}
Extensions          : {AzureMonitorWindowsAgent, AzurePerformanceDiagnostics, HealthExtension, Microsoft.Insights.VMDiagnosticsSettings}
HardwareProfile     : {VmSize}
NetworkProfile      : {NetworkInterfaces}
SecurityProfile     : {UefiSettings, SecurityType}
OSProfile           : {ComputerName, AdminUsername, WindowsConfiguration, Secrets, AllowExtensionOperations, RequireGuestProvisionSignal}
ProvisioningState   : Succeeded
StorageProfile      : {ImageReference, OsDisk, DataDisks, DiskControllerType}
Identity            : {PrincipalId, TenantId, Type}
Zones               : {1}
AdditionalCapabilities : {HibernationEnabled}
TimeCreated         : 17-06-2024 12:05:52
```

• <u>Step 3: Setup Log Analytics workspace in Azure Portal</u>

<u>Pre-req</u>
- There should be an Azure account and active subscription

<u>Implementation Steps</u>

Kindly refer: [Create Log Analytics workspaces - Azure Monitor | Microsoft Learn](#)

• <u>Step 4: Check the space utilization of a disk attached to a Azure VM through Log Analytics Workspace</u>

<u>Pre-req</u>
- There should be an Azure account, active subscription, Azure Virtual Machine in running state, and a Log Analytics Workspace configured
- Diagnostic settings on the Azure VM in enabled and configured state
- The Azure Monitor Agent should be installed on VM
- Active Data Collection rule configured

<u>Implementation Steps</u>

- Select the log analytics workspace, navigate to logs, select resource type from the drop down and type virtual machine in the search bar

Queries

Always show Queries ⓘ | Community Git repo ↗ | Docu

Query packs: Select query packs

- Click on run and view the Kusto Query Log (KQL) commands
- Clicking 3 dotted lines on query editor also allows to change the scope of queries.
- (optional) choose appropriate time range and limit
- Modify the KQL to below


```
Perf
| where ObjectName == "LogicalDisk" or ObjectName == "Logical Disk"
| where CounterName == "% Free Space"
| project TimeGenerated, Used_Space_Percent=100 - CounterValue, Computer, _ResourceId
```

- Check the historical disk usage % of the Azure VM disk

- Retrieve the details using required graphs by formatting the chart types. I used scatter chart to understand the trend line.

Resources Used

- Reference Links:
  Quickstart - Create a Windows VM in the Azure portal - Azure Virtual Machines | Microsoft Learn

  Create Log Analytics workspaces - Azure Monitor | Microsoft Learn

  Analyze usage in a Log Analytics workspace in Azure Monitor - Azure Monitor | Microsoft Learn

  https://learn.microsoft.com/en-us/powershell/azure/install-azps-windows?view=azps-12.0.0&tabs=powershell

  PowerShell editing with Visual Studio Code

  azure - free disk space overview using InsightsMetrics - Stack Overflow

- Scott Duffy's Udemy course for AZ 104