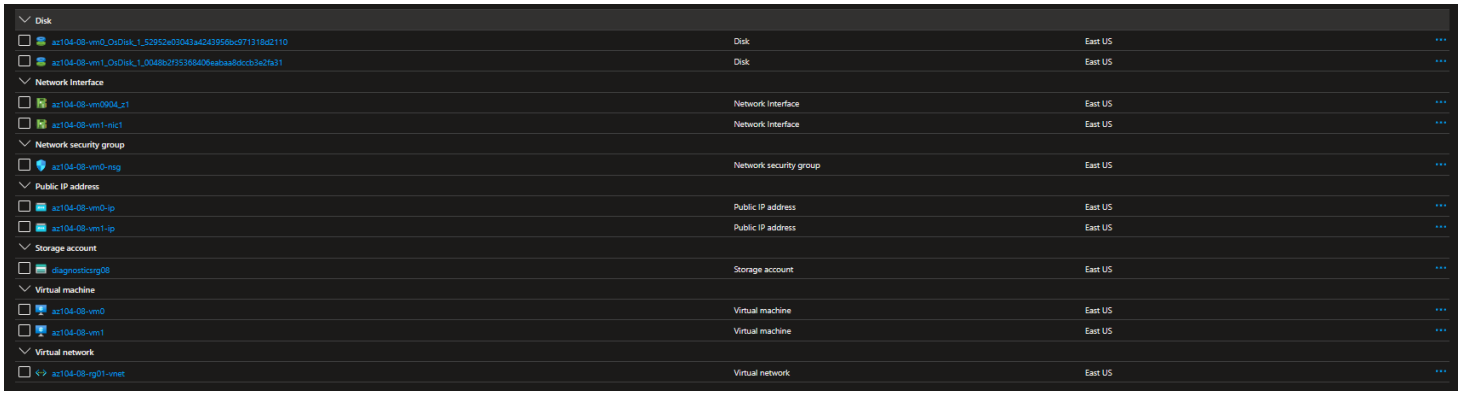
Lab 08 - Manage Virtual Machine

You were tasked with identifying different options for deploying and configuring Azure virtual machines. First, you need to determine different compute and storage resiliency and scalability options you can implement when using Azure virtual machines. Next, you need to investigate compute and storage resiliency and scalability options that are available when using Azure virtual machine scale sets. You also want to explore the ability to automatically configure virtual machines and virtual machine scale sets by using the Azure Virtual Machine Custom Script extension.

1. Deployed zone-resilient Azure virtual machines by using the Azure portal and an Azure Resource Manager template

Using the portal and templating we get our VMs in different zones



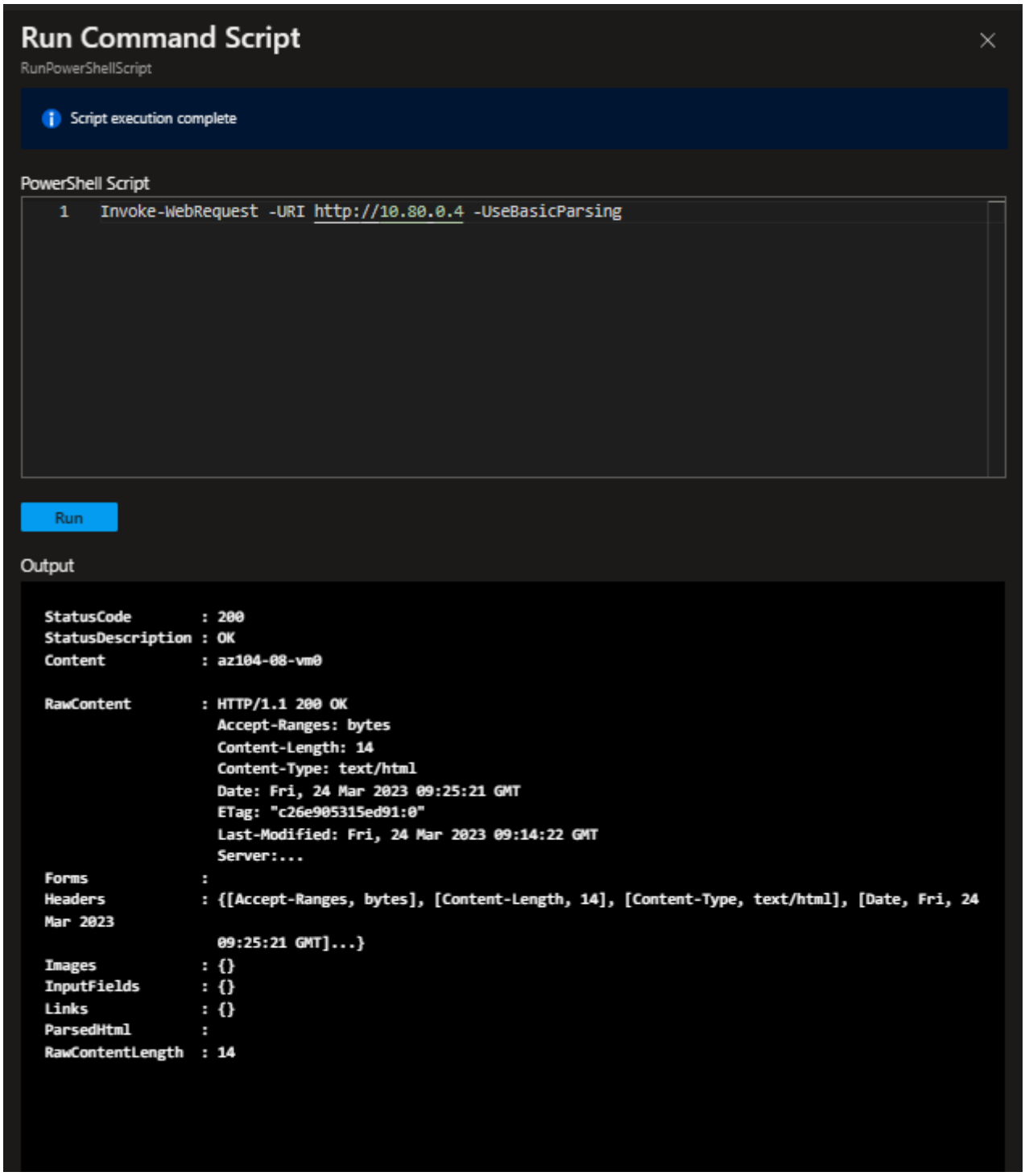
Complete provisioning

ToDo:

- What is zone resilient VM ?
- Zoning

2. Configured Azure virtual machines by using virtual machine extensions

Using cloud storage to save and run scripts and also using templates to update VMs



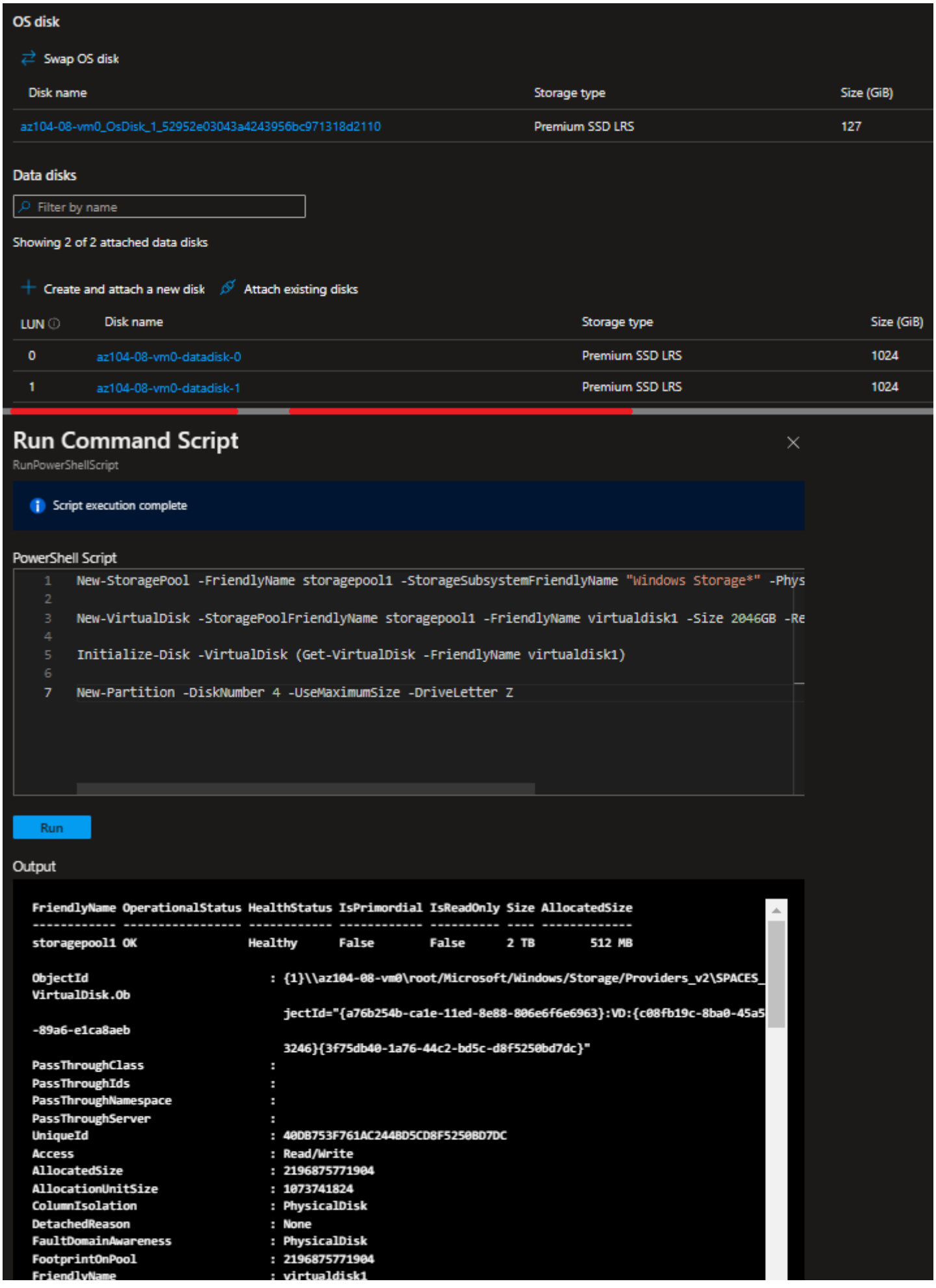
Successfull delpoyment of the script

ToDO:

- Use cases for storage/contaiers
- What is the difference between using pwsh run script and using extensions
- Using templates to update a VM

3. Scaled compute and storage for Azure virtual machines

Using Azure portal to add disks and merging theme via pwsh command


OS disk
Swap OS disk
Disk name
Storage type
Size (GiB)
az104-08-vm0_OsDisk_1_52952e03043a4243956bc971318d2110
Premium SSD LRS
127
Data disks
Filter by name
Showing 2 of 2 attached data disks
Create and attach a new disk
Attach existing disks
LUN
Disk name
Storage type
Size (GiB)
0
az104-08-vm0-datadisk-0
Premium SSD LRS
1024
1
az104-08-vm0-datadisk-1
Premium SSD LRS
1024
Run Command Script
RunPowerShellScript
Script execution complete
PowerShell Script
1 New-StoragePool -FriendlyName storagepool1 -StorageSubsystemFriendlyName "Windows Storage*" -Phys
2
3 New-VirtualDisk -StoragePoolFriendlyName storagepool1 -FriendlyName virtualdisk1 -Size 2046GB -Re
4
5 Initialize-Disk -VirtualDisk (Get-VirtualDisk -FriendlyName virtualdisk1)
6
7 New-Partition -DiskNumber 4 -UseMaximumSize -DriveLetter Z
Run
Output
FriendlyName OperationalStatus HealthStatus IsPrimordial IsReadOnly Size AllocatedSize
storagepool1 OK Healthy False False 2 TB 512 MB
ObjectId : {1}\\az104-08-vm0\root/Microsoft/Windows/Storage/Providers_v2\SPACES_
VirtualDisk.Ob
jectId="{a76b254b-ca1e-11ed-8e88-806e6f6e6963}:VD:{c08fb19c-8ba0-45a5
-89a6-e1ca8aeb
3246}{3f75db40-1a76-44c2-bd5c-d8f5250bd7dc}"
PassThroughClass :
PassThroughIds :
PassThroughNamespace :
PassThroughServer :
UniqueId : 40DB753F761AC2448D5CD8F5250BD7DC
Access : Read/Write
AllocatedSize : 2196875771904
AllocationUnitSize : 1073741824
ColumnIsolation : PhysicalDisk
DetachedReason : None
FaultDomainAwareness : PhysicalDisk
FootprintOnPool : 2196875771904
FriendlyName : virtualdisk1

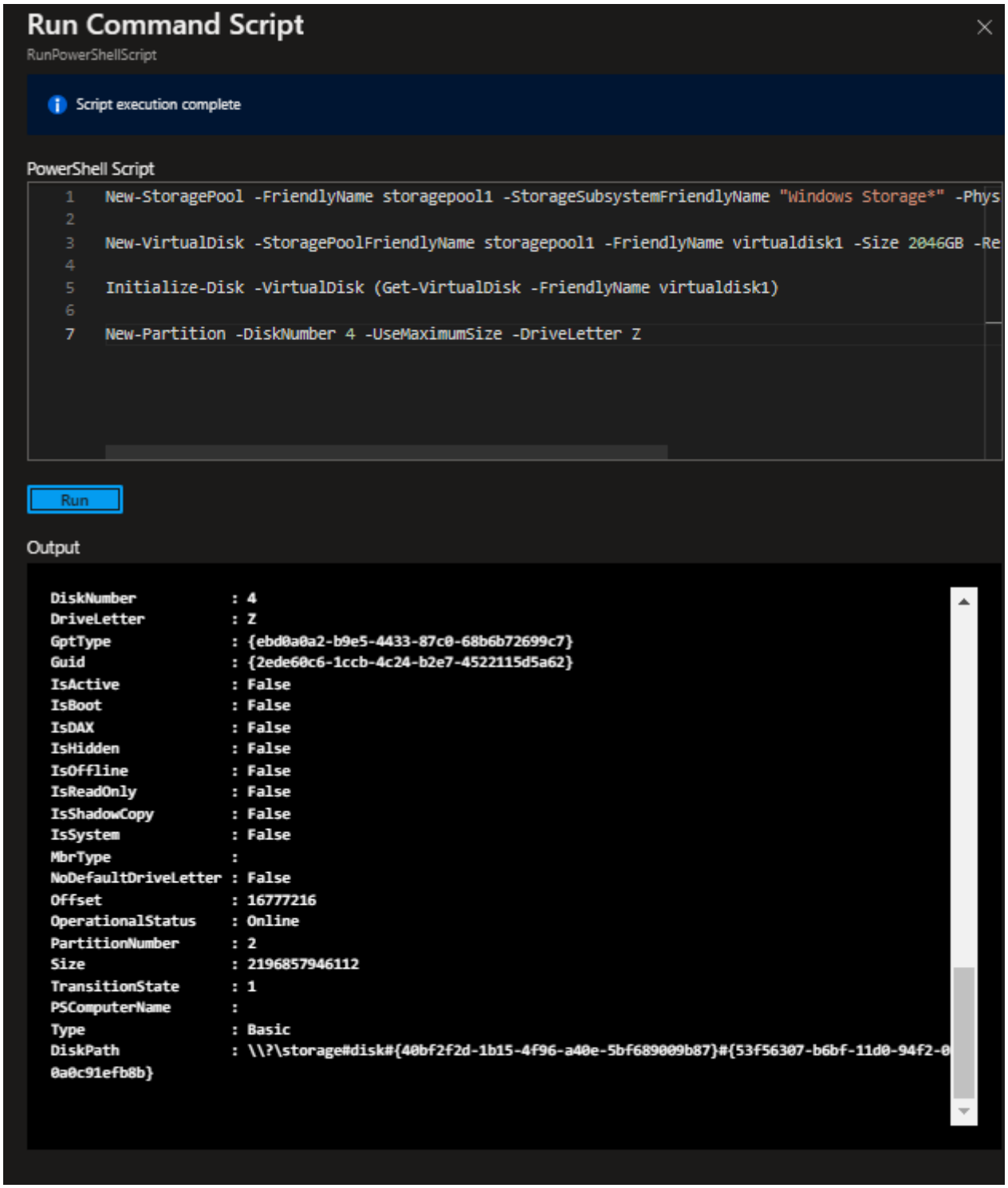
Setting up vm0

Doing the same to vm1, but using the export template method.

```
"dataDisks": [
   {
     "lun": 0,
     "name": "az104-08-vm1-datadisk0",
     "diskSizeGB": "1024",
     "caching": "ReadOnly",
     "createOption": "Empty"
   },
   {
     "lun": 1,
     "name": "az104-08-vm1-datadisk1",
     "diskSizeGB": "1024",
     "caching": "ReadOnly",
     "createOption": "Empty"
   }
 ]
```

snippet from the template

And we do the same with powershell for vm1



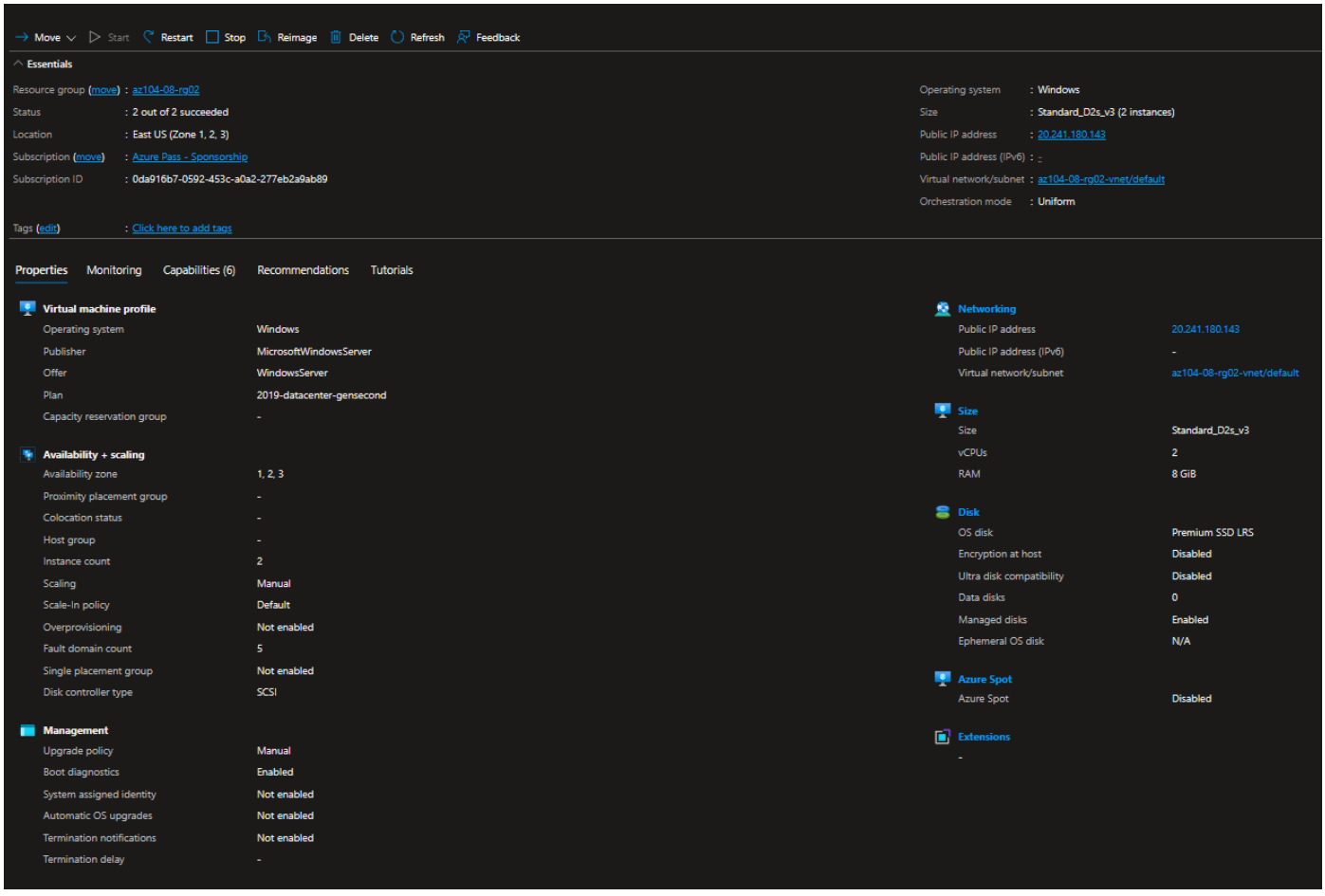
4. Deployed zone-reslient Azure virtual machine scale sets by using the Azure portal

```
Register-AzResourceProvider -ProviderNamespace Microsoft.Insights

ProviderNamespace : microsoft.insights
RegistrationState : Registered
ResourceTypes     : {components, components/query, components/metadata, components/metrics…}
Locations         : {East US, South Central US, North Europe, West Europe…}


Register-AzResourceProvider -ProviderNamespace Microsoft.AlertsManagement

ProviderNamespace : Microsoft.AlertsManagement
RegistrationState : Registered
ResourceTypes     : {alerts, alertsSummary, smartGroups, smartDetectorAlertRules…}
Locations         : {global, North Central US, East US, East US 2…}
```

ToDo:

- what is ms.insights
- what is ms.alertsManagment

5. Configured Azure virtual machine scale sets by using virtual machine extensions

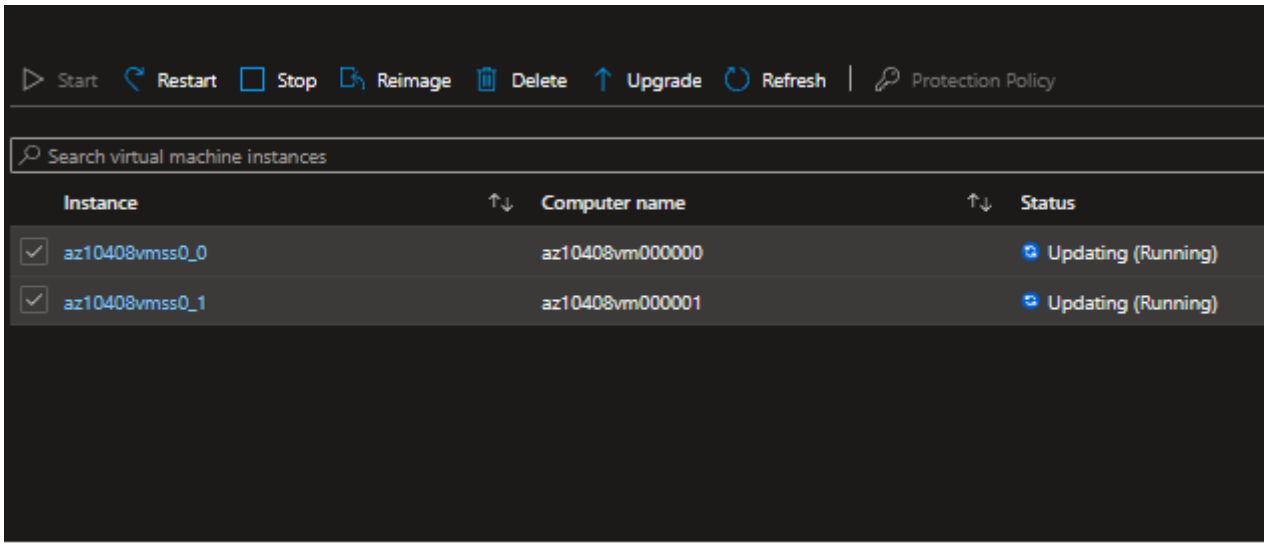


Getting the machine up and running

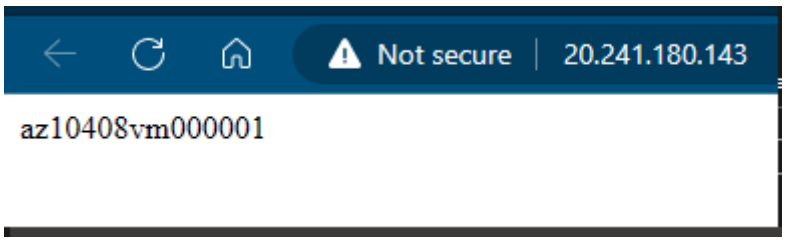
ToDo:

- research NIC security groups inboud/outbound rules

6. Configured Azure virtual machine scale sets by using virtual machine extensions



upgrading the vm instances

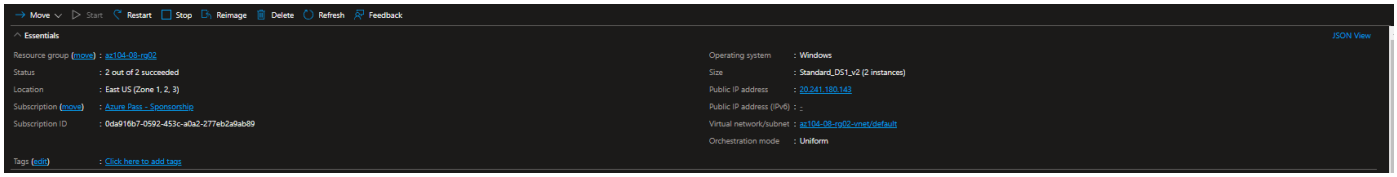


Name of one of the instances

ToDo:

- research scale instances

7. Scaled compute and storage for Azure virtual machine scale sets



changing size

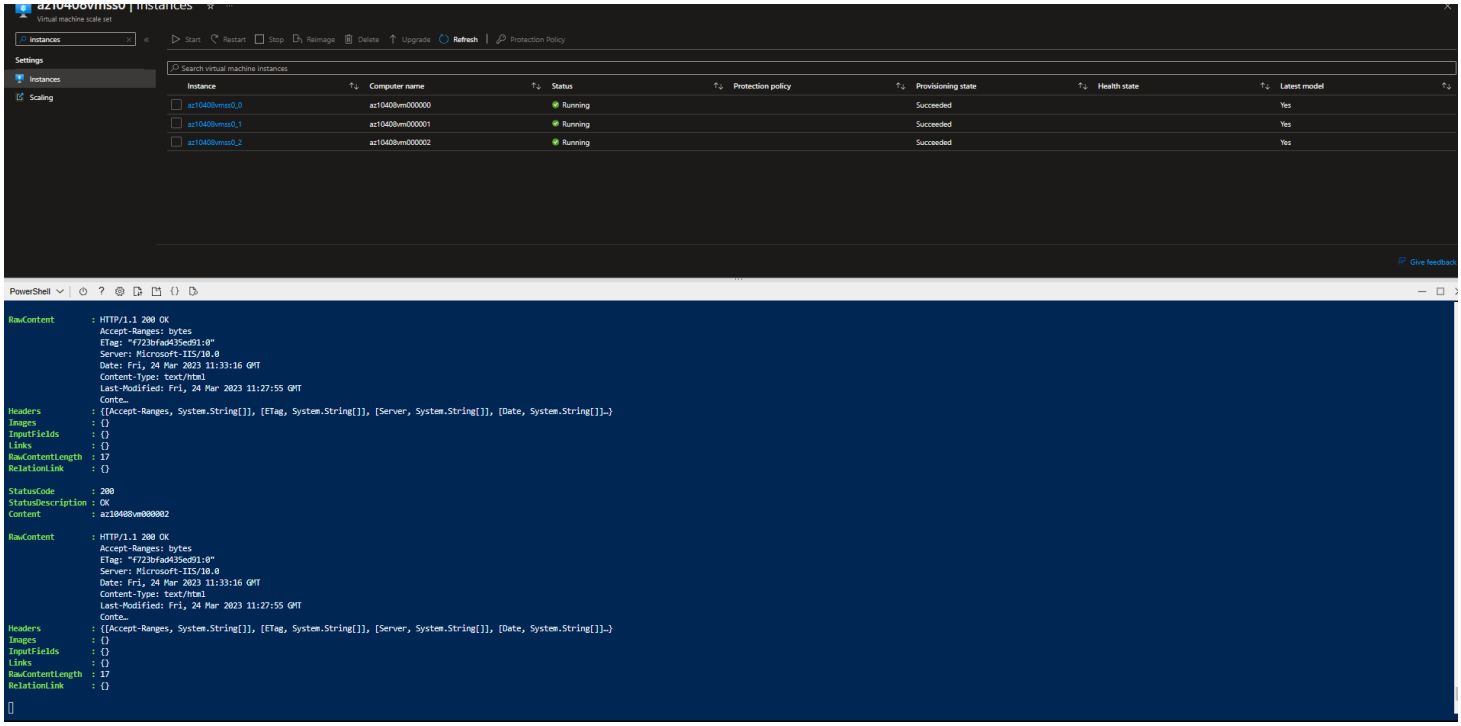
Instance	Zone
az10408vmss0_0	1
az10408vmss0_1	2

For some reason powershell doesn't find rg02, but we can get the ip manually

```
PS /home/dark> $rgName = 'az104-08-rg02'
PS /home/dark> $lbpipName = 'az10408vmss0-ip'
PS /home/dark> $pip = (Get-AzPublicIpAddress -ResourceGroupName $rgName -Name $lbpipName).IpAddress
Get-AzPublicIpAddress: The Resource 'Microsoft.Network/publicIPAddresses/az10408vmss0-ip' under resource group 'az104-08-rg02' was not found. For more details please go to https://aka.ms/ARMResourceNotFoundFix
StatusCode: 404
ReasonPhrase: Not Found
ErrorCode: ResourceNotFound
ErrorMessage: The Resource 'Microsoft.Network/publicIPAddresses/az10408vmss0-ip' under resource group 'az104-08-rg02' was not found. For more details please go to https://aka.ms/ARMResourceNotFoundFix
OperationID : a426f169-5d0b-4f08-a87a-95f821b8dddf
```

Powershell issues

Doing a http request test to see the scaling in action



Successfully scaling to 3 VMs

Runing a script to partition the newly added disks

```
./az104-08-configure_VMSS_disks.ps1
```

ToDo:

- How to setup scaling