DVS Technologies

Dvs Technologies Azure adminstration

Compiled and Scrutinized by
Mr. Shaan Shaik
(Senior DevOps Lead)

Words To The Students

Though we have taken utmost efforts to present you this book error free, but still it may contain some errors or mistakes. Students are encouraged to bring, if there are any mistakes or errors in this document to our notice. So that it may be rectified in the next edition of this document.

"Suppressing your doubts is Hindering your growth".

We urge you to work hard and make use of the facilities we are providing to you, because there is no substitute for hard work. We wish you all the best for your future.

"The grass isn't greener on the other side; the grass is greener where you water it."

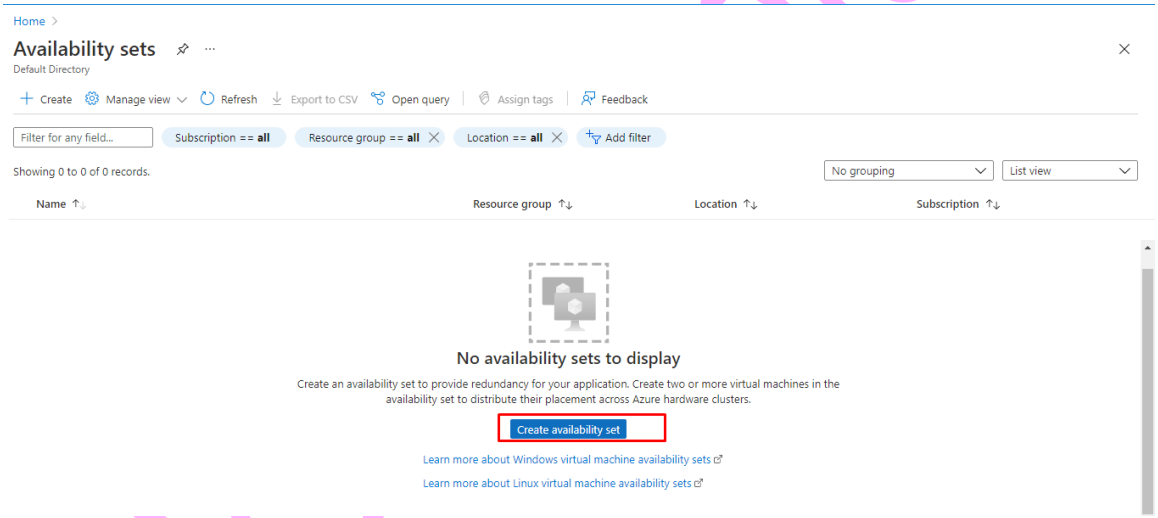
You and your suggestions are valuable to us; Help us to serve you better. In case of any suggestions, grievance, or complaints, please feel free to write us your suggestions, grievance and feedback on the following

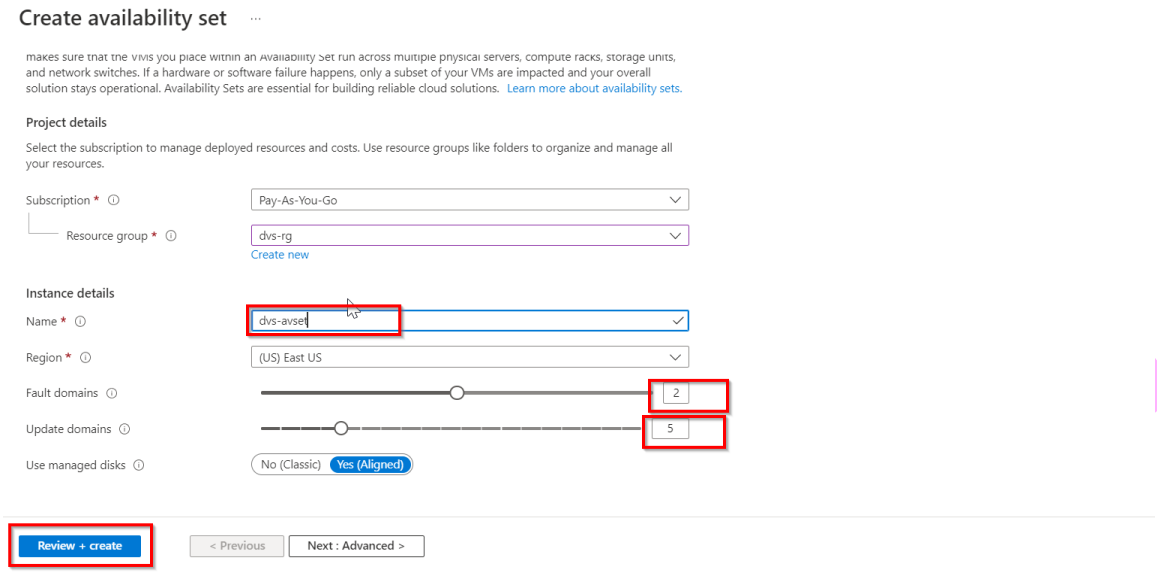
Dvs.training@gmail.com

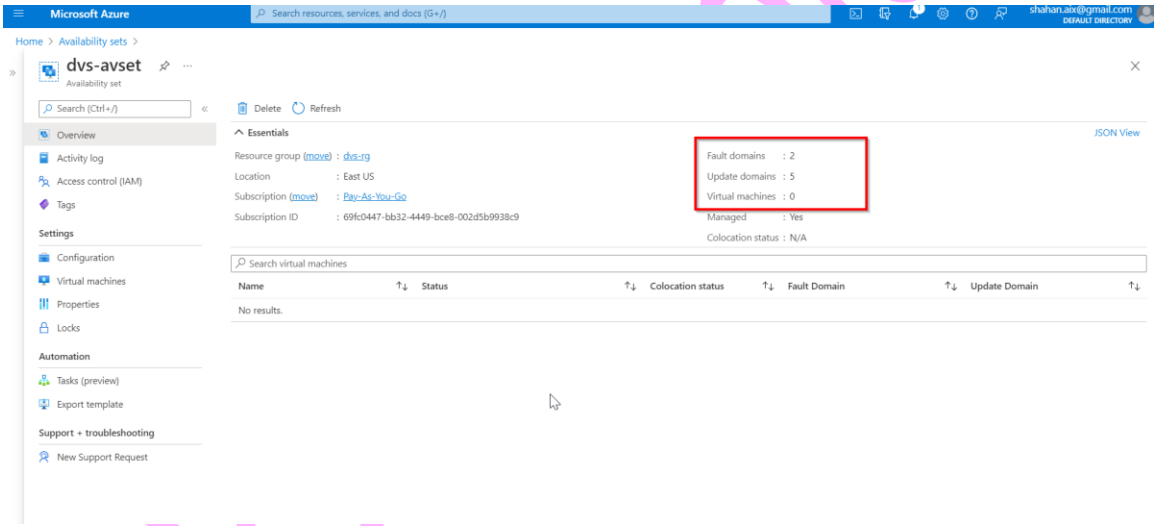
1 Intro for Infra availability

Explain in detail about
Server
Rack
Infra building
Datacenter
Availability zones
Regions
Geography

2 Availability Sets

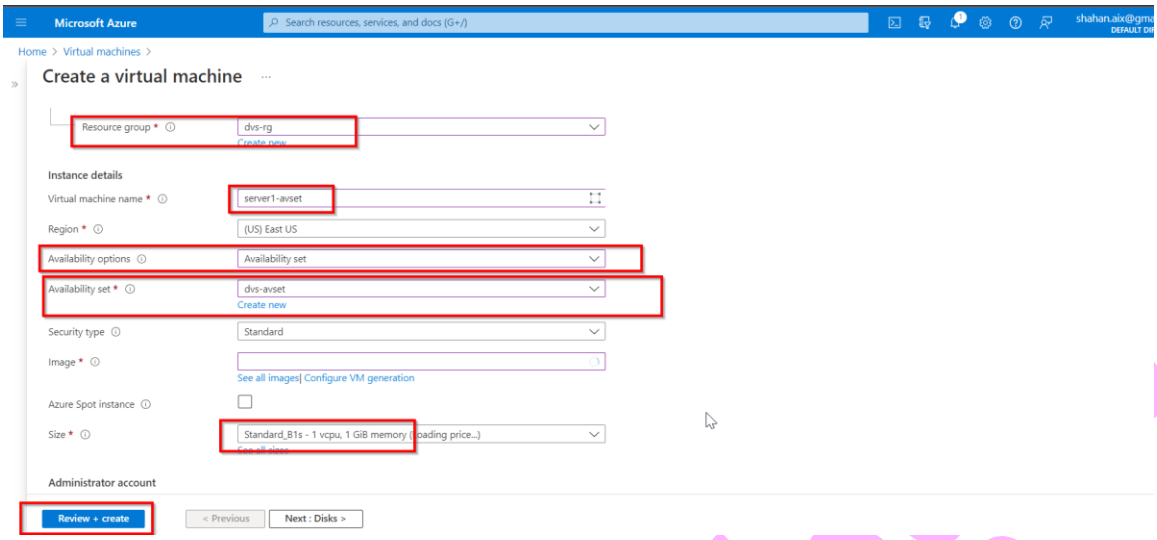






Now let's create three servers and check the availability set allocation along with fault & update domains.

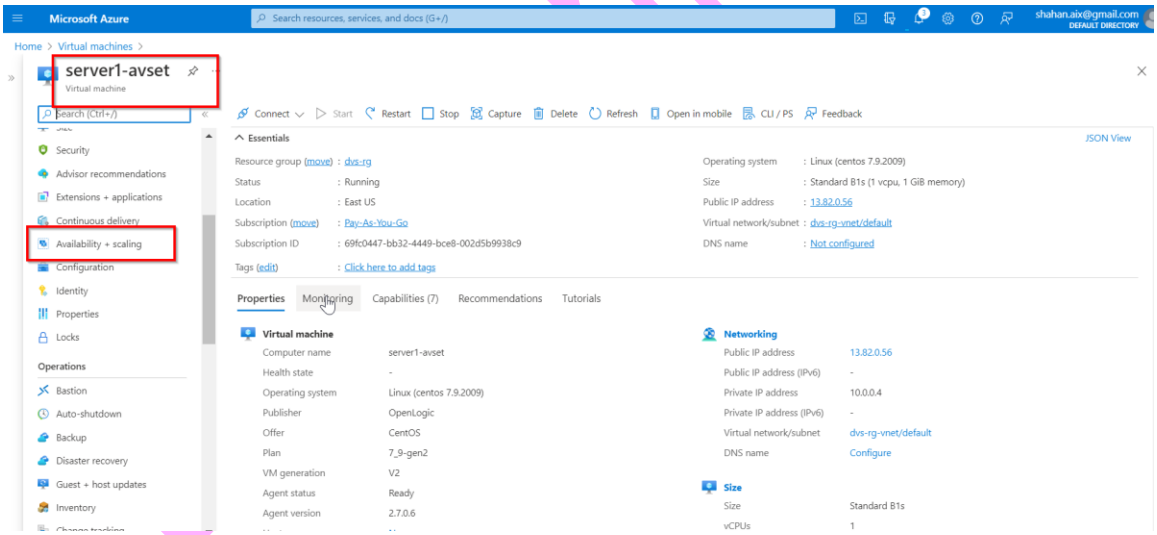
Note: Once VM got created you cannot assign it to availability set

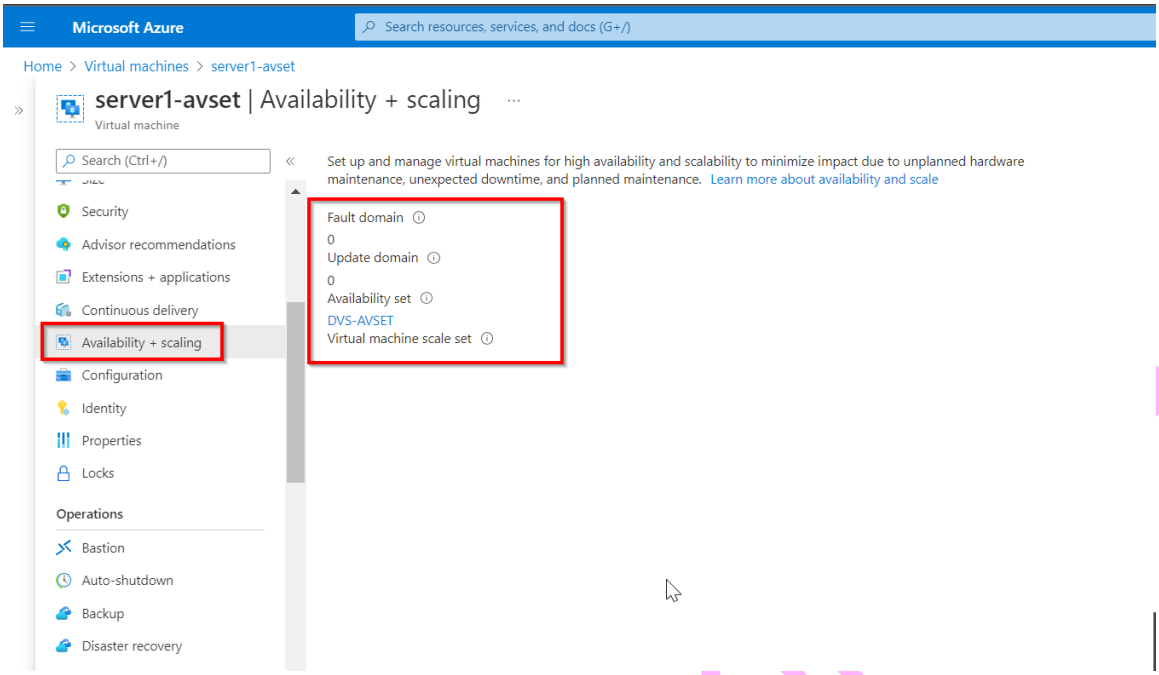


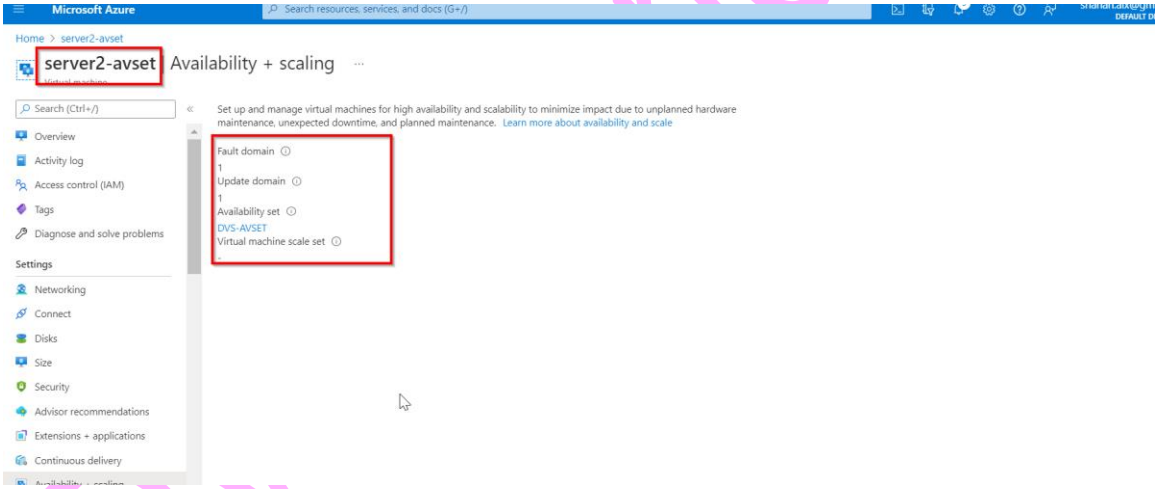
Please create two more servers like above

Checking for the availability set allocations:

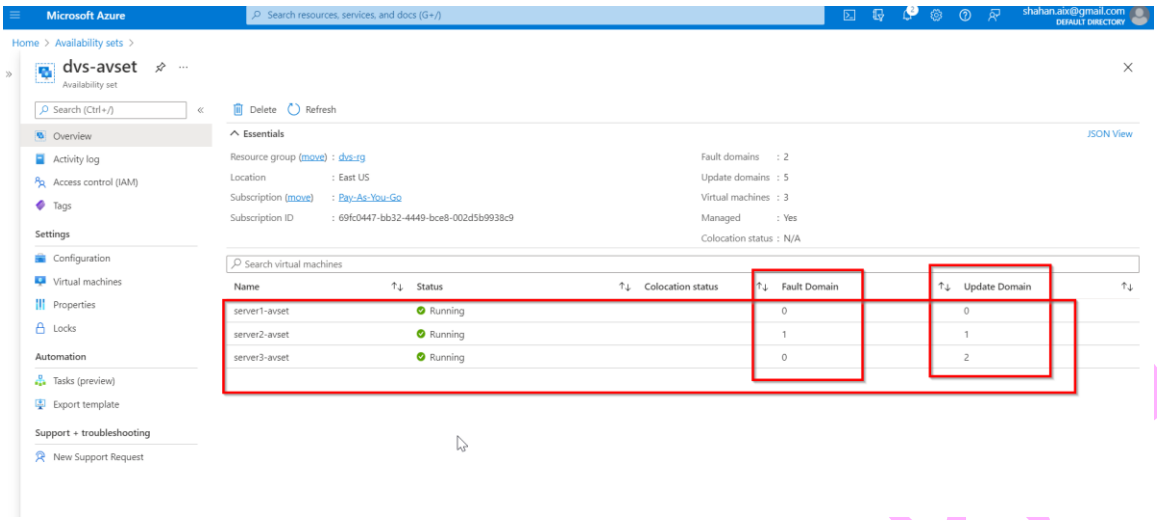
From server side:




Microsoft Azure
Search resources, services, and docs (G+/)
Home > Virtual machines > server1-avset
server1-avset | Availability + scaling
Virtual machine
Search (Ctrl+/)
Security
Advisor recommendations
Extensions + applications
Continuous delivery
Availability + scaling
Configuration
Identity
Properties
Locks
Operations
Bastion
Auto-shutdown
Backup
Disaster recovery
Set up and manage virtual machines for high availability and scalability to minimize impact due to unplanned hardware maintenance, unexpected downtime, and planned maintenance. Learn more about availability and scale
Fault domain
0
Update domain
0
Availability set
DVS-AVSET
Virtual machine scale set

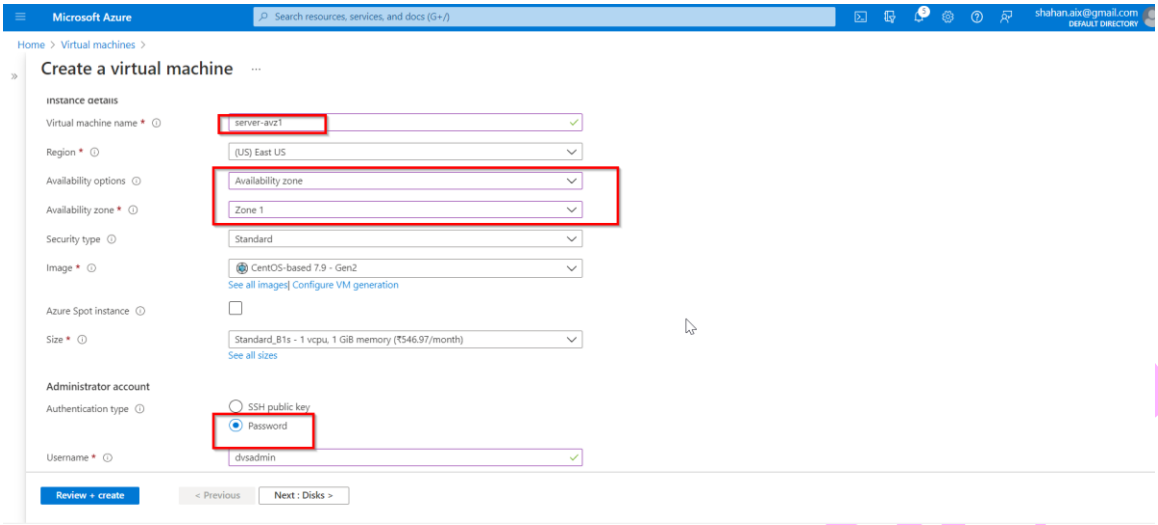

Microsoft Azure
Search resources, services, and docs (G+/)
Home > server2-avset
server2-avset | Availability + scaling
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Networking
Connect
Disks
Size
Security
Advisor recommendations
Extensions + applications
Continuous delivery
Set up and manage virtual machines for high availability and scalability to minimize impact due to unplanned hardware maintenance, unexpected downtime, and planned maintenance. Learn more about availability and scale
Fault domain
1
Update domain
1
Availability set
DVS-AVSET
Virtual machine scale set

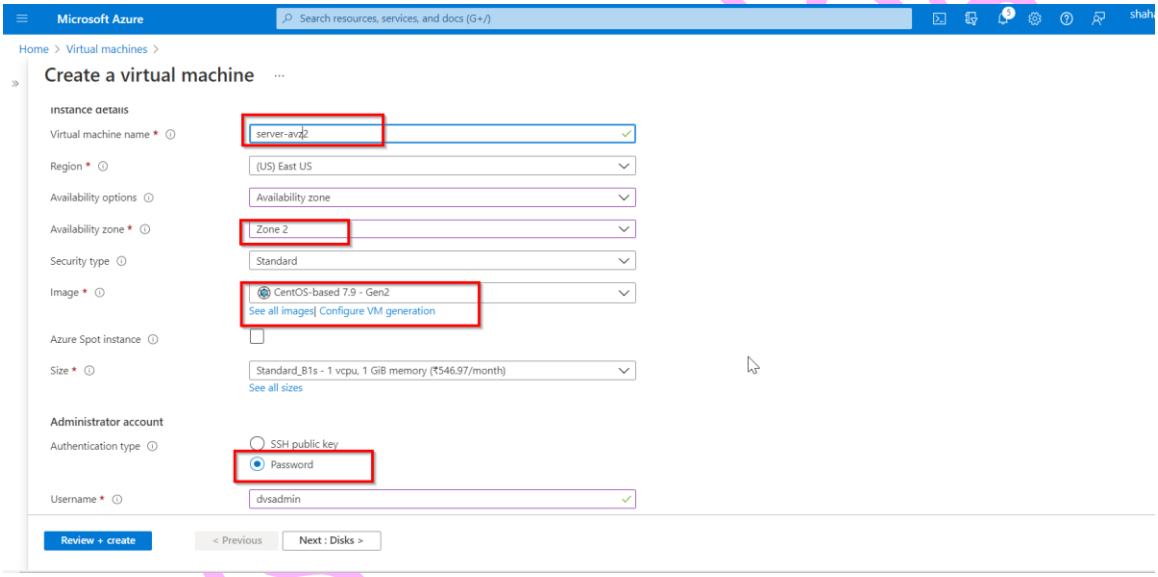
From AVSET:

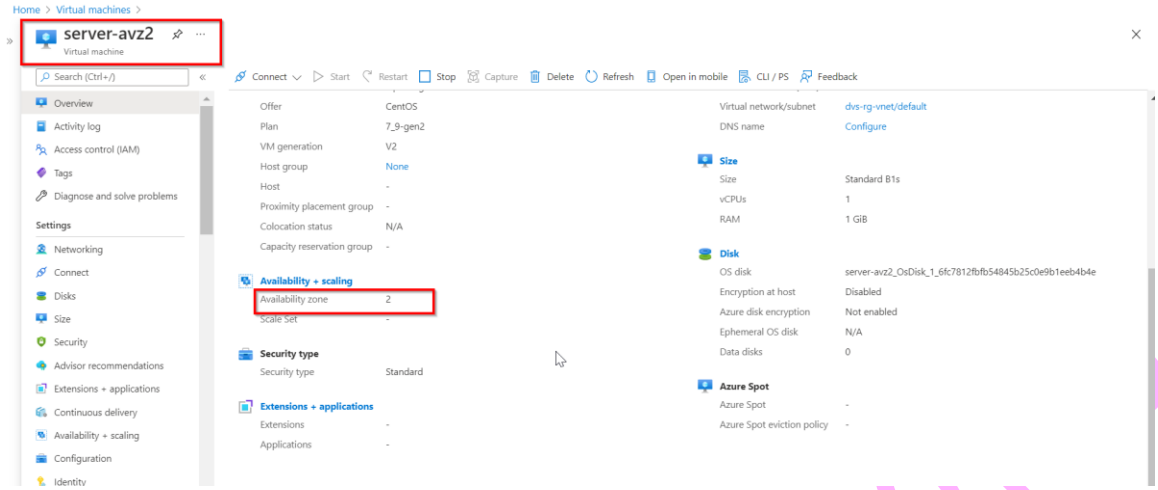


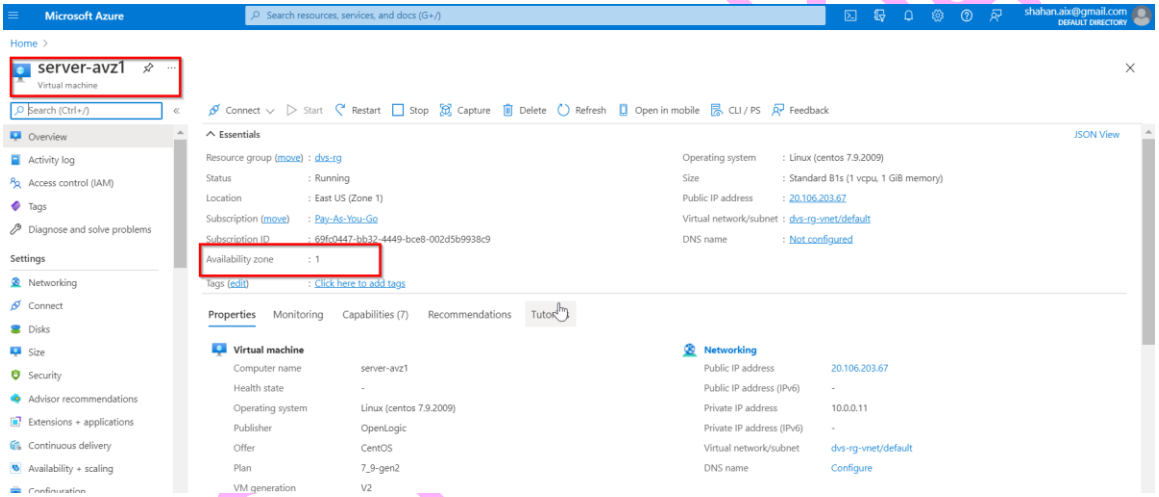
3 Availability zones

Create two servers with different availability zones when we go with AVZ then we no need to opt for availability sets.


Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home > Virtual machines >
Create a virtual machine
Instance details
Virtual machine name * server-avz1
Region * (US) East US
Availability options Availability zone
Availability zone * Zone 1
Security type Standard
Image * CentOS-based 7.9 - Gen2
See all images| Configure VM generation
Azure Spot instance
Size * Standard_B1s - 1 vcpu, 1 GiB memory (₹546.97/month)
See all sizes
Administrator account
Authentication type SSH public key
Password
Username * dvsadmin
Review + create
< Previous
Next : Disks >


Microsoft Azure
Search resources, services, and docs (G+/)
Home > Virtual machines >
Create a virtual machine
Instance details
Virtual machine name * server-avz2
Region * (US) East US
Availability options Availability zone
Availability zone * Zone 2
Security type Standard
Image * CentOS-based 7.9 - Gen2
See all images| Configure VM generation
Azure Spot instance
Size * Standard_B1s - 1 vcpu, 1 GiB memory (₹546.97/month)
See all sizes
Administrator account
Authentication type SSH public key
Password
Username * dvsadmin
Review + create
< Previous
Next : Disks >

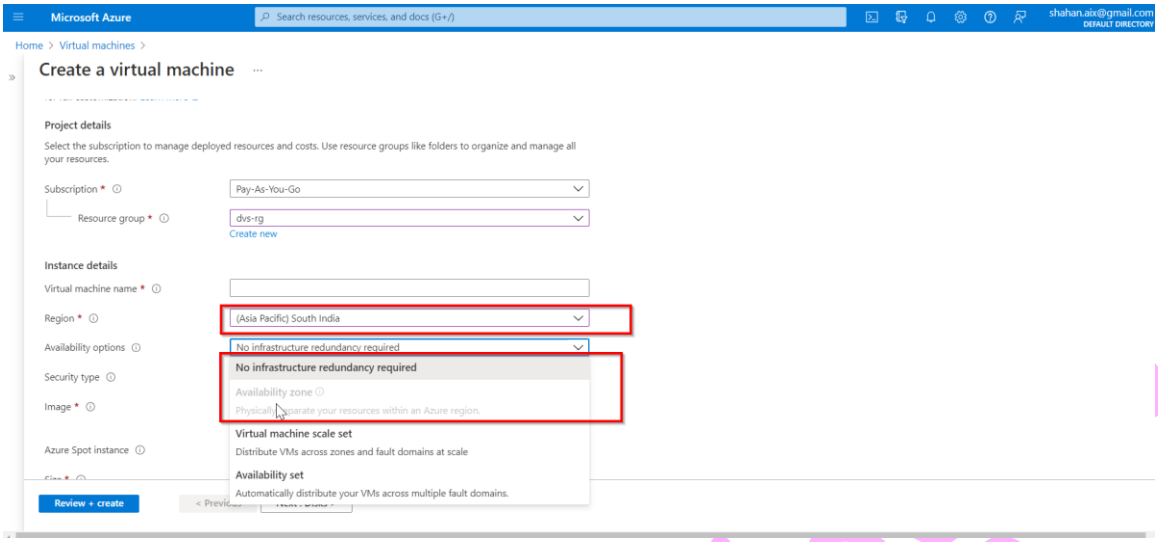




From the above we see that we have two servers running two diff availability zones.

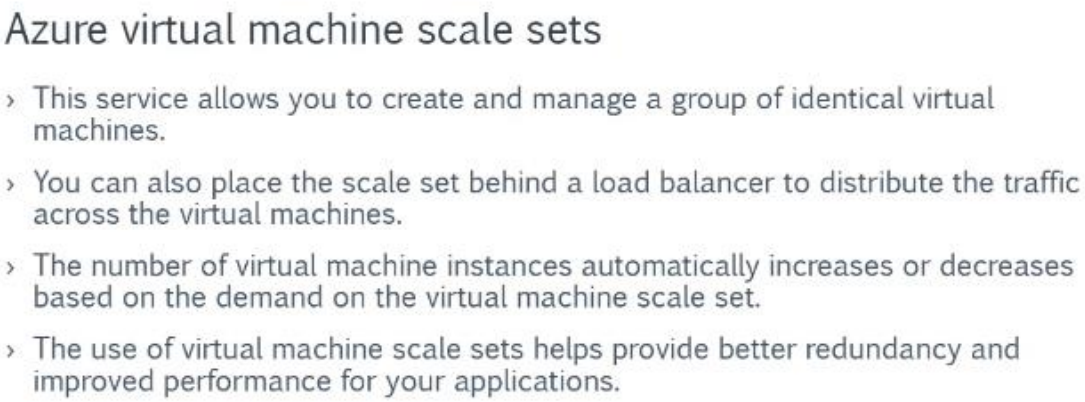
We do have some regions where we don't have availability zones in such cases azure provides 99.99% of server availability

For example:



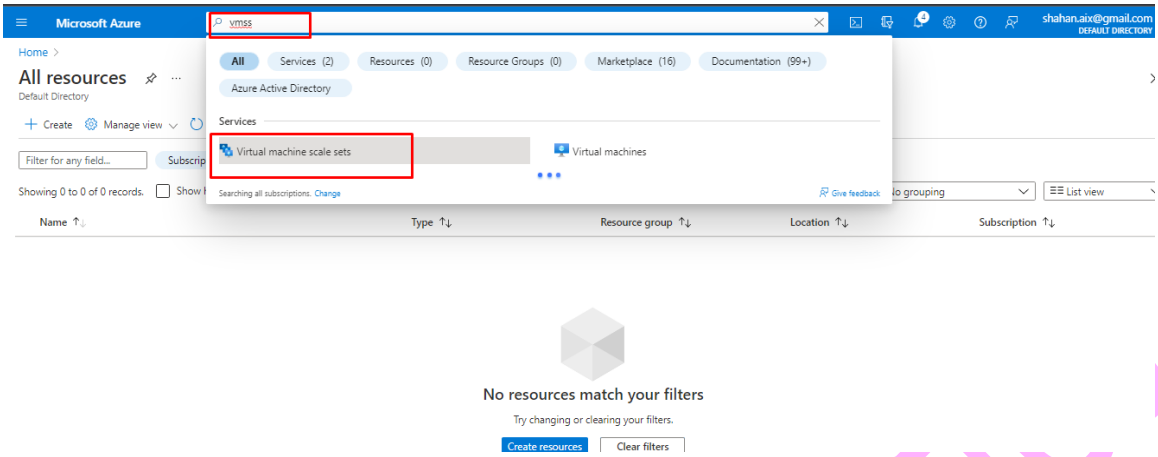
Here in India - south no need to worry about availability zone as we don't have that option for this region.
In such cases azure supports vm's with 99.99% of availability.

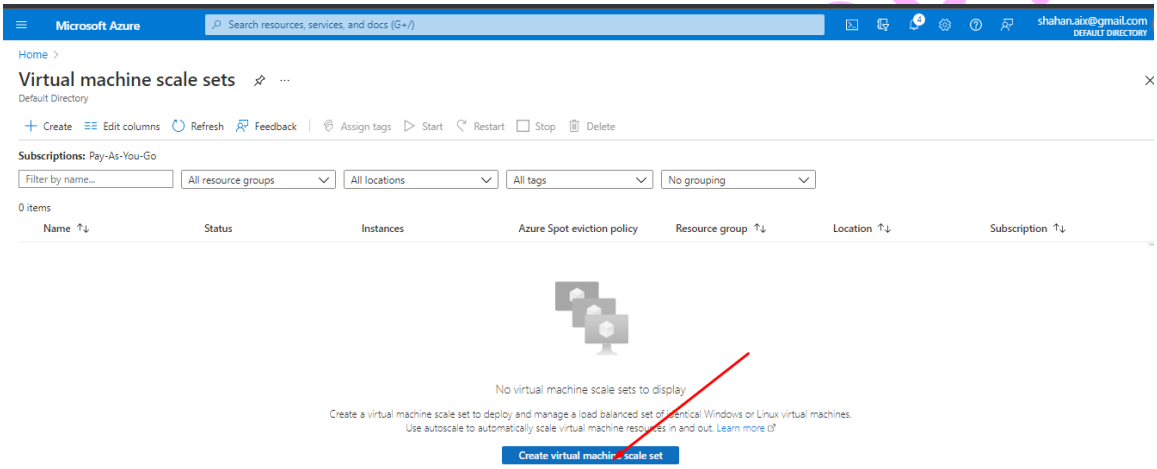
4 AZ Scale Sets



Note: Scale set is nothing but the autos calling configuration in AWS

Let's configure the azure scale sets


Microsoft Azure
vmss
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home
All resources
Default Directory
Create
Manage view
All
Services (2)
Resources (0)
Resource Groups (0)
Marketplace (16)
Documentation (99+)
Azure Active Directory
Services
Virtual machine scale sets
Virtual machines
Searching all subscriptions. Change
Give feedback
Filter for any field...
Showing 0 to 0 of 0 records.
No grouping
List view
Name
Type
Resource group
Location
Subscription
No resources match your filters
Try changing or clearing your filters.
Create resources
Clear filters


Microsoft Azure
Search resources, services, and docs (G+/)
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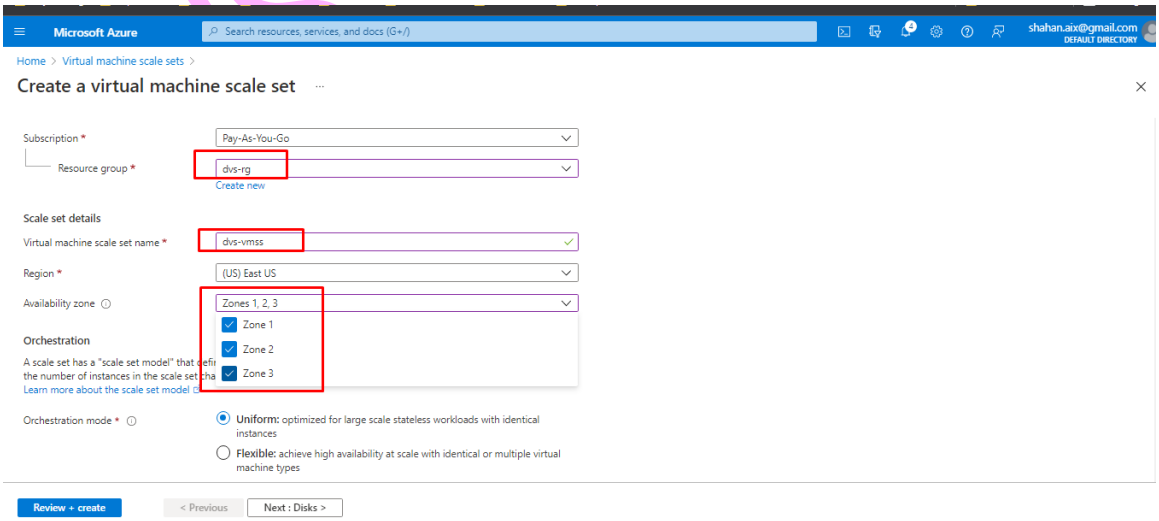
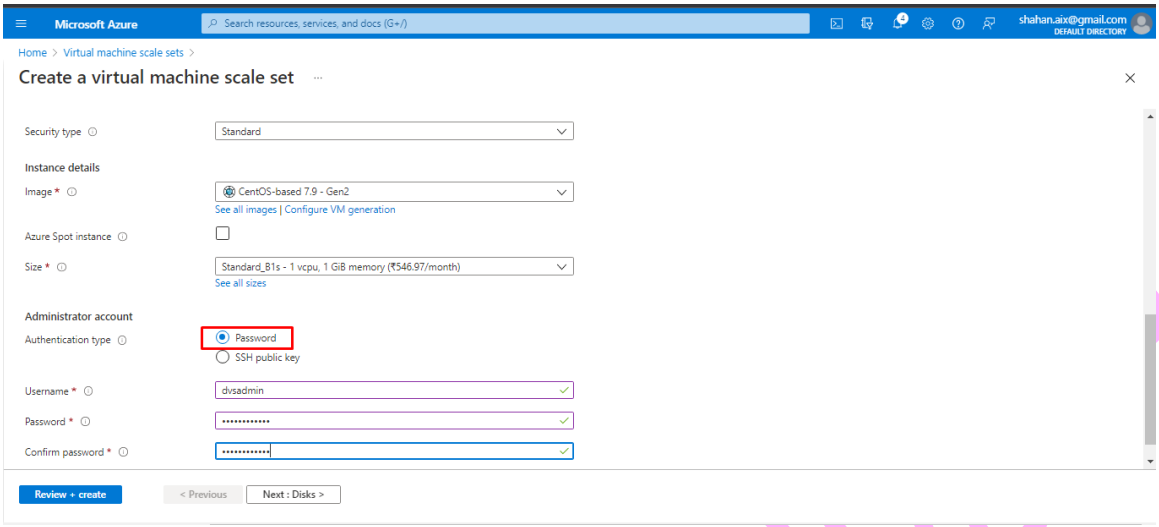
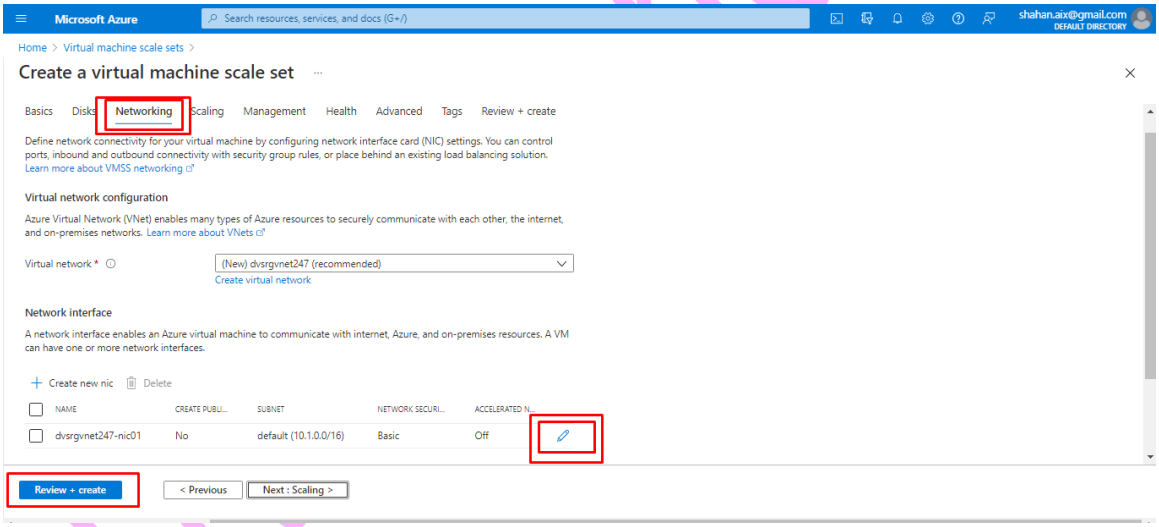
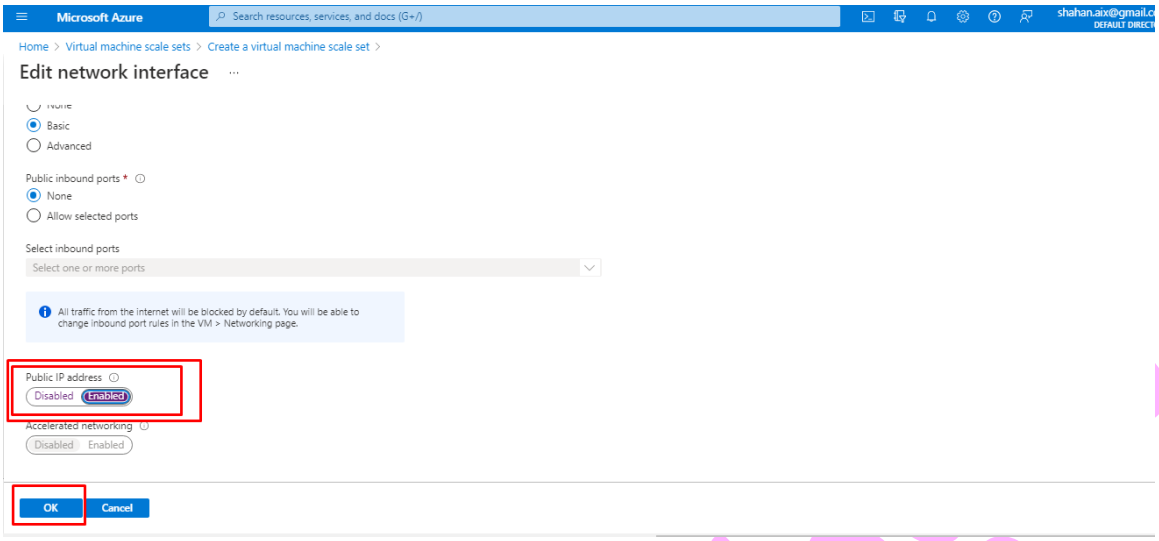
DEFAULT DIRECTORY
Home
Virtual machine scale sets
Default Directory
Create
Edit columns
Refresh
Feedback
Assign tags
Start
Restart
Stop
Delete
Subscriptions: Pay-As-You-Go
Filter by name...
All resource groups
All locations
All tags
No grouping
0 items
Name
Status
Instances
Azure Spot eviction policy
Resource group
Location
Subscription
No virtual machine scale sets to display
Create a virtual machine scale set to deploy and manage a load balanced set of identical Windows or Linux virtual machines.
Use autoscale to automatically scale virtual machine resources in and out. Learn more
Create virtual machine scale set

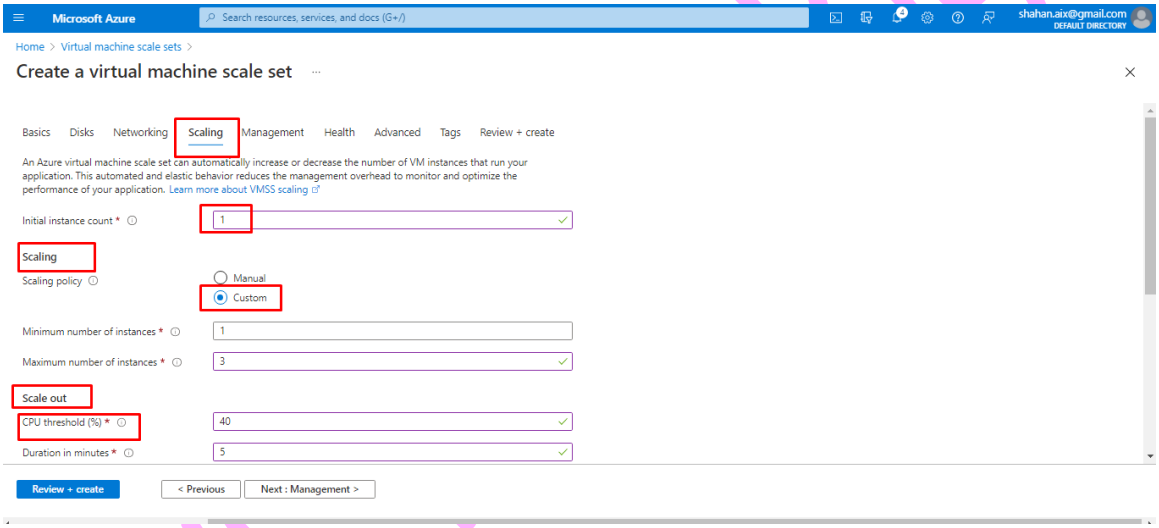

Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home
Virtual machine scale sets
Create a virtual machine scale set
Subscription *
Pay-As-You-Go
Resource group *
dvs-rg
Create new
Scale set details
Virtual machine scale set name *
dvs-vmss
Region *
(US) East US
Availability zone
Zones 1, 2, 3
Zone 1
Zone 2
Zone 3
Orchestration
Learn more about the scale set model
Orchestration mode *
Uniform: optimized for large scale stateless workloads with identical instances
Flexible: achieve high availability at scale with identical or multiple virtual machine types
Review + create
< Previous
Next : Disks >

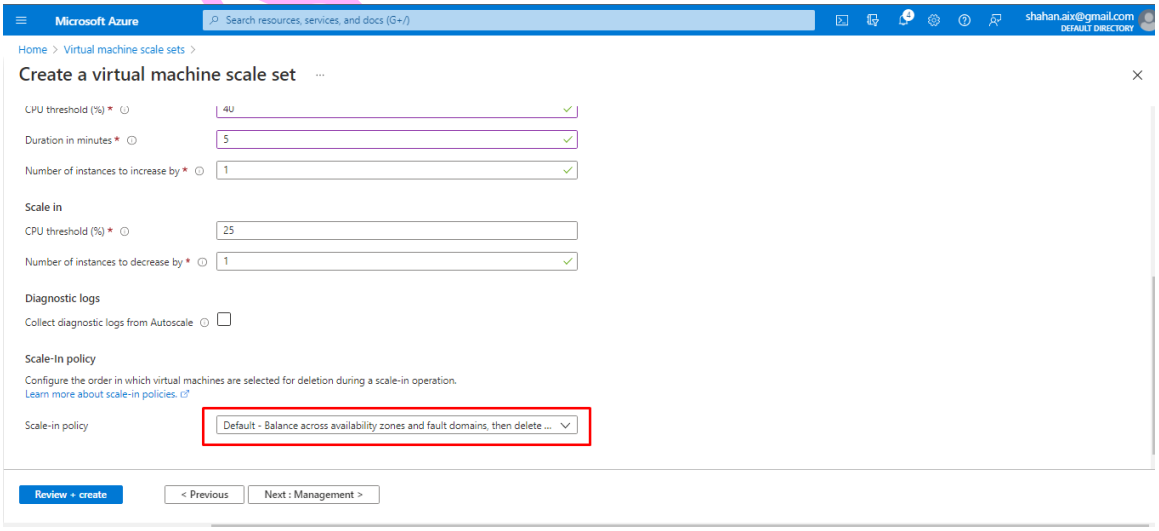


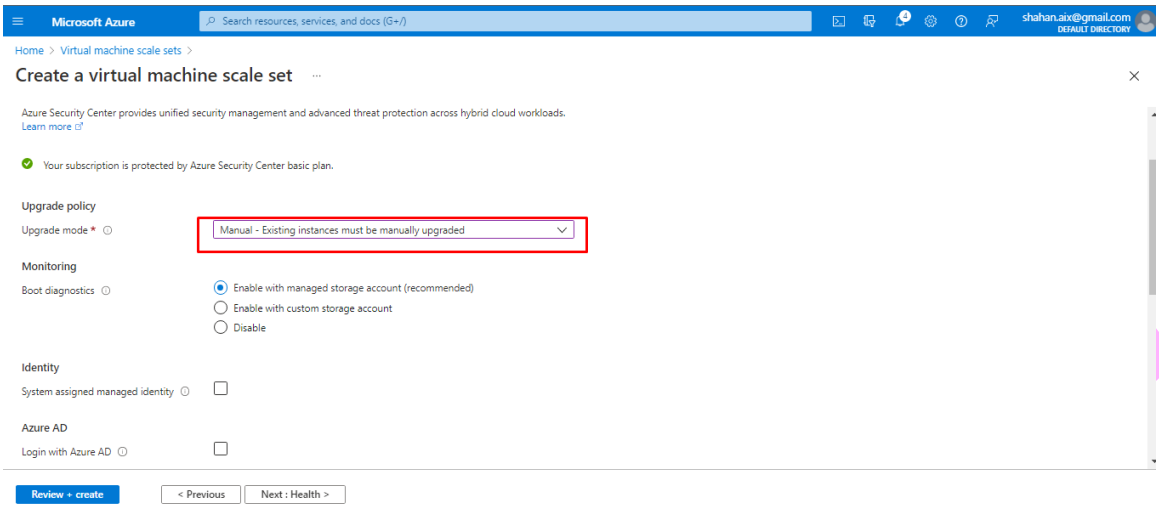
NOTE: DON'T FORGET TO SELECT THE BELOW TO ENABLE THE PUBLIC IP OTHERWISE YOU WILL NOT GET IPADDRESS



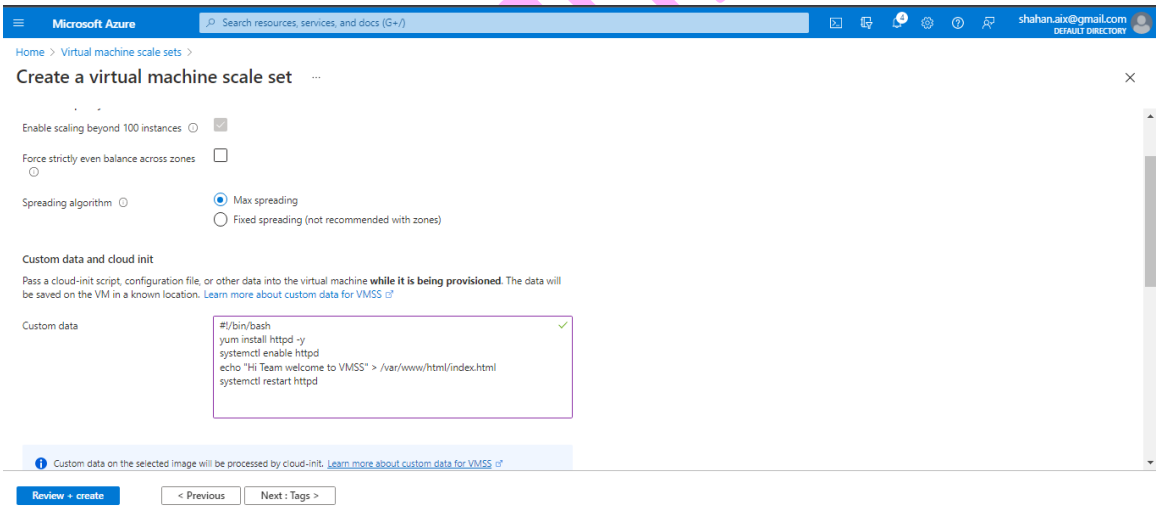

Microsoft Azure
Search resources, services, and docs (G+/)
Home > Virtual machine scale sets > Create a virtual machine scale set >
Edit network interface
Basic
Advanced
Public inbound ports *
None
Allow selected ports
Select inbound ports
Select one or more ports
All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.
Public IP address
Disabled
Enabled
Accelerated networking
Disabled
Enabled
OK
Cancel

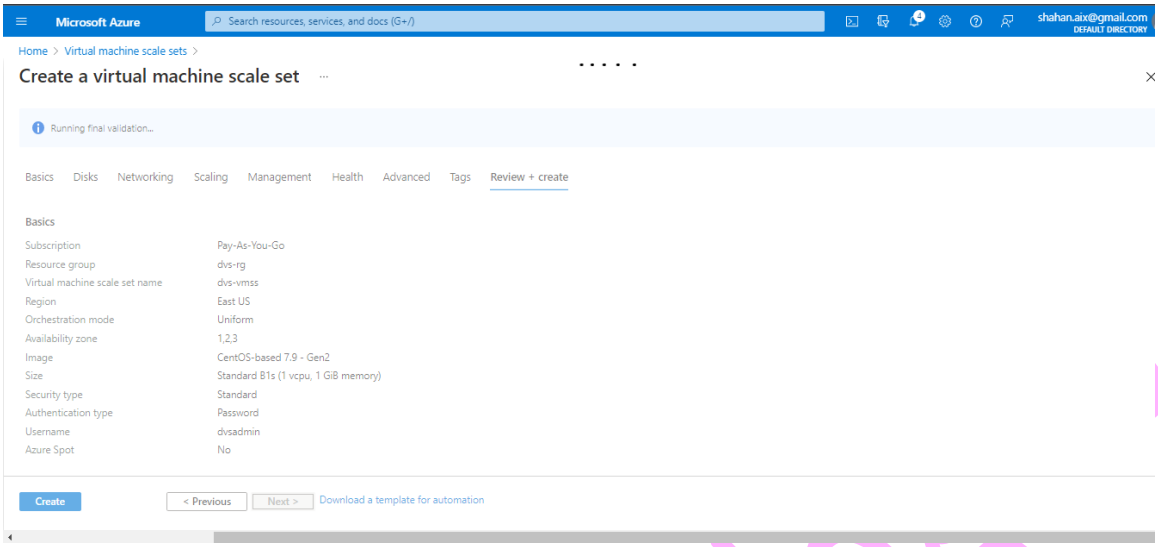

Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home > Virtual machine scale sets >
Create a virtual machine scale set
Basics
Disks
Networking
Scaling
Management
Health
Advanced
Tags
Review + create
An Azure virtual machine scale set can automatically increase or decrease the number of VM instances that run your application. This automated and elastic behavior reduces the management overhead to monitor and optimize the performance of your application. Learn more about VMSS scaling
Initial instance count *
1
Scaling
Scaling policy
Manual
Custom
Minimum number of instances *
1
Maximum number of instances *
3
Scale out
CPU threshold (%) *
40
Duration in minutes *
5
Review + create
< Previous
Next : Management >


Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home > Virtual machine scale sets >
Create a virtual machine scale set
CPU threshold (%) *
40
Duration in minutes *
5
Number of instances to increase by *
1
Scale in
CPU threshold (%) *
25
Number of instances to decrease by *
1
Diagnostic logs
Collect diagnostic logs from Autoscale
Scale-In policy
Configure the order in which virtual machines are selected for deletion during a scale-in operation.
Learn more about scale-in policies.
Scale-in policy
Default - Balance across availability zones and fault domains, then delete ...
Review + create
< Previous
Next : Management >

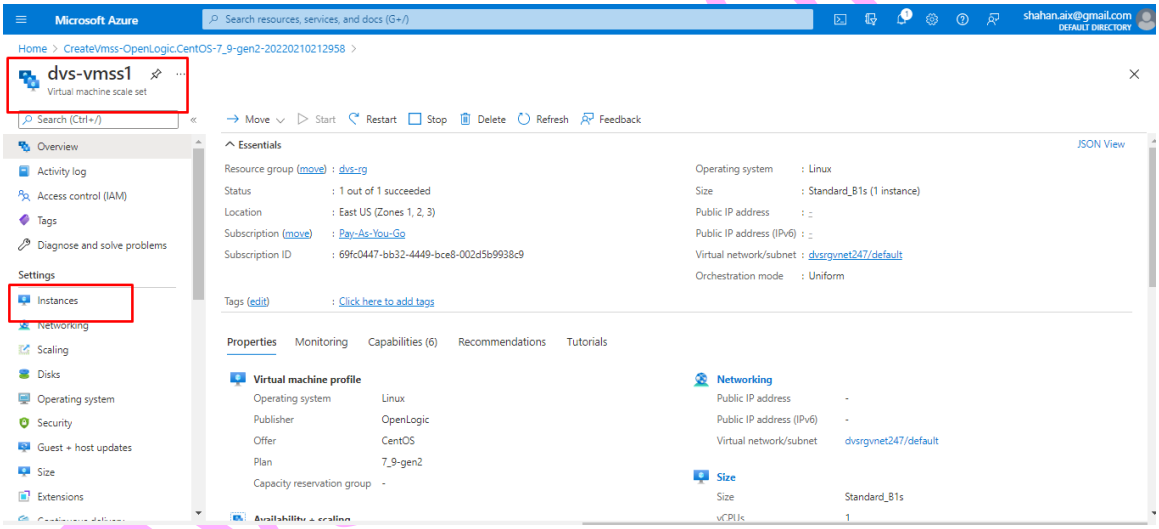


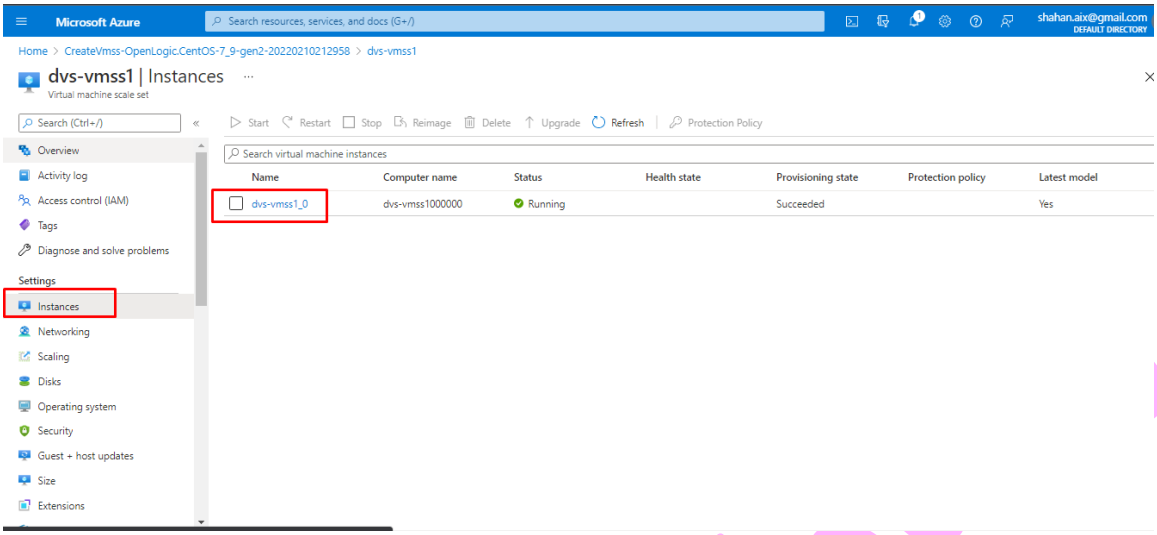

```
#!/bin/bash
yum install httpd -y
systemctl enable httpd
echo "Hi Team welcome to VMSS" > /var/www/html/index.html
systemctl restart httpd
```

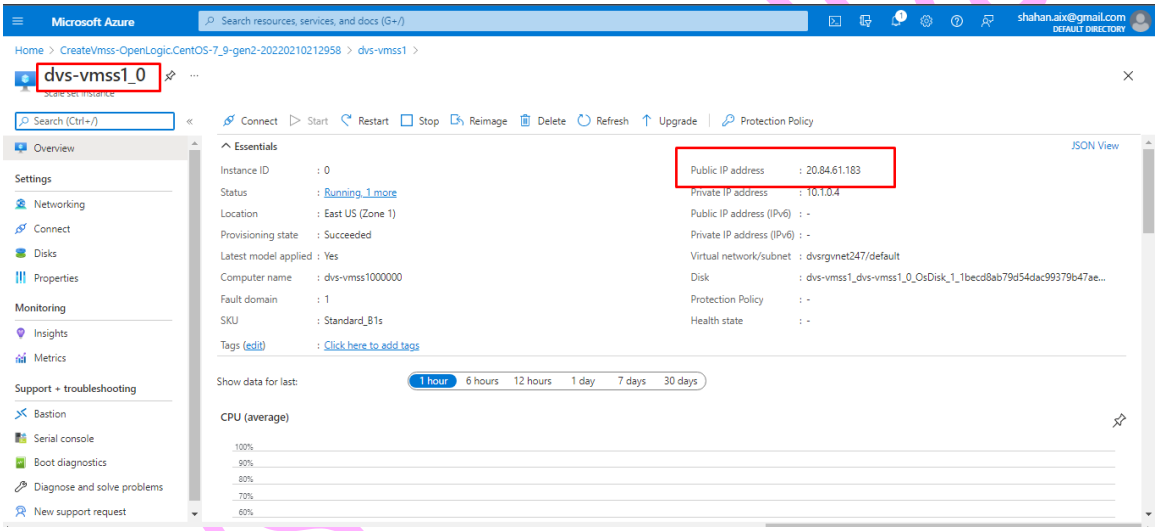


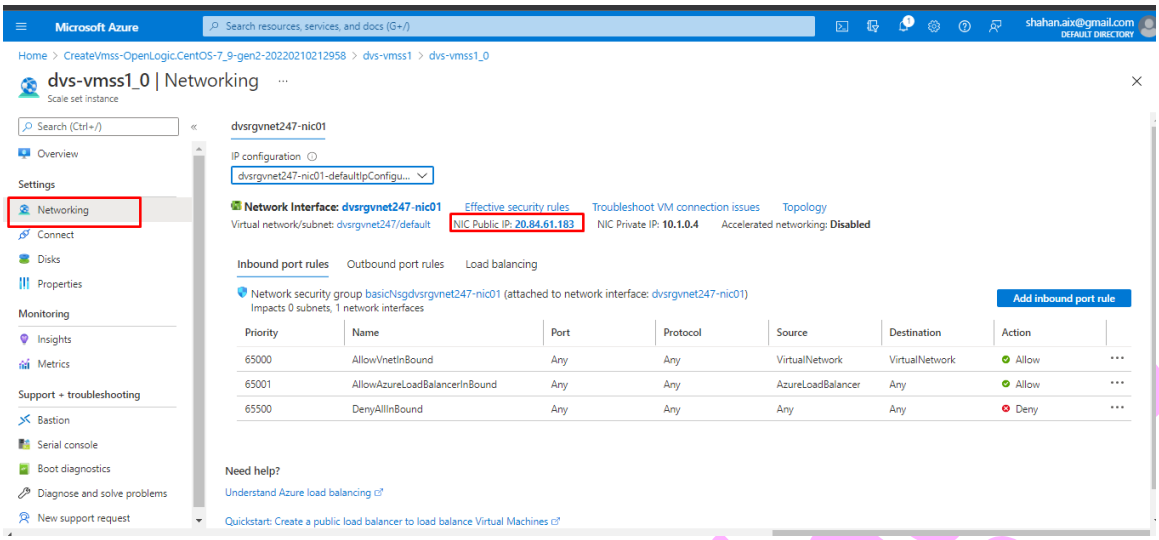


Verifying VMSS:

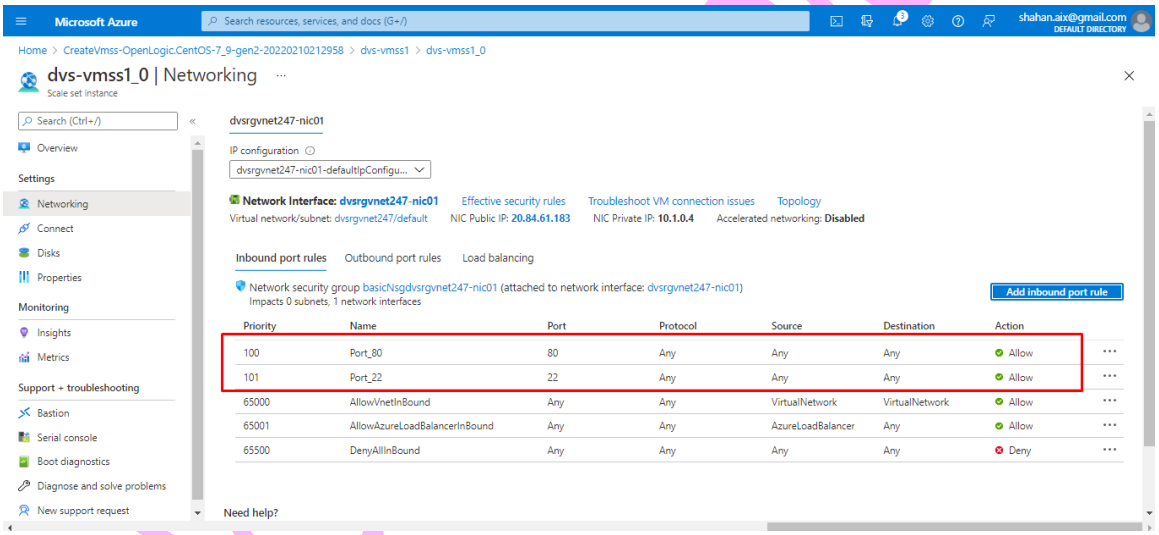



Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home > CreateVmss-OpenLogic.CentOS-7_9-gen2-20220210212958 > dvs-vmss1
dvs-vmss1 | Instances
Virtual machine scale set
Search (Ctrl+/)
Start
Restart
Stop
Reimage
Delete
Upgrade
Refresh
Protection Policy
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Instances
Networking
Scaling
Disks
Operating system
Security
Guest + host updates
Size
Extensions
Search virtual machine instances
Name
Computer name
Status
Health state
Provisioning state
Protection policy
Latest model
dvs-vmss1_0
dvs-vmss1000000
Running
Succeeded
Yes


Microsoft Azure
Search resources, services, and docs (G+/)
shahan.aix@gmail.com
DEFAULT DIRECTORY
Home > CreateVmss-OpenLogic.CentOS-7_9-gen2-20220210212958 > dvs-vmss1 >
dvs-vmss1_0
Search (Ctrl+/)
Connect
Start
Restart
Stop
Reimage
Delete
Refresh
Upgrade
Protection Policy
Overview
Settings
Networking
Connect
Disks
Properties
Monitoring
Insights
Metrics
Support + troubleshooting
Bastion
Serial console
Boot diagnostics
Diagnose and solve problems
New support request
Essentials
JSON View
Instance ID : 0
Status : Running, 1 more
Location : East US (Zone 1)
Provisioning state : Succeeded
Latest model applied : Yes
Computer name : dvs-vmss1000000
Fault domain : 1
SKU : Standard_B1s
Tags (edit) : Click here to add tags
Public IP address : 20.84.61.183
Private IP address : 10.1.0.4
Public IP address (IPv6) : -
Private IP address (IPv6) : -
Virtual network/subnet : dvsrgvnet247/default
Disk : dvs-vmss1_dvs-vmss1_0_OsDisk_1_1becd8ab79d54dac99379b47ae...
Protection Policy : -
Health state : -
Show data for last:
1 hour
6 hours
12 hours
1 day
7 days
30 days
CPU (average)
100%
90%
80%
70%
60%

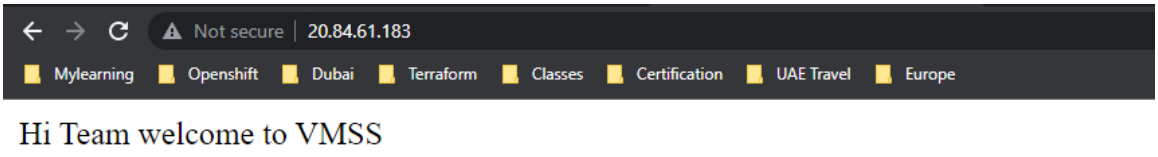


Let's enable port 22 & 80 so that we can access the servers & application



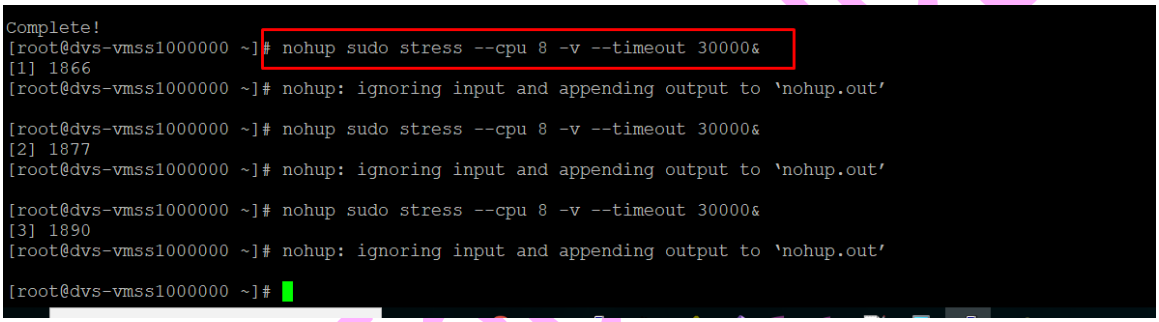
Login in to the server:

Accessing application:

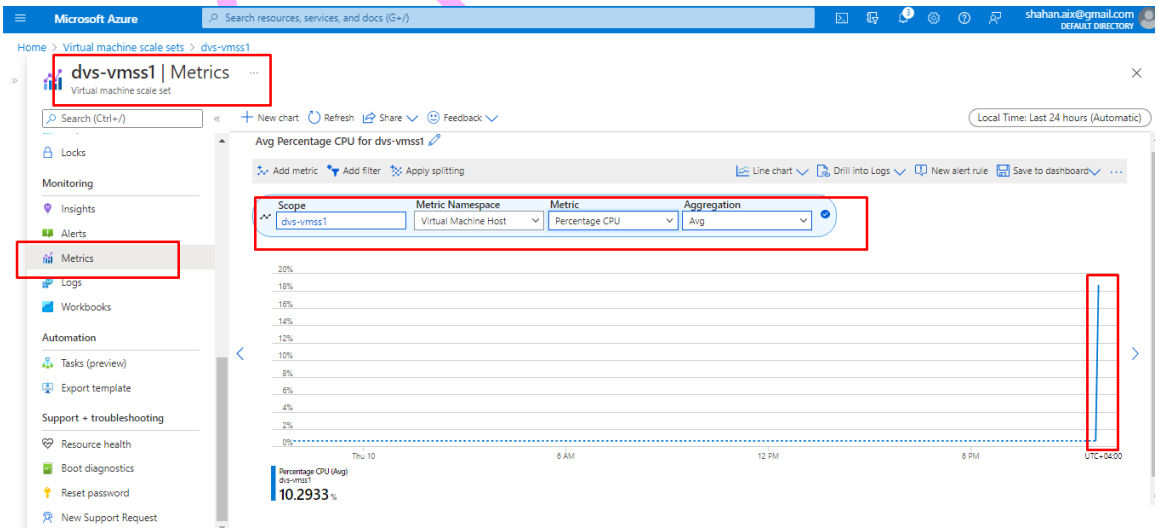


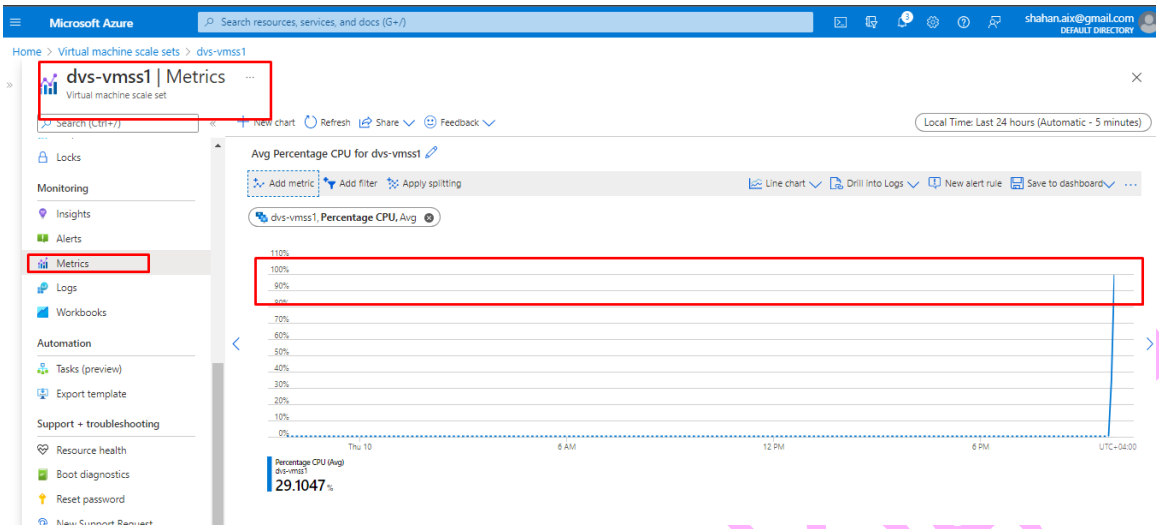
Let's increase the load & see if we are getting new vm's or not.

sudo yum install epel-release -y
sudo yum install stress -y

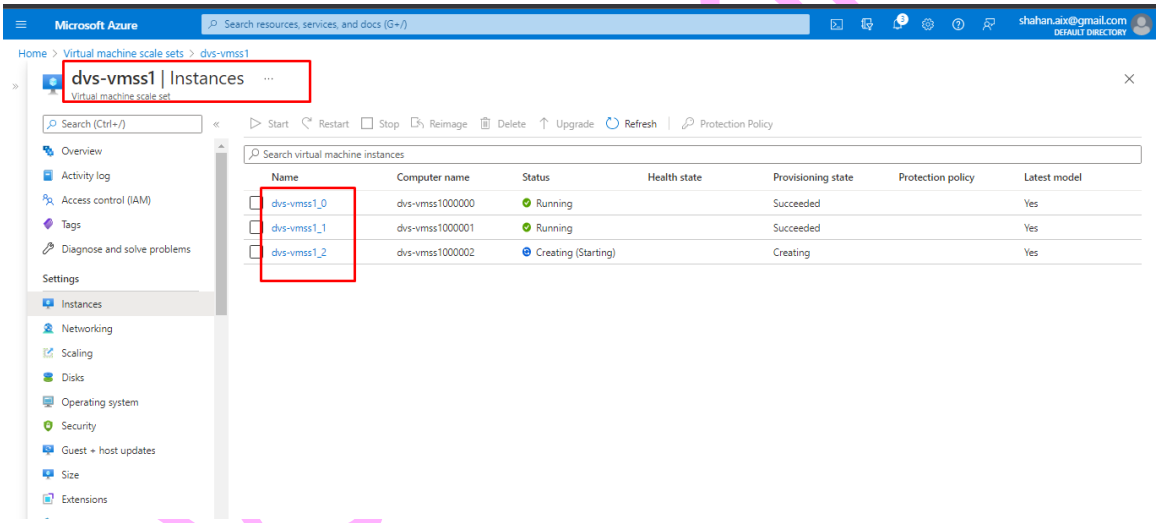


Let's verify the monitoring for the VMSS:





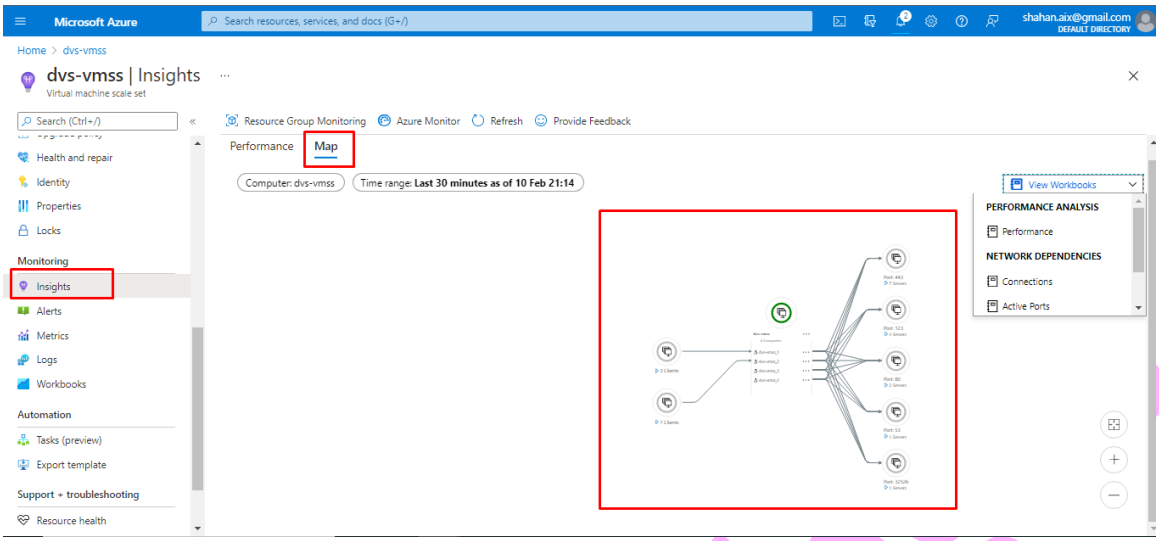
Now cpu spiked to 99%, let's check if we got new server or not



We can see that we got the instances.

If you want to enable app insights then you can enable it

App Insights:



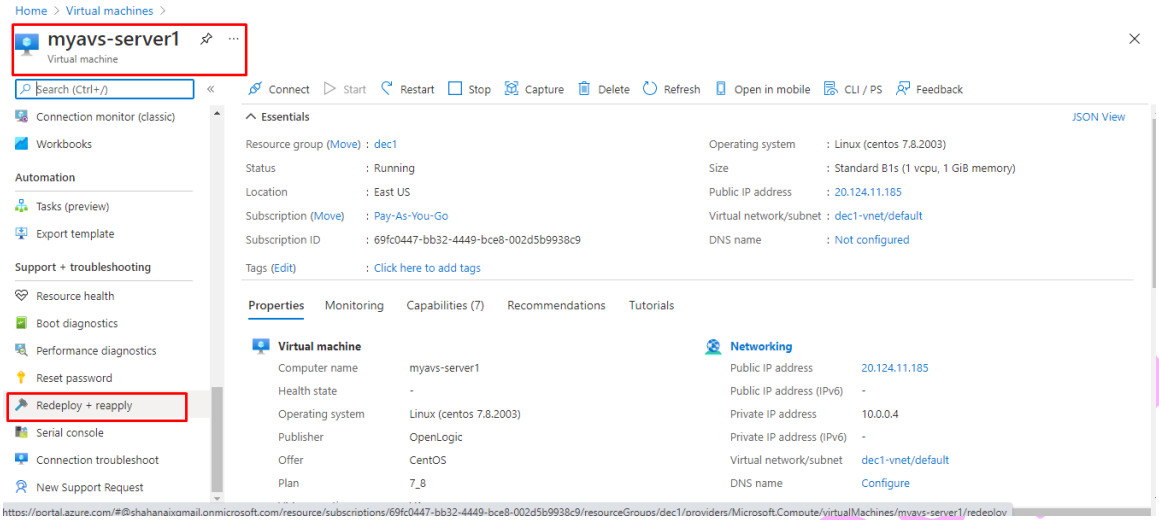
5 Proximity placement group

Proximity placement group:

If you want to place any servers close to each other so that you can reduce the latency between servers then you can keep all the servers under proximity placement group.

6 Redeploy

If in case of any hardware issue in AZ datacenter your vm will may go off or it may not work. If that's the case then you can use the option of redeploy for your VM which help you deploy the vm in other hardware(Rack).



Other option:

Go to the resource group --> deployments --> select the deployment & check the redeploy