Phase 1 – Azure Virtual Machine Installation

Intro (What & Why)

In this phase, **we are creating a Linux virtual machine in Azure**.
During this process, **Azure automatically creates the required resource group** for us.

This approach is common for beginners and labs, and it is **perfectly acceptable** as long as we understand what Azure is doing in the background.

The VM will later be used to:

- Generate security-relevant logs
- Act as a monitored endpoint
- Integrate with Microsoft Sentinel

Steps

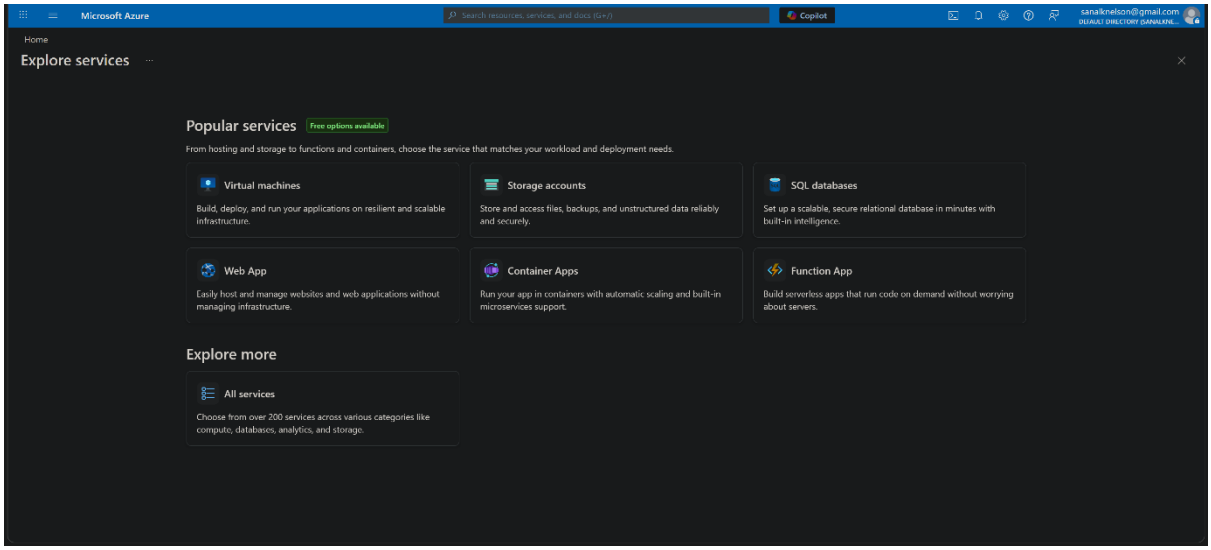
1. Virtual Machine Creation

We start by **creating a new virtual machine directly**.

During the VM creation:

- We select **Create new** for the resource group
- Azure automatically creates the resource group along with the VM

I did not create the resource group separately.
Azure created it as part of the VM deployment, which is a valid and commonly used approach.



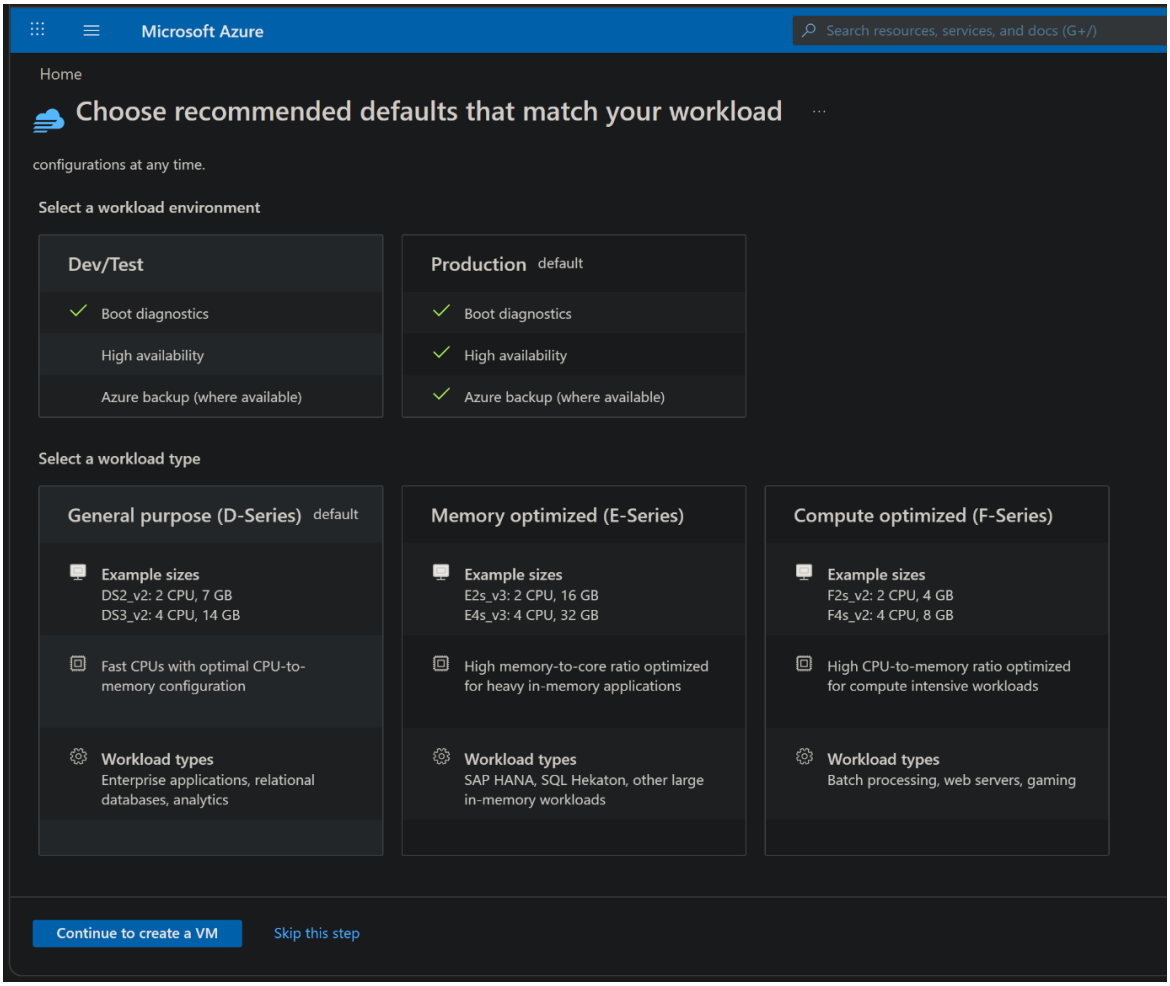
2. Virtual Machine Basics

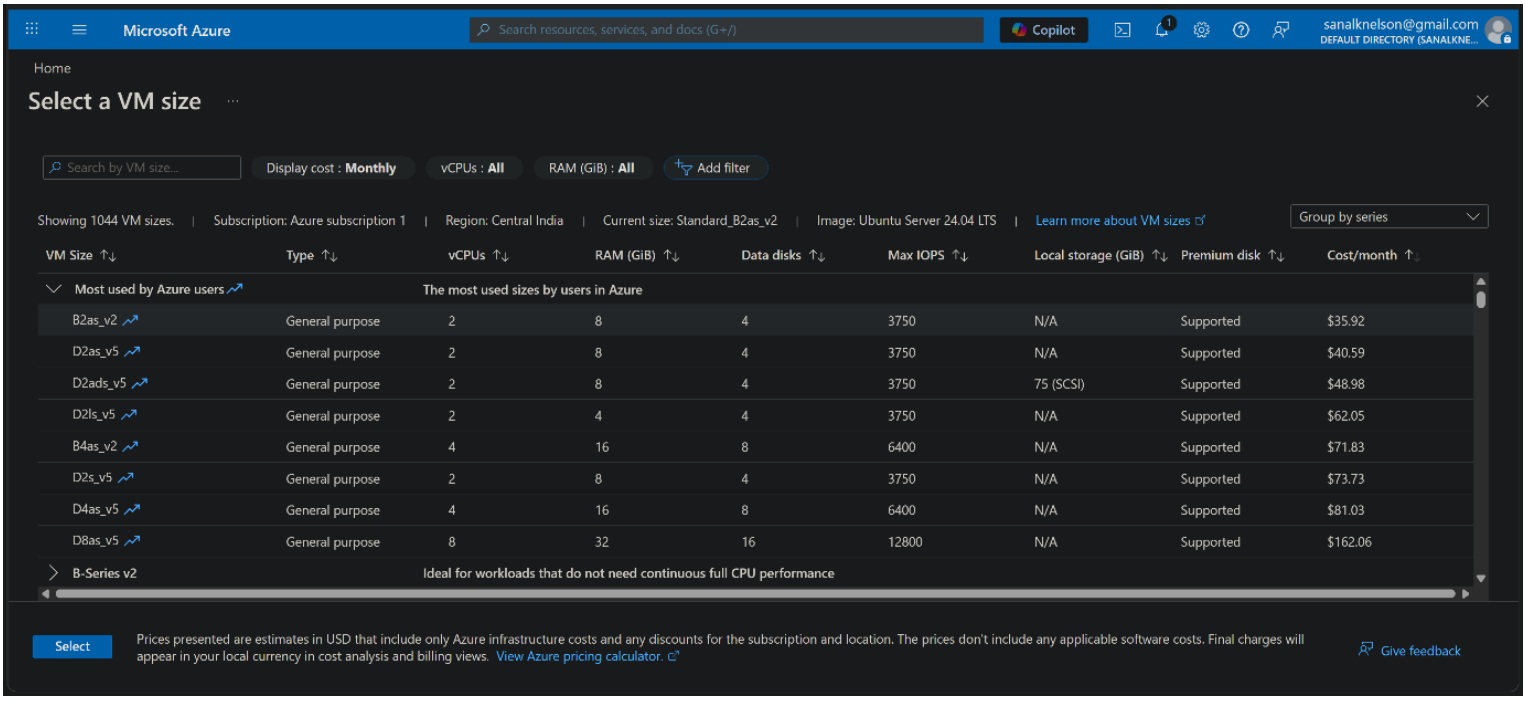
We now **configure the core VM settings**.

We need to:

- Choose **Ubuntu Server 24.04 LTS**
- Select a cost-effective VM size (B2as v2)
- Use **SSH public key authentication**
- Enable Secure Boot and vTPM

I used Azure-generated SSH keys for simplicity.
A better practice would be managing keys locally, which we can improve later.


Microsoft Azure
Search resources, services, and docs (G+/)
Home
Choose recommended defaults that match your workload
configurations at any time.
Select a workload environment
Dev/Test
Boot diagnostics
High availability
Azure backup (where available)
Production default
Boot diagnostics
High availability
Azure backup (where available)
Select a workload type
General purpose (D-Series) default
Example sizes
DS2_v2: 2 CPU, 7 GB
DS3_v2: 4 CPU, 14 GB
Fast CPUs with optimal CPU-to-memory configuration
Workload types
Enterprise applications, relational databases, analytics
Memory optimized (E-Series)
Example sizes
E2s_v3: 2 CPU, 16 GB
E4s_v3: 4 CPU, 32 GB
High memory-to-core ratio optimized for heavy in-memory applications
Workload types
SAP HANA, SQL Hekaton, other large in-memory workloads
Compute optimized (F-Series)
Example sizes
F2s_v2: 2 CPU, 4 GB
F4s_v2: 4 CPU, 8 GB
High CPU-to-memory ratio optimized for compute intensive workloads
Workload types
Batch processing, web servers, gaming
Continue to create a VM
Skip this step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Copilot
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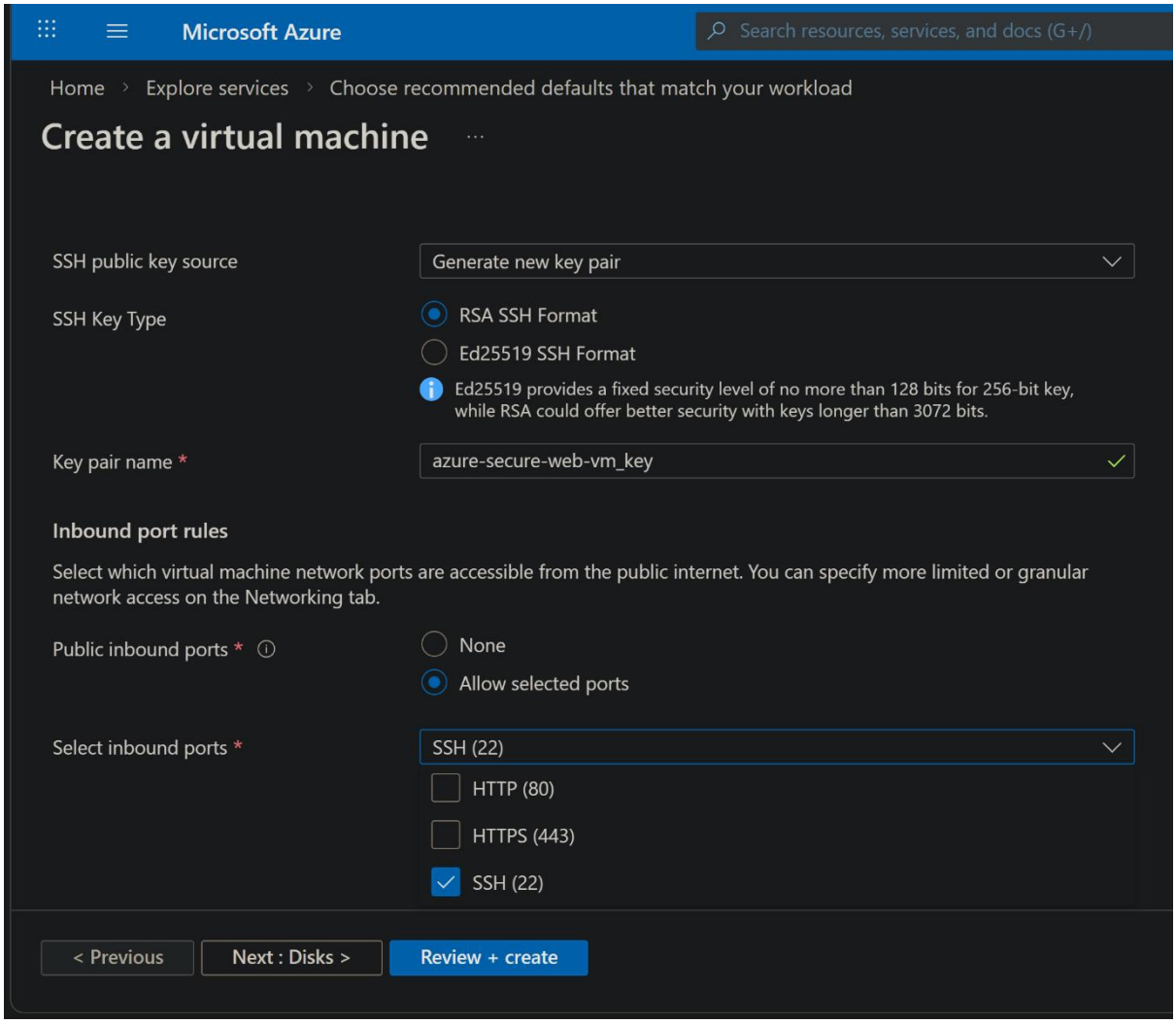
DEFAULT DIRECTORY (SANALKNE...
Home
Select a VM size
Search by VM size...
Display cost : Monthly
vCPUs : All
RAM (GiB) : All
Add filter
Showing 1044 VM sizes.
Subscription: Azure subscription 1
Region: Central India
Current size: Standard_B2as_v2
Image: Ubuntu Server 24.04 LTS
Learn more about VM sizes
Group by series
VM Size
Type
vCPUs
RAM (GiB)
Data disks
Max IOPS
Local storage (GiB)
Premium disk
Cost/month
Most used by Azure users
The most used sizes by users in Azure
B2as_v2 General purpose 2 8 4 3750 N/A Supported $35.92
D2as_v5 General purpose 2 8 4 3750 N/A Supported $40.59
D2ads_v5 General purpose 2 8 4 3750 75 (SCSI) Supported $48.98
D2ls_v5 General purpose 2 4 4 3750 N/A Supported $62.05
B4as_v2 General purpose 4 16 8 6400 N/A Supported $71.83
D2s_v5 General purpose 2 8 4 3750 N/A Supported $73.73
D4as_v5 General purpose 4 16 8 6400 N/A Supported $81.03
D8as_v5 General purpose 8 32 16 12800 N/A Supported $162.06
B-Series v2
Ideal for workloads that do not need continuous full CPU performance
Select
Prices presented are estimates in USD that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. View Azure pricing calculator.
Give feedback



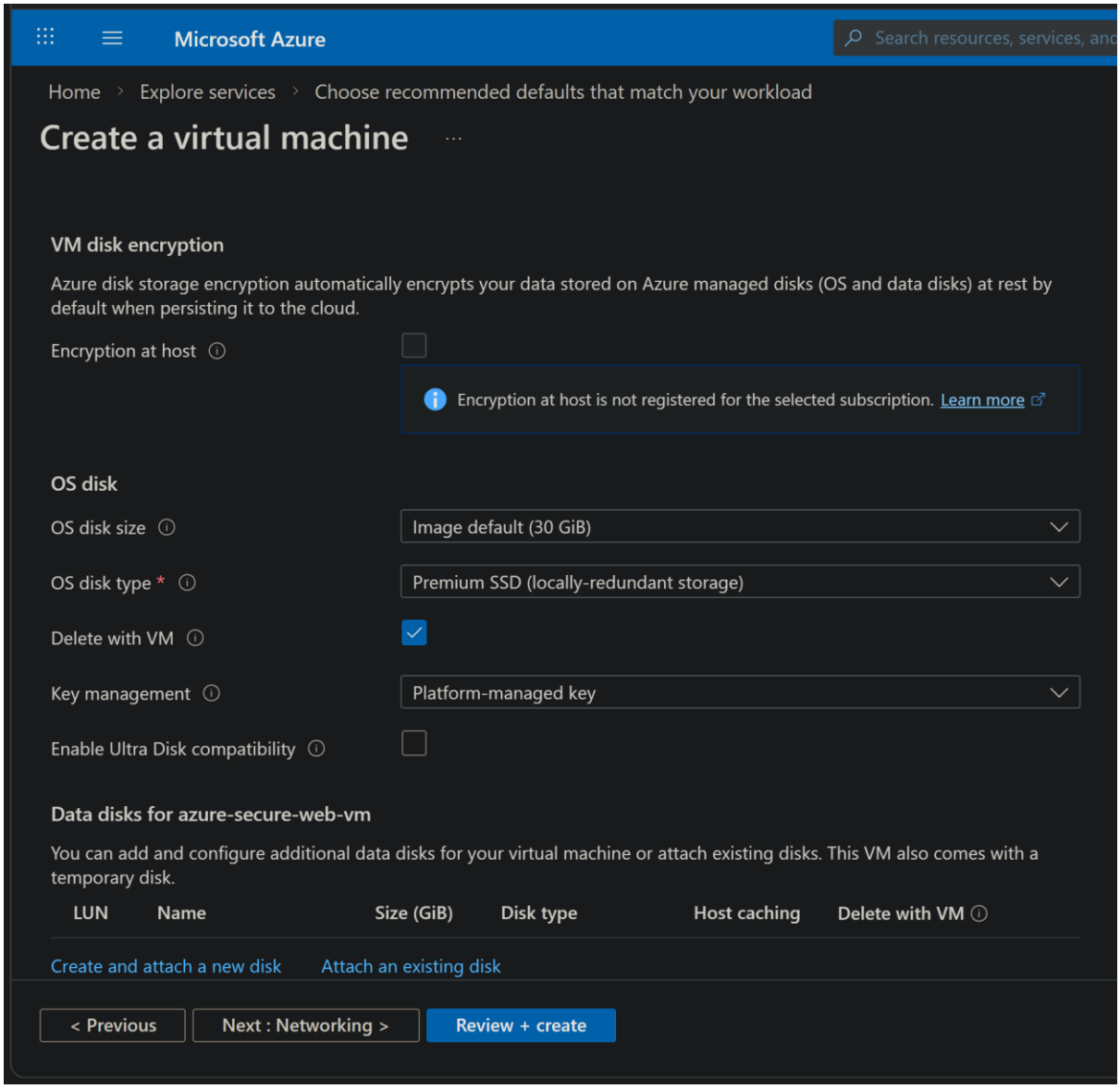
3. Disk Configuration

We continue by **configuring VM storage**.

We keep:

- Default OS disk size
- Managed disks
- Platform-managed encryption
- Delete disk on VM delete

For a learning lab, default disk settings are sufficient and reduce complexity.



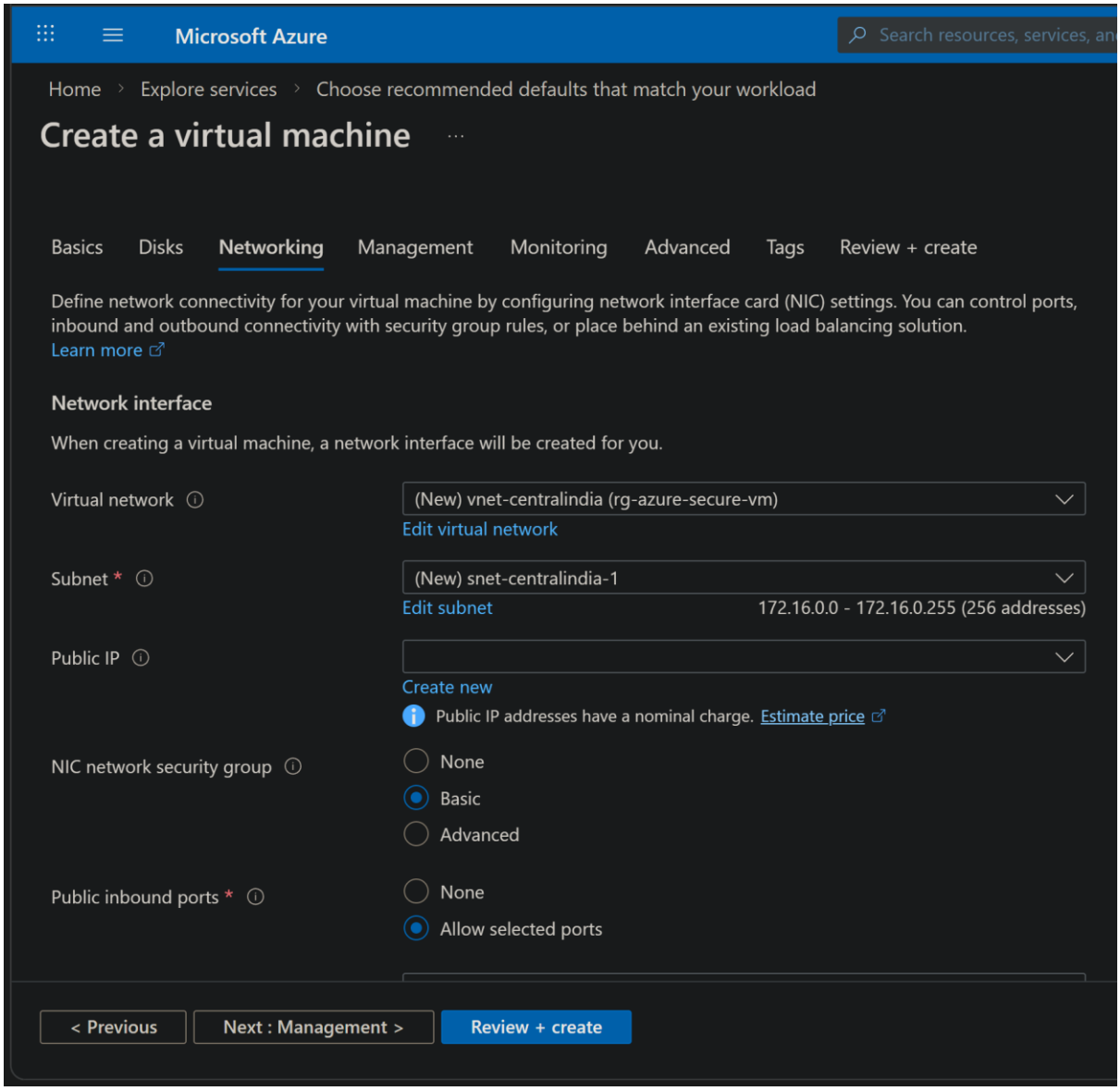
4. Networking Configuration

Now we **set up networking for the VM**.

We need to:

- Create a new virtual network and subnet
- Assign a public IP address
- Attach a Network Security Group
- Allow inbound SSH (22)

SSH is open to the internet only for lab access.
In real environments, this should be restricted to known IPs or private access.


Microsoft Azure
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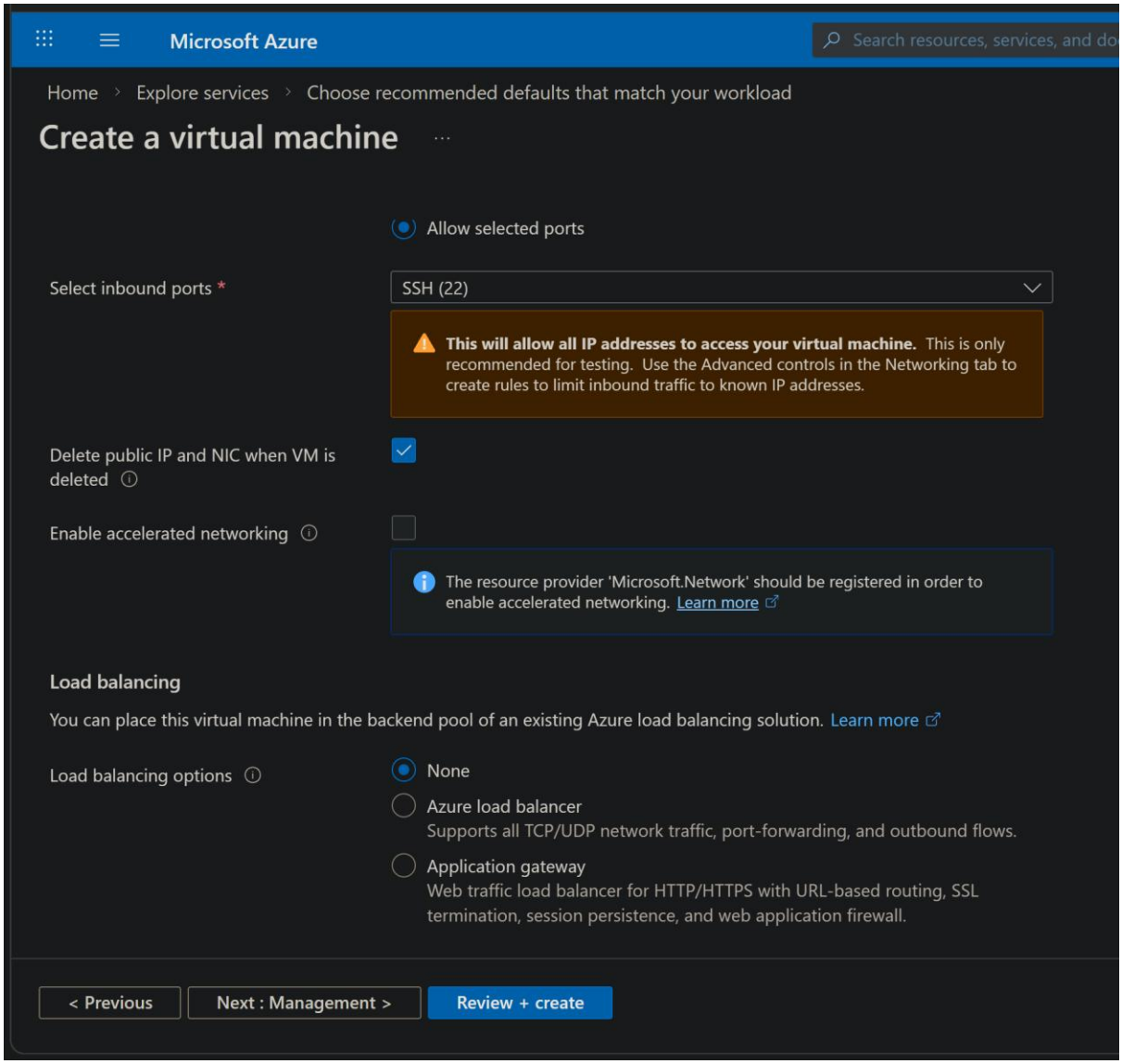
Home
Explore services
Choose recommended defaults that match your workload
Create a virtual machine
Basics
Disks
Networking
Management
Monitoring
Advanced
Tags
Review + create
Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.
Learn more
Network interface
When creating a virtual machine, a network interface will be created for you.
Virtual network
(New) vnet-centralindia (rg-azure-secure-vm)
Edit virtual network
Subnet *
(New) snet-centralindia-1
Edit subnet
172.16.0.0 - 172.16.0.255 (256 addresses)
Public IP
Create new
Public IP addresses have a nominal charge. Estimate price
NIC network security group
None
Basic
Advanced
Public inbound ports *
None
Allow selected ports
< Previous
Next : Management >
Review + create



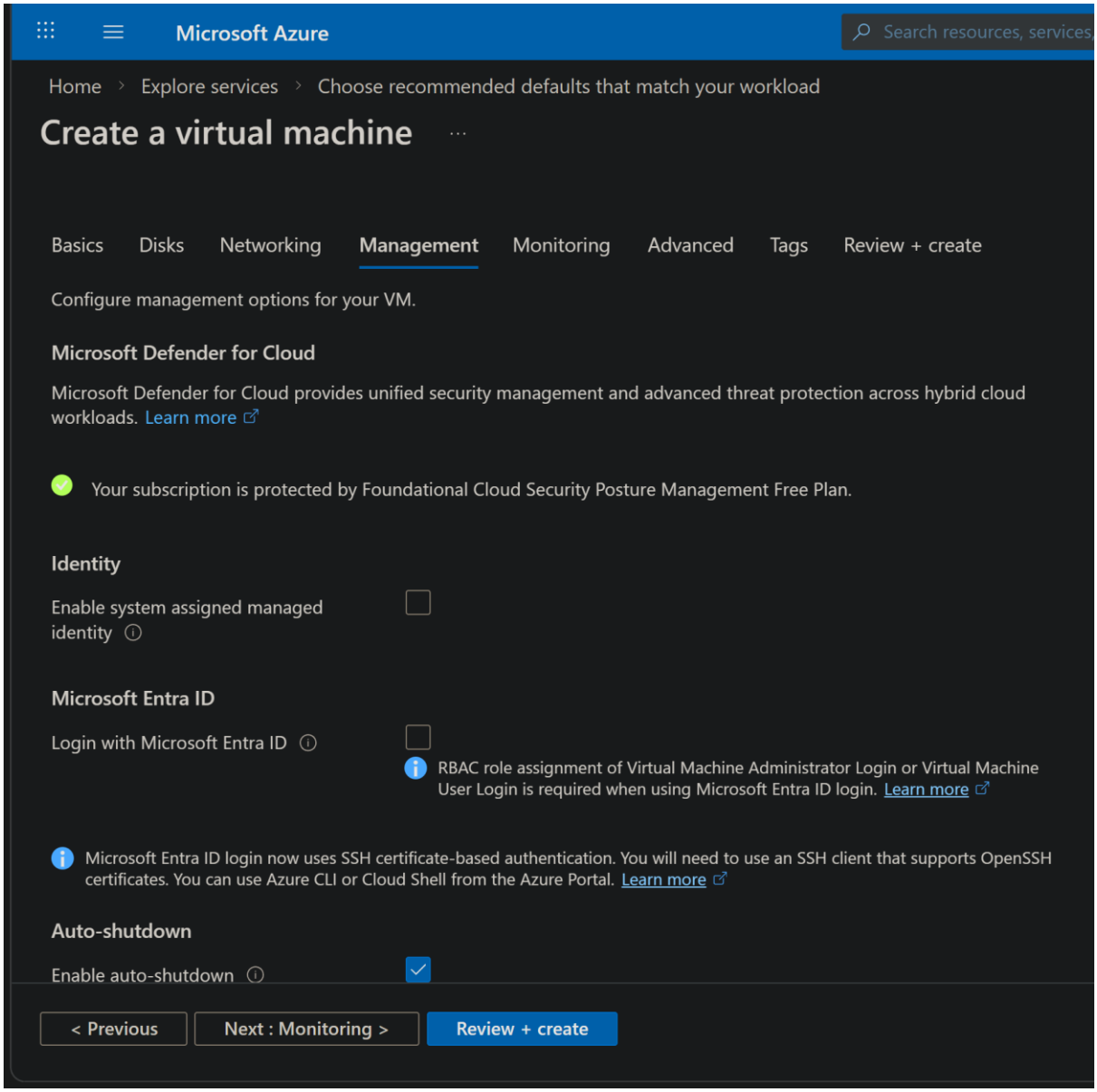
5. Management & Auto-Shutdown

Next, we **configure management options**.

We:

- Enable auto-shutdown
- Set the correct time zone
- Configure email notification

Auto-shutdown helps control cost and shows good cloud hygiene.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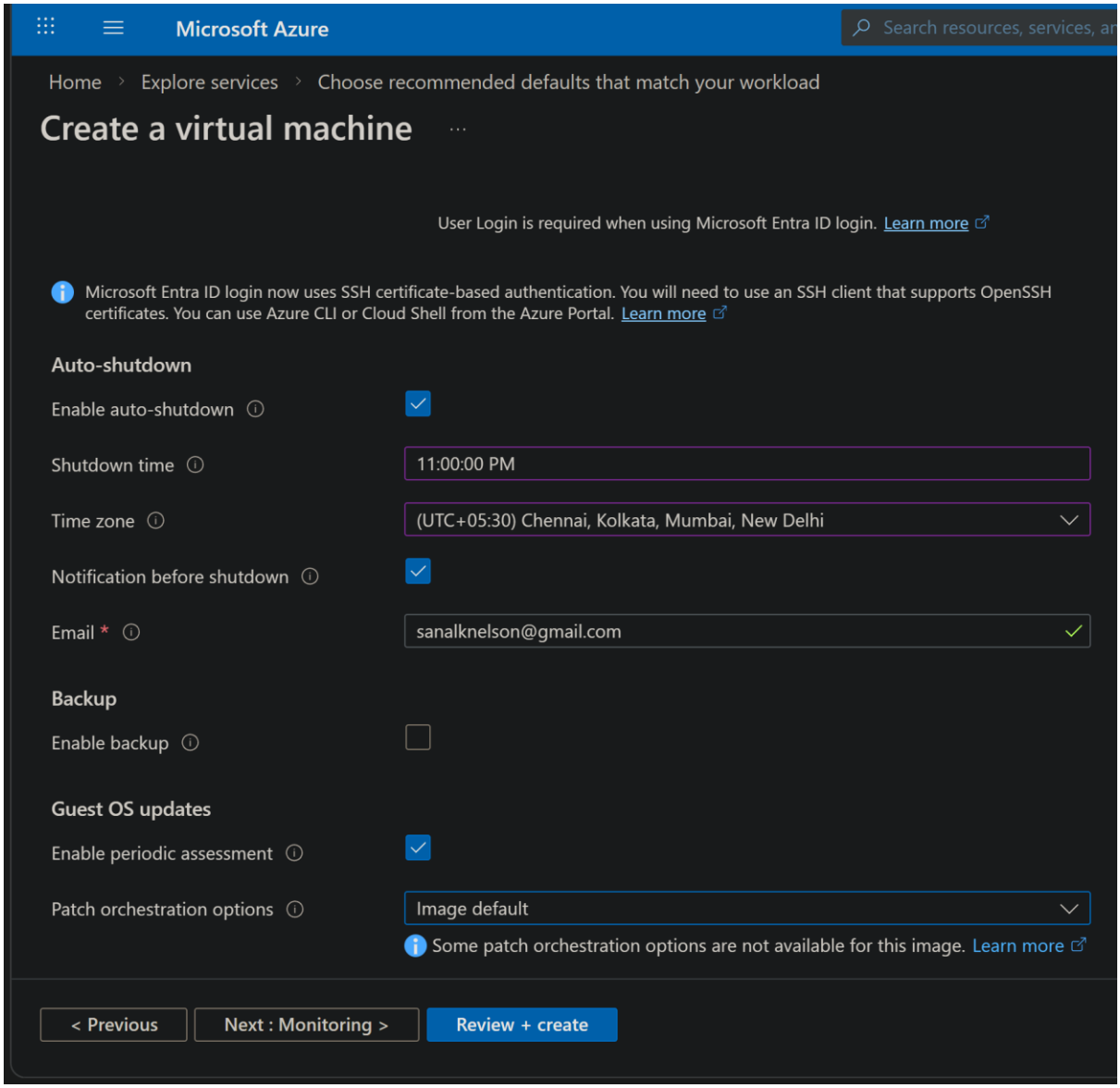
Configure management options for your VM.
Microsoft Defender for Cloud
Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. Learn more
Your subscription is protected by Foundational Cloud Security Posture Management Free Plan.
Identity
Enable system assigned managed identity
Microsoft Entra ID
Login with Microsoft Entra ID
RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Microsoft Entra ID login. Learn more
Microsoft Entra ID login now uses SSH certificate-based authentication. You will need to use an SSH client that supports OpenSSH certificates. You can use Azure CLI or Cloud Shell from the Azure Portal. Learn more
Auto-shutdown
Enable auto-shutdown
< Previous
Next : Monitoring >
Review + create



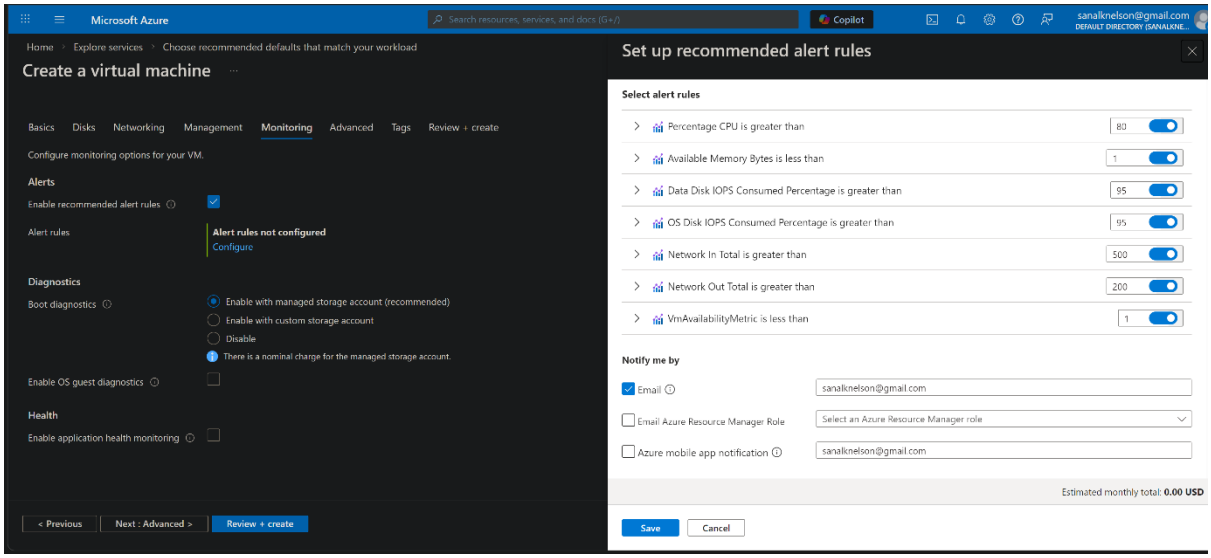
6. Monitoring & Diagnostics

We then **enable monitoring and diagnostics**.

We need to:

- Enable boot diagnostics
- Enable OS guest diagnostics
- Allow Azure to create a diagnostics storage account
- Enable recommended alert rules

These settings are important later when we analyze logs in Sentinel.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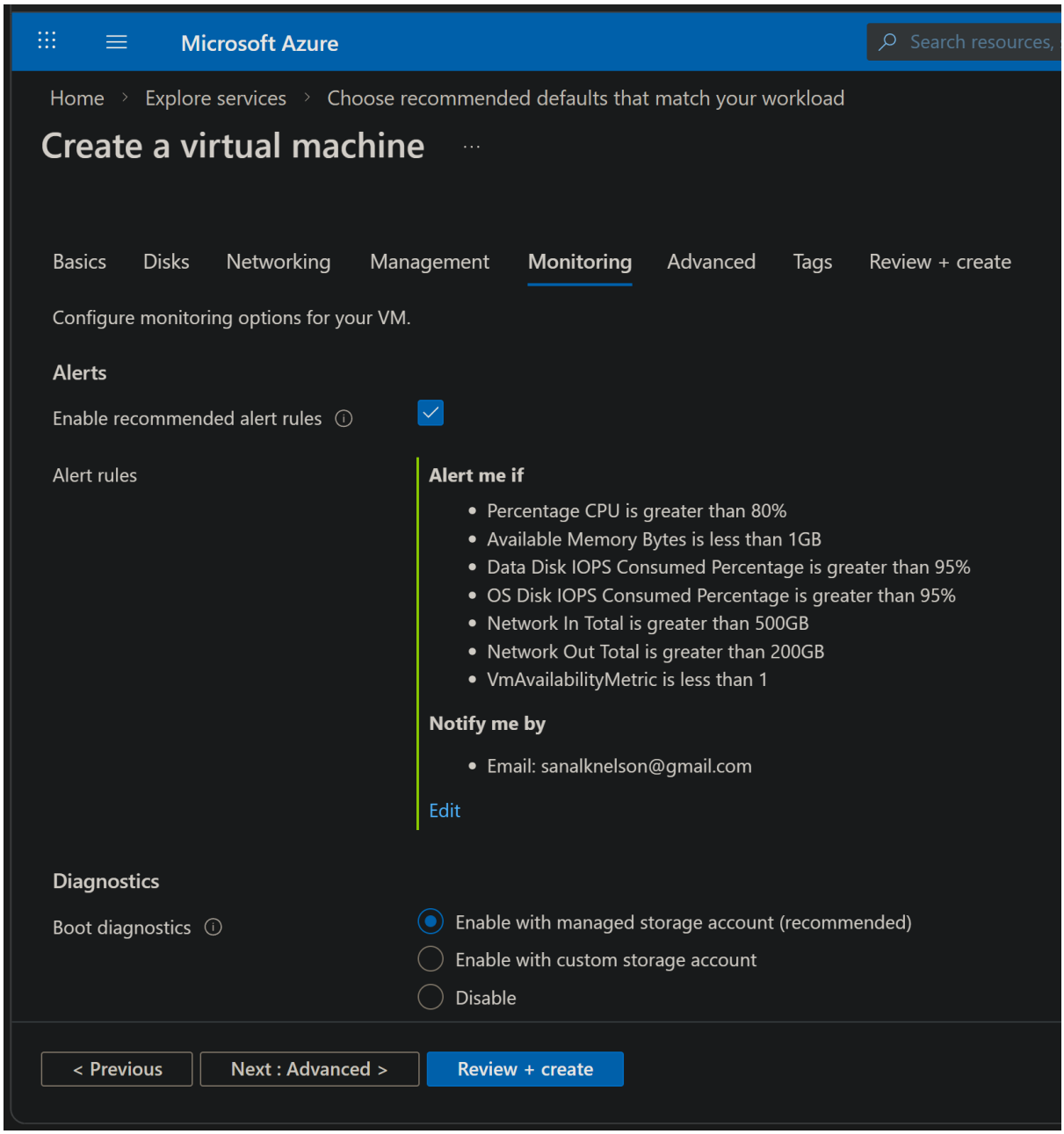
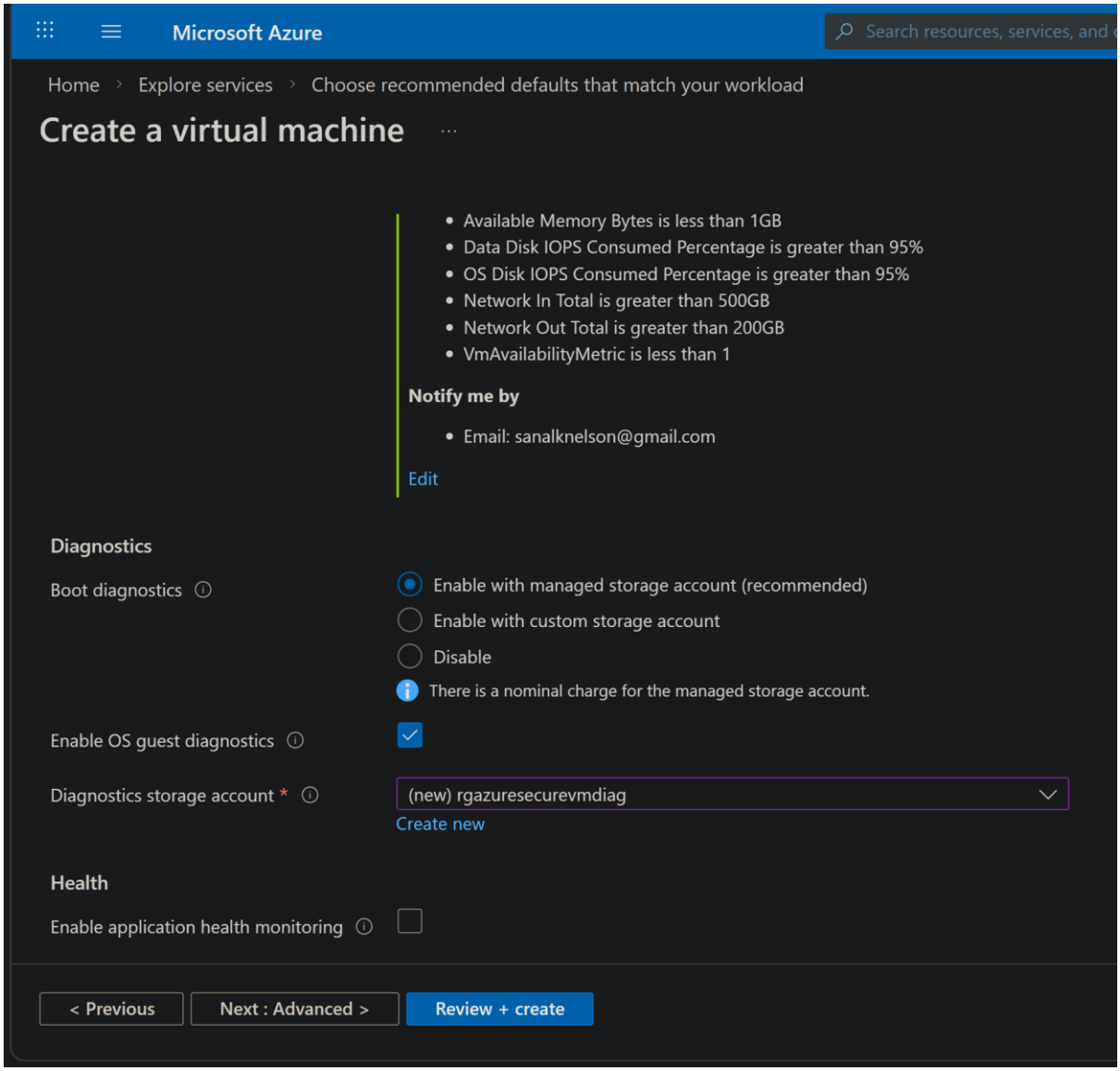
Home > Explore services > Choose recommended defaults that match your workload
Create a virtual machine
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Configure monitoring options for your VM.
Alerts
Enable recommended alert rules
Alert rules
Alert rules not configured
Configure
Diagnostics
Boot diagnostics
Enable with managed storage account (recommended)
Enable with custom storage account
Disable
There is a nominal charge for the managed storage account.
Enable OS guest diagnostics
Health
Enable application health monitoring
< Previous
Next : Advanced >
Review + create
Set up recommended alert rules
Select alert rules
Percentage CPU is greater than 80
Available Memory Bytes is less than 1
Data Disk IOPS Consumed Percentage is greater than 95
OS Disk IOPS Consumed Percentage is greater than 95
Network In Total is greater than 500
Network Out Total is greater than 200
VmAvailabilityMetric is less than 1
Notify me by
Email
sanalknelson@gmail.com
Email Azure Resource Manager Role
Select an Azure Resource Manager role
Azure mobile app notification
sanalknelson@gmail.com
Estimated monthly total: 0.00 USD
Save
Cancel


Microsoft Azure
Search resources,
Home > Explore services > Choose recommended defaults that match your workload
Create a virtual machine ...
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Configure monitoring options for your VM.
Alerts
Enable recommended alert rules
Alert rules
Alert me if
Percentage CPU is greater than 80%
Available Memory Bytes is less than 1GB
Data Disk IOPS Consumed Percentage is greater than 95%
OS Disk IOPS Consumed Percentage is greater than 95%
Network In Total is greater than 500GB
Network Out Total is greater than 200GB
VmAvailabilityMetric is less than 1
Notify me by
Email: sanalknelson@gmail.com
Edit
Diagnostics
Boot diagnostics
Enable with managed storage account (recommended)
Enable with custom storage account
Disable
< Previous
Next : Advanced >
Review + create



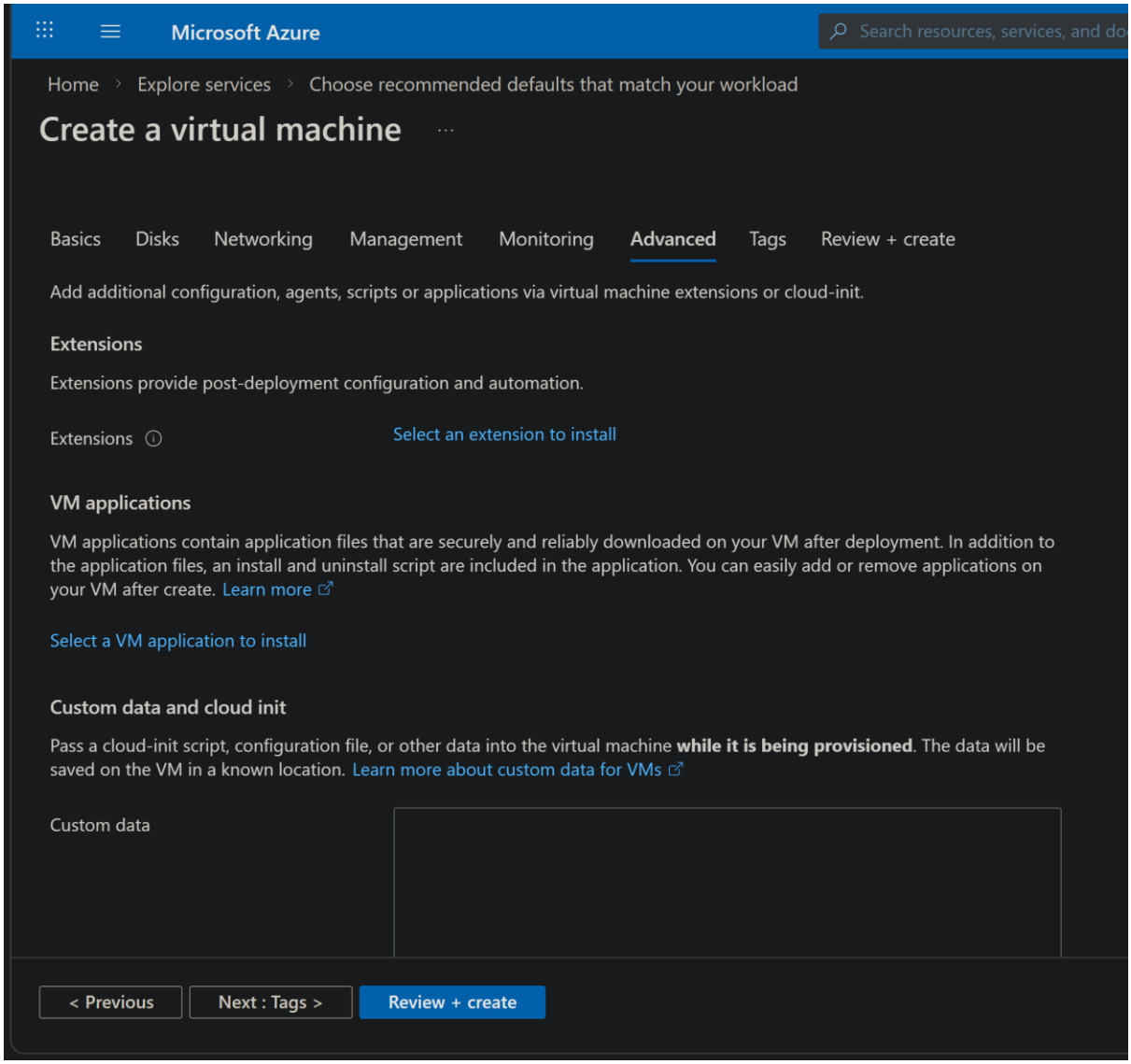
7. Advanced Settings

At this stage, we **do not add advanced features**.

We leave:

- VM extensions disabled
- Cloud-init empty
- Capacity reservations unused

Keeping this minimal avoids deployment failures during learning.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Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.
Extensions
Extensions provide post-deployment configuration and automation.
Extensions
Select an extension to install
VM applications
VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. Learn more
Select a VM application to install
Custom data and cloud init
Pass a cloud-init script, configuration file, or other data into the virtual machine while it is being provisioned. The data will be saved on the VM in a known location. Learn more about custom data for VMs
Custom data
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Next : Tags >
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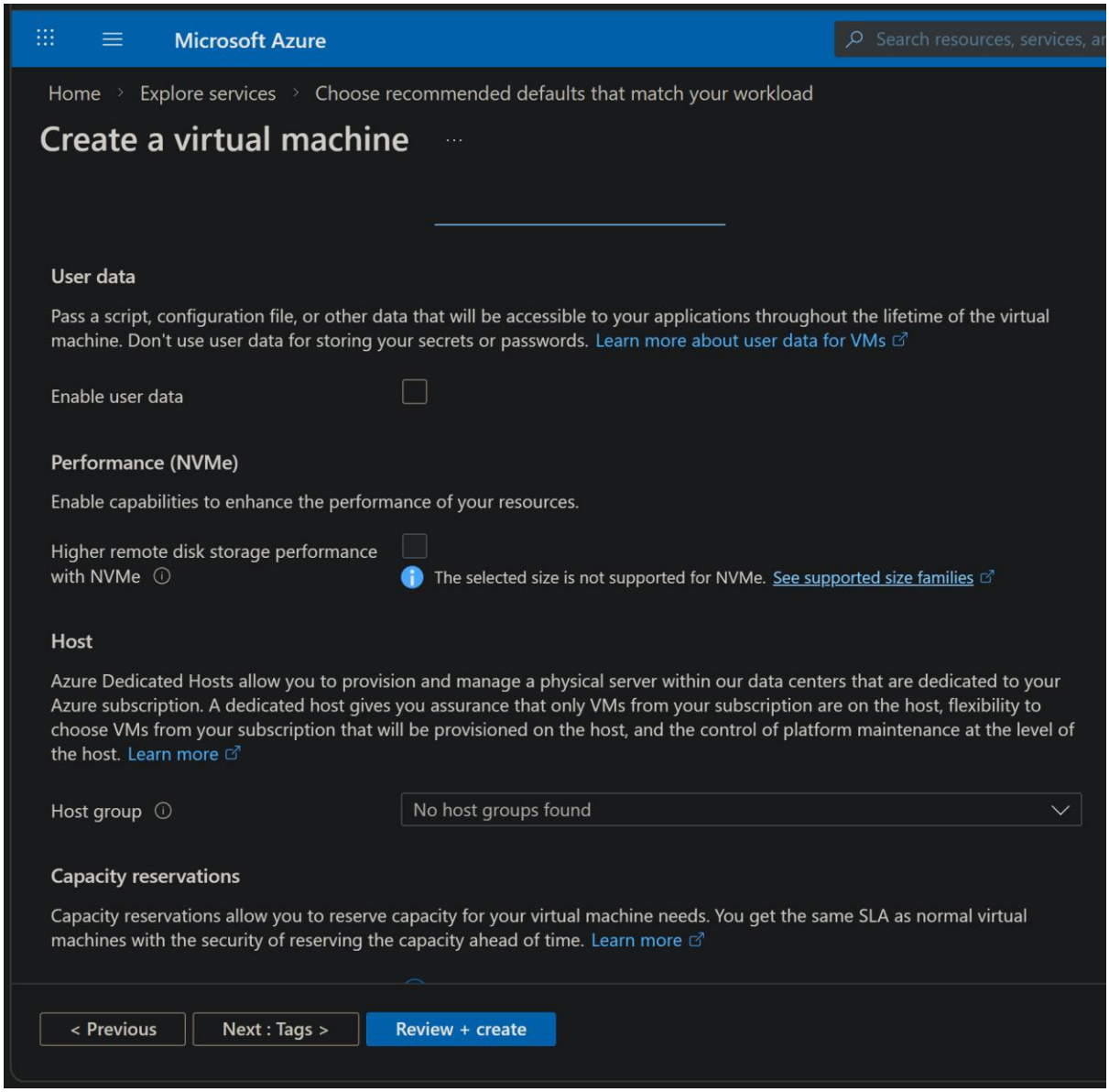
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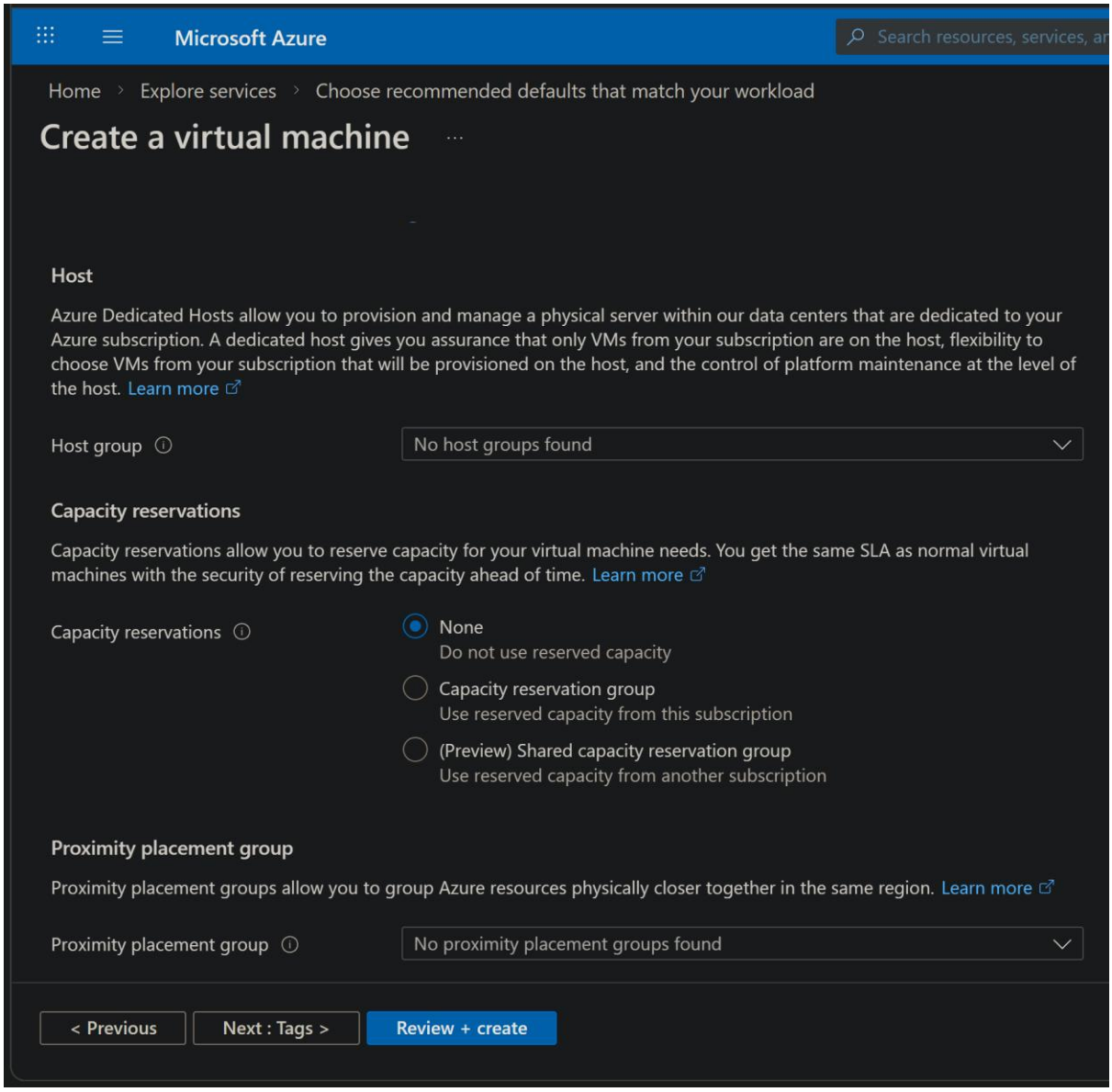
Search resources, services, ar
Home
Explore services
Choose recommended defaults that match your workload
Create a virtual machine
User data
Pass a script, configuration file, or other data that will be accessible to your applications throughout the lifetime of the virtual machine. Don't use user data for storing your secrets or passwords. Learn more about user data for VMs
Enable user data
Performance (NVMe)
Enable capabilities to enhance the performance of your resources.
Higher remote disk storage performance with NVMe
The selected size is not supported for NVMe. See supported size families
Host
Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to choose VMs from your subscription that will be provisioned on the host, and the control of platform maintenance at the level of the host. Learn more
Host group
No host groups found
Capacity reservations
Capacity reservations allow you to reserve capacity for your virtual machine needs. You get the same SLA as normal virtual machines with the security of reserving the capacity ahead of time. Learn more
< Previous
Next : Tags >
Review + create



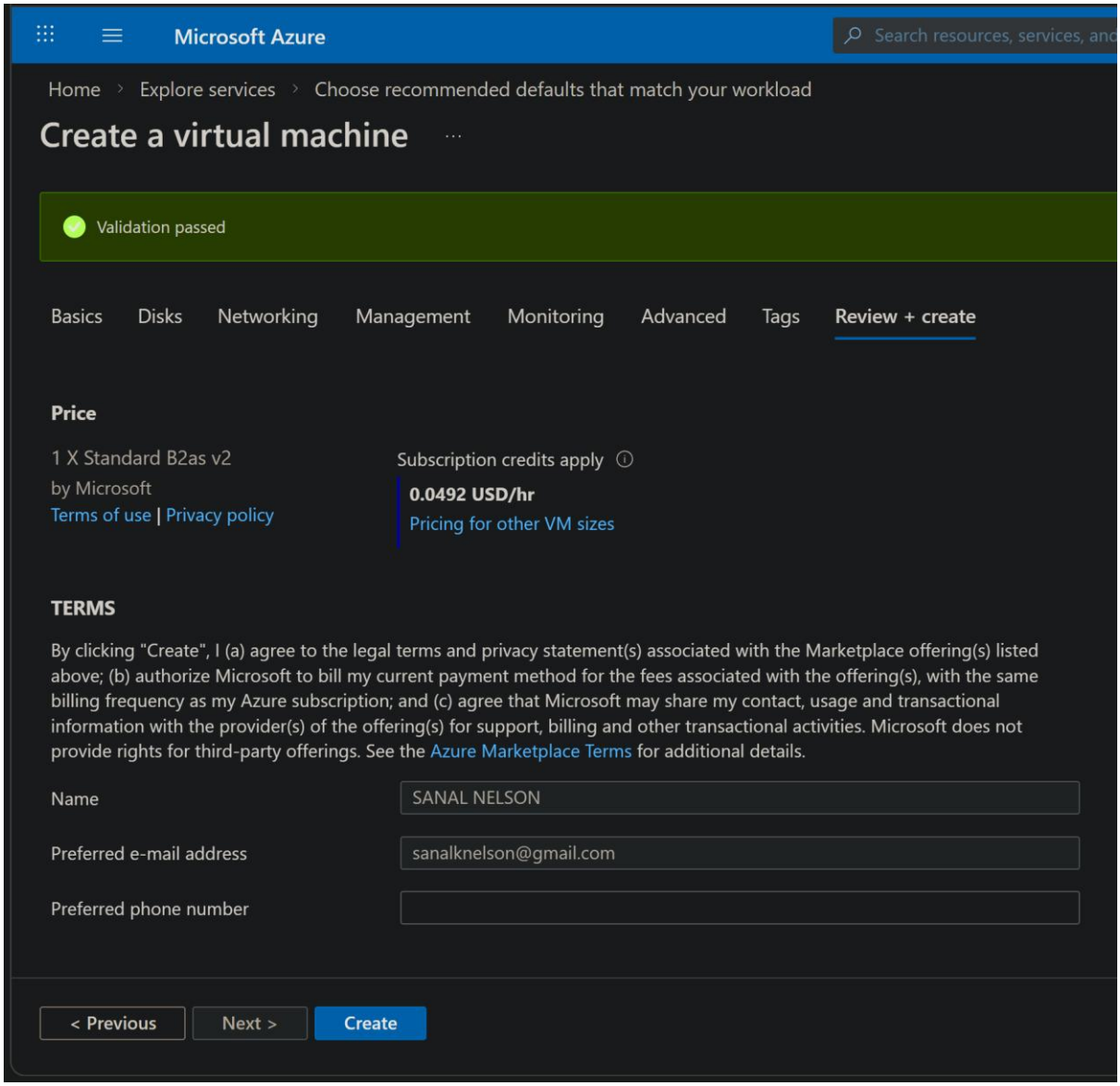
8. Deployment & SSH Validation

Finally, we **review and create the VM**.

After deployment:

- Download the private SSH key
- Connect to the VM using SSH
- Confirm successful login

Successful SSH access confirms that networking and authentication are correctly configured.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Choose recommended defaults that match your workload
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Basics
Disks
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Management
Monitoring
Advanced
Tags
Review + create
Price
1 X Standard B2as v2
by Microsoft
Terms of use | Privacy policy
Subscription credits apply
0.0492 USD/hr
Pricing for other VM sizes
TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the Azure Marketplace Terms for additional details.
Name
SANAL NELSON
Preferred e-mail address
sanalknelson@gmail.com
Preferred phone number
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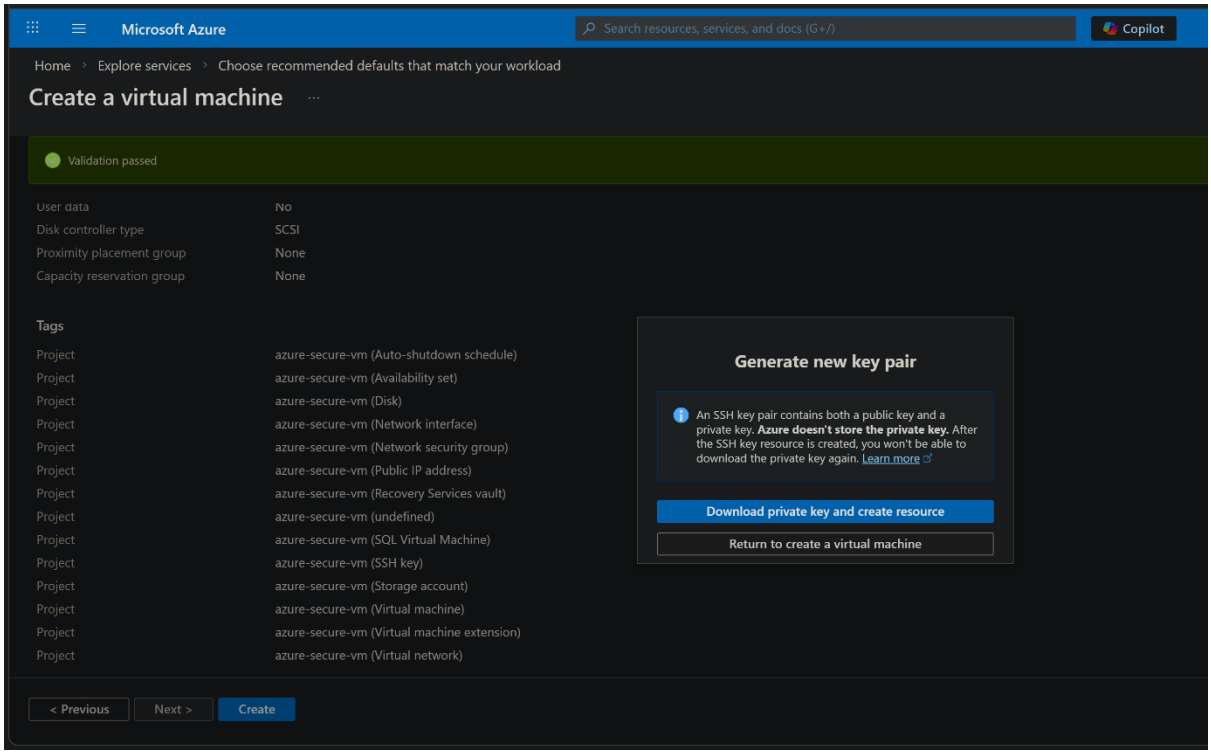
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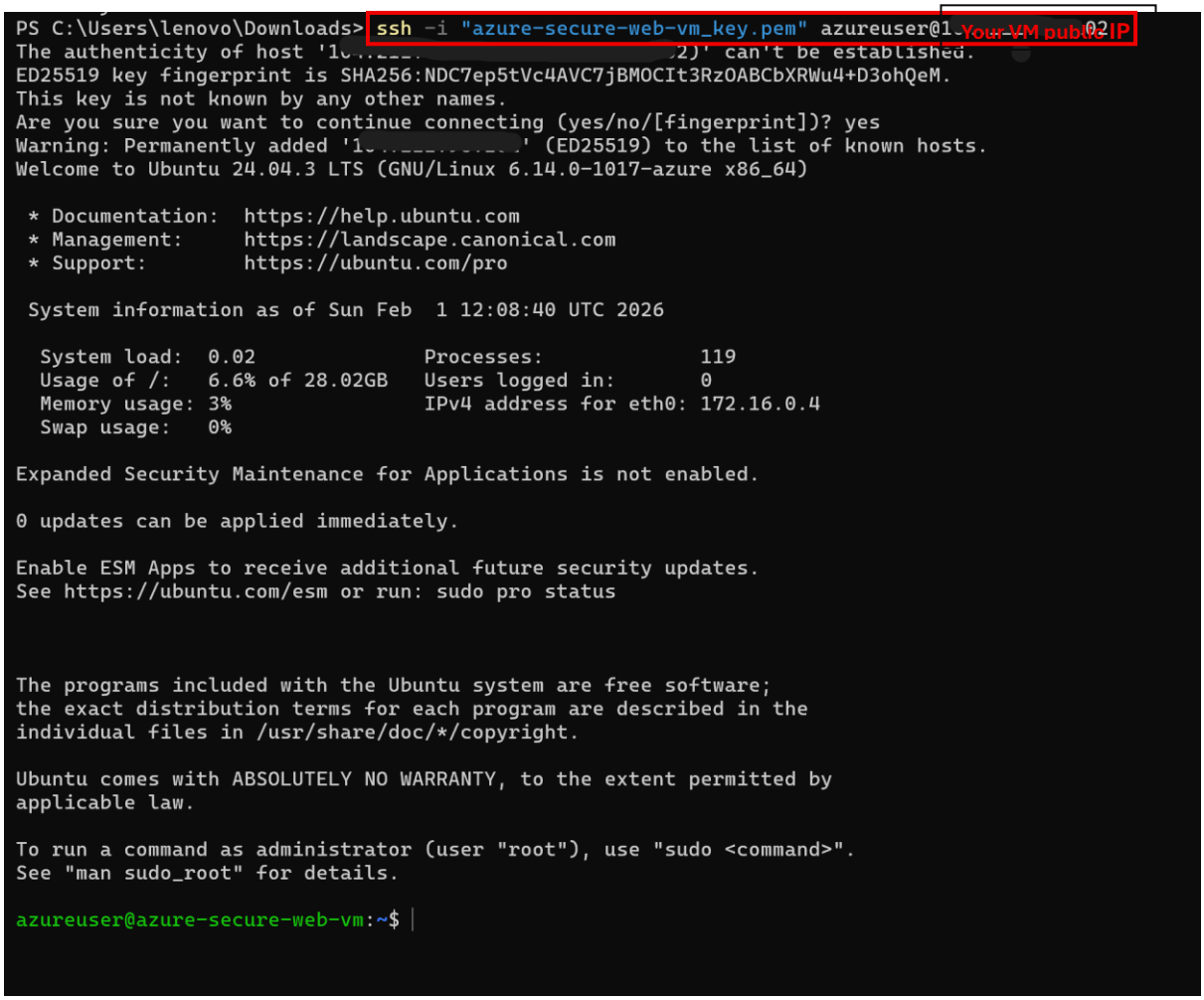
Home
Explore services
Choose recommended defaults that match your workload
Create a virtual machine
Validation passed
User data
No
Disk controller type
SCSI
Proximity placement group
None
Capacity reservation group
None
Tags
Project
azure-secure-vm (Auto-shutdown schedule)
azure-secure-vm (Availability set)
azure-secure-vm (Disk)
azure-secure-vm (Network interface)
azure-secure-vm (Network security group)
azure-secure-vm (Public IP address)
azure-secure-vm (Recovery Services vault)
azure-secure-vm (undefined)
azure-secure-vm (SQL Virtual Machine)
azure-secure-vm (SSH key)
azure-secure-vm (Storage account)
azure-secure-vm (Virtual machine)
azure-secure-vm (Virtual machine extension)
azure-secure-vm (Virtual network)
Generate new key pair
An SSH key pair contains both a public key and a private key. Azure doesn't store the private key. After the SSH key resource is created, you won't be able to download the private key again. Learn more
Download private key and create resource
Return to create a virtual machine
< Previous
Next >
Create


PS C:\Users\lenovo\Downloads> ssh -i "azure-secure-web-vm_key.pem" azureuser@1
Your VM public IP
The authenticity of host '1
2)' can't be established.
ED25519 key fingerprint is SHA256:NDC7ep5tVc4AVC7jBMOCIt3RzOABCbXRWu4+D3ohQeM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '1
' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1017-azure x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
System information as of Sun Feb 1 12:08:40 UTC 2026
System load: 0.02
Usage of /: 6.6% of 28.02GB
Memory usage: 3%
Swap usage: 0%
Processes: 119
Users logged in: 0
IPv4 address for eth0: 172.16.0.4
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
azureuser@azure-secure-web-vm:~$

Outcome

At the end of this phase:

- A Linux VM is successfully running in Azure
- Resource group was auto-created during VM deployment
- SSH access is verified
- Diagnostics and monitoring are enabled
- The VM is ready for Sentinel integration in the next phase