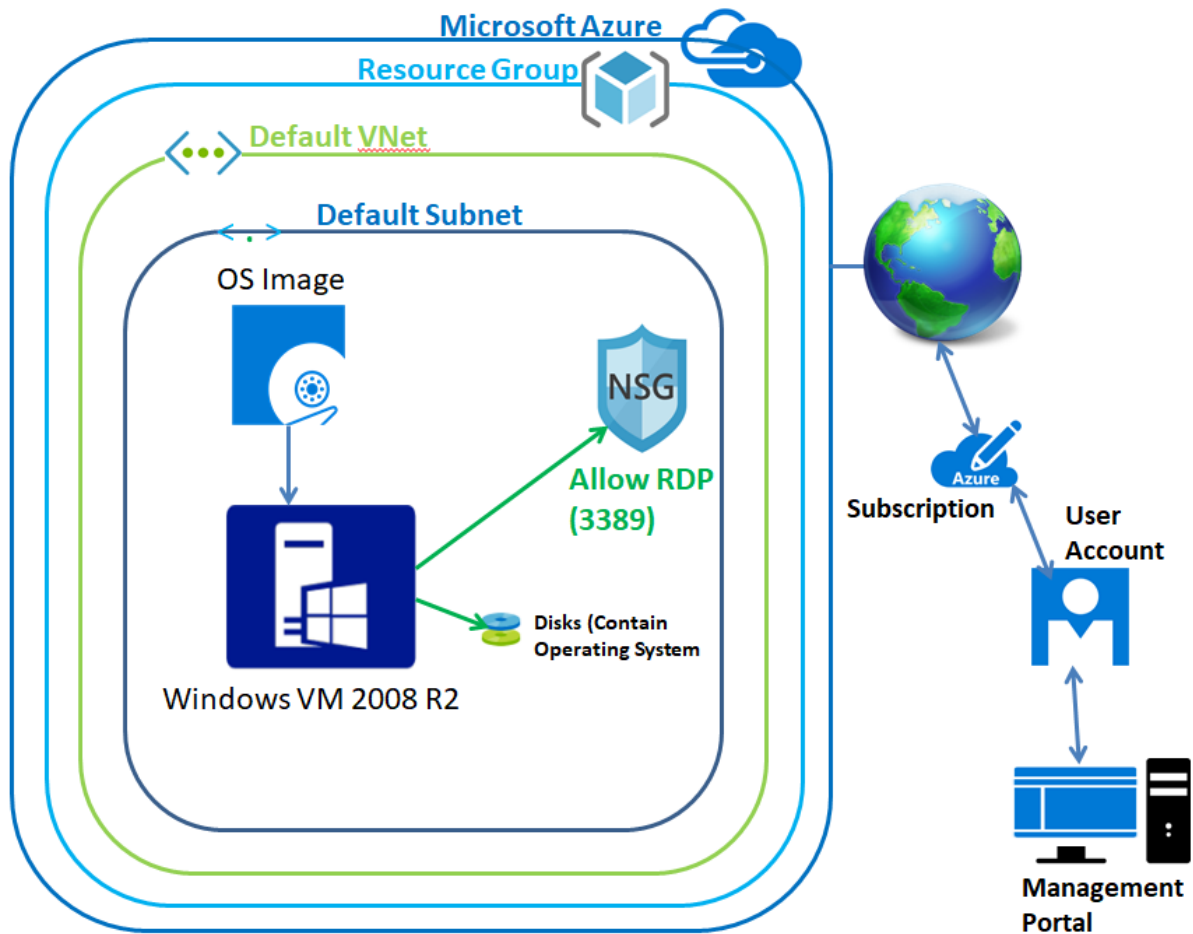
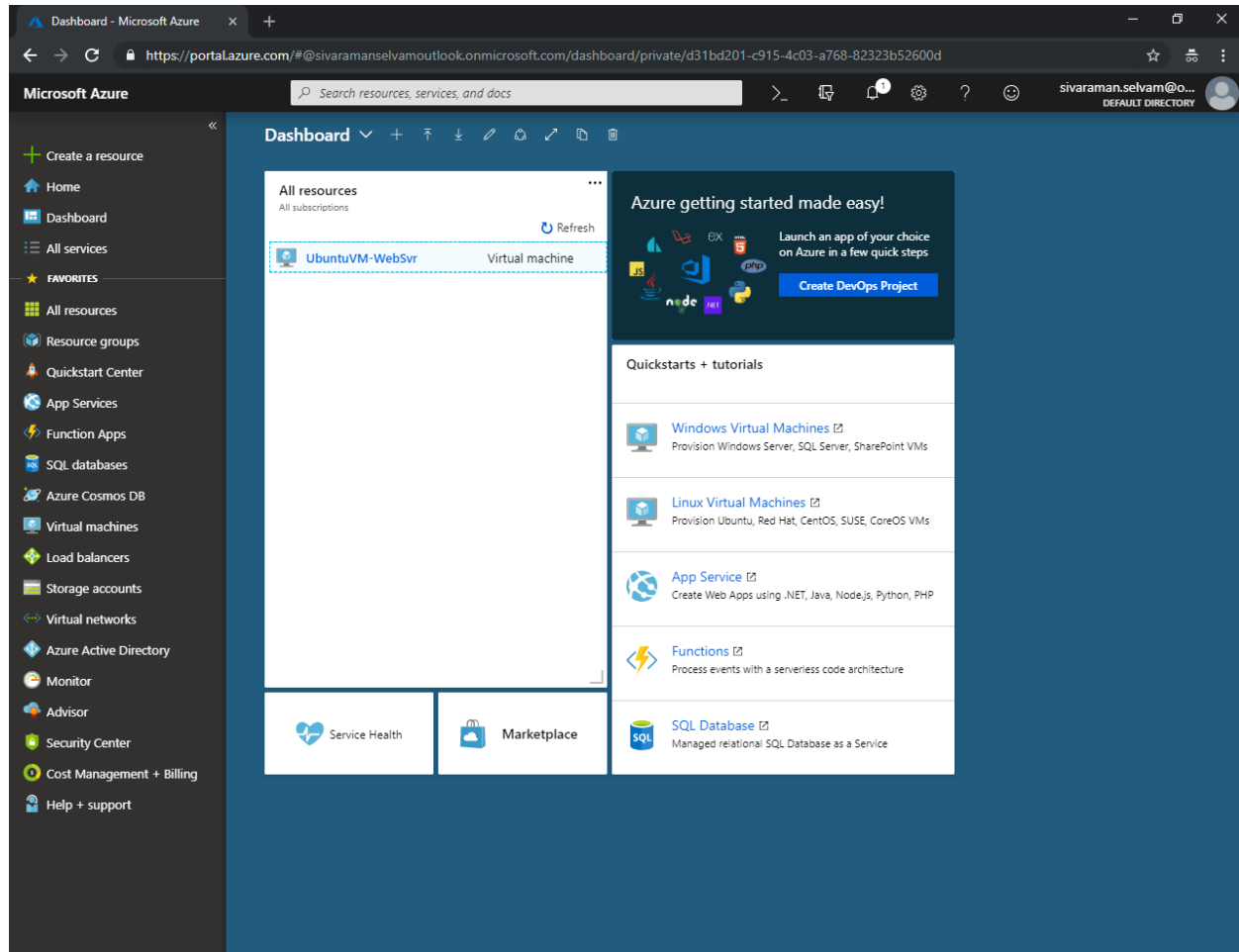


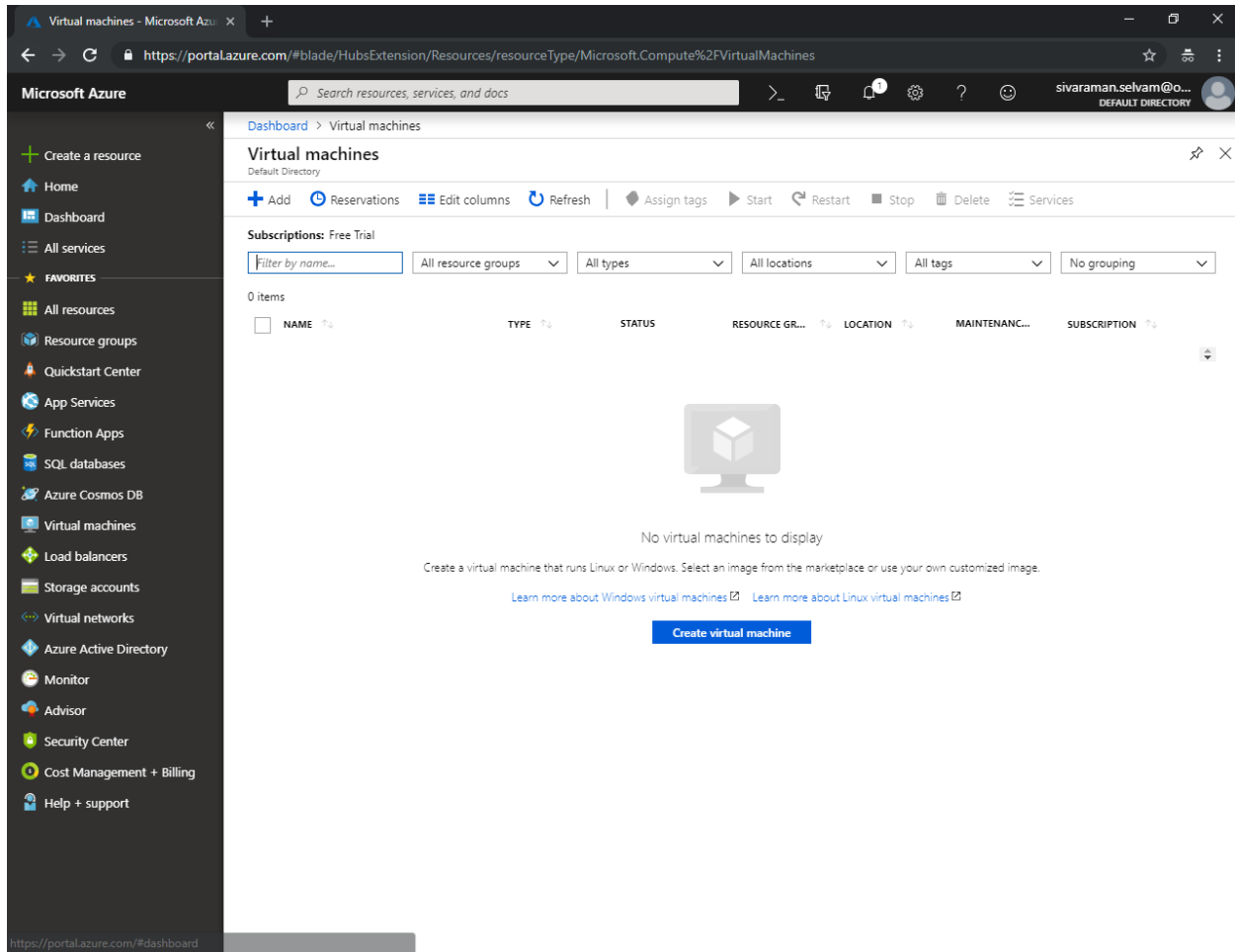
## Lab5 – Understanding Features of Virtual Machine - Azure



In Azure portal, click “**Virtual machines**”.



In “Virtual machines” click “Add” to create virtual machine.

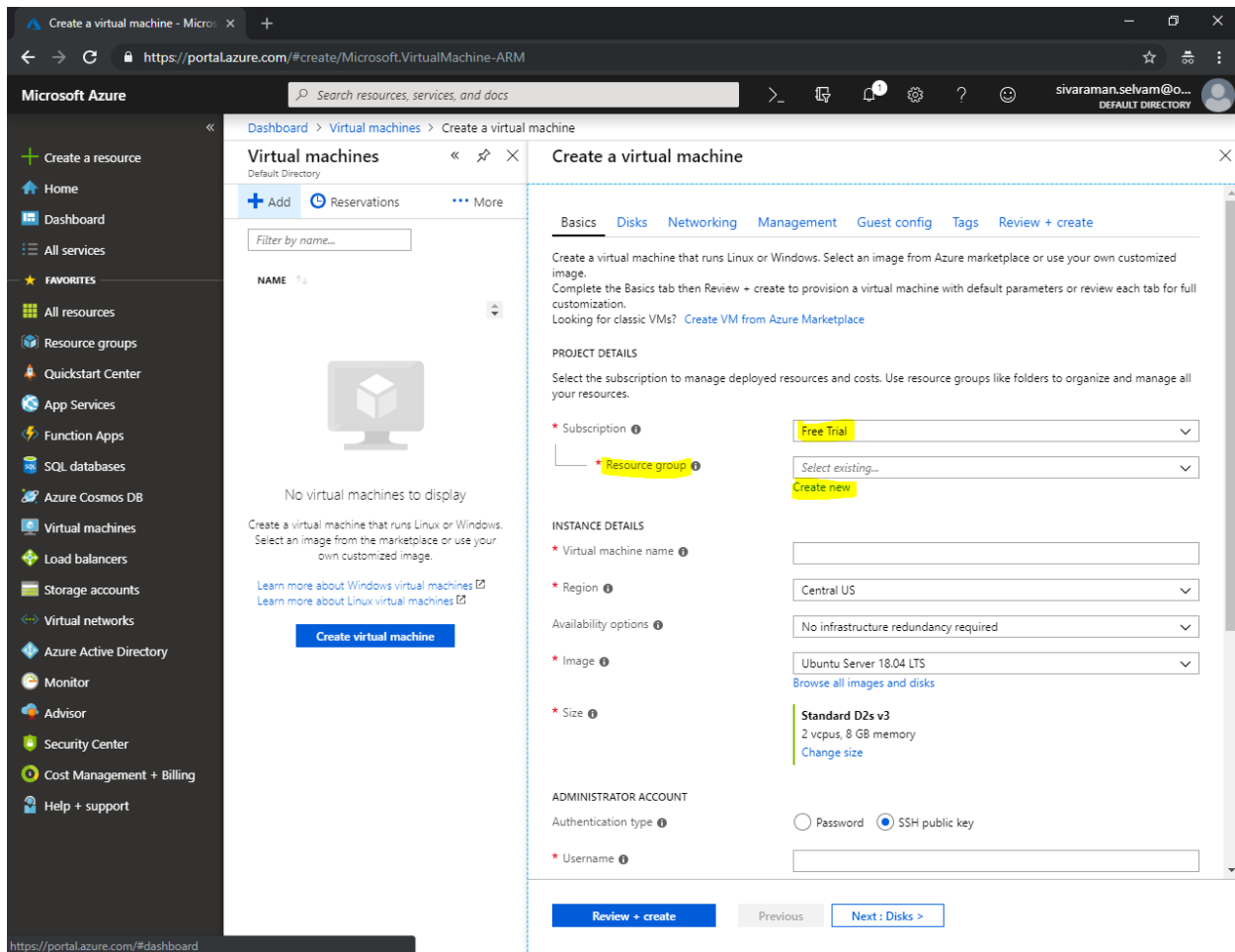


The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The 'Virtual machines' option is selected. The top bar shows the user's profile and the search bar. The main content area displays the 'Virtual machines' page, which is currently empty. A message states 'No virtual machines to display' and provides a link to 'Create virtual machine'. Below this, there is a button labeled 'Create virtual machine'.

While create a virtual machine,

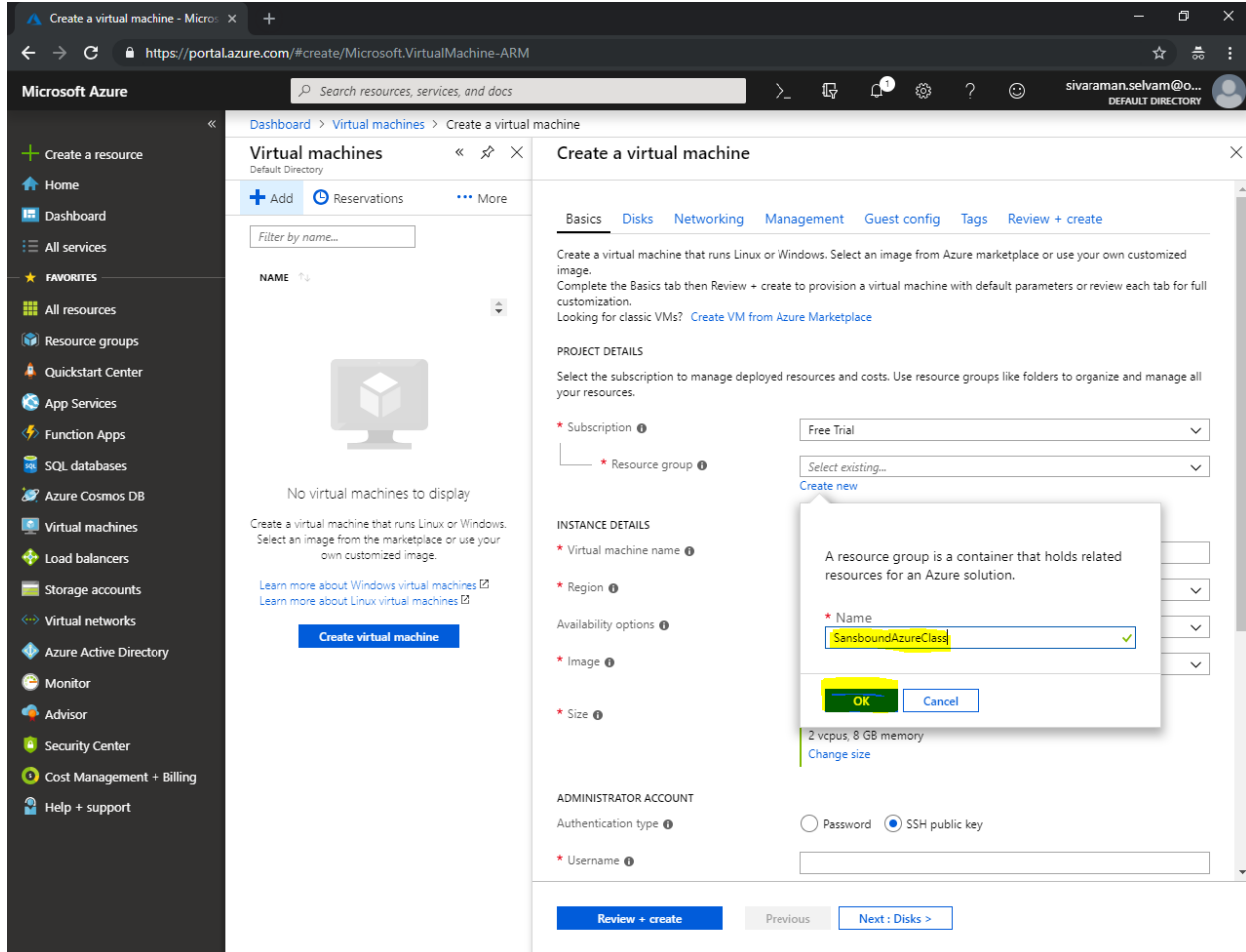
In “**Subscription**” → Select “Free Trial”.

In “**Resource Group**” → Click “Create new” to create new “Resource Group”.



The screenshot displays the Azure portal interface for creating a virtual machine. The left-hand navigation pane includes sections for 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The 'Virtual machines' section is selected. The main content area is split into two panes. The left pane, titled 'Virtual machines', shows a message 'No virtual machines to display' and a 'Create virtual machine' button. The right pane, titled 'Create a virtual machine', contains a form with several sections: 'Basics' (Subscription: Free Trial, Resource group: Create new), 'INSTANCE DETAILS' (Virtual machine name, Region: Central US, Availability options: No infrastructure redundancy required, Image: Ubuntu Server 18.04 LTS, Size: Standard D2s v3), and 'ADMINISTRATOR ACCOUNT' (Authentication type: SSH public key, Username). The 'Free Trial' and 'Create new' options are highlighted in yellow.

Type a “Resource group” name as “**SansboundAzureClass**” and Click “Ok”.



The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains navigation links like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area is titled 'Create a virtual machine' and includes a 'Virtual machines' section with a 'Filter by name...' search bar. The 'Basics' tab is selected, showing fields for 'Subscription' (Free Trial), 'Resource group' (Select existing...), 'Virtual machine name', 'Region', 'Image', 'Size' (2 vcpus, 8 GB memory), and 'Authentication type' (SSH public key). A modal dialog is open, stating 'A resource group is a container that holds related resources for an Azure solution.' and has a 'Name' field containing 'SansboundAzureClass'.

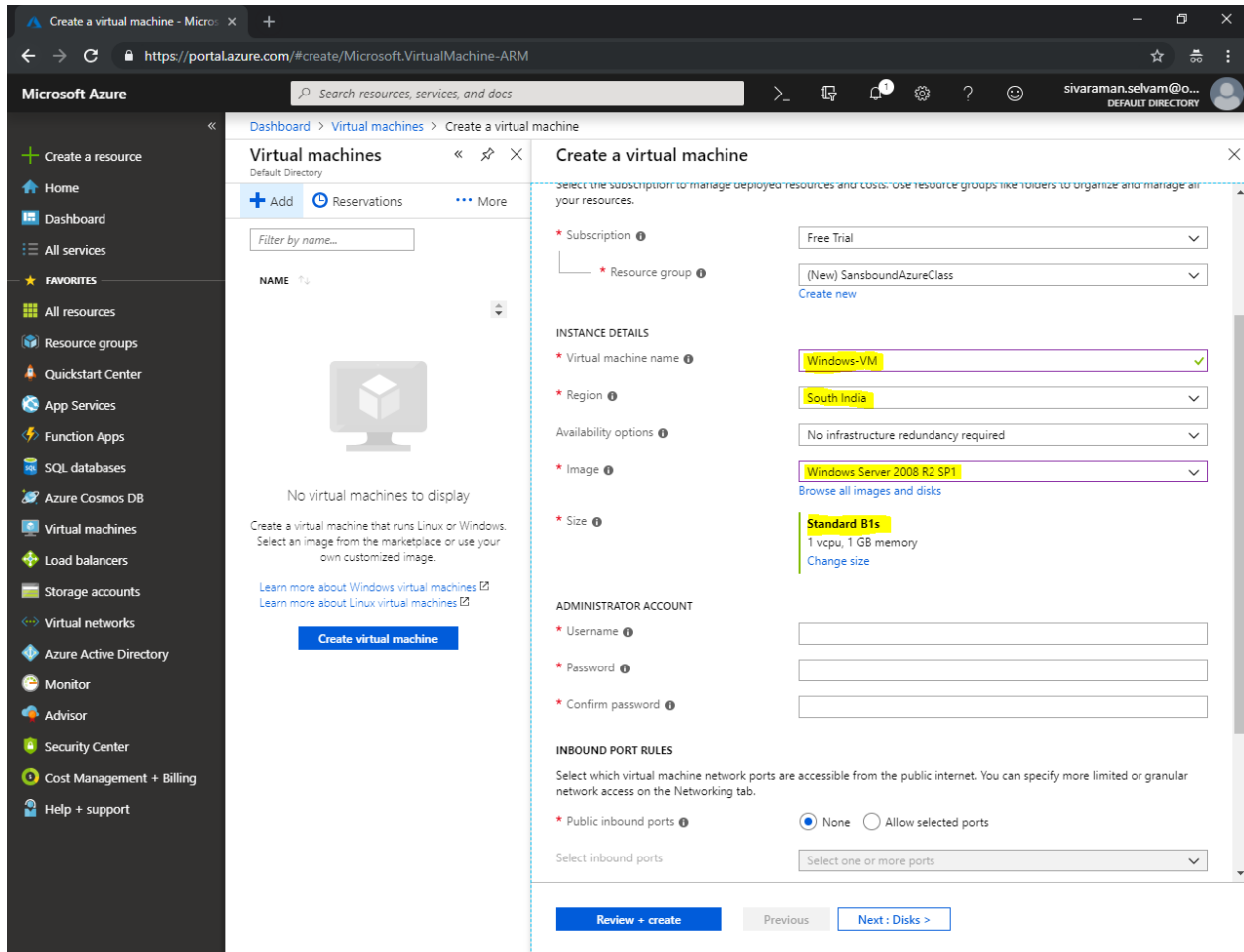
In “Instance details”

Type “Virtual machine name” as “**Windows-VM**”

Select “Region” as “**South India**”.

Select “OS Image” as “**Windows Server 2008 R2 SP1**”.

Also ensure that “VM Size” is changed as “**Standard B1s**”.



Microsoft Azure

Dashboard > Virtual machines > Create a virtual machine

Virtual machines

Filter by name...

NAME

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

[Learn more about Windows virtual machines](#)

[Learn more about Linux virtual machines](#)

Create virtual machine

Create a virtual machine

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

\* Subscription: Free Trial

\* Resource group: (New) SansboundAzureClass

Create new

INSTANCE DETAILS

\* Virtual machine name: Windows-VM

\* Region: South India

Availability options: No infrastructure redundancy required

\* Image: Windows Server 2008 R2 SP1

Browse all images and disks

\* Size: Standard B1s

1 vcpu, 1 GB memory

Change size

ADMINISTRATOR ACCOUNT

\* Username

\* Password

\* Confirm password

INBOUND PORT RULES

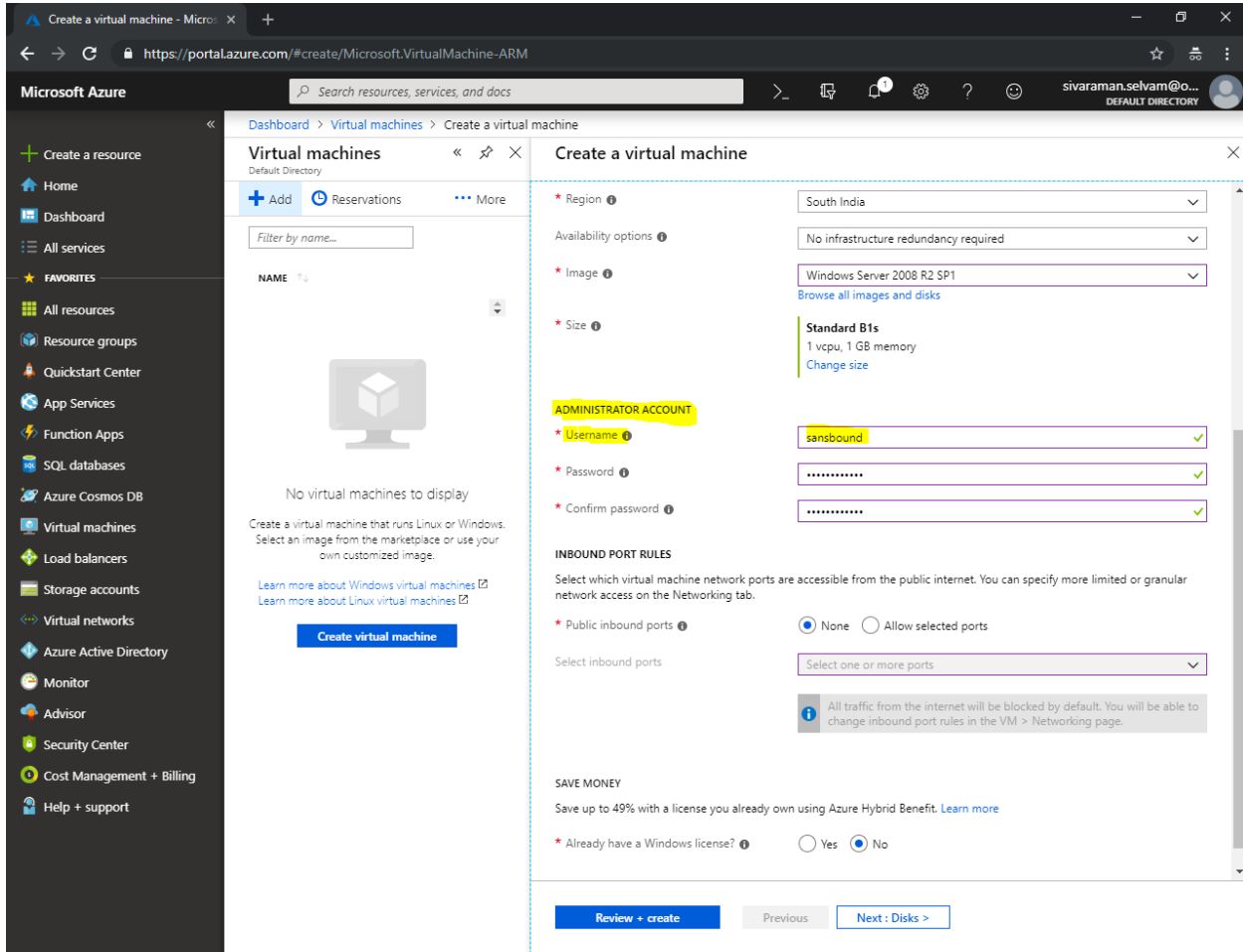
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

\* Public inbound ports: ☒ None ☐ Allow selected ports

Select inbound ports: Select one or more ports

Review + create Previous Next : Disks >

In **“Administrator Account”**, specify the username as **“sansbound”** and then type your own password to access the server.



The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains navigation links for various Azure services. The main content area is titled 'Create a virtual machine' and includes a 'Virtual machines' section with a 'Create virtual machine' button. The 'ADMINISTRATOR ACCOUNT' section is highlighted, showing the username 'sansbound' and password fields. The 'INBOUND PORT RULES' section shows 'Public inbound ports' set to 'None'. The 'SAVE MONEY' section shows 'Already have a Windows license?' set to 'No'.

**Region**: South India

**Availability options**: No infrastructure redundancy required

**Image**: Windows Server 2008 R2 SP1

**Size**: Standard B1s (1 vcpu, 1 GB memory)

**ADMINISTRATOR ACCOUNT**

- Username**: sansbound
- Password**: [Redacted]
- Confirm password**: [Redacted]

**INBOUND PORT RULES**

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

**Public inbound ports**: ☒ None ☐ Allow selected ports

Select inbound ports: [Select one or more ports]

**SAVE MONEY**

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

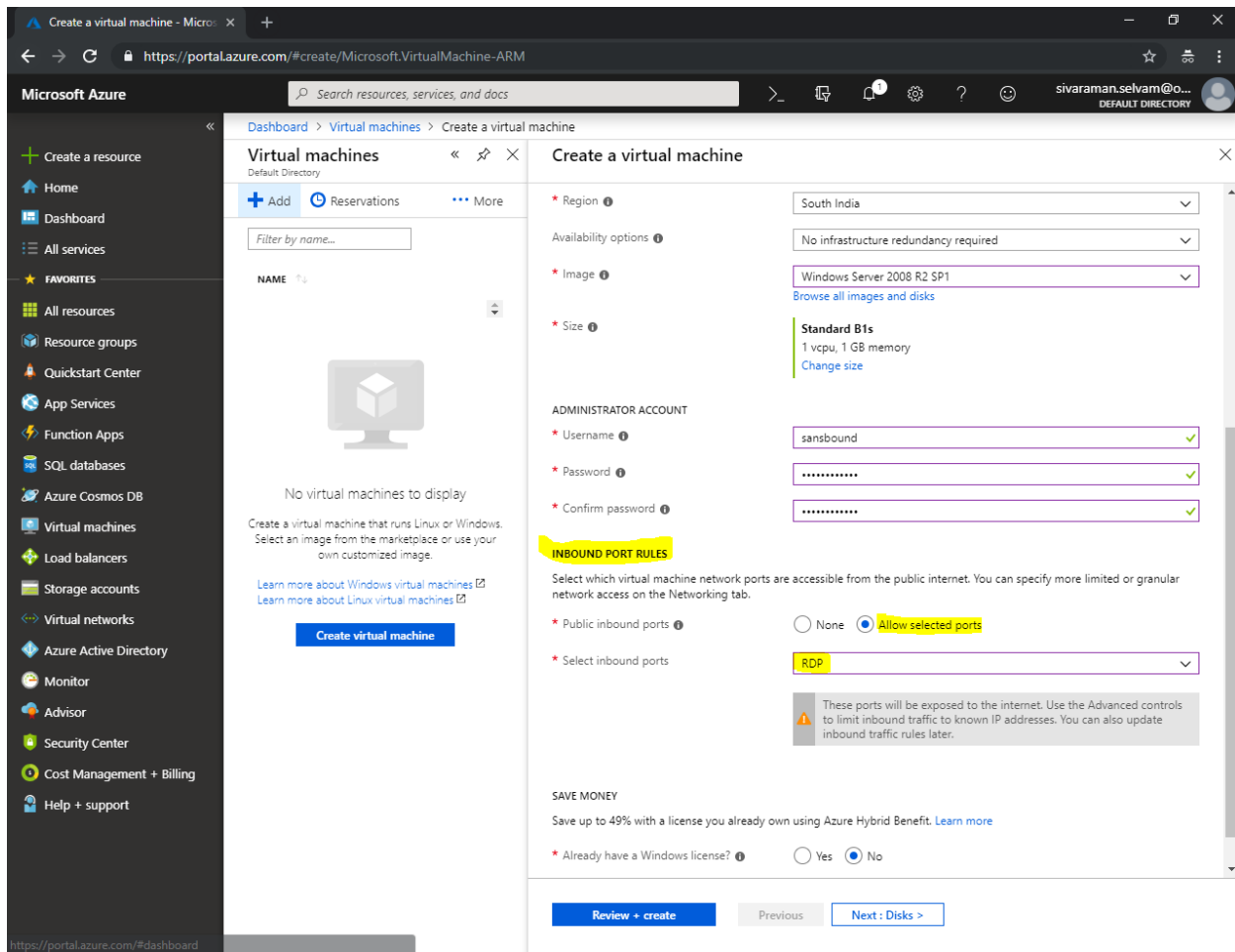
**Already have a Windows license?** ☐ Yes ☒ No

**Buttons**: Review + create, Previous, Next : Disks >

In “Inbound Port Rules”,

In “Public inbound ports click “Allow selected ports” option.

In “Selected inbound ports”, you need to check the RDP (3389) Port to allow in inbound traffic.



Microsoft Azure

Search resources, services, and docs

Dashboard > Virtual machines > Create a virtual machine

Virtual machines

Filter by name...

NAME

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines

Learn more about Linux virtual machines

Create virtual machine

Create a virtual machine

Region: South India

Availability options: No infrastructure redundancy required

Image: Windows Server 2008 R2 SP1

Size: Standard B1s (1 vcpu, 1 GB memory)

ADMINISTRATOR ACCOUNT

Username: sansbound

Password: [REDACTED]

Confirm password: [REDACTED]

**INBOUND PORT RULES**

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports: ☒ Allow selected ports

Select inbound ports: RDP

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

SAVE MONEY

Save up to 49% with a license you already own using Azure Hybrid Benefit. Learn more

Already have a Windows license?: ☐ Yes ☒ No

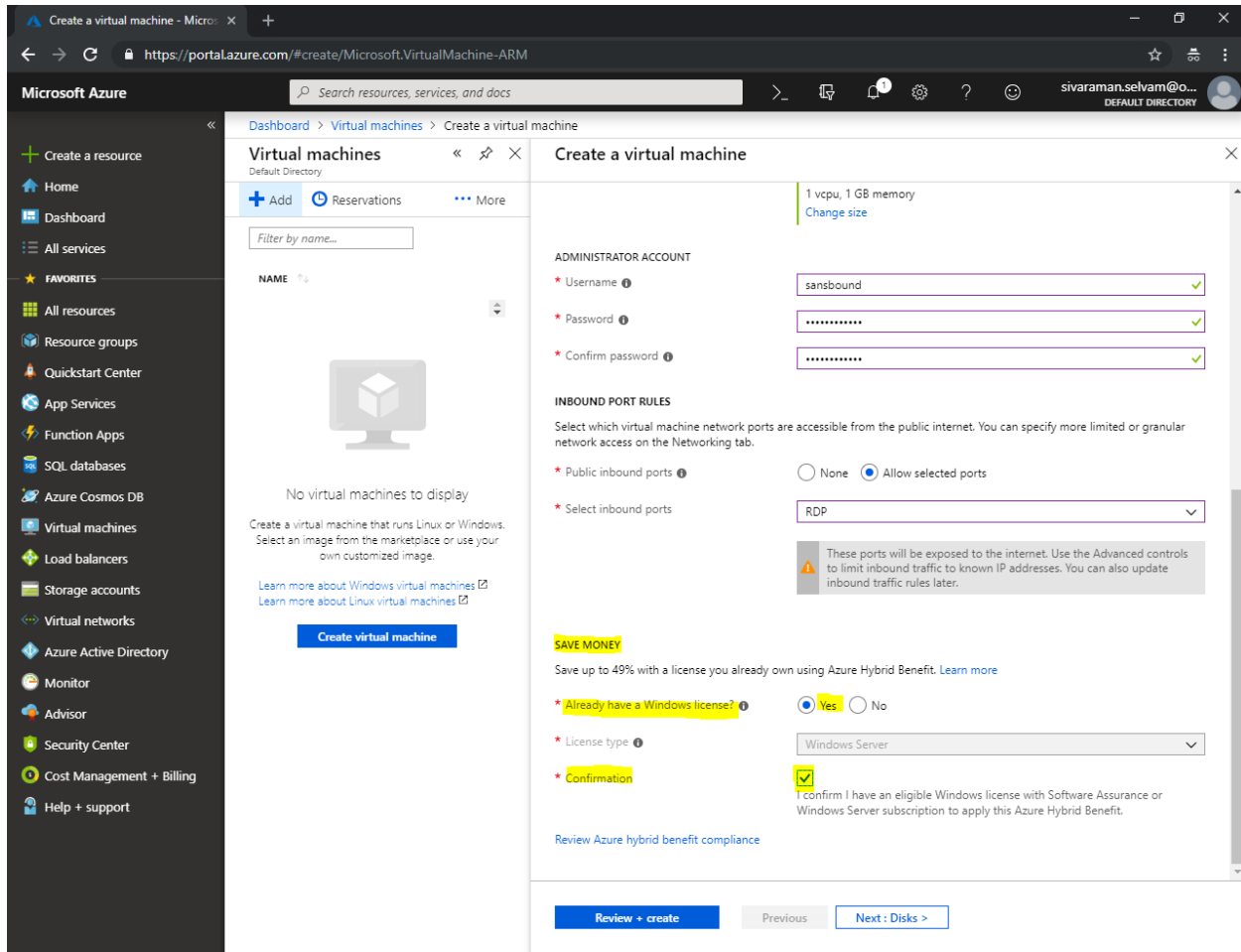
Review + create Previous Next : Disks >



In **“Save Money”**

Click **“Yes”** option for **“Already have a Windows license”**.

Need to check the **“Confirmation”** box.



Microsoft Azure

Search resources, services, and docs

sivaraman.selvam@o...  
DEFAULT DIRECTORY

Dashboard > Virtual machines > Create a virtual machine

Virtual machines  
Default Directory

+ Add Reservations More

Filter by name...

NAME %

No virtual machines to display

Create a virtual machine that runs Linux or Windows.  
Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines  
Learn more about Linux virtual machines

Create virtual machine

Create a virtual machine

1 vcpu, 1 GB memory  
Change size

ADMINISTRATOR ACCOUNT

\* Username sansbound ✓

\* Password \*\*\*\*\* ✓

\* Confirm password \*\*\*\*\* ✓

INBOUND PORT RULES

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

\* Public inbound ports ☐ None ☒ Allow selected ports

\* Select inbound ports RDP

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

SAVE MONEY

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

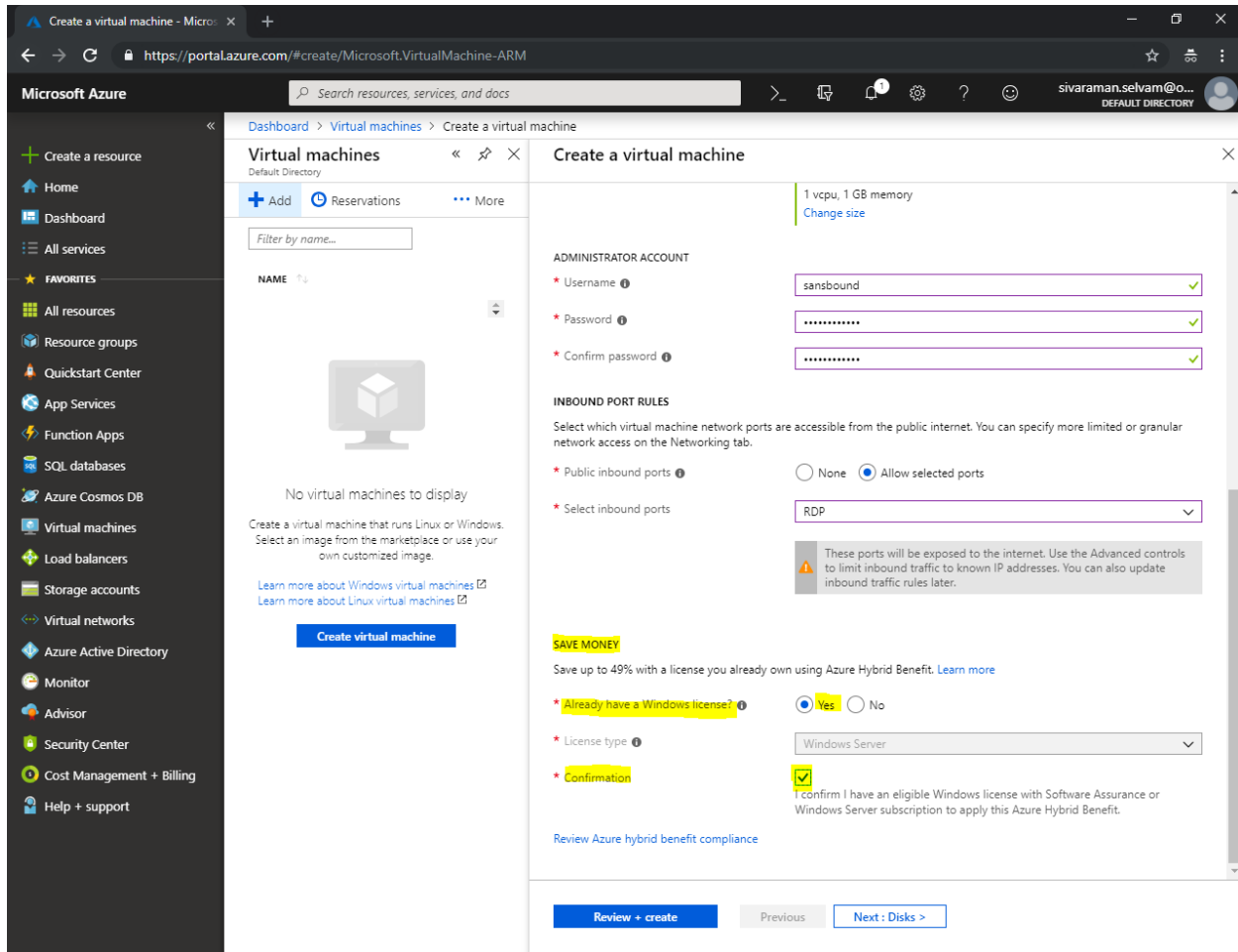
\* Already have a Windows license? ☒ Yes ☐ No

\* License type Windows Server

\* Confirmation ☒ I confirm I have an eligible Windows license with Software Assurance or Windows Server subscription to apply this Azure Hybrid Benefit.

[Review Azure hybrid benefit compliance](#)

Review + create Previous Next : Disks >



Create a virtual machine - Micro: X

https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM

Microsoft Azure

Search resources, services, and docs

sivaraman.selvam@o...  
DEFAULT DIRECTORY

Dashboard > Virtual machines > Create a virtual machine

Virtual machines  
Default Directory

+ Add Reservations ... More

Filter by name...

NAME %

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines [\[?\]](#)  
Learn more about Linux virtual machines [\[?\]](#)

Create virtual machine

1 vcpu, 1 GB memory  
[Change size](#)

ADMINISTRATOR ACCOUNT

\* Username [\[?\]](#) sansbound ✓

\* Password [\[?\]](#) ..... ✓

\* Confirm password [\[?\]](#) ..... ✓

INBOUND PORT RULES

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

\* Public inbound ports [\[?\]](#) ☐ None ☒ Allow selected ports

\* Select inbound ports RDP

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

SAVE MONEY

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

\* Already have a Windows license? [\[?\]](#) ☒ Yes ☐ No

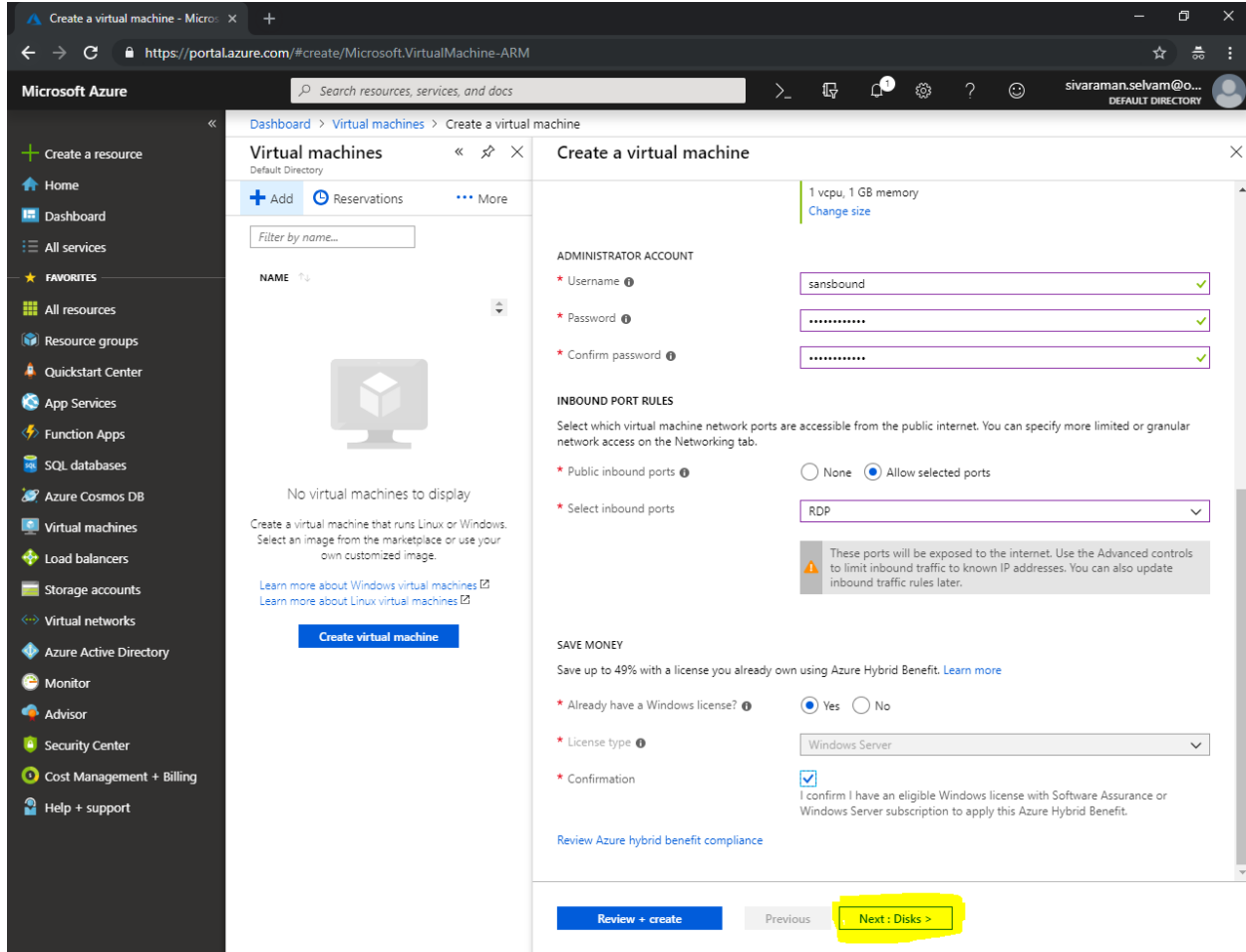
\* License type [\[?\]](#) Windows Server

\* Confirmation ☒ I confirm I have an eligible Windows license with Software Assurance or Windows Server subscription to apply this Azure Hybrid Benefit.

[Review Azure hybrid benefit compliance](#)

Review + create Previous Next: Disks >

Click **"Next : Disks >"**.



The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains navigation links such as 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'Create a virtual machine' and displays the 'Virtual machines' section. The 'Create a virtual machine' wizard is open, showing the 'Administrator account' and 'Inbound port rules' sections. The 'Next : Disks >' button is highlighted in yellow.

**Virtual machines**

Default Directory

+ Add Reservations ... More

Filter by name...

NAME

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

[Learn more about Windows virtual machines](#)

[Learn more about Linux virtual machines](#)

[Create virtual machine](#)

**Create a virtual machine**

1 vcpu, 1 GB memory  
[Change size](#)

**ADMINISTRATOR ACCOUNT**

- \* Username: sansbound
- \* Password: .....
- \* Confirm password: .....

**INBOUND PORT RULES**

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

- \* Public inbound ports: ☐ None ☒ Allow selected ports
- \* Select inbound ports: RDP

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

**SAVE MONEY**

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

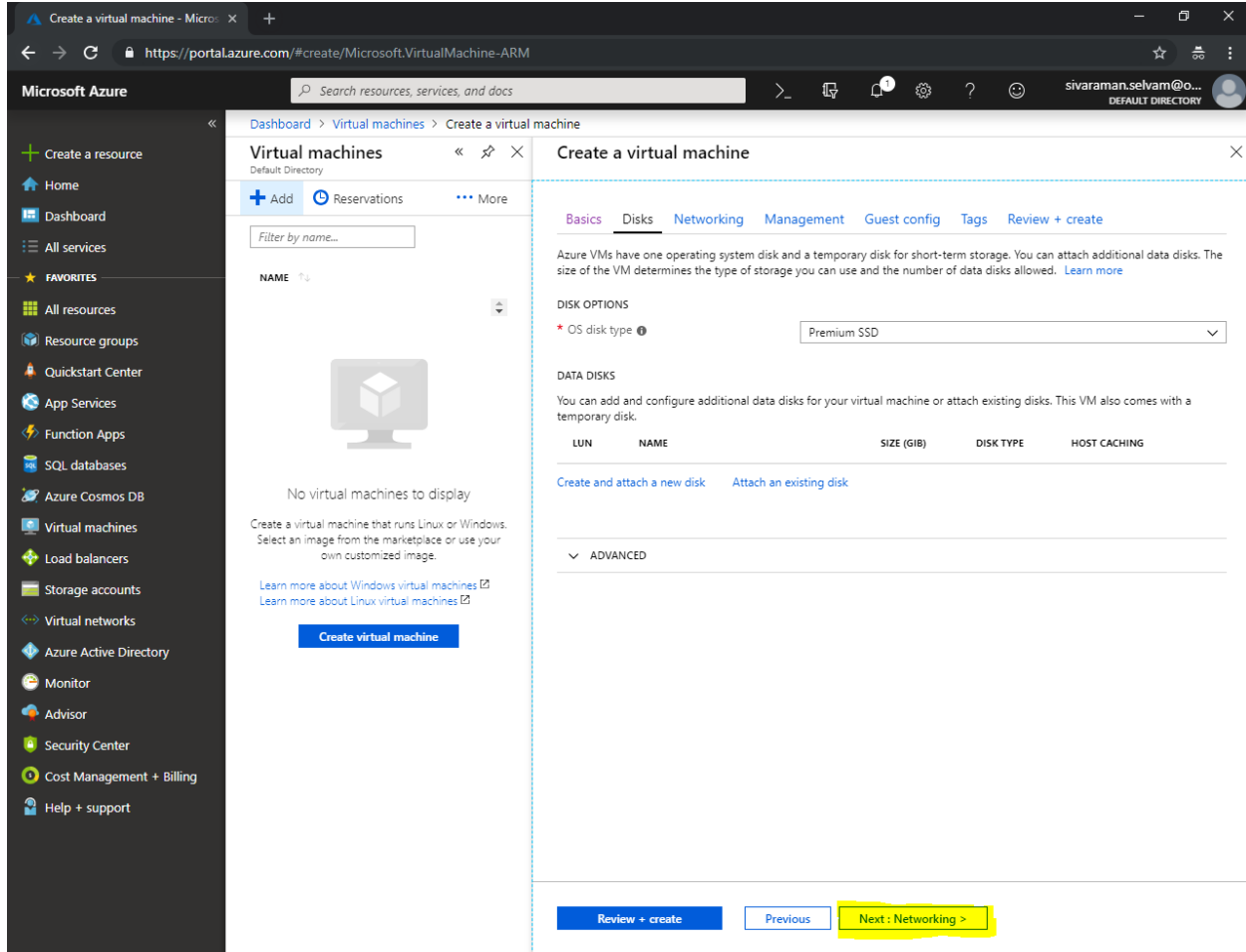
- \* Already have a Windows license?: ☒ Yes ☐ No
- \* License type: Windows Server
- \* Confirmation: ☒ I confirm I have an eligible Windows license with Software Assurance or Windows Server subscription to apply this Azure Hybrid Benefit.

[Review Azure hybrid benefit compliance](#)

[Review + create](#) [Previous](#) [Next : Disks >](#)

## In “Disks”

Leave default settings and Click “Next : Networking >”.



The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'Virtual machines' and 'Create a virtual machine'. It shows a list of virtual machines (currently empty) and a 'Create virtual machine' button. The right pane displays the 'Create a virtual machine' wizard with tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Guest config', 'Tags', and 'Review + create'. The 'Disks' tab is active, showing 'DISK OPTIONS' with 'OS disk type' set to 'Premium SSD'. Below this is the 'DATA DISKS' section with a table for adding disks. At the bottom, there are three buttons: 'Review + create', 'Previous', and 'Next : Networking >', which is highlighted in yellow.

Microsoft Azure

Search resources, services, and docs

Dashboard > Virtual machines > Create a virtual machine

Virtual machines

+ Add Reservations More

Filter by name...

NAME

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines

Learn more about Linux virtual machines

Create virtual machine

Create a virtual machine

Basics Disks Networking Management Guest config Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

DISK OPTIONS

\* OS disk type Premium SSD

DATA DISKS

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	NAME	SIZE (GiB)	DISK TYPE	HOST CACHING
-----	------	------------	-----------	--------------

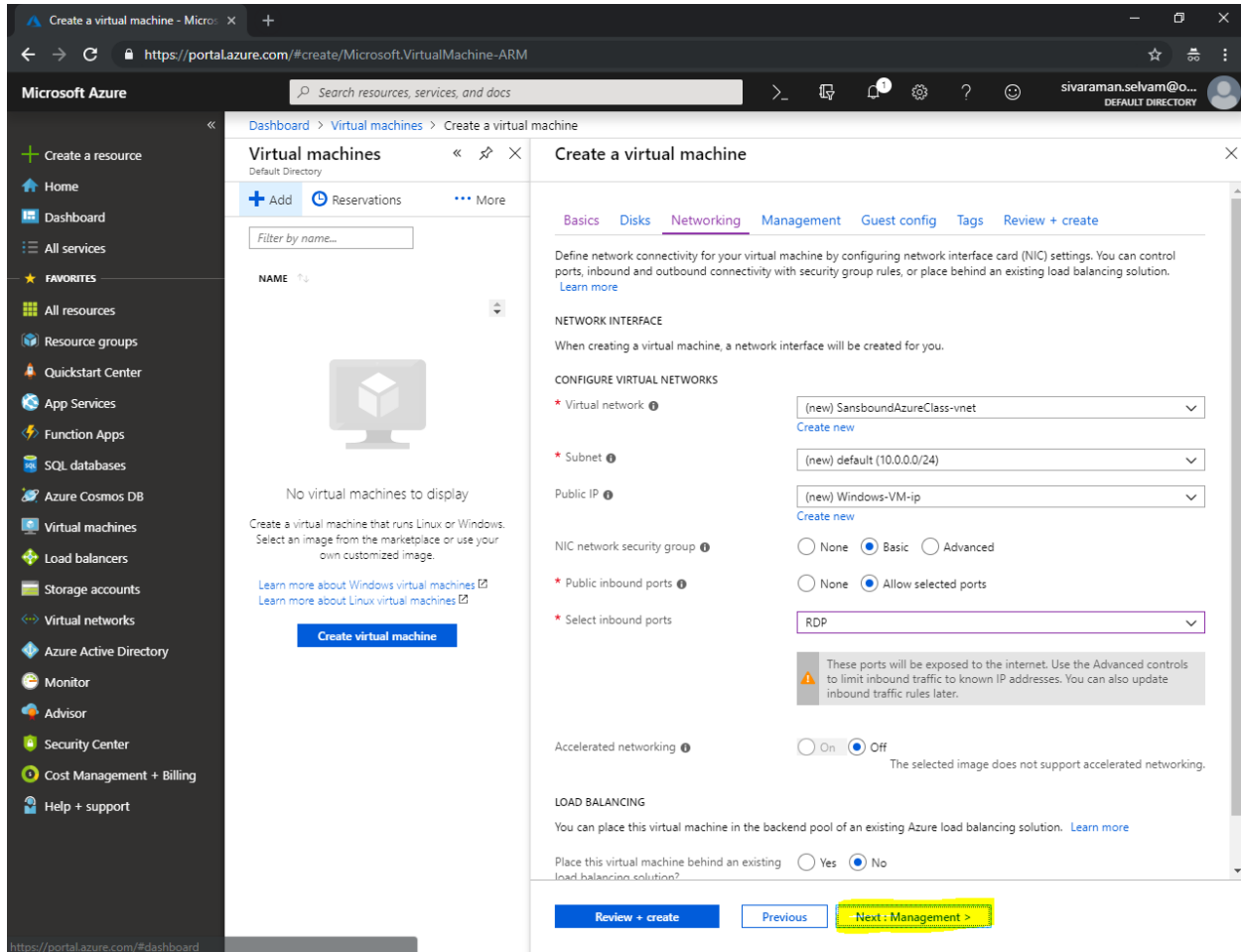
[Create and attach a new disk](#) [Attach an existing disk](#)

ADVANCED

Review + create Previous Next : Networking >

In “Networking”.

Leave default and click “Next : Management >”.

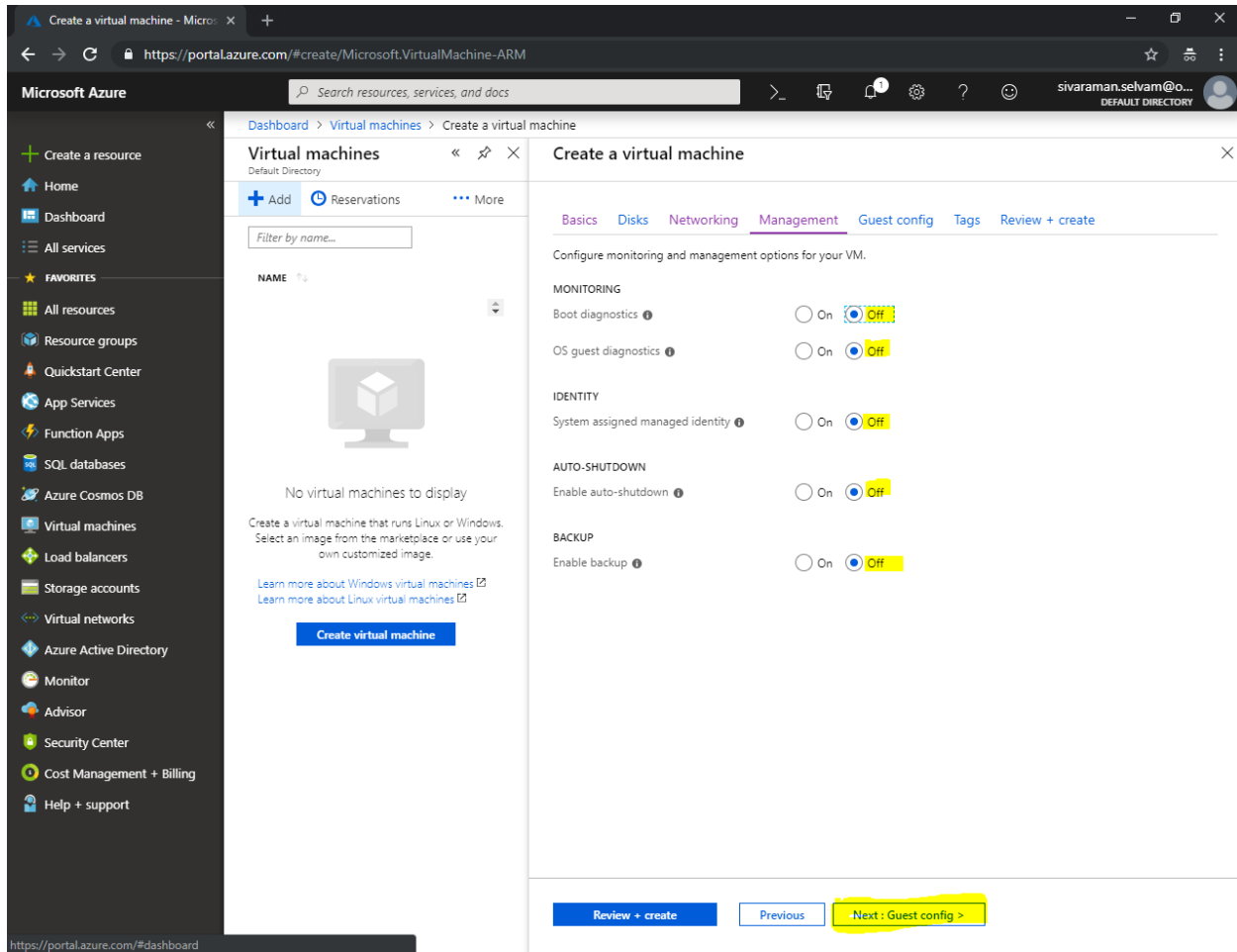


The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area is titled 'Create a virtual machine' and has tabs for 'Basics', 'Disks', 'Networking' (selected), 'Management', 'Guest config', 'Tags', and 'Review + create'. The 'Networking' tab is active, showing configuration options for the network interface. The 'Virtual network' is set to '(new) SansboundAzureClass-vnet', the 'Subnet' to '(new) default (10.0.0.0/24)', and the 'Public IP' to '(new) Windows-VM-ip'. The 'NIC network security group' is set to 'Basic'. The 'Public inbound ports' are set to 'Allow selected ports', and the 'Select inbound ports' dropdown is set to 'RDP'. A warning message states: 'These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.' The 'Accelerated networking' is set to 'Off' with a note: 'The selected image does not support accelerated networking.' The 'LOAD BALANCING' section asks 'Place this virtual machine behind an existing load balancing solution?' with 'No' selected. At the bottom, there are three buttons: 'Review + create', 'Previous', and 'Next : Management >' (highlighted in yellow).

In “Management”

Ensure that all are in “Off” state, it’s your choice based on requirement you can on the features.

Click “Next : Guest config >”



The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and various Azure services. The main area is titled 'Virtual machines' and 'Create a virtual machine'. The 'Management' tab is selected, showing configuration options for monitoring, identity, auto-shutdown, and backup. All these options are set to 'Off'. At the bottom, there are three buttons: 'Review + create', 'Previous', and 'Next : Guest config >'. The 'Next : Guest config >' button is highlighted in yellow.

Microsoft Azure

Search resources, services, and docs

Dashboard > Virtual machines > Create a virtual machine

Virtual machines

Filter by name...

NAME

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines

Learn more about Linux virtual machines

Create virtual machine

Create a virtual machine

Basics Disks Networking Management Guest config Tags Review + create

Configure monitoring and management options for your VM.

MONITORING

Boot diagnostics ☐ On ☒ Off

OS guest diagnostics ☐ On ☒ Off

IDENTITY

System assigned managed identity ☐ On ☒ Off

AUTO-SHUTDOWN

Enable auto-shutdown ☐ On ☒ Off

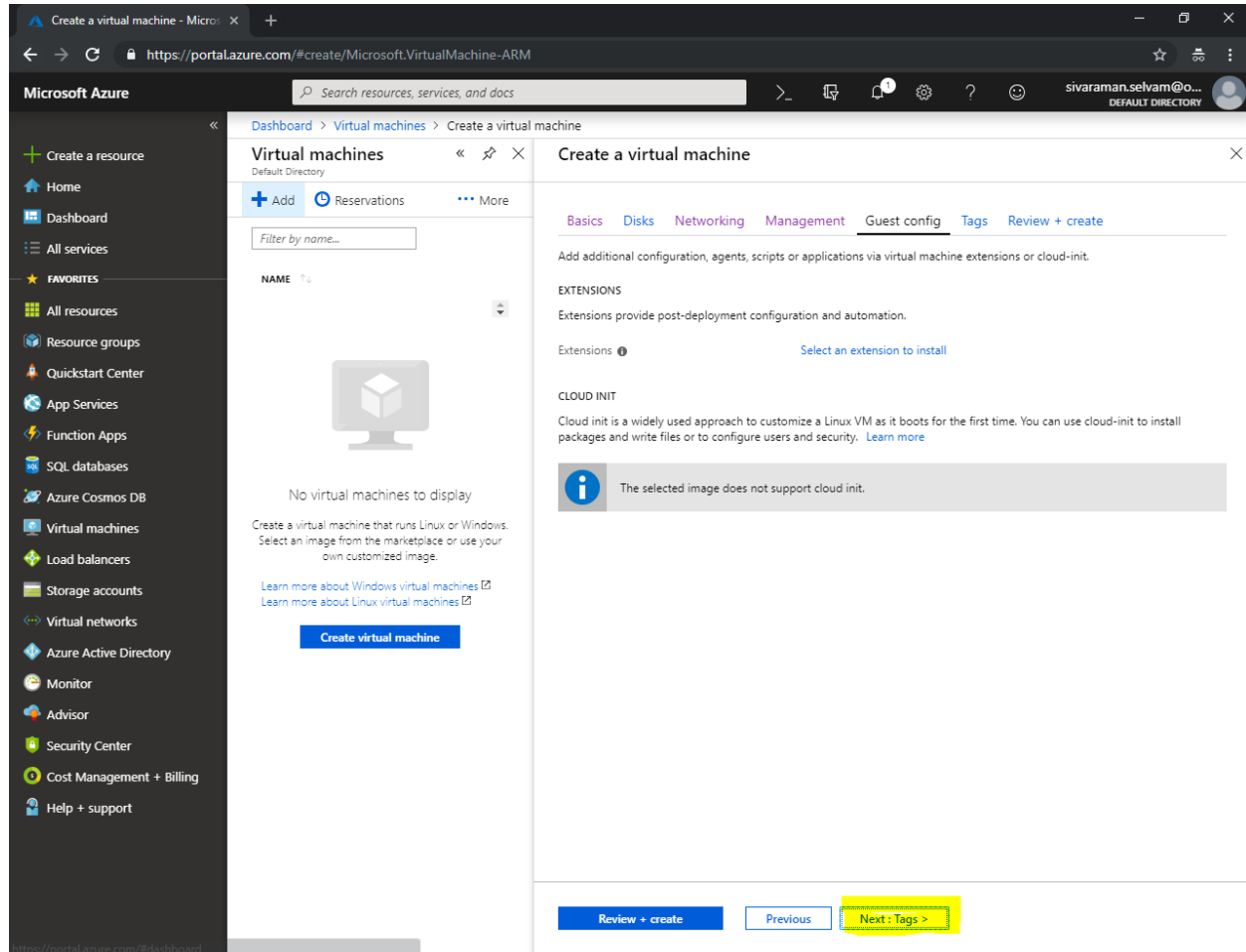
BACKUP

Enable backup ☐ On ☒ Off

Review + create Previous Next : Guest config >

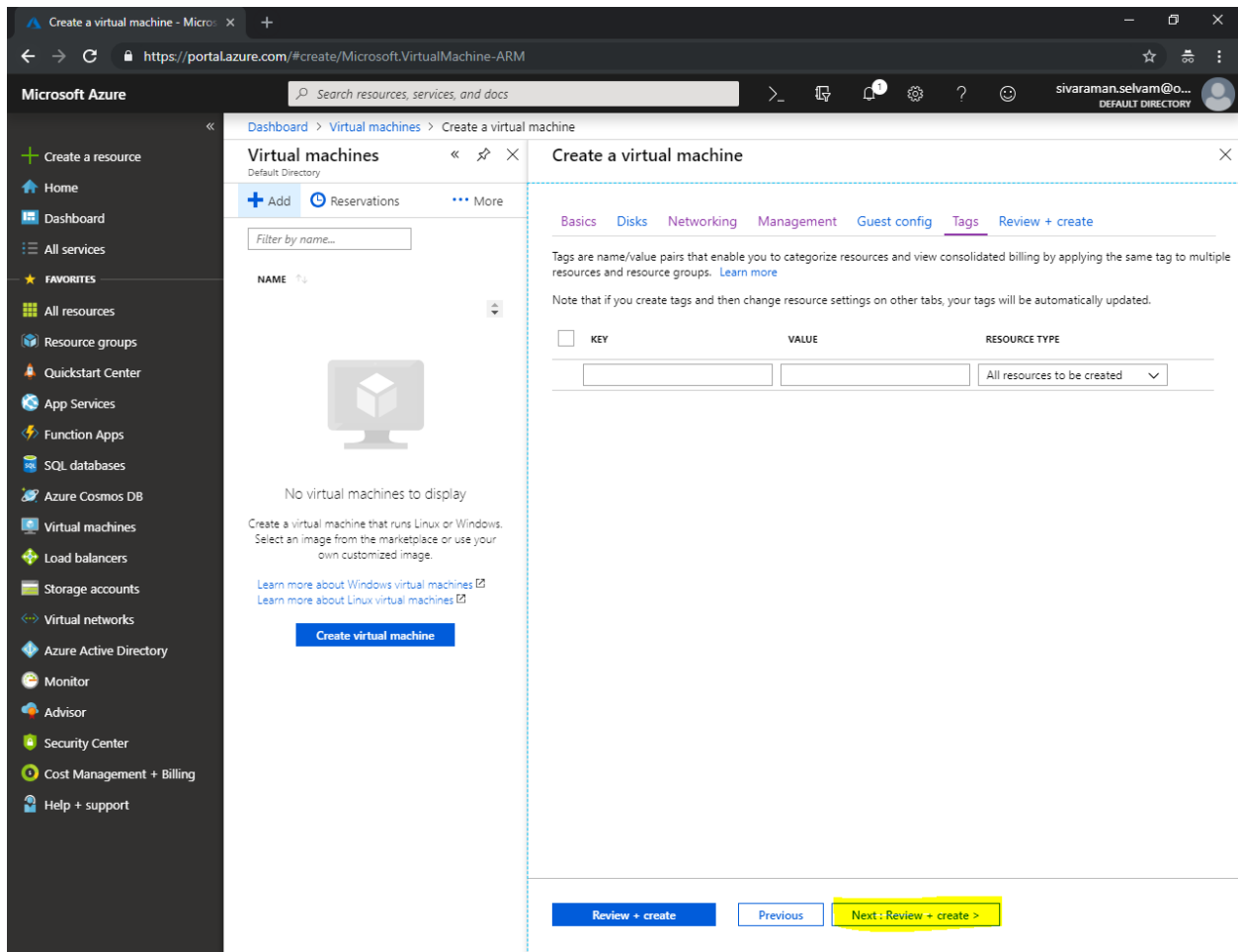
In "Guest config"

Leave default and Click **"Next : Tags >"**.



In “Tags”.

Leave default and click **“Next : Review + Create”**.

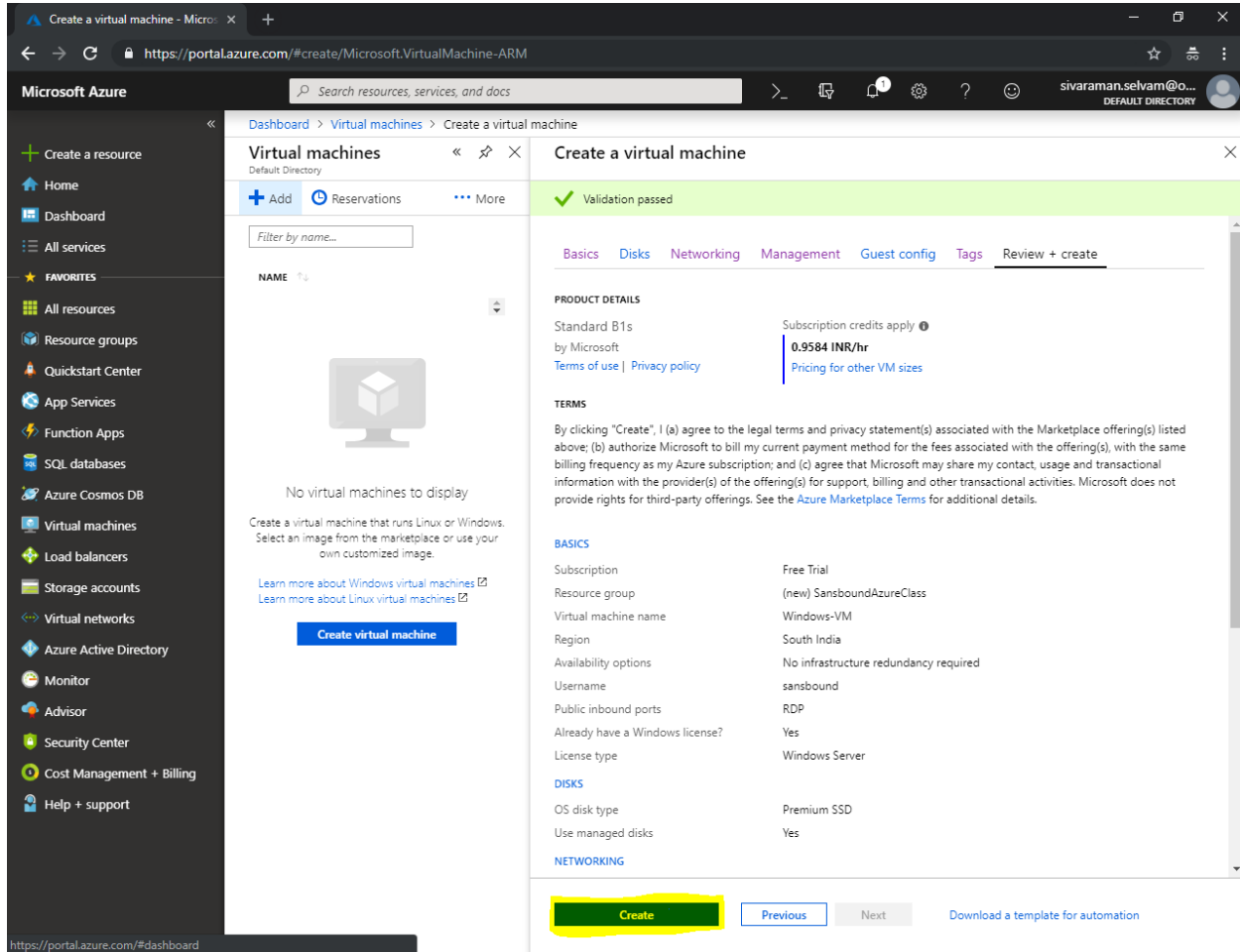


The screenshot shows the Microsoft Azure portal interface for creating a virtual machine. The left sidebar contains navigation links for various Azure services. The main content area is titled 'Create a virtual machine' and includes tabs for Basics, Disks, Networking, Management, Guest config, Tags, and Review + create. The 'Tags' tab is active, displaying a table for adding tags. The table has three columns: KEY, VALUE, and RESOURCE TYPE. Below the table, there are buttons for 'Review + create', 'Previous', and 'Next : Review + create >'. The 'Next : Review + create >' button is highlighted in yellow.

KEY	VALUE	RESOURCE TYPE
		All resources to be created



Click **“Create”**.



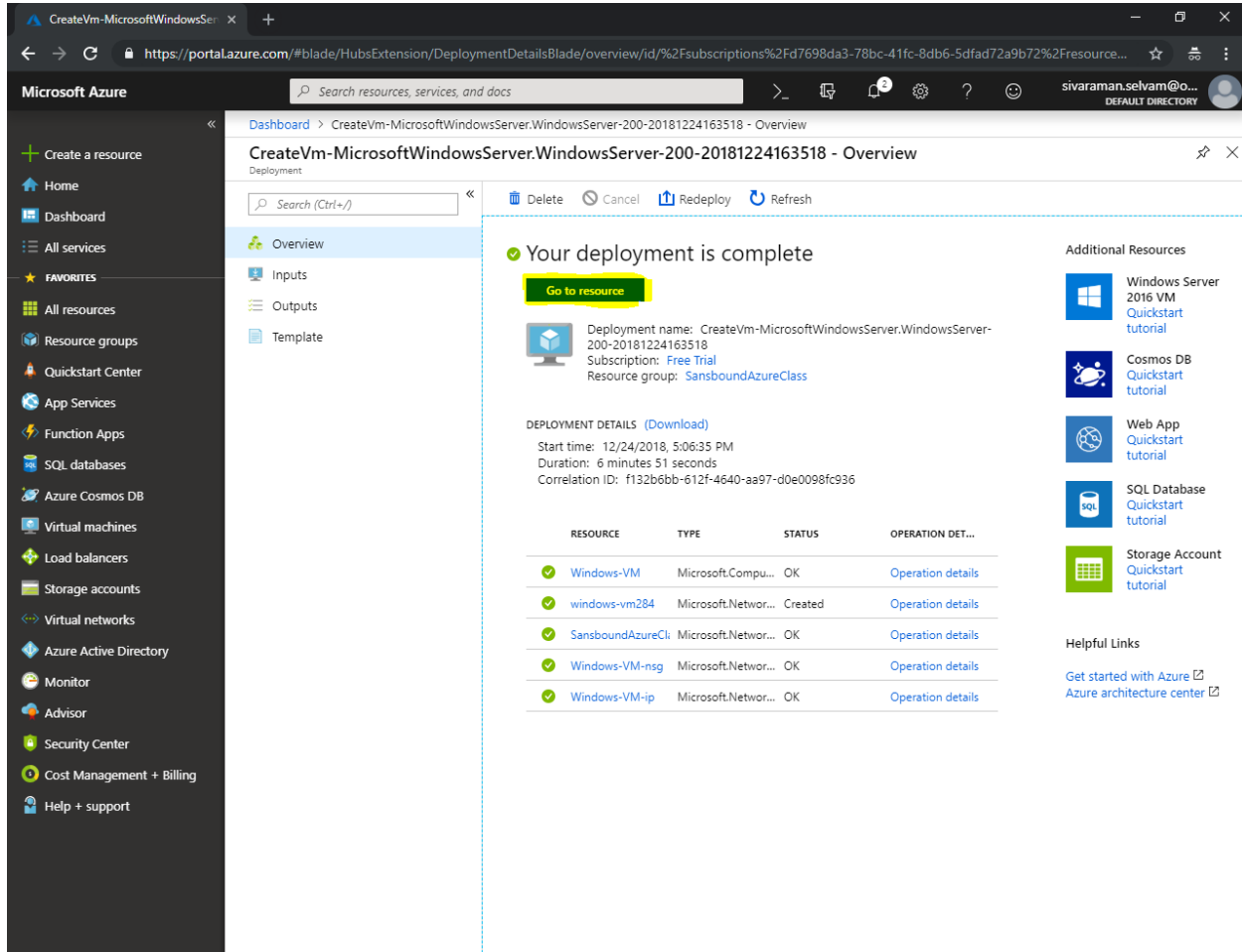
The screenshot shows the Azure portal interface for creating a virtual machine. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area is titled 'Virtual machines' and 'Create a virtual machine'. A green banner at the top of the wizard indicates 'Validation passed'. The 'Review + create' tab is active, displaying the following configuration details:

Section	Configuration
<b>PRODUCT DETAILS</b>	
Standard B1s by Microsoft	Subscription credits apply 0.9584 INR/hr <a href="#">Pricing for other VM sizes</a>
<b>TERMS</b>	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 <a href="#">Azure Marketplace Terms</a> for additional details.
<b>BASICS</b>	
Subscription	Free Trial
Resource group	(new) SansboundAzureClass
Virtual machine name	Windows-VM
Region	South India
Availability options	No infrastructure redundancy required
Username	sansbound
Public inbound ports	RDP
Already have a Windows license?	Yes
License type	Windows Server
<b>DISKS</b>	
OS disk type	Premium SSD
Use managed disks	Yes
<b>NETWORKING</b>	

At the bottom of the wizard, there are three buttons: 'Create' (highlighted in yellow), 'Previous', and 'Next'. A link 'Download a template for automation' is also present.

Your deployment has been completed.

Click “Go to resource”



The screenshot shows the Azure portal interface for a deployment named 'CreateVm-MicrosoftWindowsServer.WindowsServer-200-20181224163518'. The deployment is complete, and the 'Go to resource' button is highlighted in yellow.

**Deployment Details:**

- Deployment name: CreateVm-MicrosoftWindowsServer.WindowsServer-200-20181224163518
- Subscription: Free Trial
- Resource group: SansboundAzureClass
- Start time: 12/24/2018, 5:06:35 PM
- Duration: 6 minutes 51 seconds
- Correlation ID: f132b6bb-612f-4640-aa97-d0e0098fc936

**Resources Table:**

RESOURCE	TYPE	STATUS	OPERATION DET...
Windows-VM	Microsoft.Compu...	OK	<a href="#">Operation details</a>
windows-vm284	Microsoft.Ne...	Created	<a href="#">Operation details</a>
SansboundAzureCli	Microsoft.Ne...	OK	<a href="#">Operation details</a>
Windows-VM-nsg	Microsoft.Ne...	OK	<a href="#">Operation details</a>
Windows-VM-ip	Microsoft.Ne...	OK	<a href="#">Operation details</a>

**Additional Resources:**

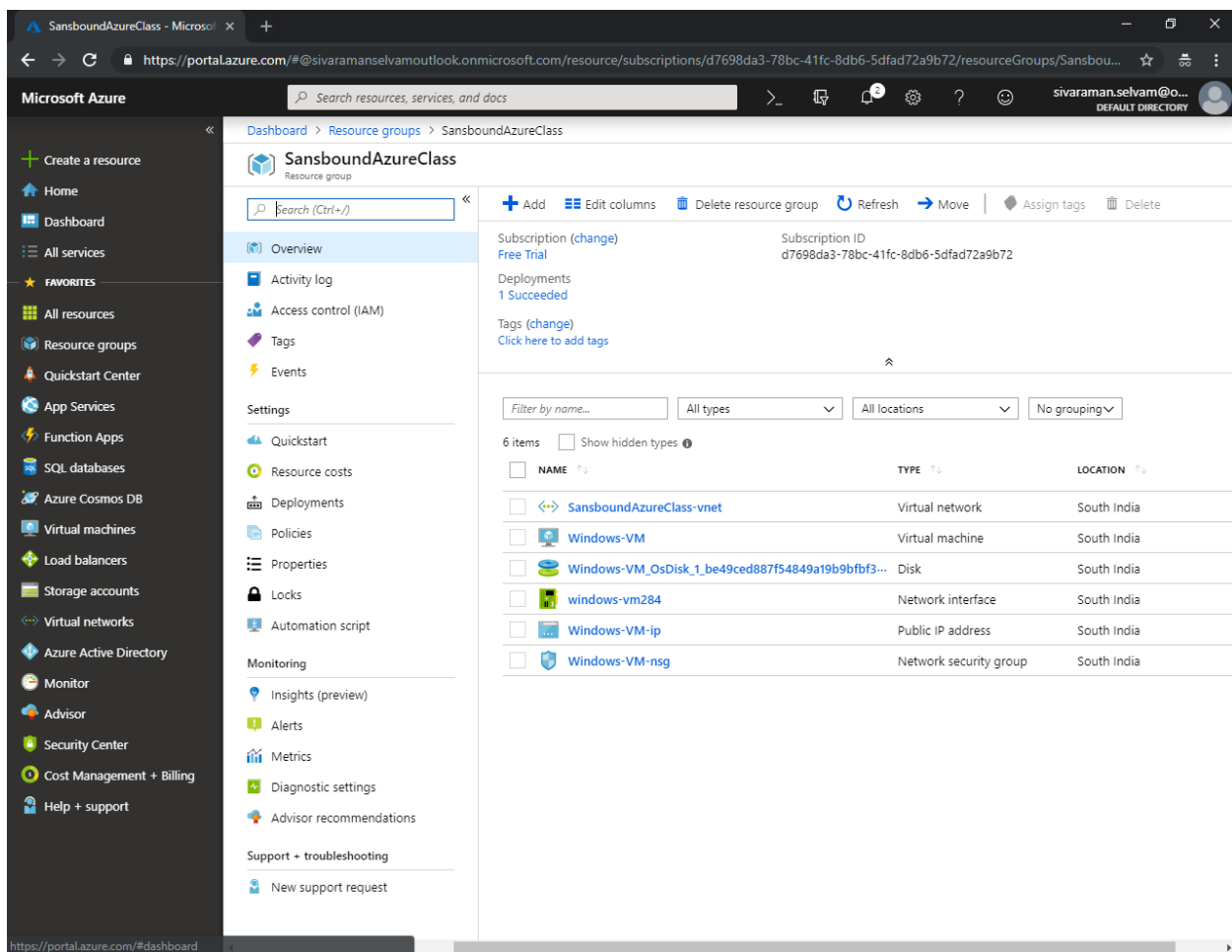
- Windows Server 2016 VM [Quickstart tutorial](#)
- Cosmos DB [Quickstart tutorial](#)
- Web App [Quickstart tutorial](#)
- SQL Database [Quickstart tutorial](#)
- Storage Account [Quickstart tutorial](#)

**Helpful Links:**

- [Get started with Azure](#)
- [Azure architecture center](#)

While creating a VM, below mentioned resources are automatically created by default based on user requirement.

- Virtual Network (default) → It's for virtual network
- Virtual machine → It's created for Virtual machine.
- Disk which contain Operating system → It's default disk created for operating system.
- Network Interface → It's used for Network Connectivity.
- Public IP address for Virtual machine → It's for access the resource publicly by using public IP address.
- Network Security Group for Allow / Deny & inbound /outbound rules like as Firewall.



The screenshot shows the Azure portal interface for the 'SansboundAzureClass' resource group. The left sidebar contains navigation options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area shows the 'Overview' tab for the resource group, displaying the subscription ID and a list of resources. The resources are listed in a table with columns for NAME, TYPE, and LOCATION.

NAME	TYPE	LOCATION
SansboundAzureClass-vnet	Virtual network	South India
Windows-VM	Virtual machine	South India
Windows-VM_OsDisk_1_be49ced887f54849a19b9bfbf3...	Disk	South India
windows-vm284	Network interface	South India
Windows-VM-ip	Public IP address	South India
Windows-VM-nsg	Network security group	South India

We will see above resources briefly later.