

## Lab22– Understanding VNET Peering between Two Regions – Azure

### Virtual network (VNET) peering:

Virtual network peering enables you to seamlessly connect two Azure [virtual networks](#). Once peered, the virtual networks appear as one, for connectivity purposes. The traffic between virtual machines in the peered virtual networks is routed through the Microsoft backbone infrastructure, much like traffic is routed between virtual machines in the same virtual network, through *private* IP addresses only. Azure supports:

- VNet peering - connecting VNets within the same Azure region
- Global VNet peering - connecting VNets across Azure regions

The benefits of using virtual network peering, whether local or global, include:

- Network traffic between peered virtual networks is private. Traffic between the virtual networks is kept on the Microsoft backbone network. No public Internet, gateways, or encryption is required in the communication between the virtual networks.
- A low-latency, high-bandwidth connection between resources in different virtual networks.
- The ability for resources in one virtual network to communicate with resources in a different virtual network, once the virtual networks are peered.
- The ability to transfer data across Azure subscriptions, deployment models, and across Azure regions.
- The ability to peer virtual networks created through the Azure Resource Manager or to peer one virtual network created through Resource Manager to a virtual network created through the classic deployment model. To learn more about Azure deployment models, see [Understand Azure deployment models](#).
- No downtime to resources in either virtual network when creating the peering, or after the peering is created.

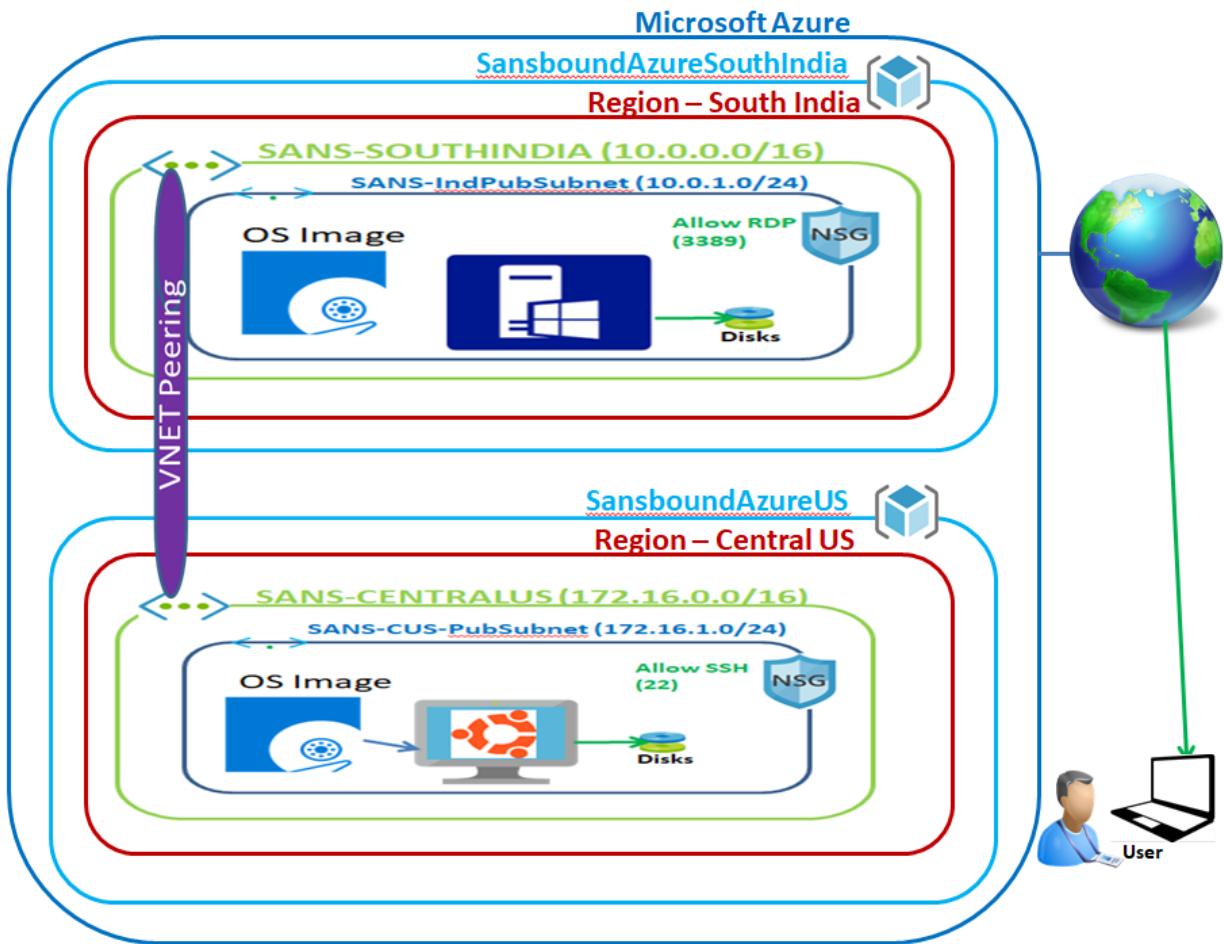
## Connectivity

After virtual networks are peered, resources in either virtual network can directly connect with resources in the peered virtual network.

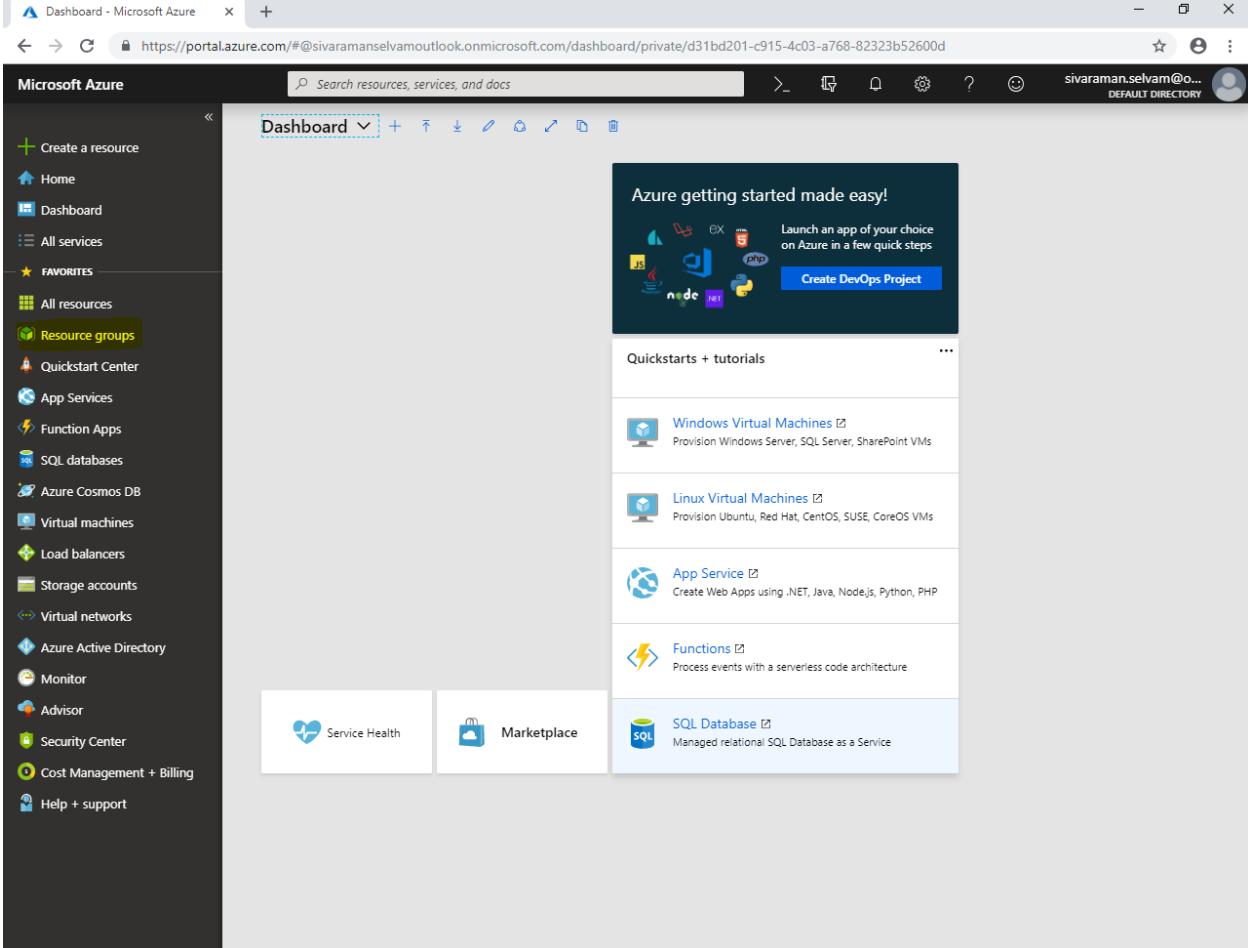
The network latency between virtual machines in peered virtual networks in the same region is the same as the latency within a single virtual network. The network throughput is based on the bandwidth that's allowed for the virtual machine, proportionate to its size. There isn't any additional restriction on bandwidth within the peering.

The traffic between virtual machines in peered virtual networks is routed directly through the Microsoft backbone infrastructure, not through a gateway or over the public Internet.

Network security groups can be applied in either virtual network to block access to other virtual networks or subnets, if desired. When configuring virtual network peering, you can either open or close the network security group rules between the virtual networks. If you open full connectivity between peered virtual networks (which is the default option), you can apply network security groups to specific subnets or virtual machines to block or deny specific access.

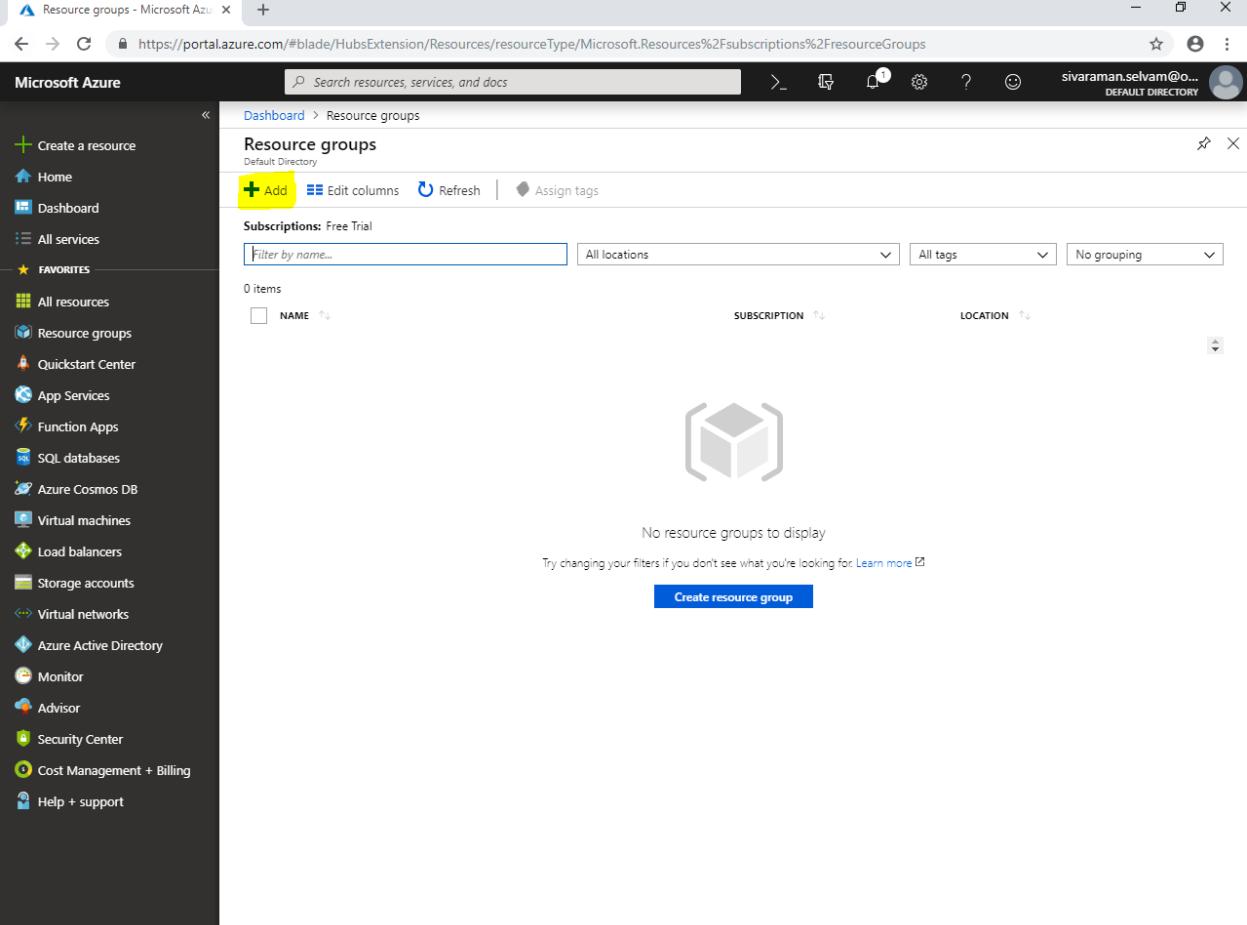
**Topology**

In Azure portal, click “Resource group”,



The screenshot shows the Microsoft Azure portal dashboard. The left sidebar menu is visible, showing various service categories like Home, Dashboard, All services, Favorites, All resources, Resource groups (which is currently selected and highlighted in yellow), Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area features a "Getting Started" banner with the text "Azure getting started made easy!" and links to "Create DevOps Project". Below the banner is a "Quickstarts + tutorials" section with five items: Windows Virtual Machines, Linux Virtual Machines, App Service, Functions, and SQL Database. At the bottom of the dashboard, there are two buttons: "Service Health" and "Marketplace".

In “Resource group”, click “Add”.

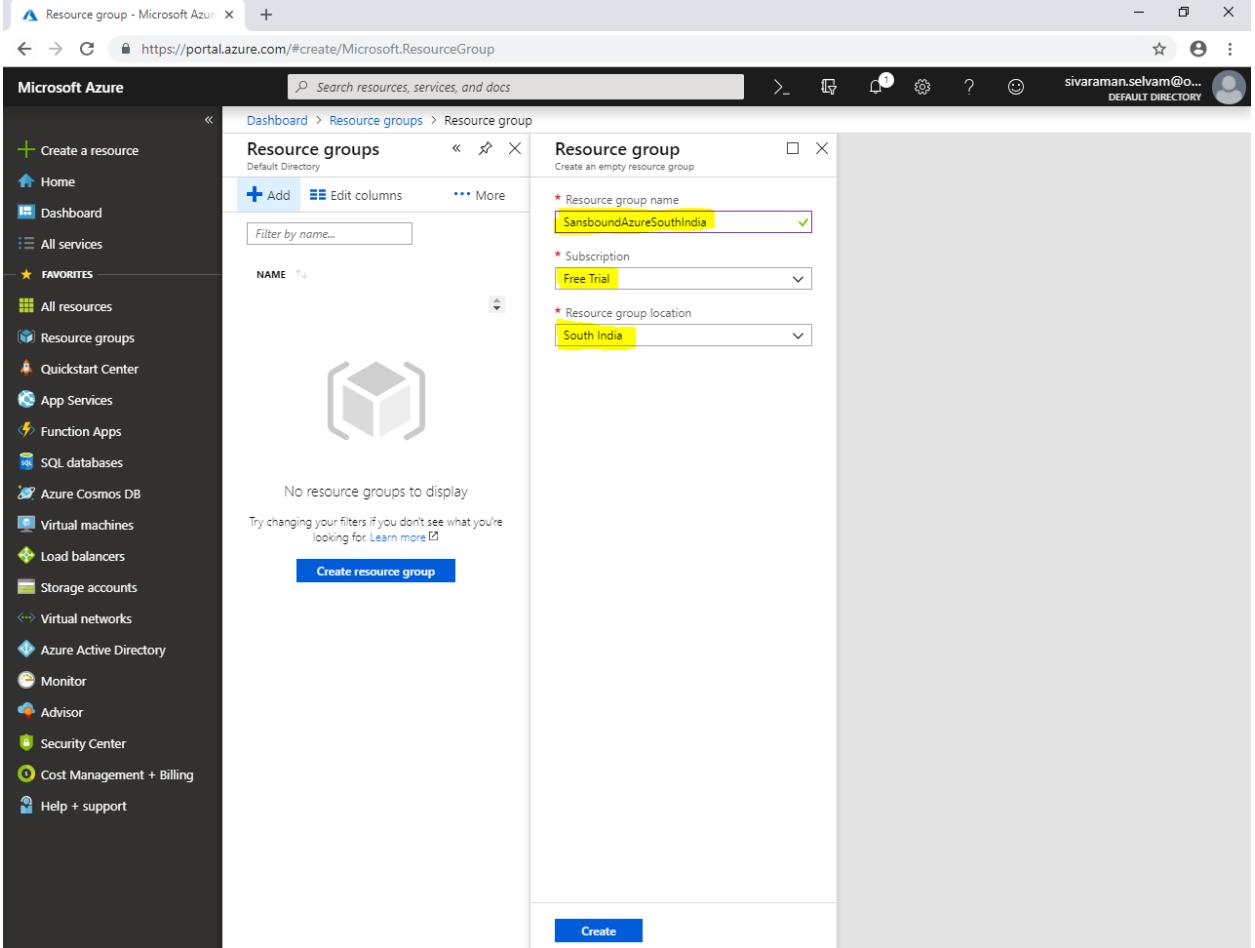


The screenshot shows the Microsoft Azure portal interface. The left sidebar is filled with various service icons under categories like Home, All services, Favorites, and All resources. The main content area is titled "Resource groups" and shows a table with one column header: "NAME". A large yellow box highlights the "+ Add" button at the top left of the table. Below the table, it says "No resource groups to display" and "Try changing your filters if you don't see what you're looking for." At the bottom right of the table area, there is a blue "Create resource group" button.

In “Resource group” type name as “**SansboundAzureSouthIndia**”.

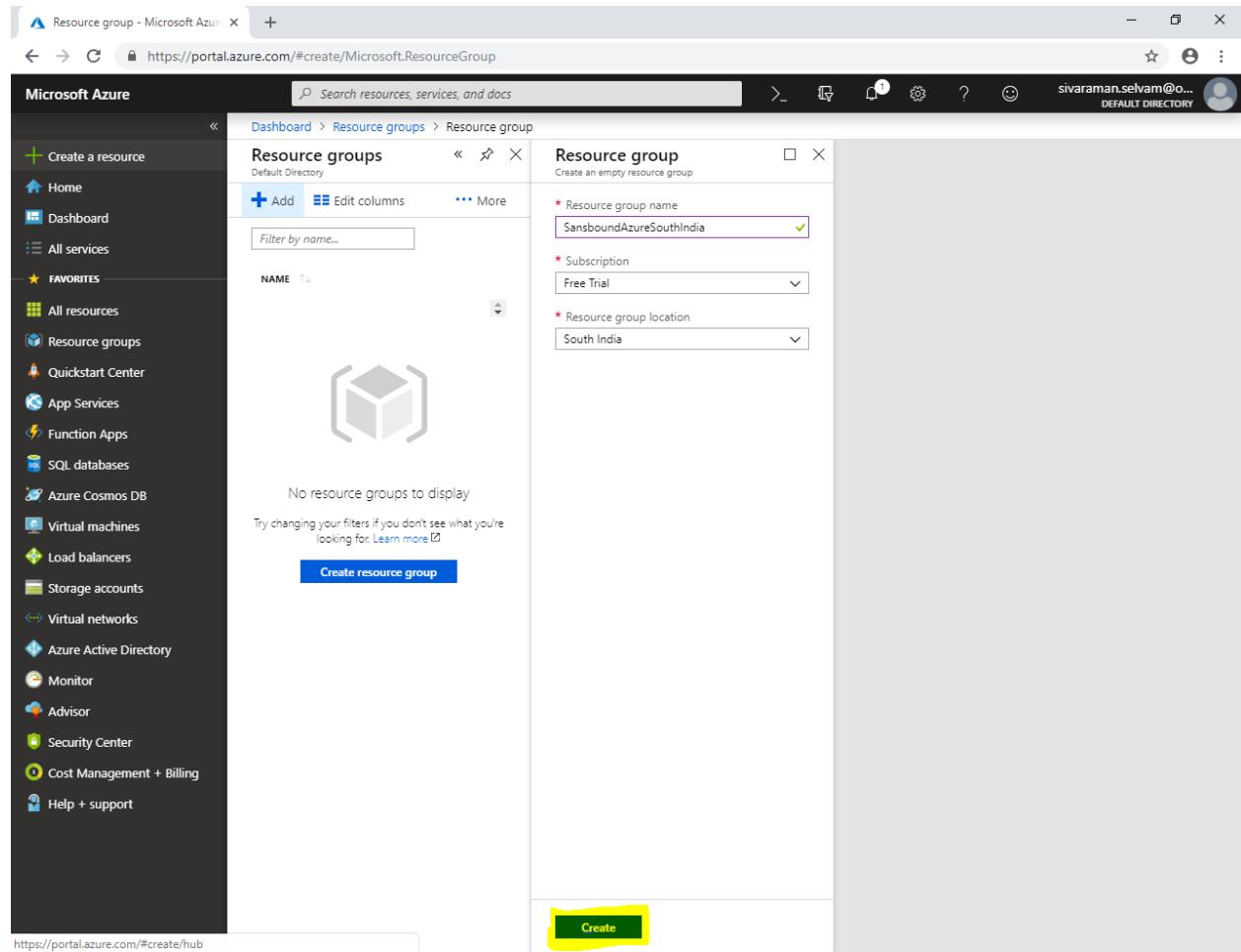
Select “Subscription” as “**Free Trial**”.

Select “Resource group location” as “**South India**”.

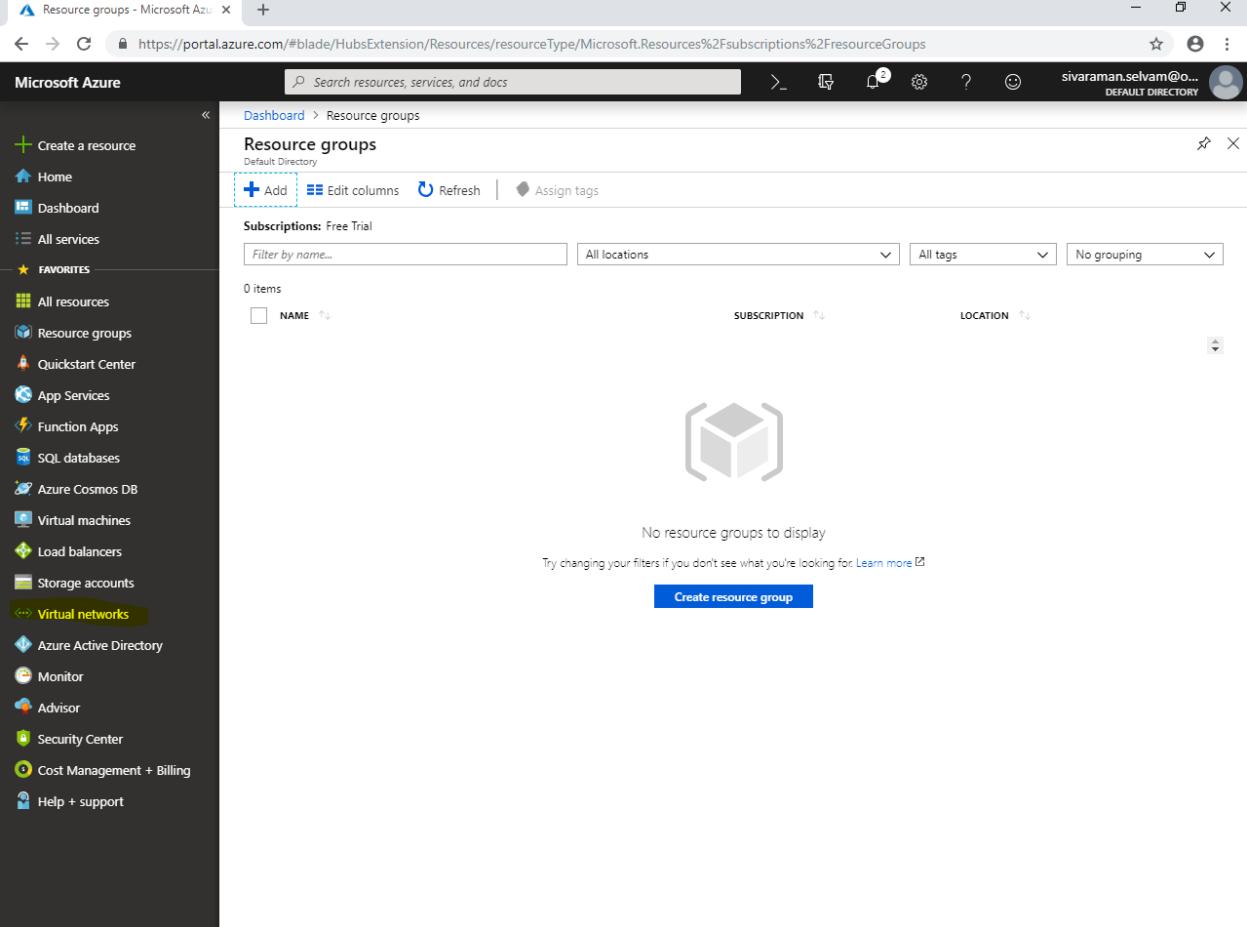


The screenshot shows the Microsoft Azure portal interface for creating a new resource group. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites (All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support). The main content area is titled "Resource group" and shows fields for "Resource group name" (set to "SansboundAzureSouthIndia"), "Subscription" (set to "Free Trial"), and "Resource group location" (set to "South India"). A large button at the bottom right labeled "Create" is visible. The URL in the browser bar is https://portal.azure.com/#create/Microsoft.ResourceGroup.

Click “Create”.



Click “Virtual networks” in left side panel.



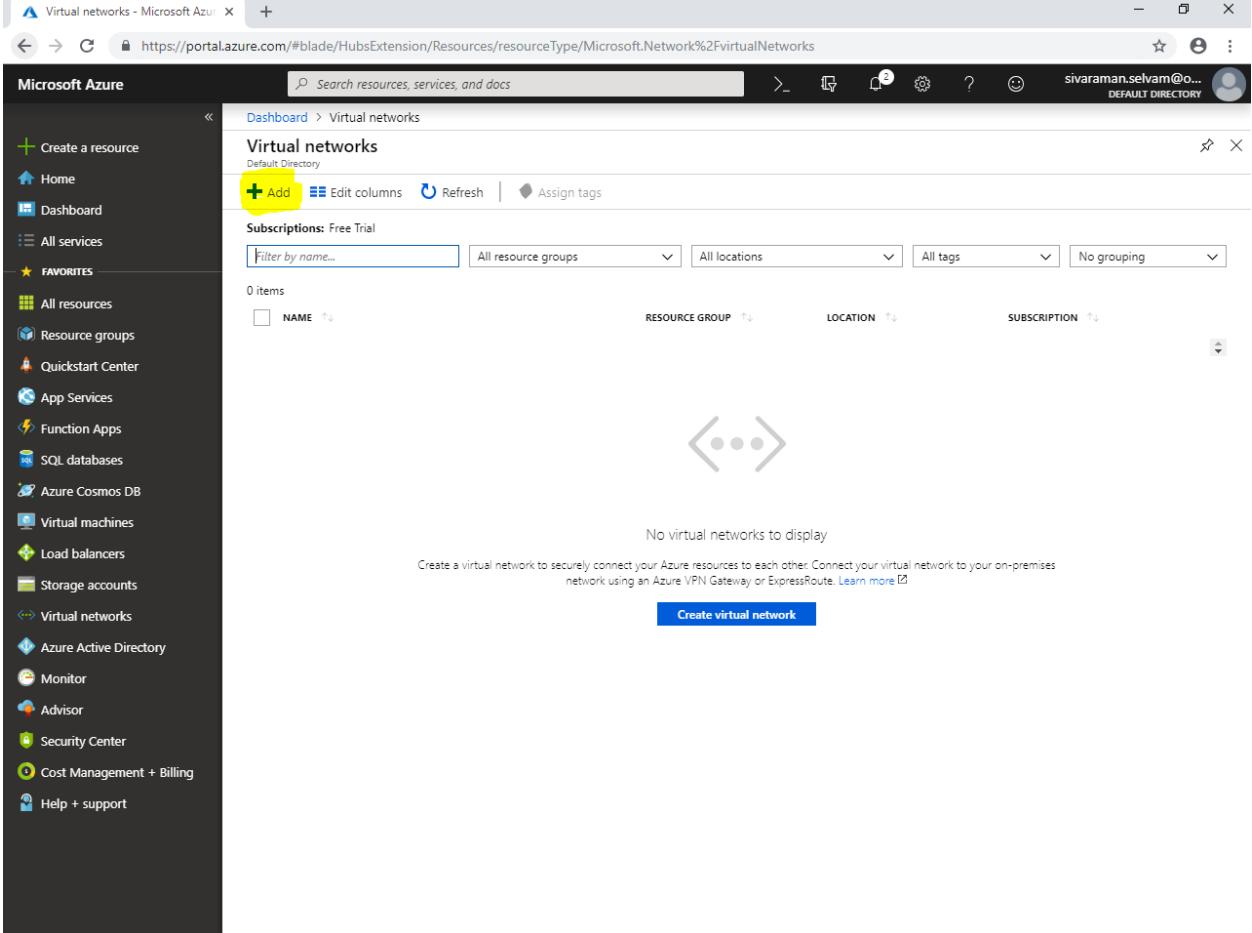
The screenshot shows the Microsoft Azure portal interface. The left sidebar is a navigation menu with the following items:

- + Create a resource
- Home
- Dashboard
- All services
- FAVORITES**
- All resources
- Resource groups
- Quickstart Center
- App Services
- Function Apps
- SQL databases
- Azure Cosmos DB
- Virtual machines
- Load balancers
- Storage accounts
- Virtual networks** (highlighted)
- Azure Active Directory
- Monitor
- Advisor
- Security Center
- Cost Management + Billing
- Help + support

The main content area is titled "Resource groups" and shows the following details:

- Subscriptions: Free Trial
- Filter by name... (input field)
- All locations (dropdown)
- All tags (dropdown)
- No grouping (dropdown)
- NAME (column header)
- SUBSCRIPTION (column header)
- LOCATION (column header)
- No resource groups to display
- Try changing your filters if you don't see what you're looking for. [Learn more](#)
- Create resource group (blue button)

Type “Virtual networks” click “Add” to create a new virtual network.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons and links. The main content area is titled "Virtual networks" under the "Dashboard" section. At the top of this page, there is a toolbar with a "Create" button (highlighted with a yellow box), "Edit columns", "Refresh", and "Assign tags". Below the toolbar, the "Subscriptions" dropdown is set to "Free Trial". There are four filter dropdowns: "Filter by name...", "All resource groups", "All locations", and "All tags", followed by a "No grouping" option. A message "0 items" is displayed above a table header with columns: NAME, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. The table body is empty, showing a loading icon (three dots in a triangle). Below the table, a message reads: "Create a virtual network to securely connect your Azure resources to each other. Connect your virtual network to your on-premises network using an Azure VPN Gateway or ExpressRoute. [Learn more](#)". A blue "Create virtual network" button is located at the bottom of this message area.

While create a virtual network, type “**Name**” as “**SANS-SOUTHINDIA**”.

Type “**Address space**” as **10.0.0.0/16**

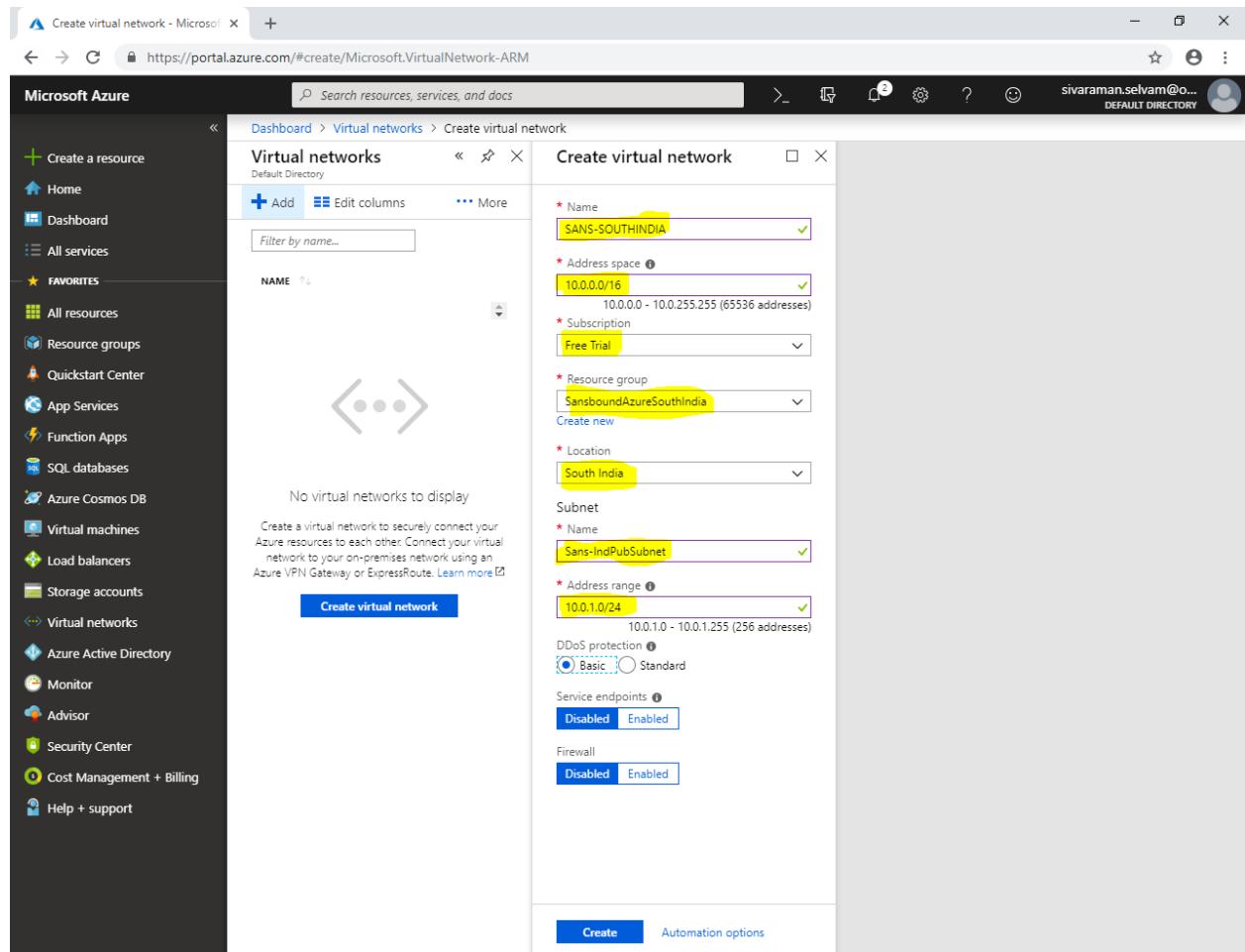
Select “**Subscription**” as “**Free Trial**”.

Select “**Resource group**” as “**SansboundAzureSouthIndia**”.

Type “**Location**” as “**South India**”.

In “**Subnet**” name as “**Sans-IndPubSubnet**”.

Type “**Address range**” for the Subnet as **10.0.1.0/24**.

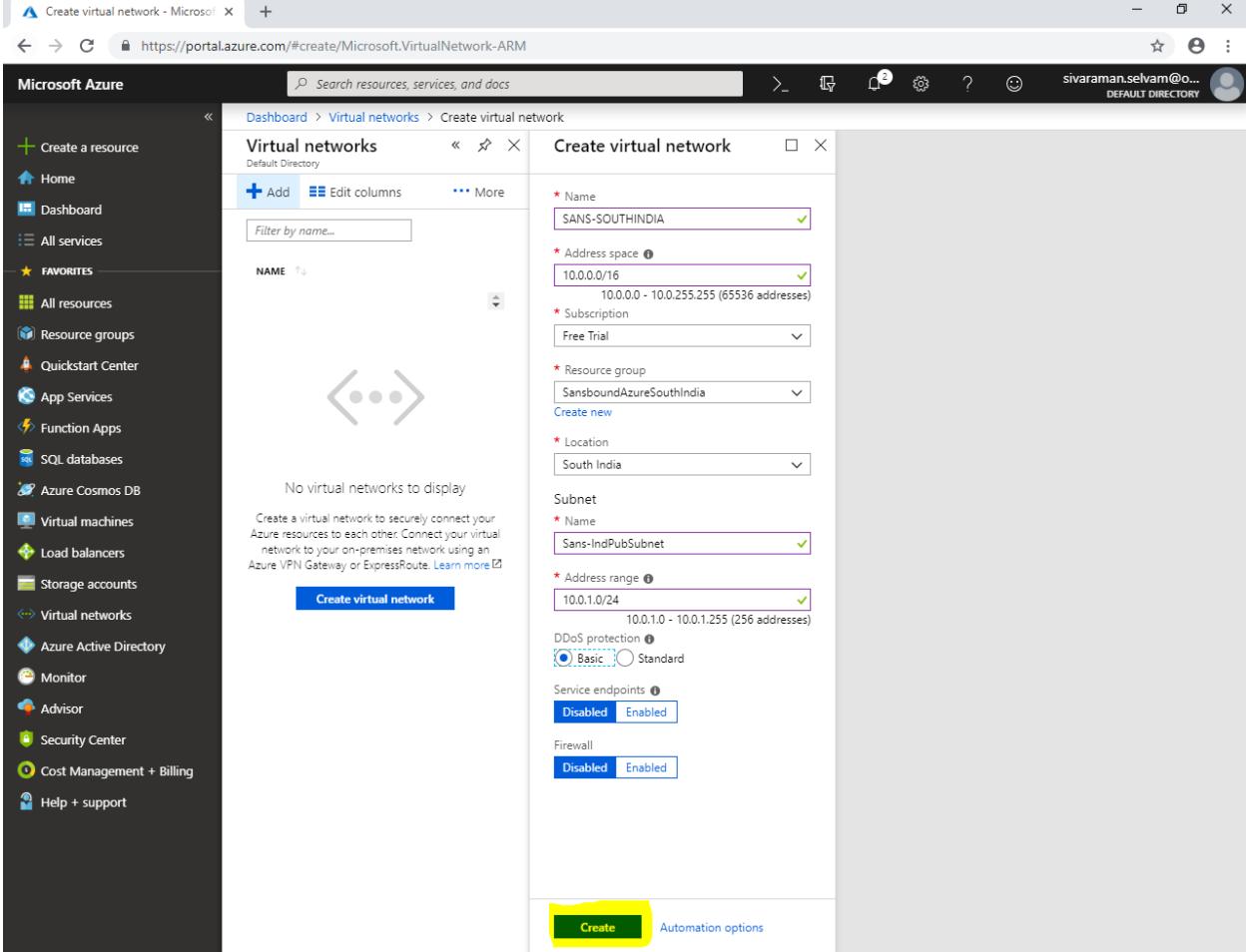


The screenshot shows the Microsoft Azure portal interface for creating a new virtual network. The left sidebar contains various service icons like Home, Dashboard, All services, Favorites, and more. The main area is titled 'Create virtual network' under 'Virtual networks'. The configuration fields are as follows:

- Name:** SANS-SOUTHINDIA
- Address space:** 10.0.0.0/16 (10.0.0.0 - 10.0.255.255 (65536 addresses))
- Subscription:** Free Trial
- Resource group:** SansboundAzureSouthIndia
- Location:** South India
- Subnet:**
  - Name:** Sans-IndPubSubnet
  - Address range:** 10.0.1.0/24 (10.0.1.0 - 10.0.1.255 (256 addresses))

At the bottom, there are 'Create' and 'Automation options' buttons.

Click “Create”.

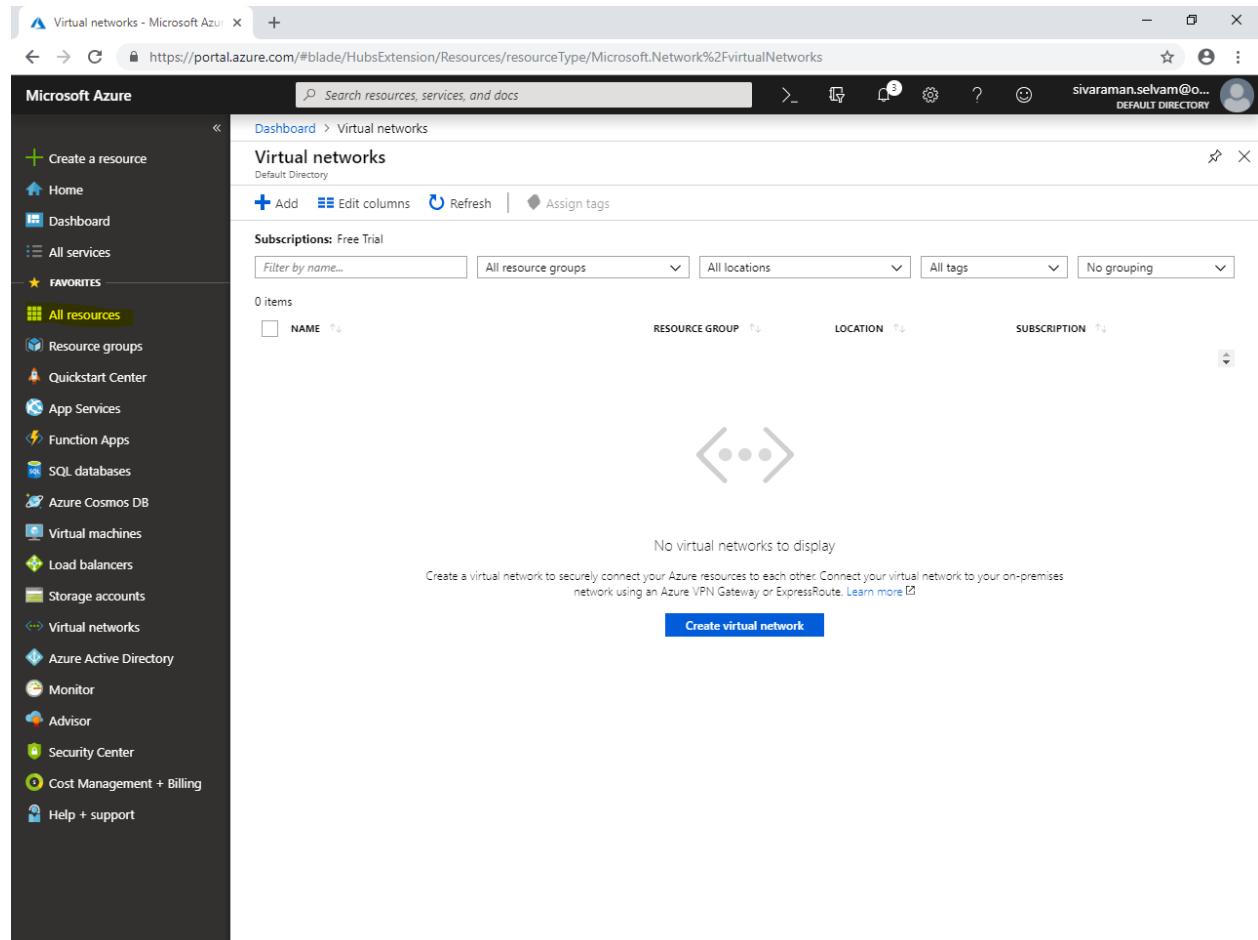


The screenshot shows the Microsoft Azure portal interface for creating a new virtual network. The left sidebar contains a navigation menu with various service icons. The main area is titled "Virtual networks" and shows a "Create virtual network" form. The form fields are as follows:

- Name: SANS-SOUTHINDIA
- Address space: 10.0.0.0/16 (10.0.0.0 - 10.0.255.255 (65536 addresses))
- Subscription: Free Trial
- Resource group: SansboundAzureSouthIndia (Create new)
- Location: South India
- Subnet:
  - Name: Sans-IndPubSubnet
  - Address range: 10.0.1.0/24 (10.0.1.0 - 10.0.1.255 (256 addresses))
  - DDoS protection: Basic (radio button selected)
- Service endpoints: Disabled (radio button selected)
- Firewall: Enabled

At the bottom right of the form, there is a large yellow rectangular button labeled "Create". To its right, there is a link to "Automation options".

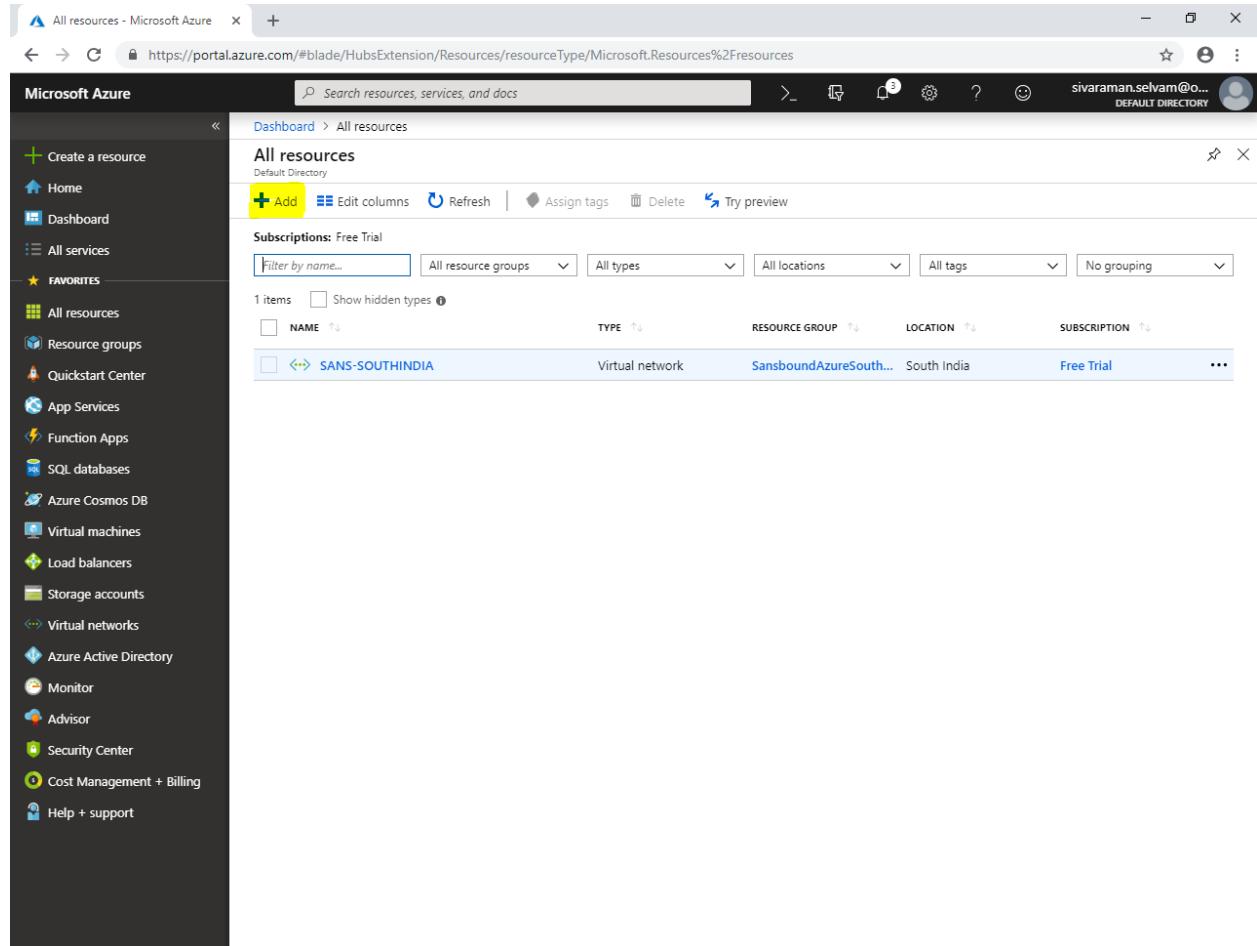
Click "All resources".



The screenshot shows the Microsoft Azure portal interface. The left sidebar is open, showing various service categories. The 'All resources' option under the 'Virtual networks' section is highlighted with a yellow background. The main content area is titled 'Virtual networks' and shows a message: 'No virtual networks to display'. It includes a 'Create virtual network' button and a descriptive text about connecting Azure resources.

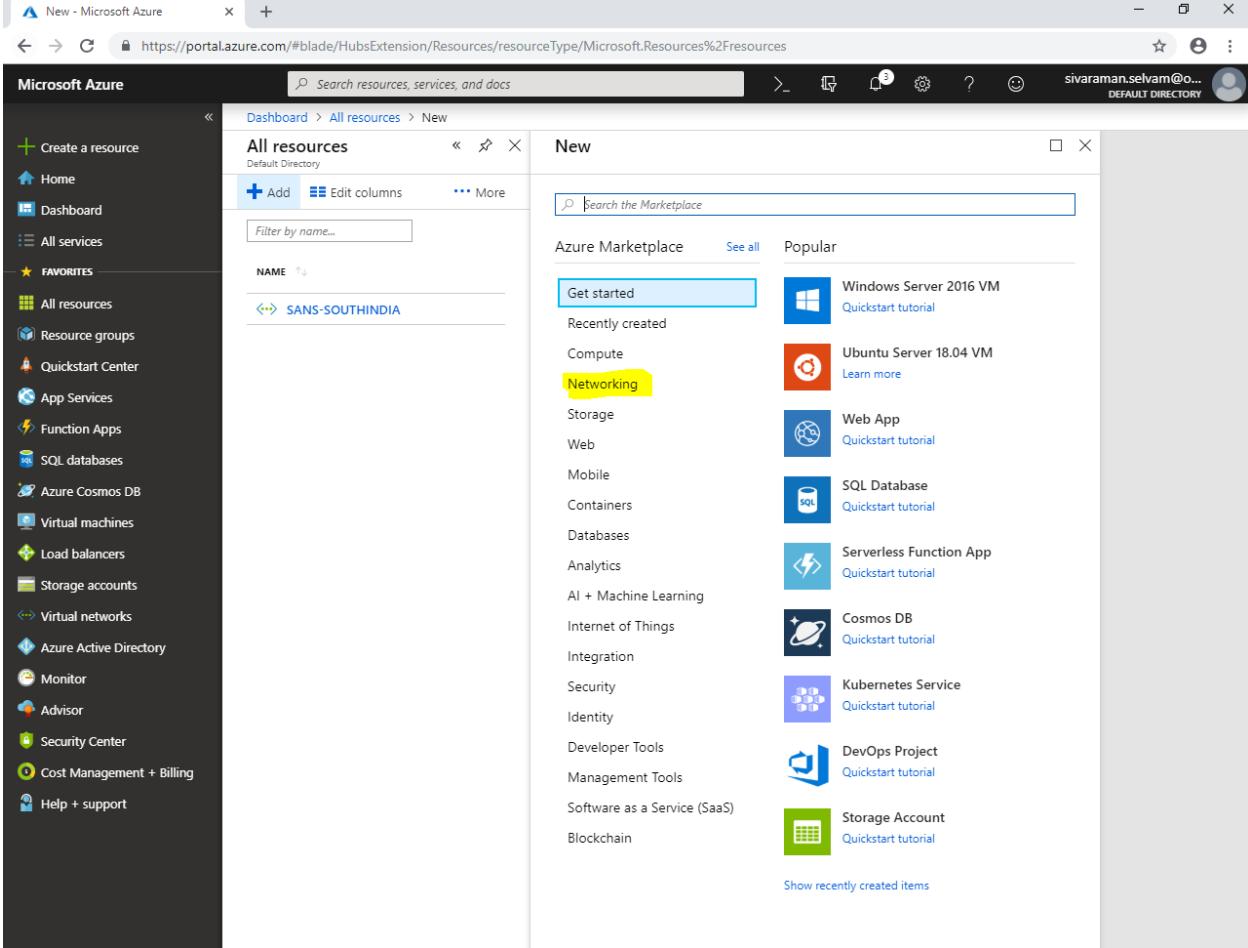
In “All resources”,

Click “Add”.



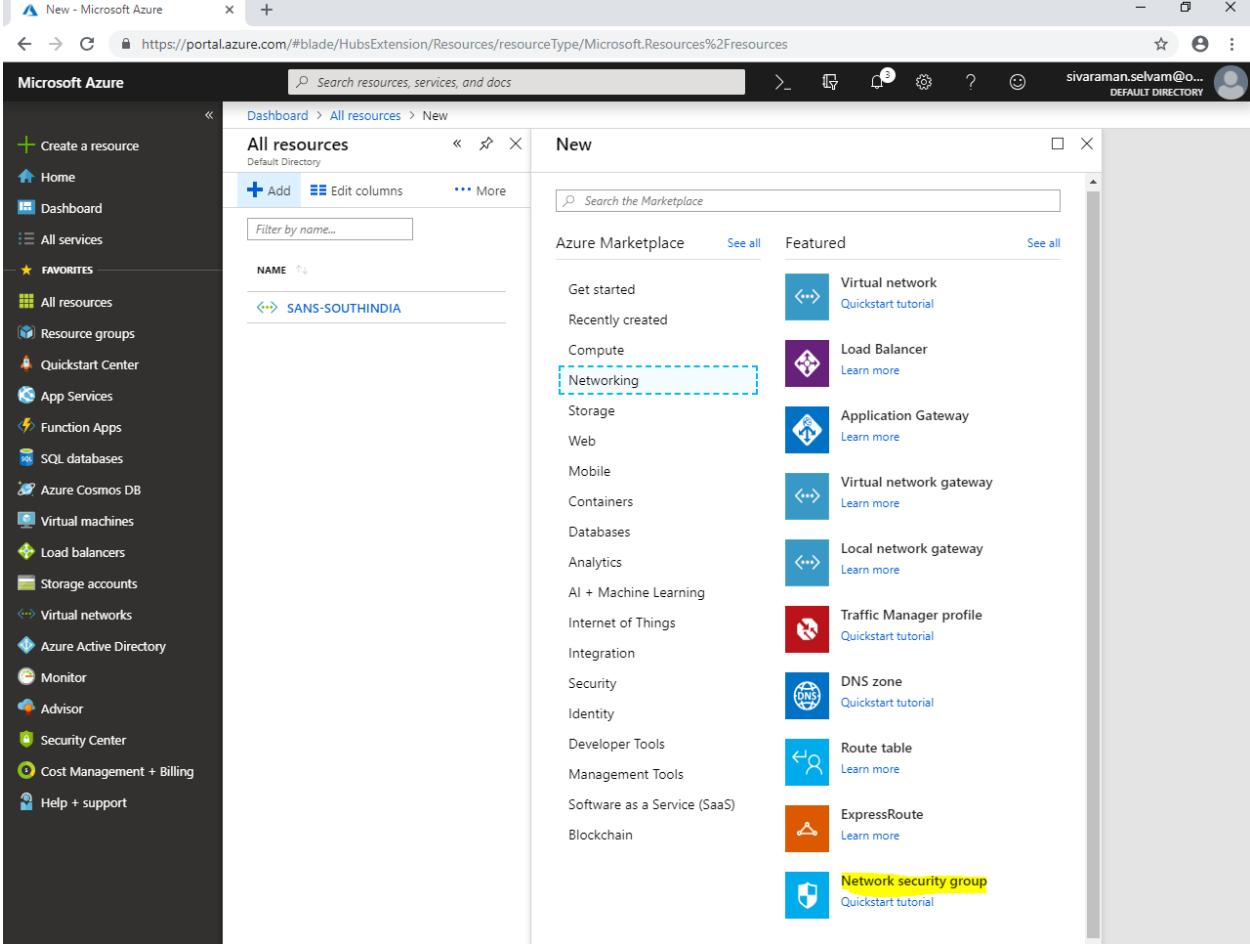
The screenshot shows the Microsoft Azure 'All resources' blade. On the left is a dark sidebar with various service icons and links like 'Create a resource', 'Home', 'Dashboard', and 'All services'. The main area has a header 'All resources' and a search bar. Below the header are buttons for '+ Add', 'Edit columns', 'Refresh', 'Assign tags', 'Delete', and 'Try preview'. A table lists one item: 'SANS-SOUTHINDIA' (Virtual network) under 'NAME', 'Resource group' as 'SansboundAzureSouth...', 'LOCATION' as 'South India', and 'SUBSCRIPTION' as 'Free Trial'. The '+ Add' button is highlighted with a yellow box.

Click in “Networking”,



The screenshot shows the Microsoft Azure portal interface. On the left, there's a navigation sidebar with various service icons and links like Home, Dashboard, All services, Favorites, and Resource groups. The main area is titled 'All resources' and shows a list of resources, with one entry 'SANS-SOUTHINDIA' visible. To the right, a 'New' blade is open, allowing users to search for resources or services. It features a 'Get started' button and a 'Popular' section with tiles for Windows Server 2016 VM, Ubuntu Server 18.04 VM, Web App, SQL Database, Serverless Function App, Cosmos DB, Kubernetes Service, DevOps Project, and Storage Account. A 'Networking' category is listed under the 'Compute' section, which is highlighted with a yellow box. Other categories include Storage, Web, Mobile, Containers, Databases, Analytics, AI + Machine Learning, Internet of Things, Integration, Security, Identity, Developer Tools, Management Tools, Software as a Service (SaaS), and Blockchain.

Click “**Network security group**”.



The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various service icons. The main area is titled 'All resources' and shows a list of resources under 'NAME'. A specific resource, 'SANS-SOUTHINDIA', is visible. To the right, a 'New' blade is open, displaying a grid of service tiles. The 'Networking' category is highlighted with a blue dashed border. Within this category, the 'Network security group' tile is specifically highlighted with a yellow box. Other tiles in the 'Networking' section include 'Virtual network', 'Load Balancer', 'Application Gateway', 'Virtual network gateway', 'Local network gateway', 'Traffic Manager profile', 'DNS zone', 'Route table', and 'ExpressRoute'.

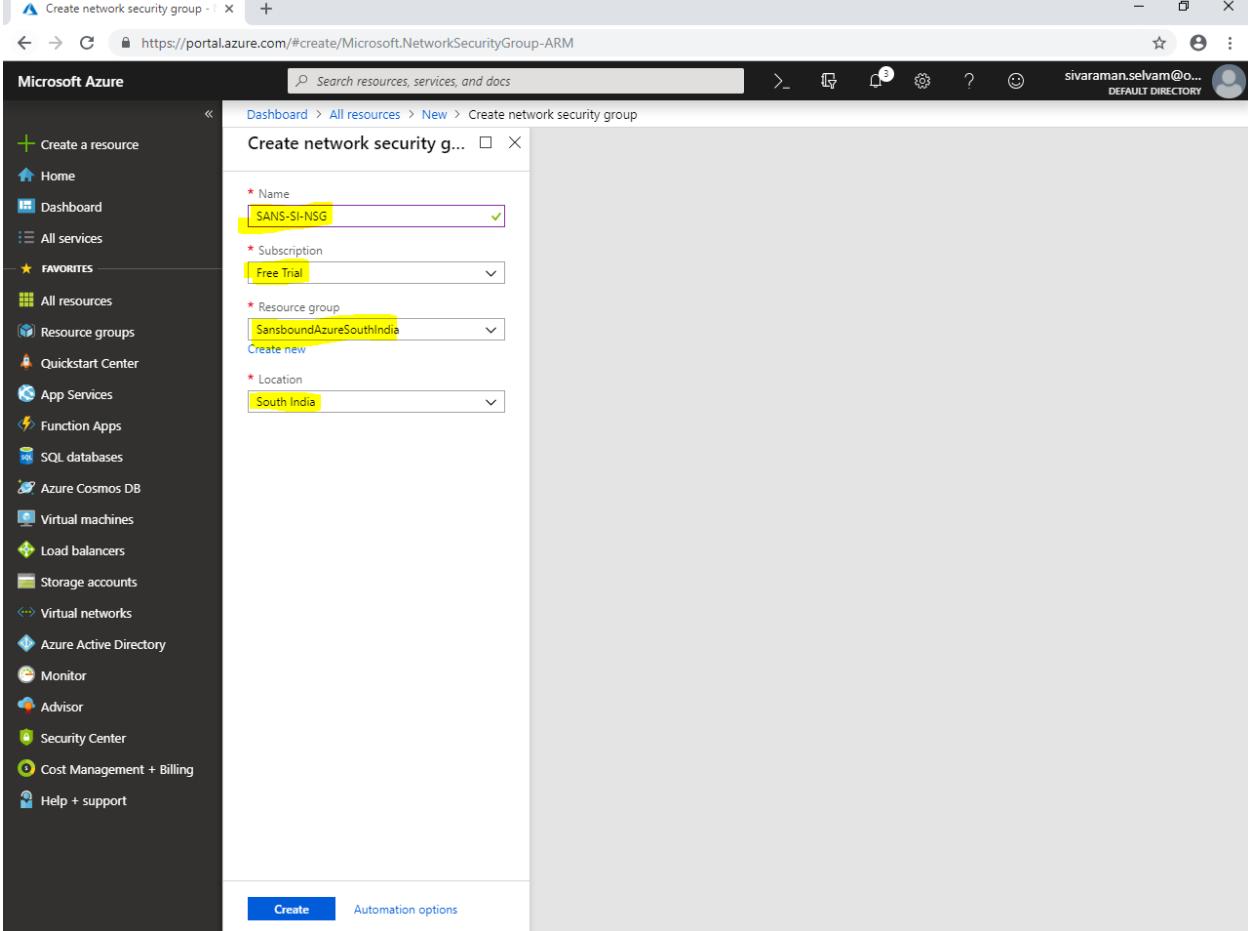
While create network security group,

Type “**Name**” as “**SANS-SI-NSG**”.

Select “**Subscription**” as “**Free Trial**”.

Select “**Resource group**” as “**SansboundAzureSouthIndia**”.

Select “**Location**” as “**South India**”.



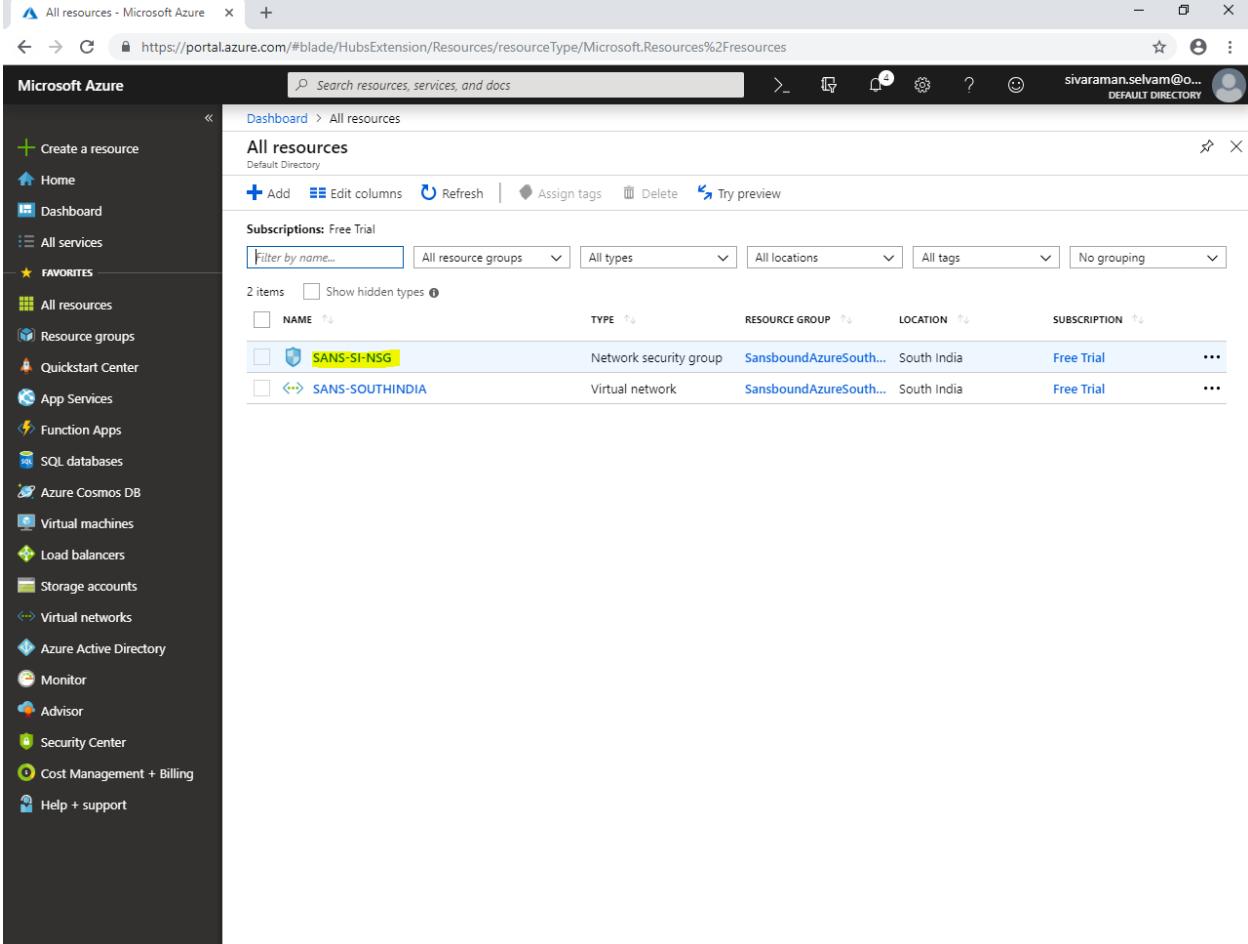
The screenshot shows the Microsoft Azure portal interface for creating a new Network Security Group (NSG). The left sidebar lists various services under 'FAVORITES'. The main window title is 'Create network security g...'. The form fields are as follows:

- Name:** SANS-SI-NSG
- Subscription:** Free Trial
- Resource group:** SansboundAzureSouthIndia
- Location:** South India

At the bottom of the form, there are two buttons: 'Create' (highlighted in blue) and 'Automation options'.

You are able to see that “**SANS-SI-NSG**” has been created.

Click “**SANS-SI-NSG**”.

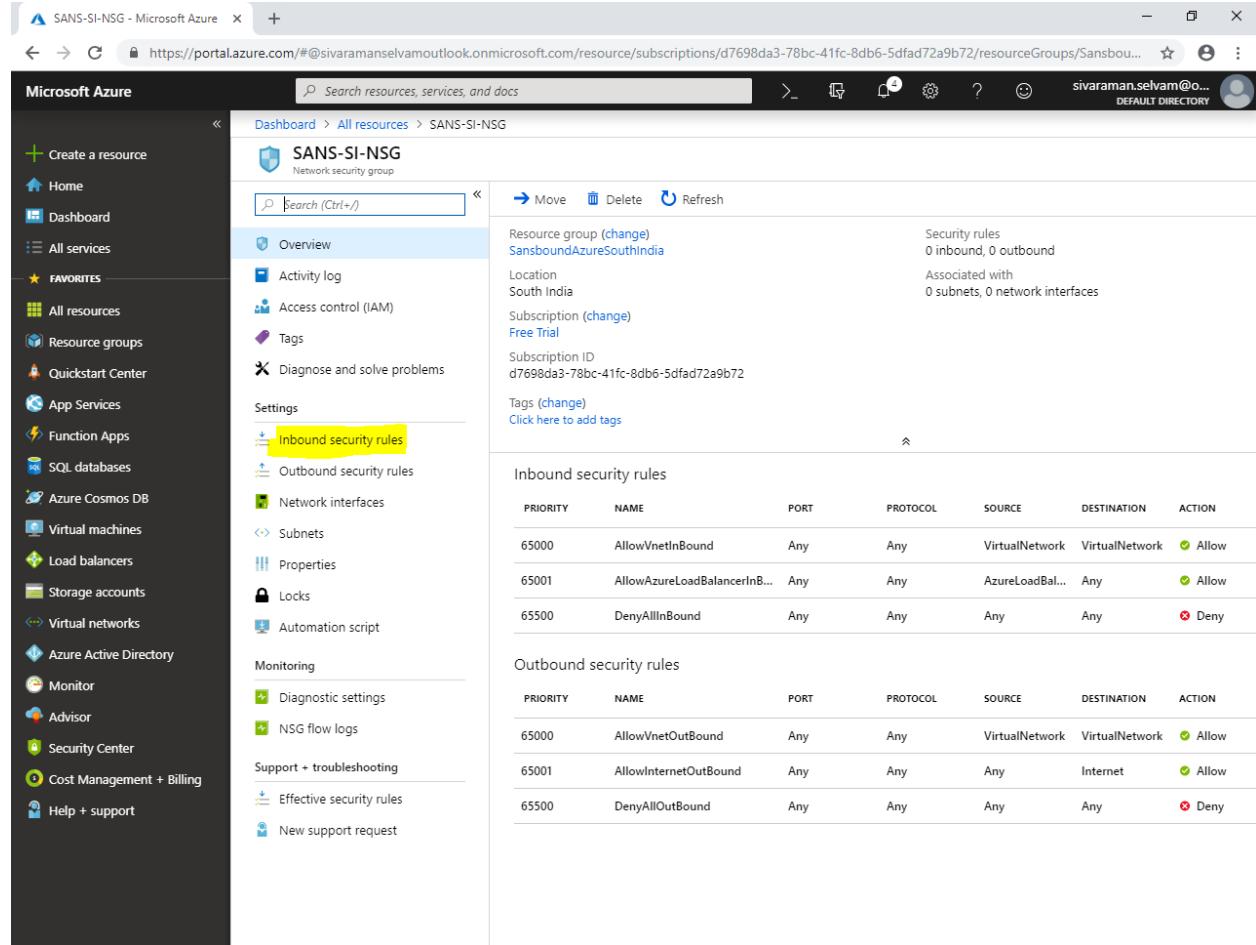


The screenshot shows the Microsoft Azure portal's "All resources" blade. The left sidebar lists various service categories under "FAVORITES". The main area displays a table of resources with the following data:

NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-SI-NSG	Network security group	SansboundAzureSouth...	South India	Free Trial
SANS-SOUTHINDIA	Virtual network	SansboundAzureSouth...	South India	Free Trial

In "**SANS-SI-NSG**" network security group,

Click "**Inbound security rules**",



The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is visible with various service icons. In the center, the "SANS-SI-NSG" Network Security Group (NSG) details are displayed. The "Overview" tab is selected. Under the "Settings" section, the "Inbound security rules" link is highlighted with a yellow box. To the right, two tables show the configuration for inbound and outbound security rules.

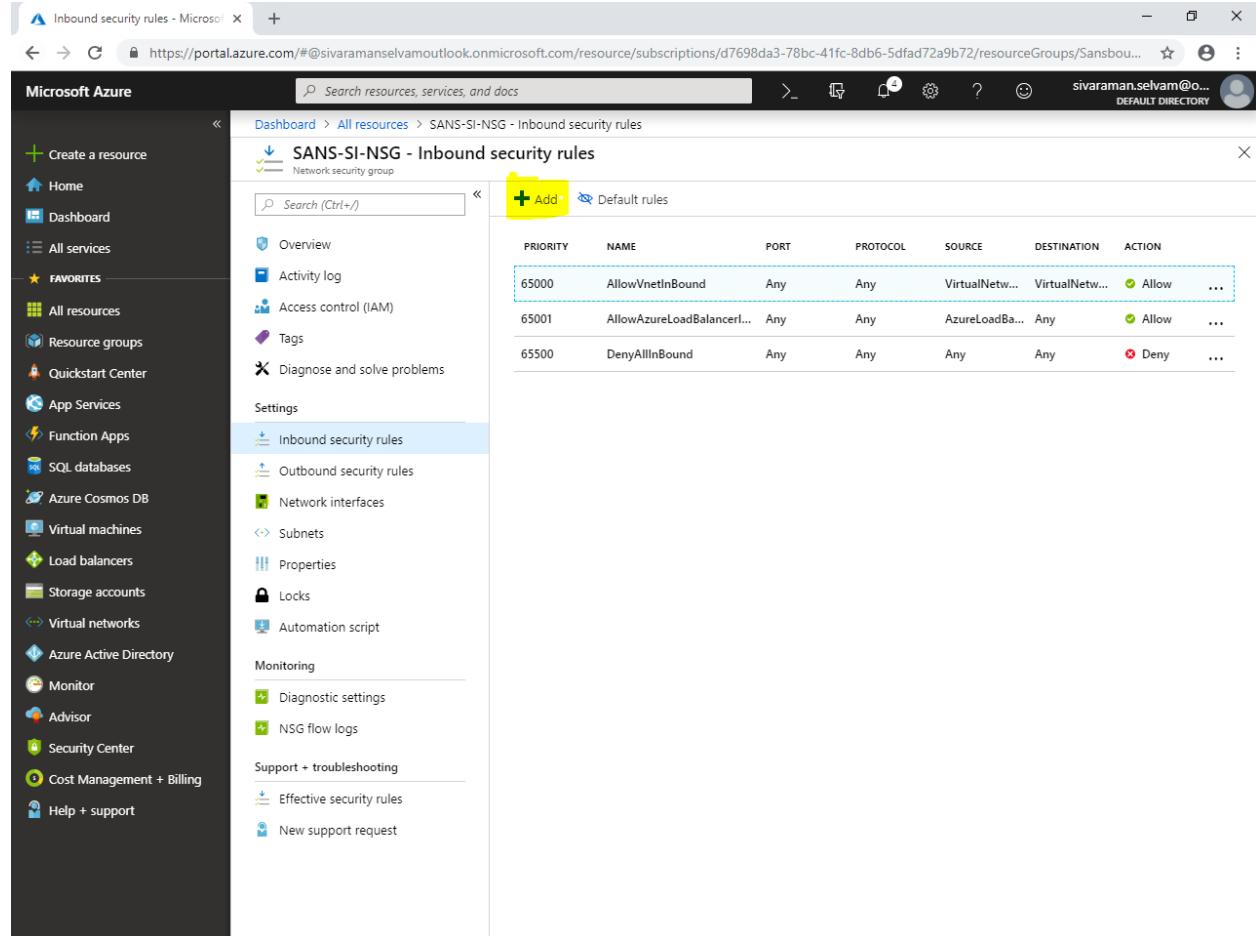
PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetBound	Any	Any	VirtualNetwork	VirtualNetwork	<span style="color: green;">Allow</span>
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBal...	Any	<span style="color: green;">Allow</span>
65500	DenyAllInBound	Any	Any	Any	Any	<span style="color: red;">Deny</span>

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	<span style="color: green;">Allow</span>
65001	AllowInternetOutBound	Any	Any	Any	Internet	<span style="color: green;">Allow</span>
65500	DenyAllOutBound	Any	Any	Any	Any	<span style="color: red;">Deny</span>

**In “Inbound security rules”**

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area is titled "SANS-SI-NSG - Inbound security rules" under "Network security group". It includes a search bar, a "Default rules" section, and a table of existing rules:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	... (More)
65000	AllowVnetInBound	Any	Any	VirtualNetw...	VirtualNetw...	<span style="color: green;">Allow</span>	...
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBa...	Any	<span style="color: green;">Allow</span>	...
65500	DenyAllInBound	Any	Any	Any	Any	<span style="color: red;">Deny</span>	...

A yellow box highlights the "Add" button at the top right of the table header. The URL in the browser address bar is https://portal.azure.com/#@sivaramselvamoutlook.onmicrosoft.com/resource/subscriptions/d7698da3-78bc-41fc-8db6-5dfad72a9b72/resourceGroups/Sansbou...

While “**Add inbound security rule**”,

Select “**Source**” as “**Any**”.

Specify “**Source port ranges**” at “**\***”.

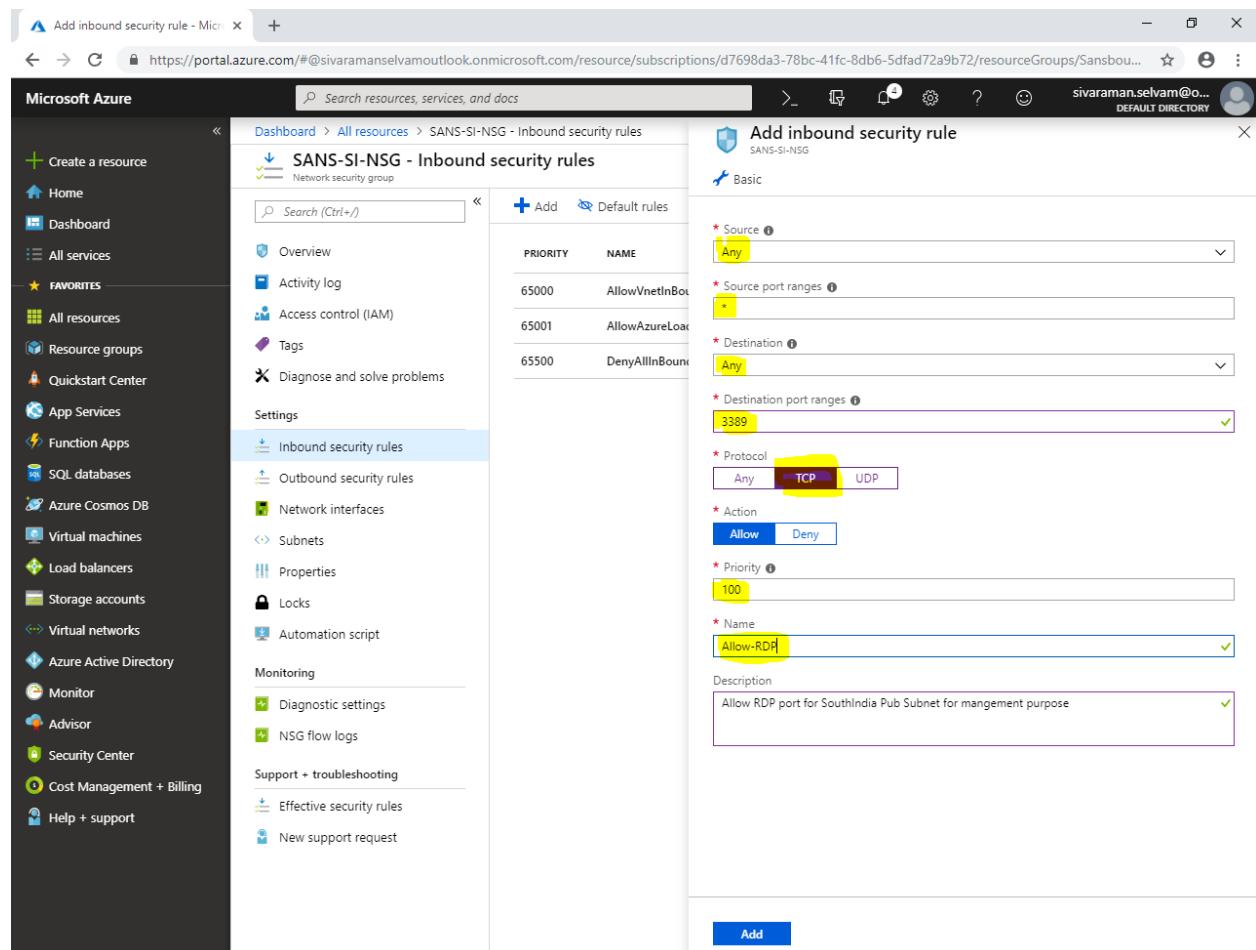
Select “**Destination**” as “**Any**”.

Specify “**Destination port ranges**” as “**3389**”.

Click “**Protocol**” on “**TCP**”.

Ensure “**Priority**” as “**100**”

Type “**Name**” as “**Allow-RDP**”.



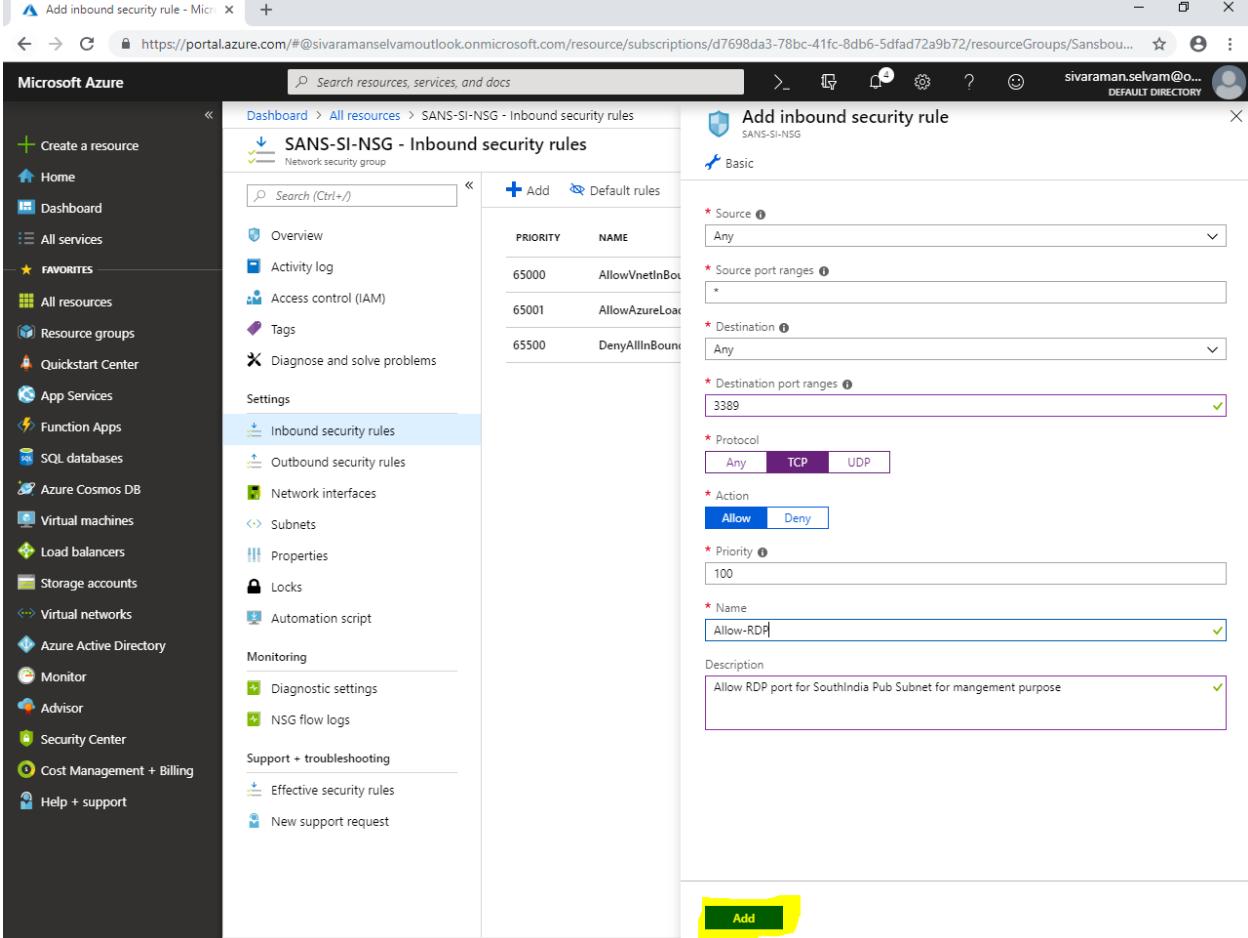
The screenshot shows the Microsoft Azure portal interface for managing network security groups. On the left, the navigation menu includes options like Create a resource, Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area displays the 'SANS-SI-NSG - Inbound security rules' section. A table lists existing rules:

PRIORITY	NAME
65000	AllowVnetInbound
65001	AllowAzureLoadBalancing
65500	DenyAllInbound

The right side of the screen shows the 'Add inbound security rule' dialog. The 'Basic' tab is selected. The configuration is as follows:

- Source:** Any
- Source port ranges:** \*
- Destination:** Any
- Destination port ranges:** 3389
- Protocol:** TCP (selected from a radio button group)
- Priority:** 100
- Name:** Allow-RDP
- Description:** Allow RDP port for SouthIndia Pub Subnet for management purpose

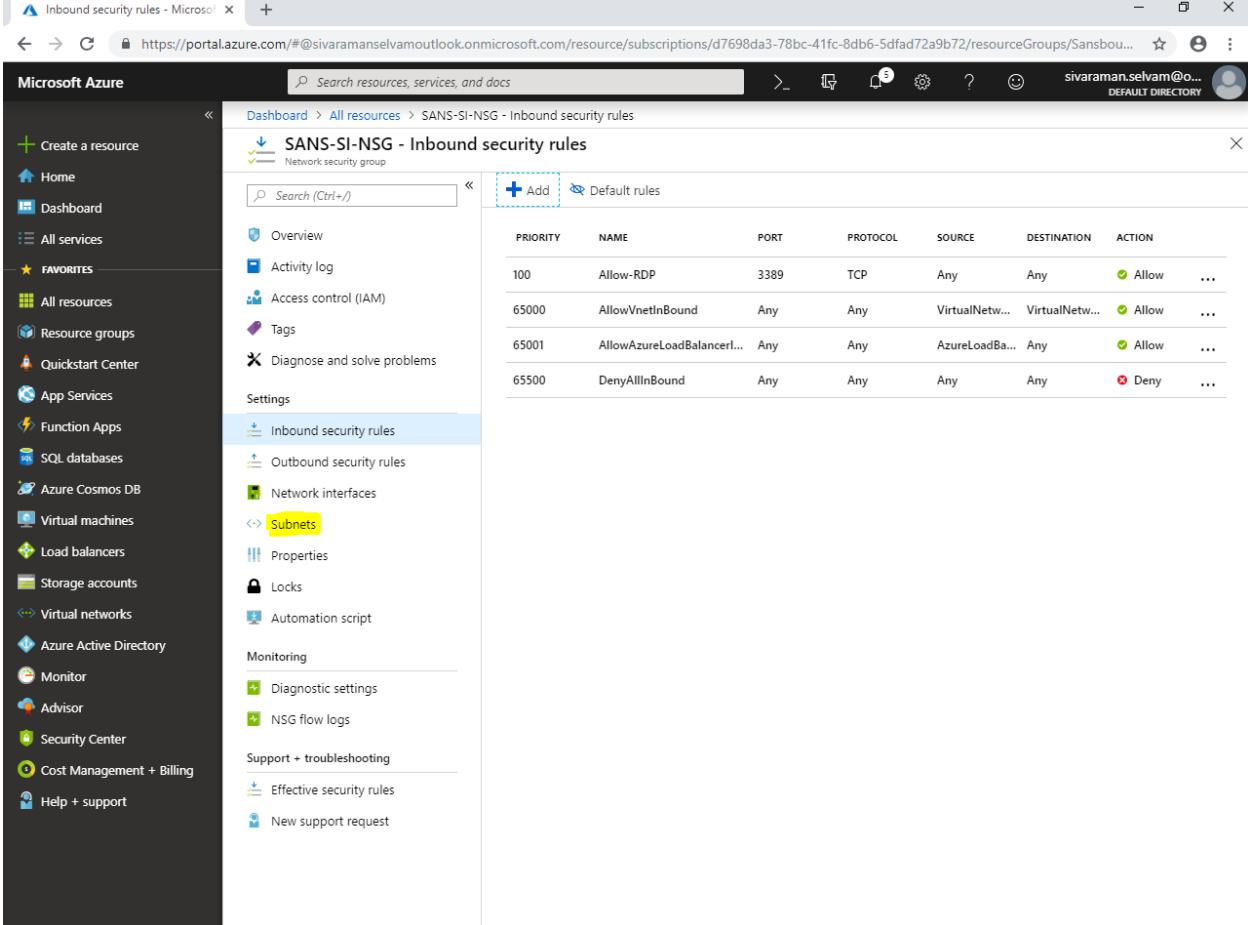
Click "Add".



The screenshot shows the Microsoft Azure portal interface. The left sidebar is filled with various service icons under categories like Favorites, All services, and Monitoring. The main content area is titled 'SANS-SI-NSG - Inbound security rules'. On the right, a 'Basic' configuration pane is open for adding a new rule. The form includes fields for Source (set to Any), Destination (set to Any), Destination port ranges (set to 3389), Protocol (set to TCP), Action (set to Allow), Priority (set to 100), Name (set to Allow-RDP), and a descriptive note in the Description field. The 'Add' button at the bottom of the form is highlighted with a yellow box.

In “**SANS-SI-NSG**”,

Click “**Subnets**”.

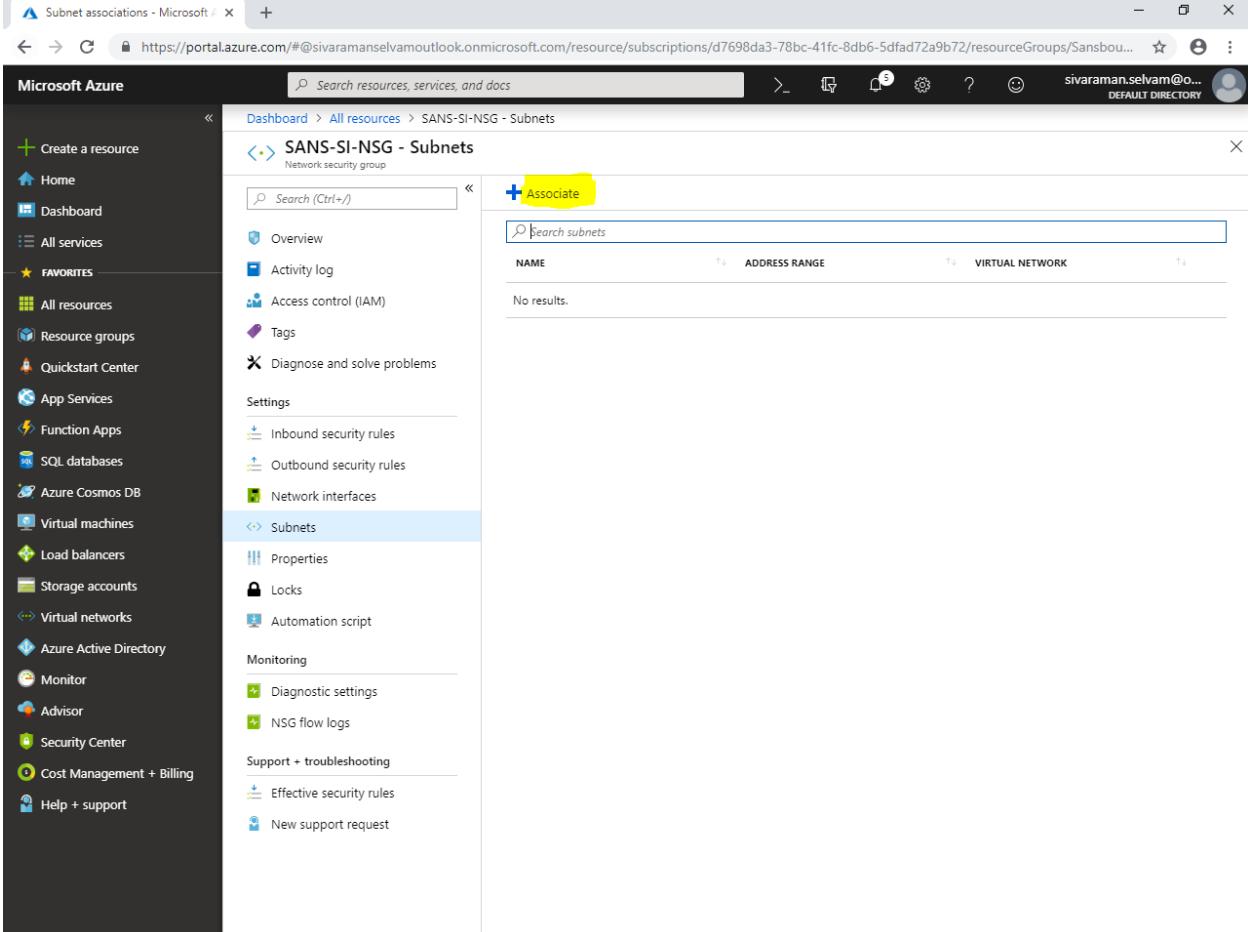


The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar is visible, showing various service categories like Home, Dashboard, All services, Favorites, and more. The main content area displays the 'Inbound security rules' page for a Network Security Group named 'SANS-SI-NSG'. The 'Subnets' link under the 'Settings' section of the left sidebar is highlighted with a yellow box. The main pane shows a table of inbound security rules:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
100	Allow-RDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetw...	VirtualNetw...	Allow
65001	AllowAzureLoadBalancerl...	Any	Any	AzureLoadBa...	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

In “Subnets”,

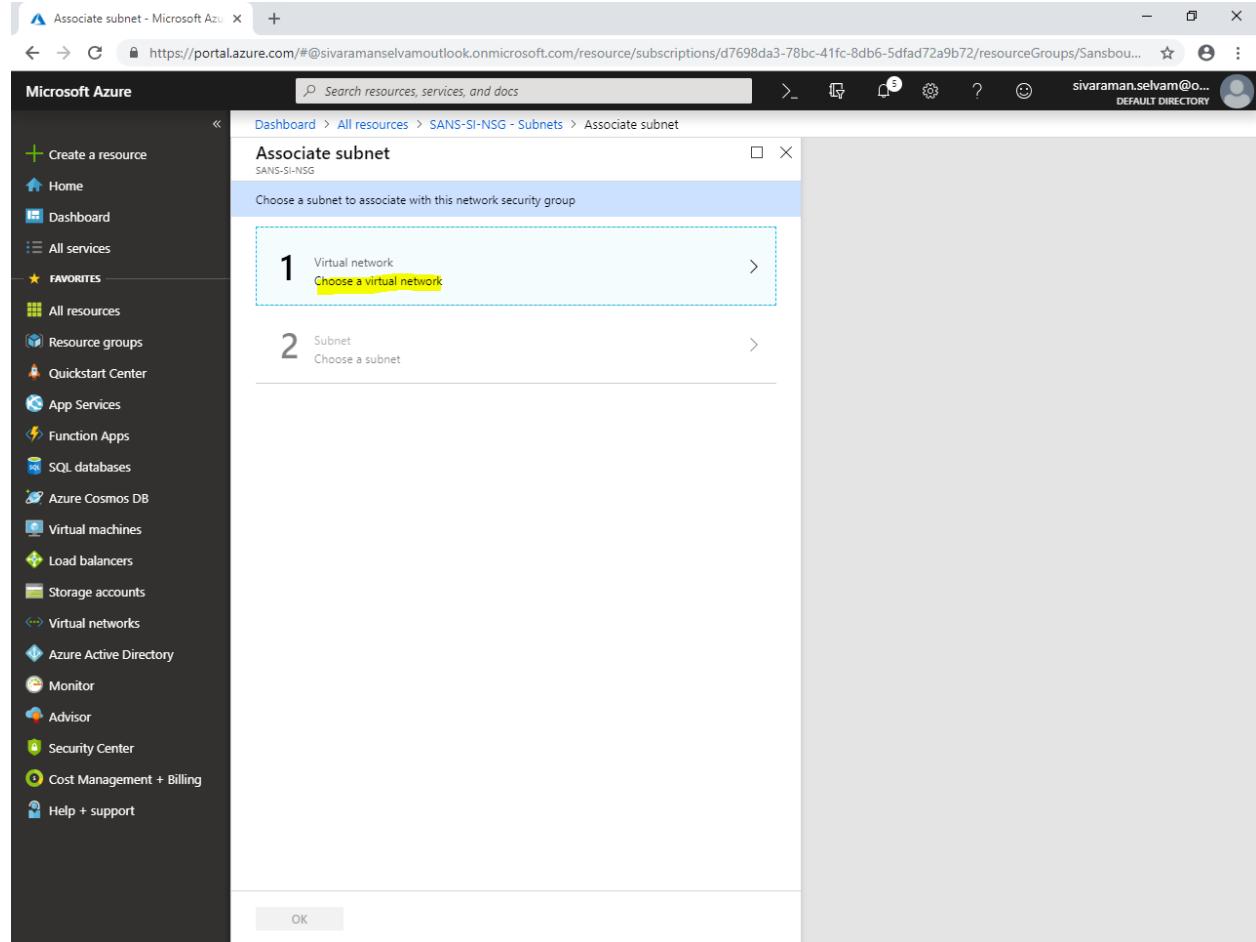
Click “Associate”.



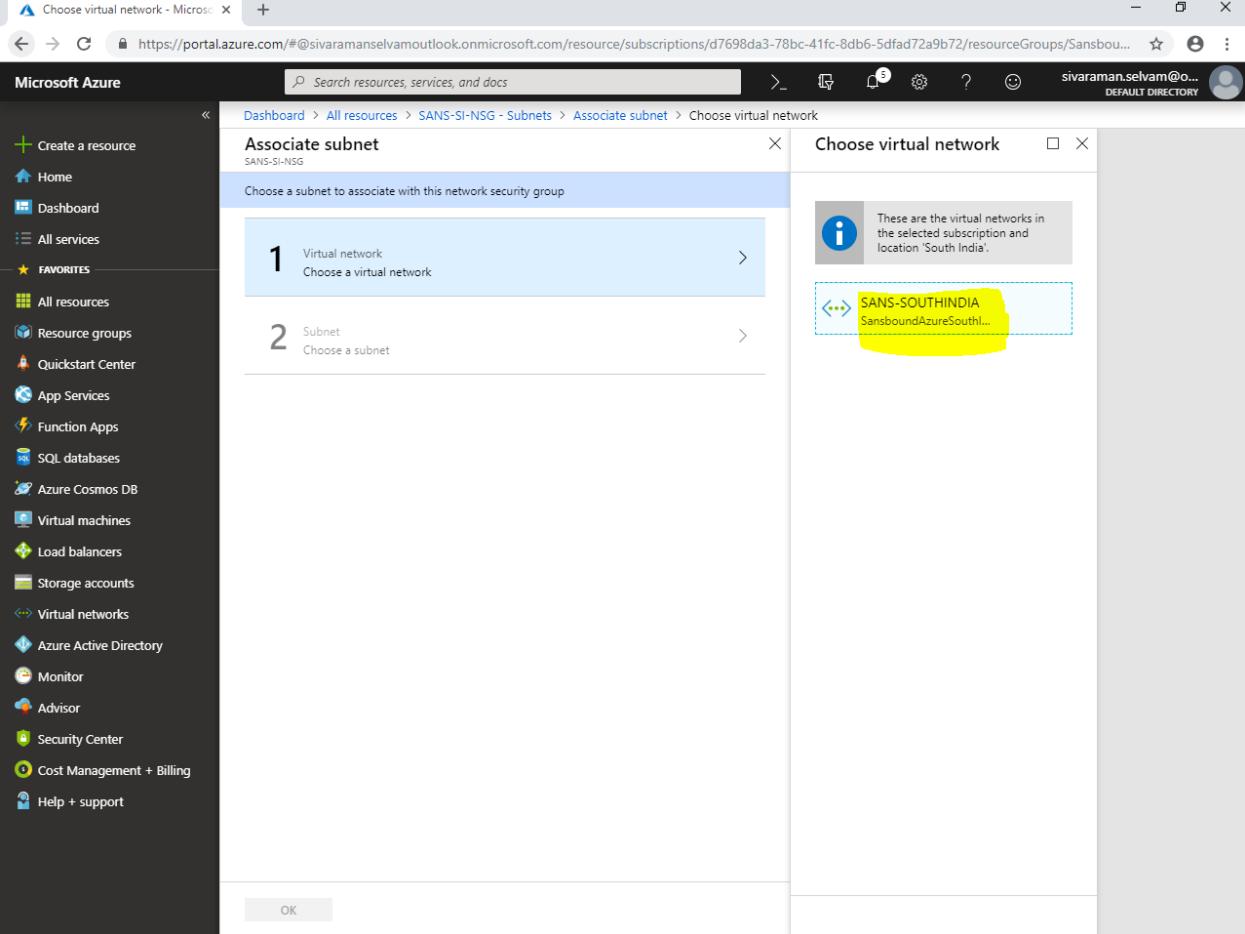
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites, and many others. The main content area is titled "SANS-SI-NSG - Subnets". On the left of the main area, there's a sidebar with options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Inbound security rules, Outbound security rules, Network interfaces, Subnets - which is selected and highlighted in blue), Properties, Locks, Automation script, Monitoring (Diagnostic settings, NSG flow logs), Support + troubleshooting (Effective security rules, New support request), and Help + support. At the top right of the main content area, there's a search bar labeled "Search subnets" and a table header with columns: NAME, ADDRESS RANGE, and VIRTUAL NETWORK. Below the header, it says "No results."

While “Associate subnet”,

Click “Choose a virtual network”.



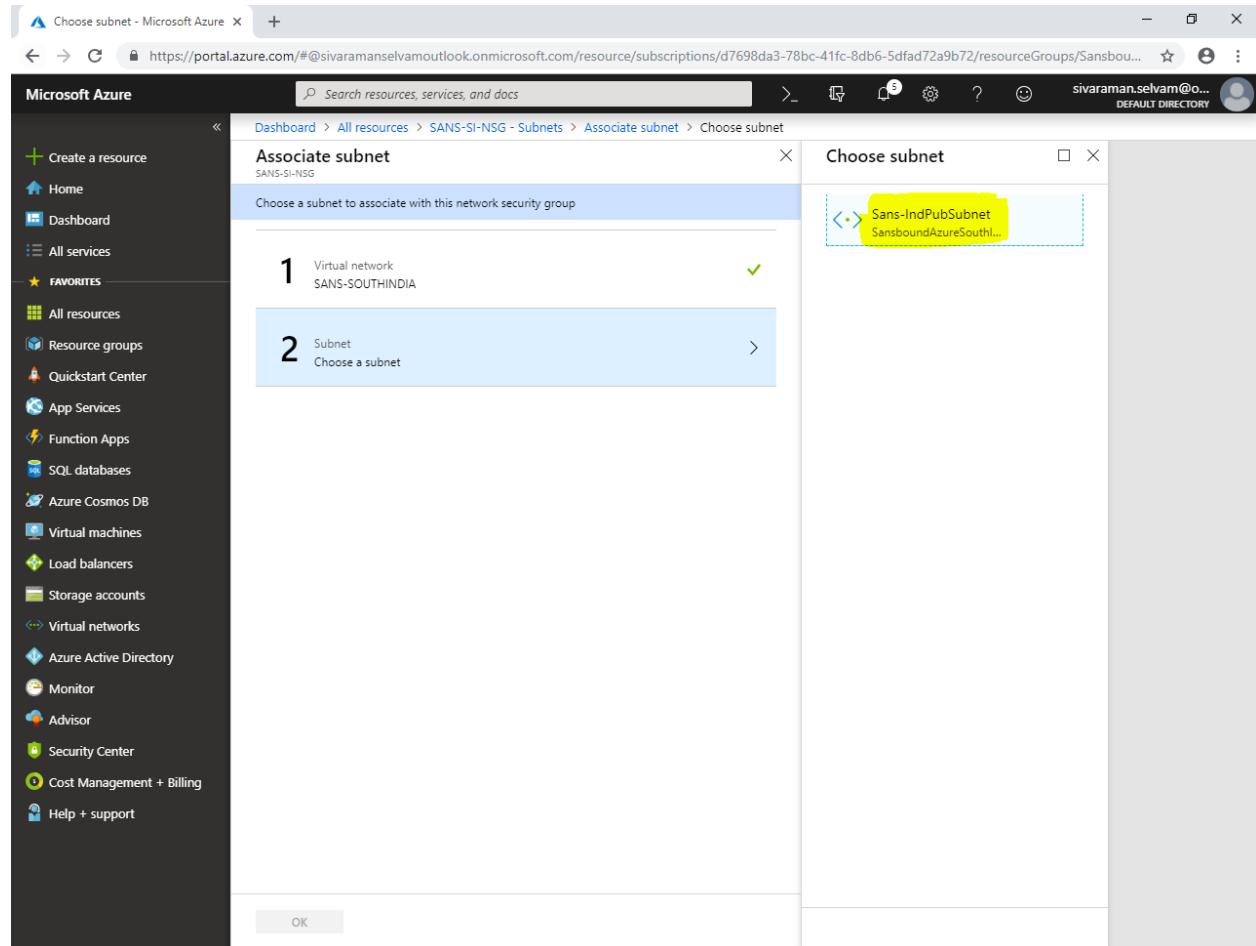
Click "SANS-SOUTHINDIA".



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a list of services: Create a resource, Home, Dashboard, All services, Favorites (which includes All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, Help + support). The main area shows a navigation path: Dashboard > All resources > SANS-SI-NSG - Subnets > Associate subnet > Choose virtual network. The current step is "Associate subnet" under "SANS-SI-NSG". The sub-step "Choose a subnet to associate with this network security group" is displayed. It lists two options: "1 Virtual network" (Choose a virtual network) and "2 Subnet" (Choose a subnet). To the right, a modal window titled "Choose virtual network" lists virtual networks: "These are the virtual networks in the selected subscription and location 'South India'. SANS-SOUTHINDIA SansboundAzureSouth...". The "SANS-SOUTHINDIA" entry is highlighted with a yellow box.

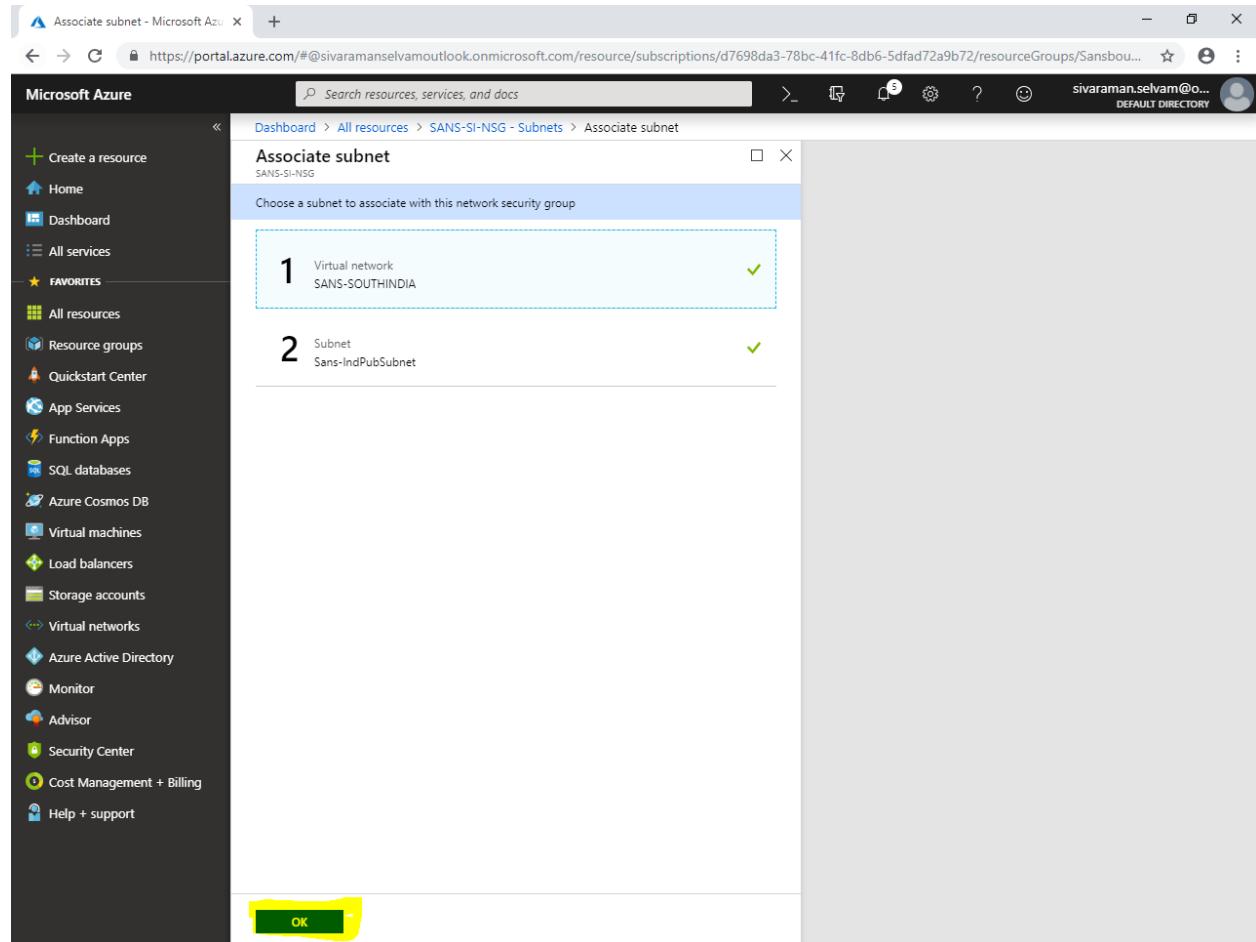
In “Choose a subnet”,

Click “**Sans-IndPubSubnet**”.

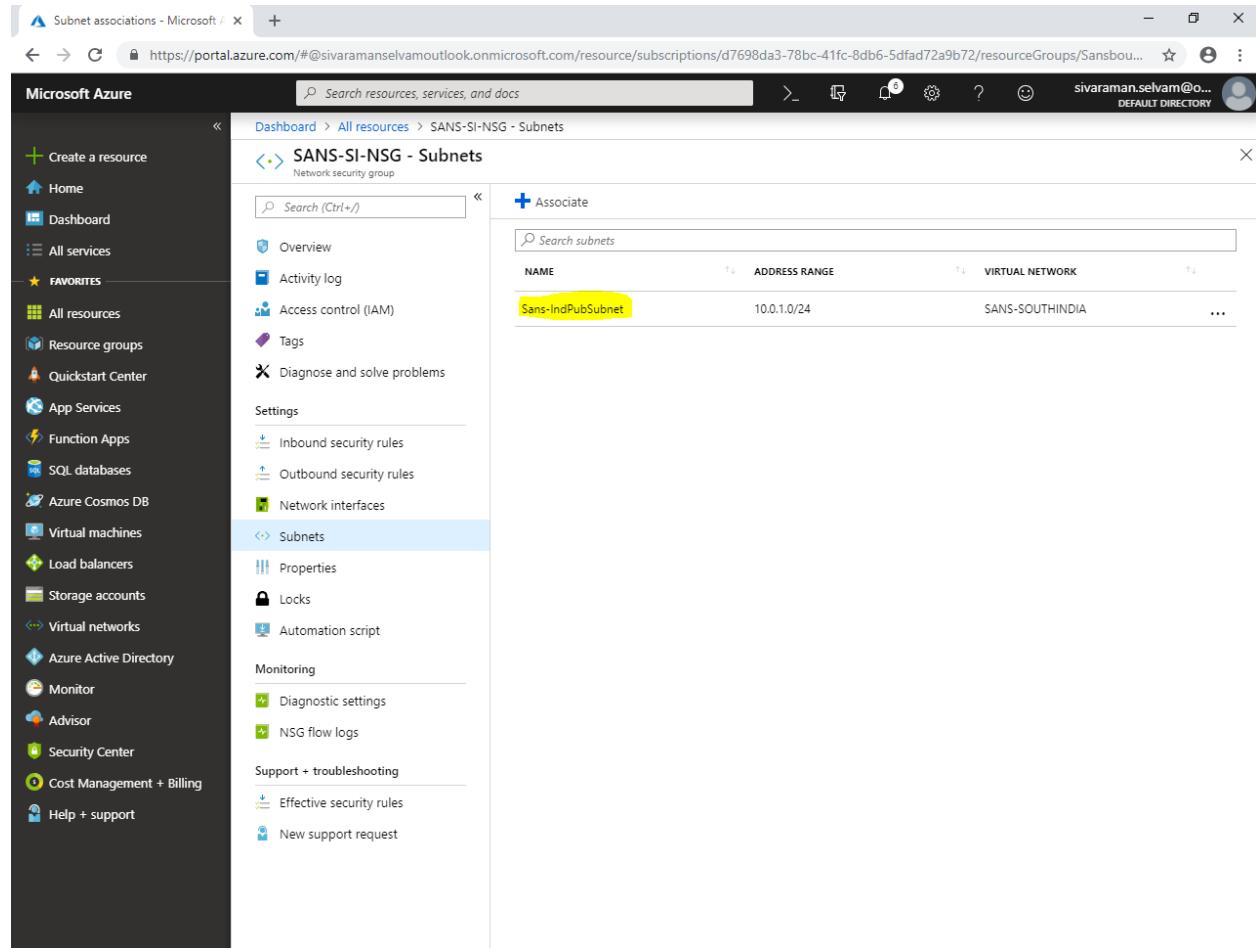


The screenshot shows the Microsoft Azure portal interface. The left sidebar contains various service icons such as Create a resource, Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area shows a navigation path: Dashboard > All resources > SANS-SI-NSG - Subnets > Associate subnet > Choose subnet. The 'Associate subnet' step is currently active. On the right, a 'Choose subnet' dialog box is open, listing 'Virtual network' and 'Subnet'. Under 'Virtual network', 'SANS-SOUTHINDIA' is selected. Under 'Subnet', 'Choose a subnet' is listed. A yellow box highlights the 'Sans-IndPubSubnet' option in the 'Choose a subnet' list. At the bottom of the dialog, there is an 'OK' button.

Click "OK".



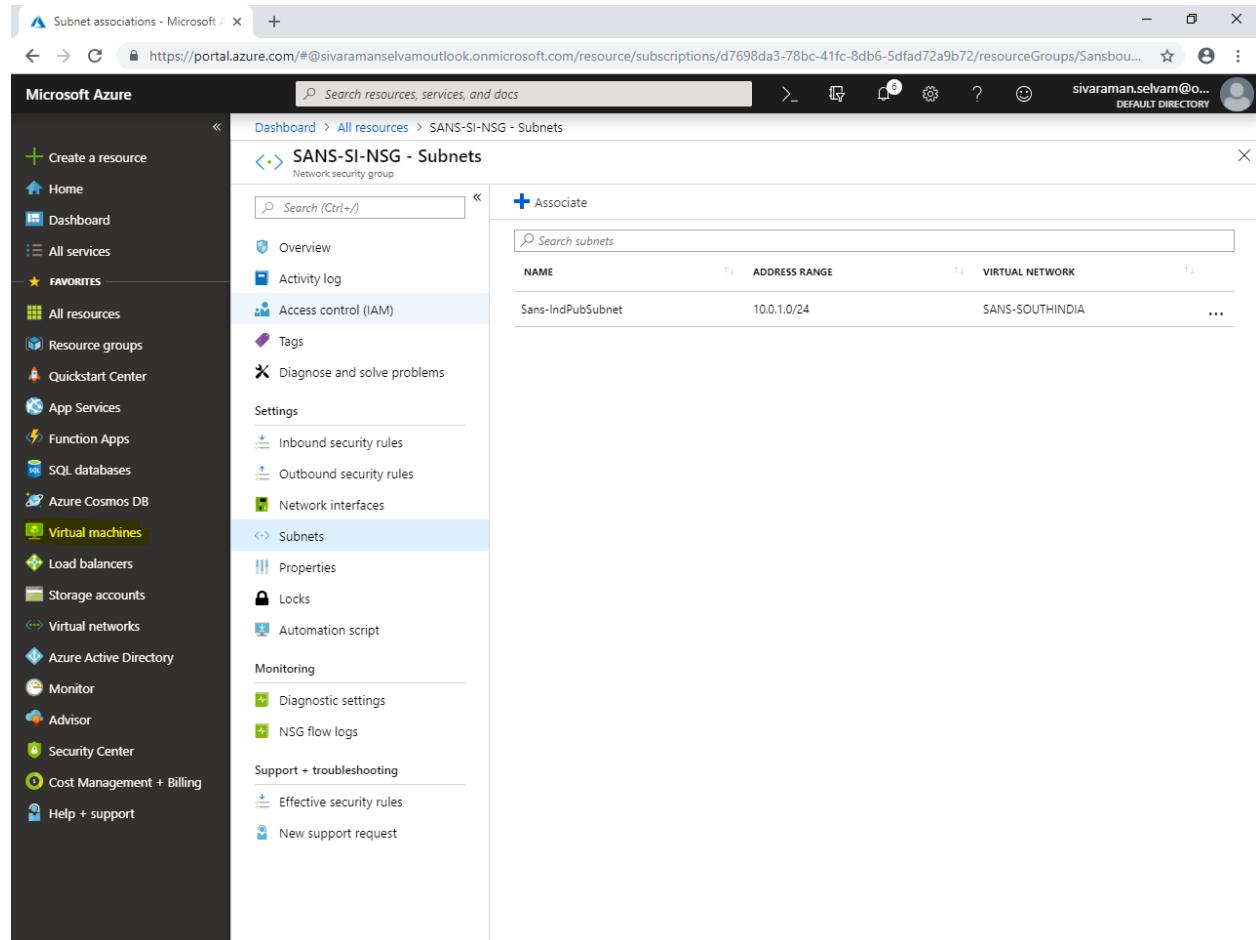
You are able to see that “**Sans-IndPubSubnet**” has been associated for “**SANS-SI-NSG**” network security Group.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons. The main content area is titled "SANS-SI-NSG - Subnets" under the "Network security group" section. On the right, there is a table listing a single subnet:

NAME	ADDRESS RANGE	VIRTUAL NETWORK
Sans-IndPubSubnet	10.0.1.0/24	SANS-SOUTHINDIA

Click “Virtual machines” in left side panel.

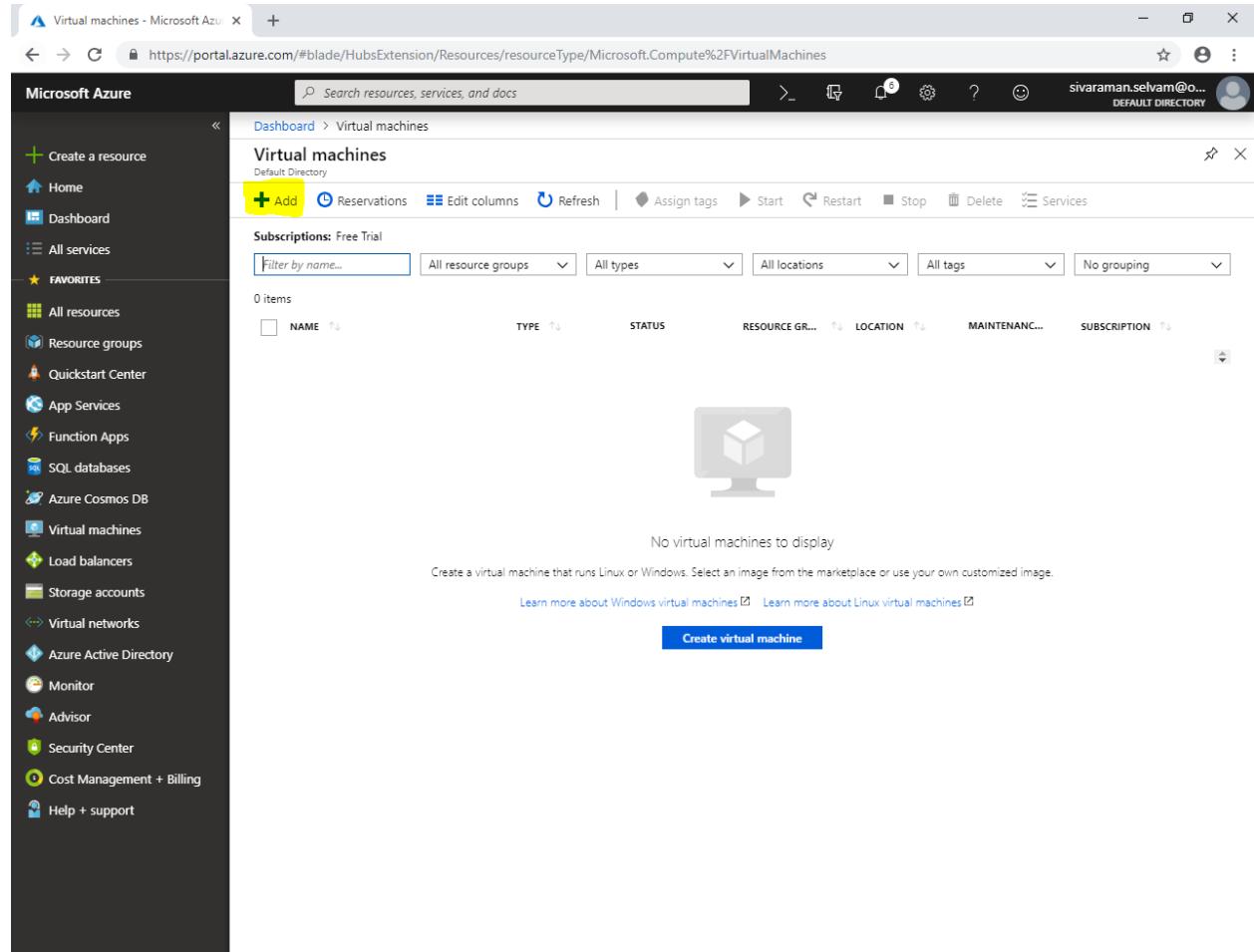


The screenshot shows the Microsoft Azure portal interface. The left sidebar is visible with various service icons. The "Virtual machines" icon is highlighted with a yellow box, indicating it is the active section. The main content area displays the "Subnets" page for a specific network security group (NSG). The subnets listed are:

NAME	ADDRESS RANGE	VIRTUAL NETWORK
Sans-IndPubSubnet	10.0.1.0/24	SANS-SOUTHINDIA

In “Virtual machines”,

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is visible with various service icons. The main content area is titled "Virtual machines". At the top of the list, there is a blue "Add" button which is highlighted with a yellow box. Below the list, there is a message: "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." At the bottom of the list, there is a blue "Create virtual machine" button.

While create a virtual machine,

Select “Subscription” as “Free Trial”.

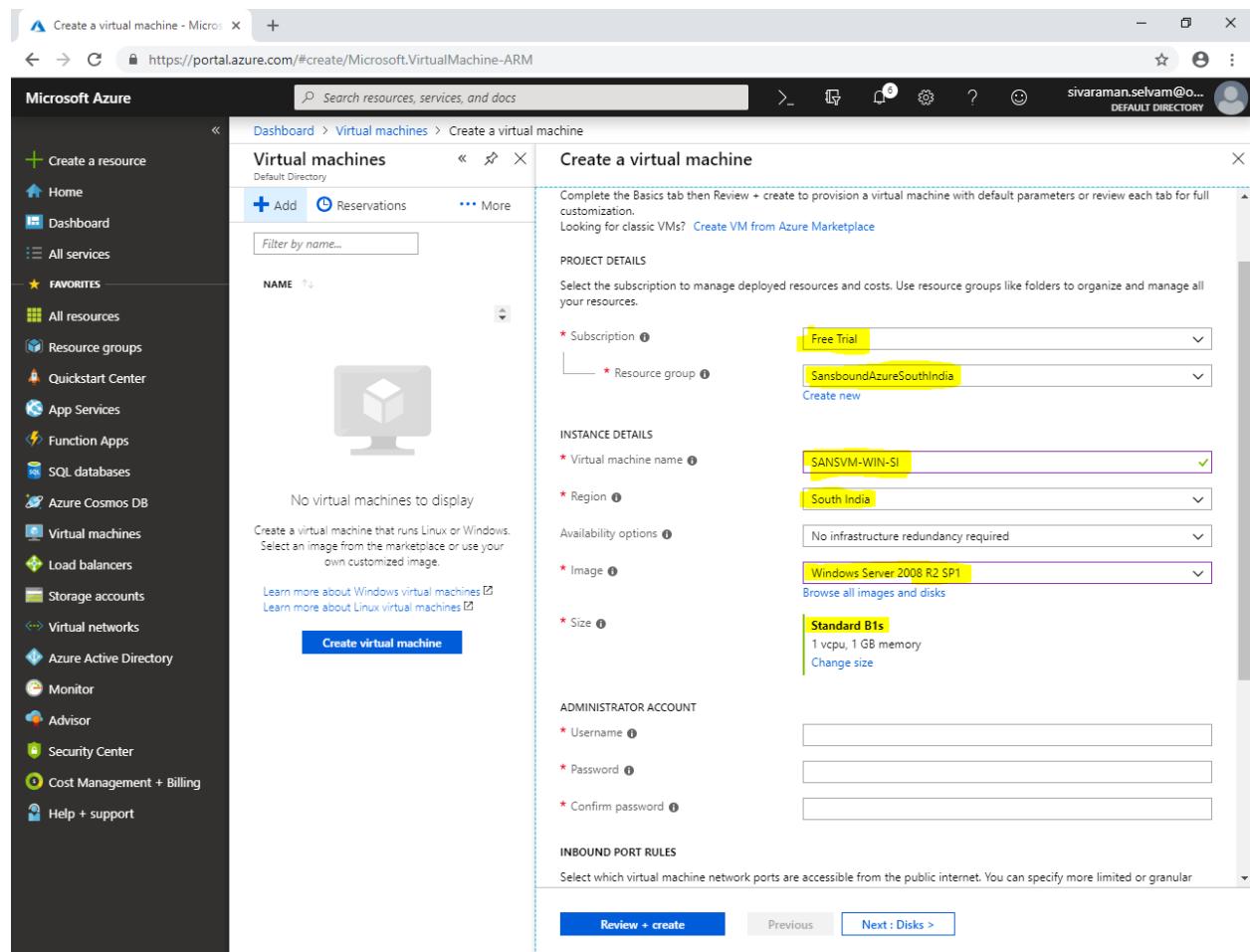
Select “SansboundAzureSouthIndia”.

Type “Virtual machine name” as “SANSVM-WIN-SI”.

Select “Region” as “South India”.

Select “Image” as “Windows 2008 R2 SP1”.

Change “VM Size” as “Standard B1s”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains various service icons like Home, Dashboard, All services, Favorites, and more. The main area shows the 'Virtual machines' blade with a list of existing VMs and a 'Create a virtual machine' wizard on the right.

**Project Details:**

- Subscription: Free Trial
- Resource group: SansboundAzureSouthIndia
- Virtual machine name: SANSVM-WIN-SI
- Region: South India
- Image: Windows Server 2008 R2 SP1
- Size: Standard B1s

**Instance Details:**

- No infrastructure redundancy required
- Standard B1s (1 vcpu, 1 GB memory)

**Administrator Account:**

- Username: (empty)
- Password: (empty)
- Confirm password: (empty)

**Inbound Port Rules:**

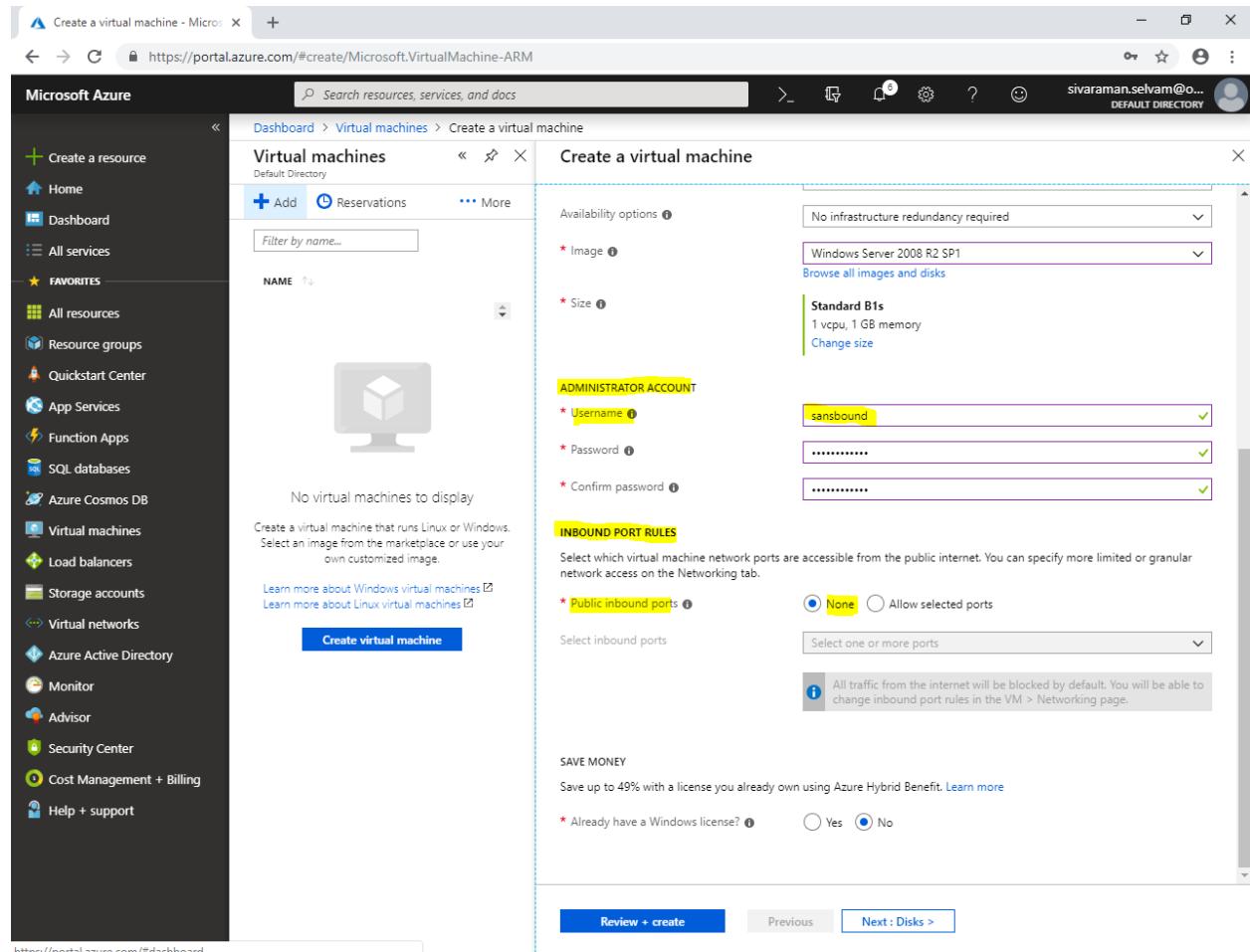
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular rules.

At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Disks >'.

In “Administrator Account”,

Type “Username” as “sansbound”.

In “Inbound port rules” as “None”.

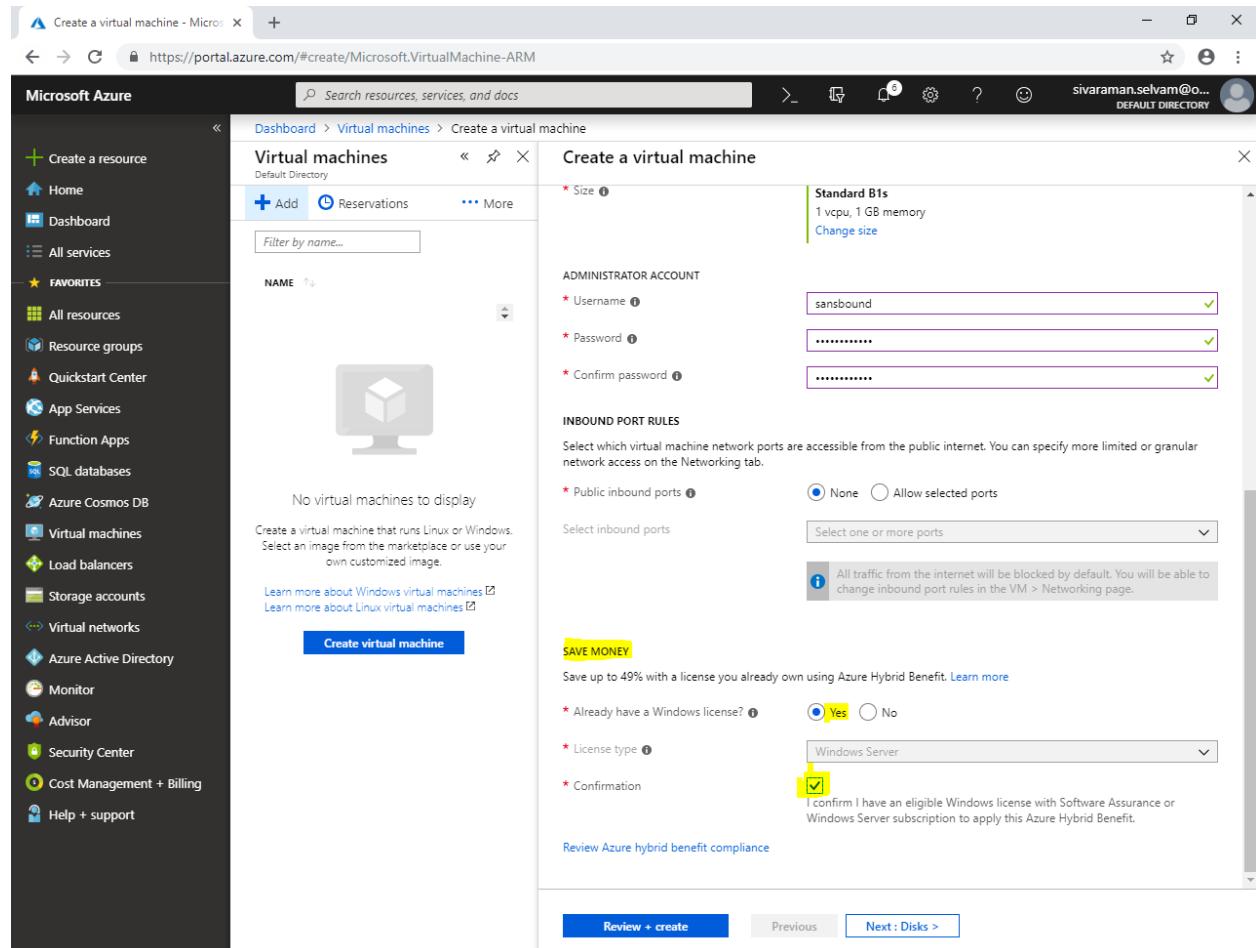


The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. On the left, the navigation menu includes options like Home, Dashboard, All services, Favorites, and various Azure services. The main area is titled 'Create a virtual machine' under 'Virtual machines'. The 'Create a virtual machine' step is selected. In the 'ADMINISTRATOR ACCOUNT' section, the 'Username' field is filled with 'sansbound'. Under 'INBOUND PORT RULES', the 'Public inbound ports' dropdown is set to 'None'. Other settings shown include selecting 'Windows Server 2008 R2 SP1' as the image and 'Standard B1s' as the size. At the bottom, there are 'Review + create' and 'Next : Disks >' buttons.

In “Save Money”,

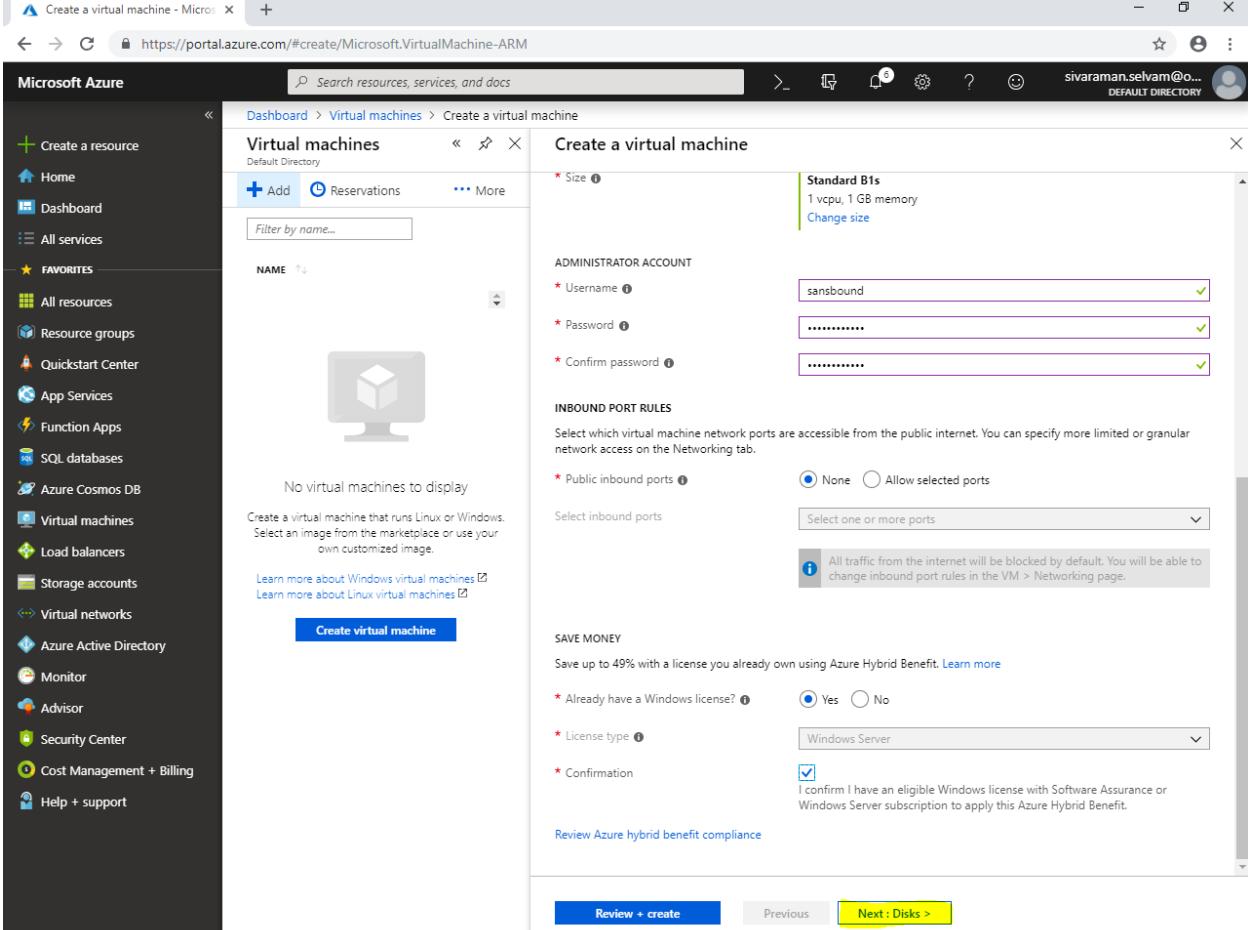
Click “Yes” for Already have a Windows license.

Need to check “Confirmation” box.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. On the left, the navigation menu includes options like Home, Dashboard, All services, Favorites (All resources, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, Help + support). The main panel shows the 'Virtual machines' blade with a 'Create a virtual machine' wizard. The 'Size' section shows 'Standard B1s' (1 vcpu, 1 GB memory). The 'ADMINISTRATOR ACCOUNT' section has fields for 'Username' (sansbound), 'Password', and 'Confirm password', all marked with green checkmarks. Under 'INBOUND PORT RULES', the 'Public inbound ports' dropdown is set to 'None'. The 'SAVE MONEY' section contains the following text: 'Save up to 49% with a license you already own using Azure Hybrid Benefit. Learn more'. It includes three radio buttons: 'Yes' (selected), 'No', and 'License type'. The 'Yes' button is highlighted with a yellow box. A dropdown menu for 'License type' shows 'Windows Server'. Below this, a checkbox labeled 'I confirm I have an eligible Windows license with Software Assurance or Windows Server subscription to apply this Azure Hybrid Benefit.' is checked. At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Disks >'. The status bar at the bottom right shows 'sivaraman.selvam@o... DEFAULT DIRECTORY'.

Click “Next : Disks >”.



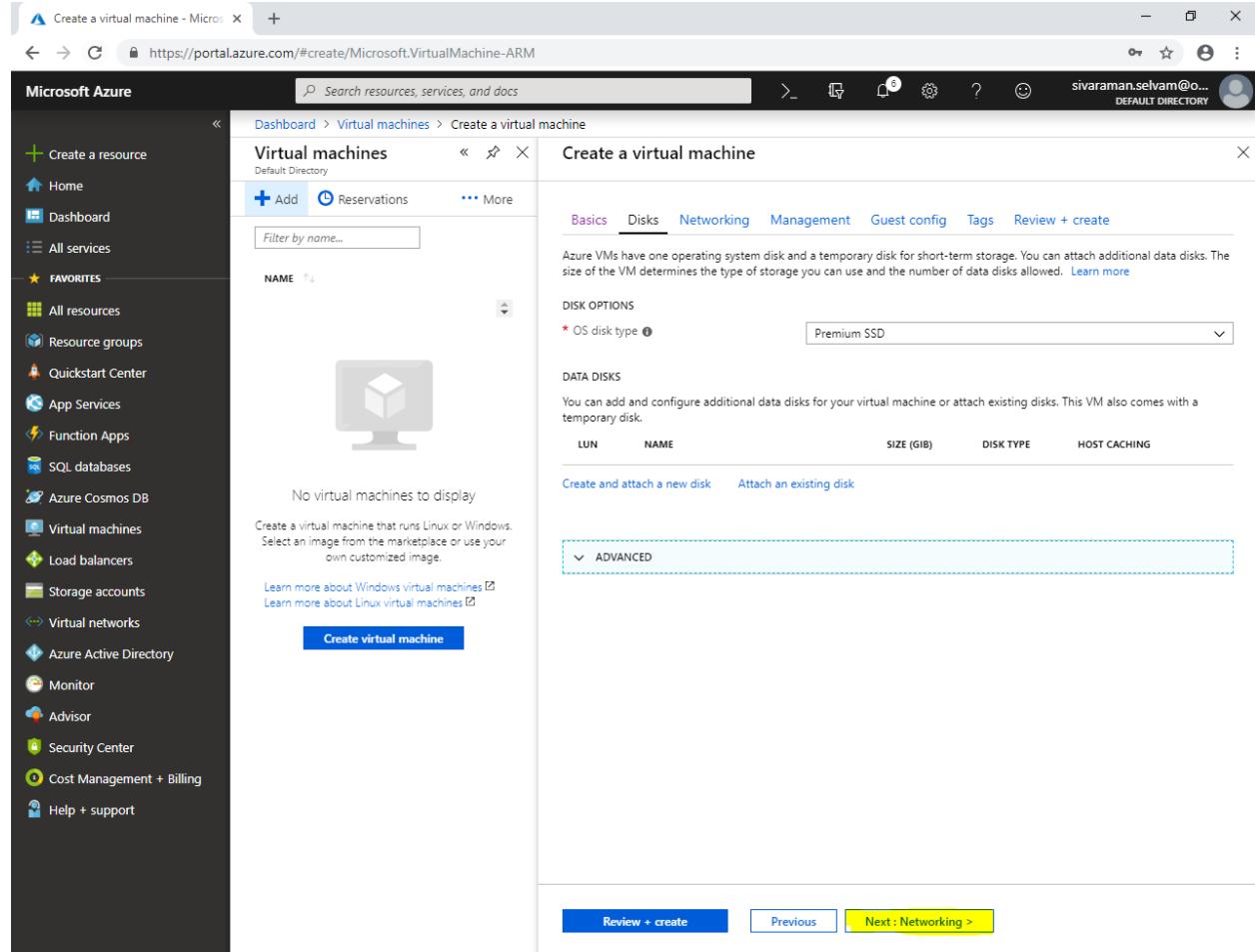
The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, and Virtual machines. The main area is titled 'Create a virtual machine' under 'Virtual machines'. It's step 2 of 4, 'Configure VM settings'. The configuration includes:

- Size:** Standard B1s (1 vcpu, 1 GB memory)
- Administrator Account:** Username: sansbound, Password: (redacted), Confirm password: (redacted)
- Inbound Port Rules:** Public inbound ports: None (selected)
- SAVE MONEY:** Already have a Windows license? Yes (selected)
- 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.

At the bottom, there are 'Review + create' and 'Next : Disks >' buttons, with 'Next : Disks >' being highlighted in yellow.

In “Disks”,

Click “Next : Networking>”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains a navigation menu with various service icons. The main area is titled "Create a virtual machine" and is currently on the "Networking" tab. The "Basics" tab is also visible. The networking configuration includes an OS disk type set to "Premium SSD". Below this, there's a section for "DATA DISKS" with a link to "Create and attach a new disk". At the bottom of the wizard, there are buttons for "Review + create", "Previous", and "Next : Networking >".

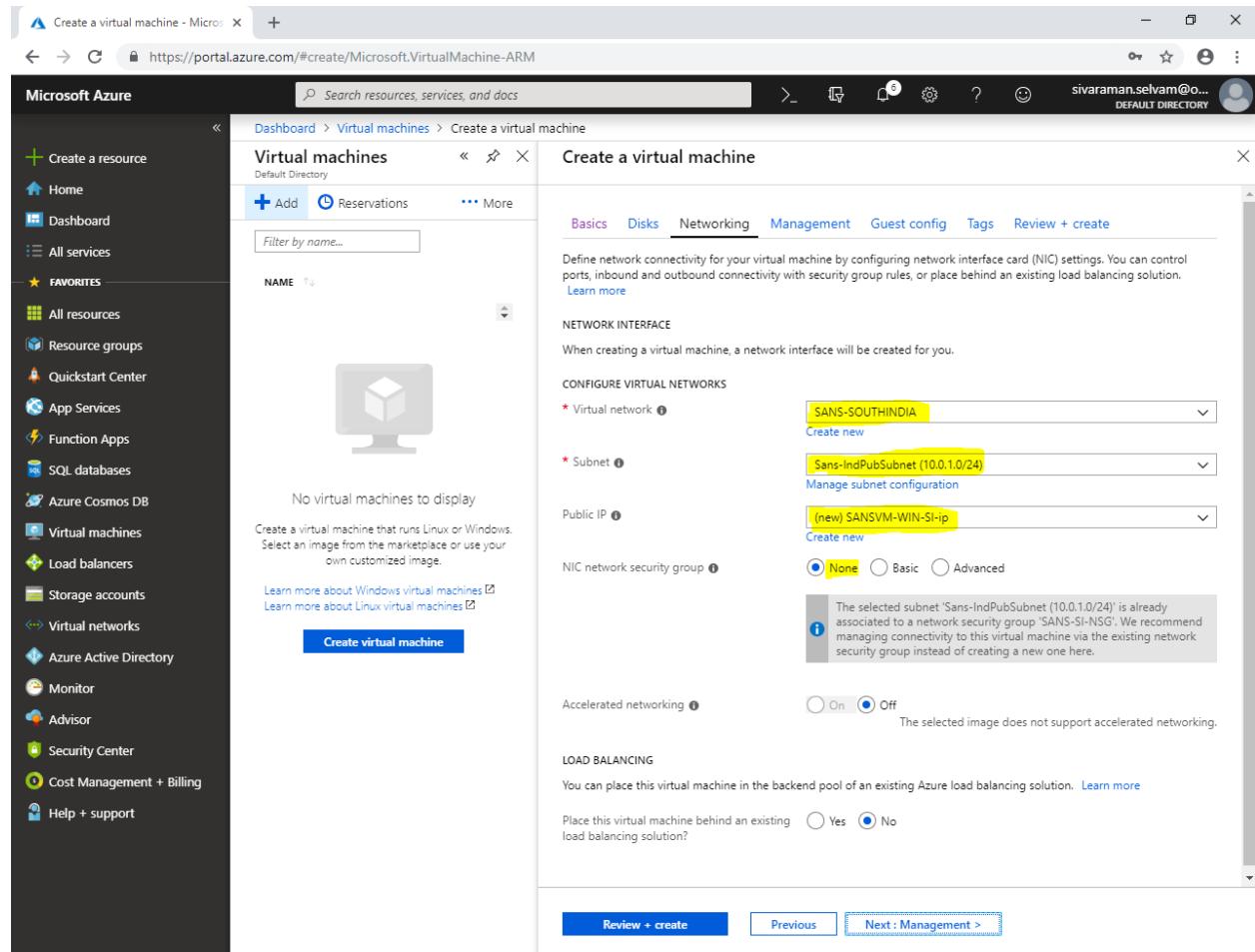
In “Networking”,

Ensure that “Virtual network” as “**SANS-SOUTHINDIA**”.

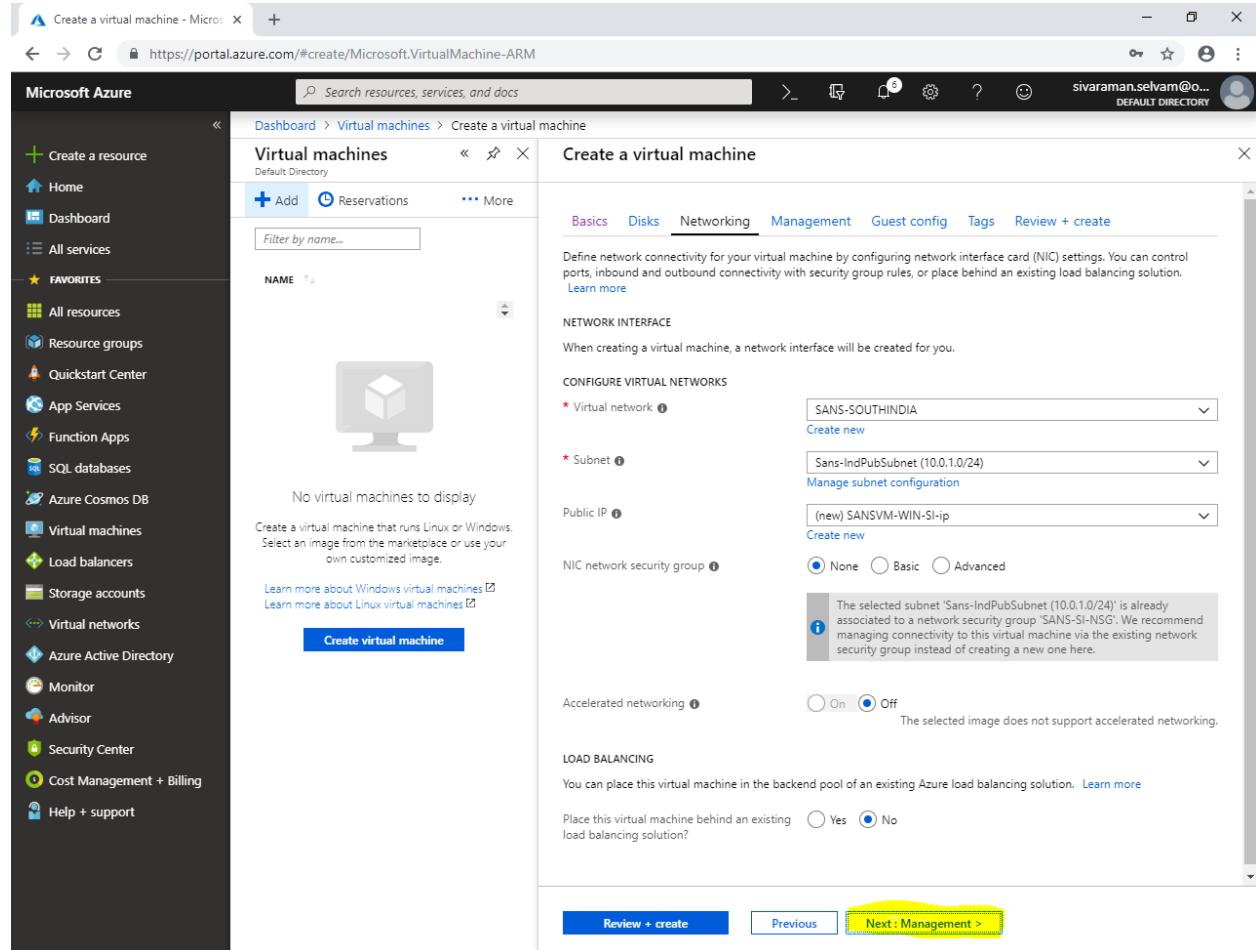
Ensure “Subnet” as “**Sans-IndPubSubnet**”.

Ensure Public IP is set.

Ensure “NIC Network security group” as “**None**”. (Because we have already created network security group named SANS-SI-NSG and associated it to Sans-IndPubSubnet”.



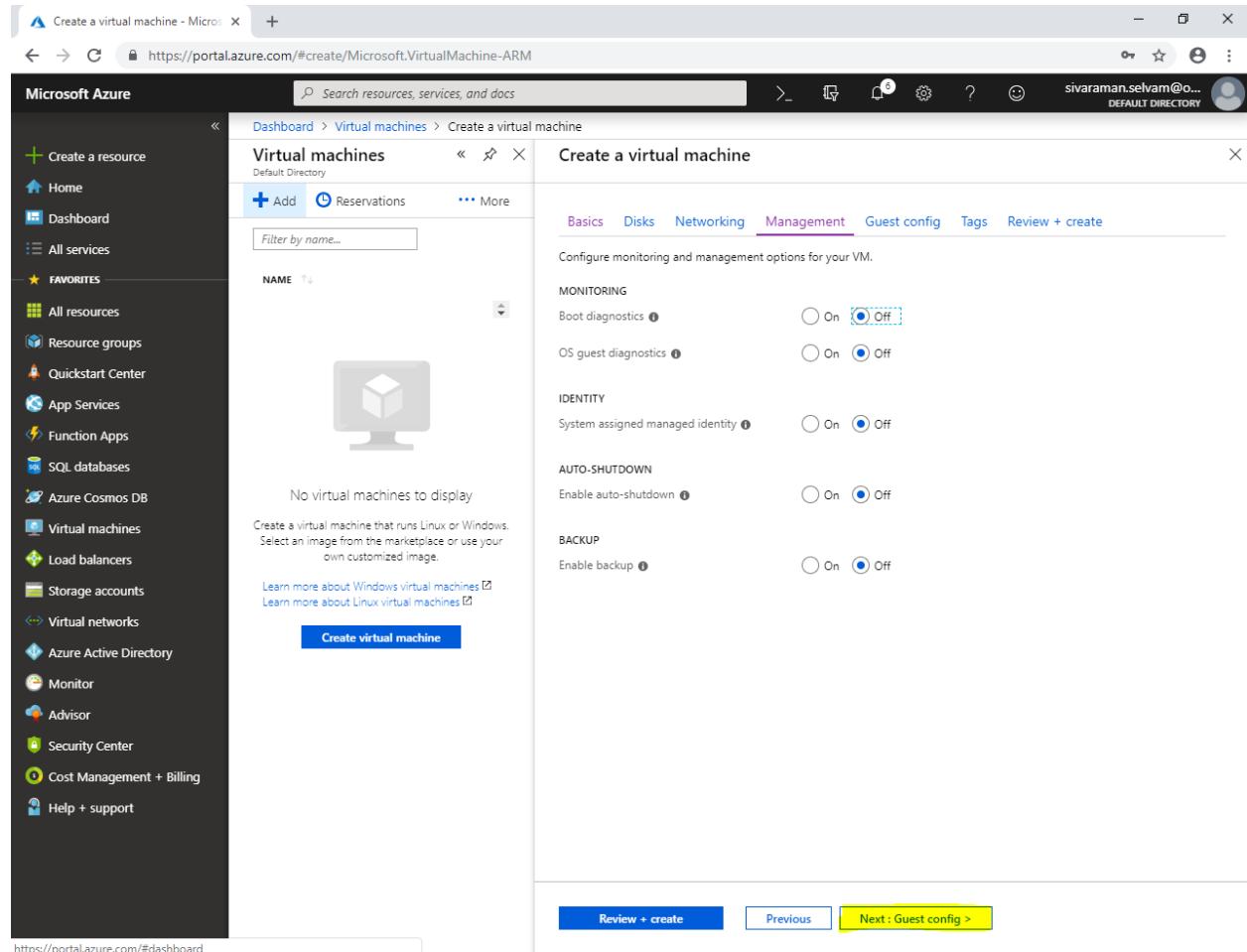
Click “Next : Management>”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains various service icons like Home, Dashboard, All services, and Virtual machines. The main area shows the 'Virtual machines' blade with a search bar and a 'Create a virtual machine' button. The 'Create a virtual machine' blade has several tabs: Basics, Disks, Networking, Management, Guest config, Tags, and Review + create. The 'Networking' tab is currently active. It includes fields for Virtual network (set to 'SANS-SOUTHINDIA'), Subnet (set to 'Sans-IndPubSubNet (10.0.1.0/24)'), and Public IP (set to '(new) SANSVM-WIN-SI-ip'). Under NIC network security group, 'None' is selected. The 'Accelerated networking' section has 'Off' selected, with a note indicating it's not supported for the selected image. The 'LOAD BALANCING' section has 'No' selected. At the bottom, there are 'Review + create', 'Previous', and 'Next: Management >' buttons, with 'Next: Management >' being highlighted.

In “Management”,

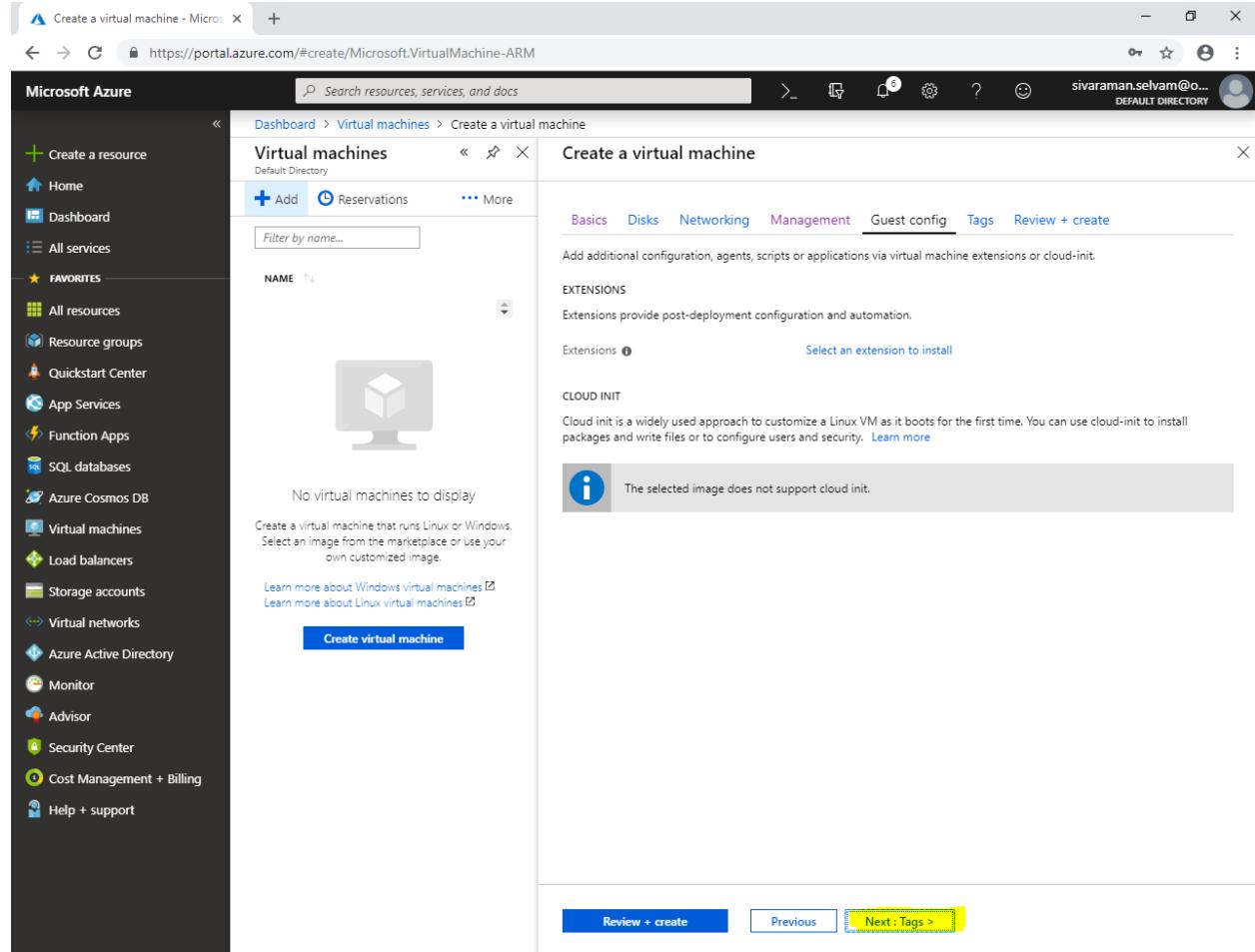
Click “Next : Guest config >”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains various service icons under 'All services'. The main area is titled 'Create a virtual machine' and is currently on the 'Guest config' tab. The configuration section includes options for 'MONITORING', 'IDENTITY', 'AUTO-SHUTDOWN', and 'BACKUP', each with 'On' or 'Off' radio button options. At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Guest config >' (which is highlighted with a yellow box).

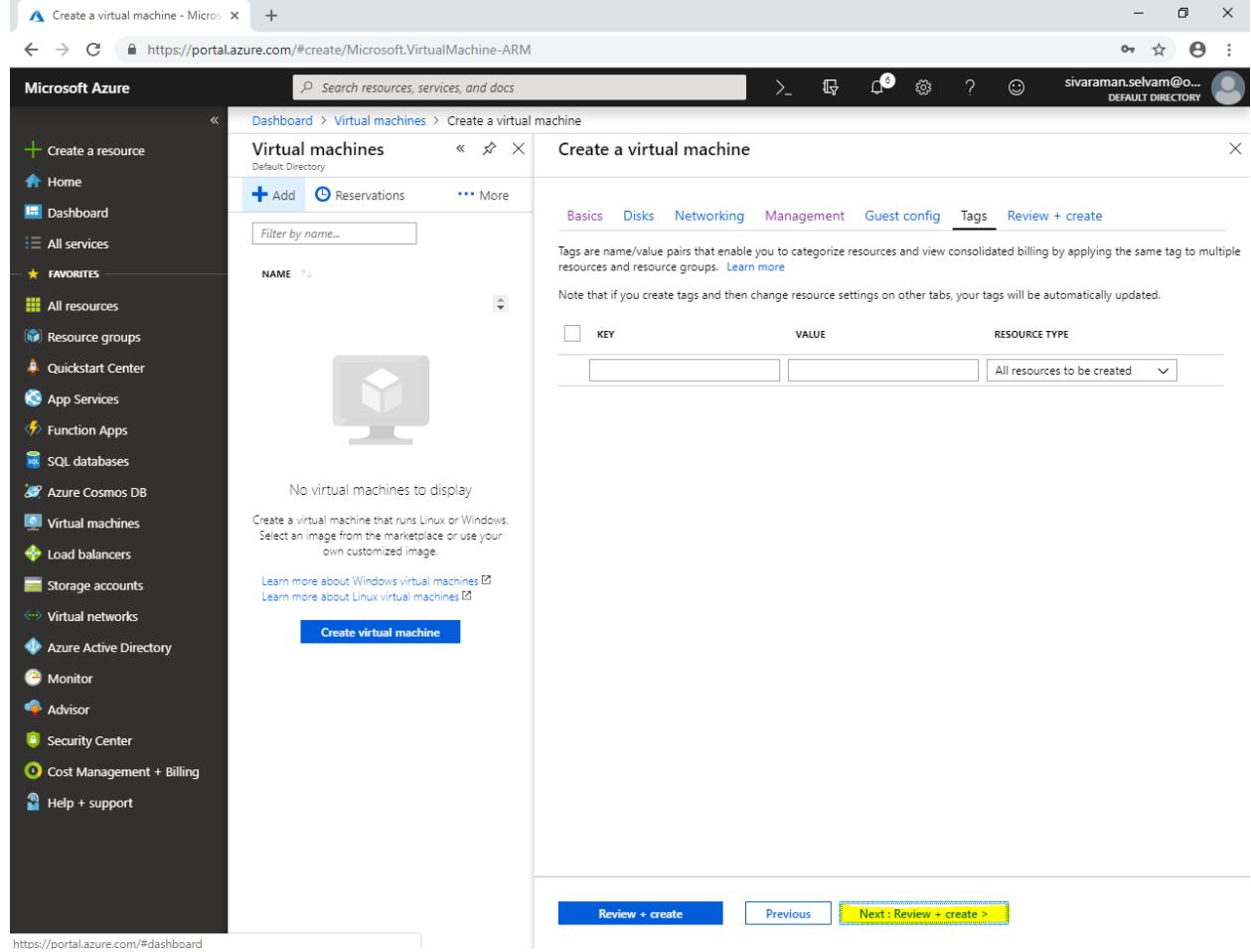
In “Guest config”,

Click “Next : Tags >”.



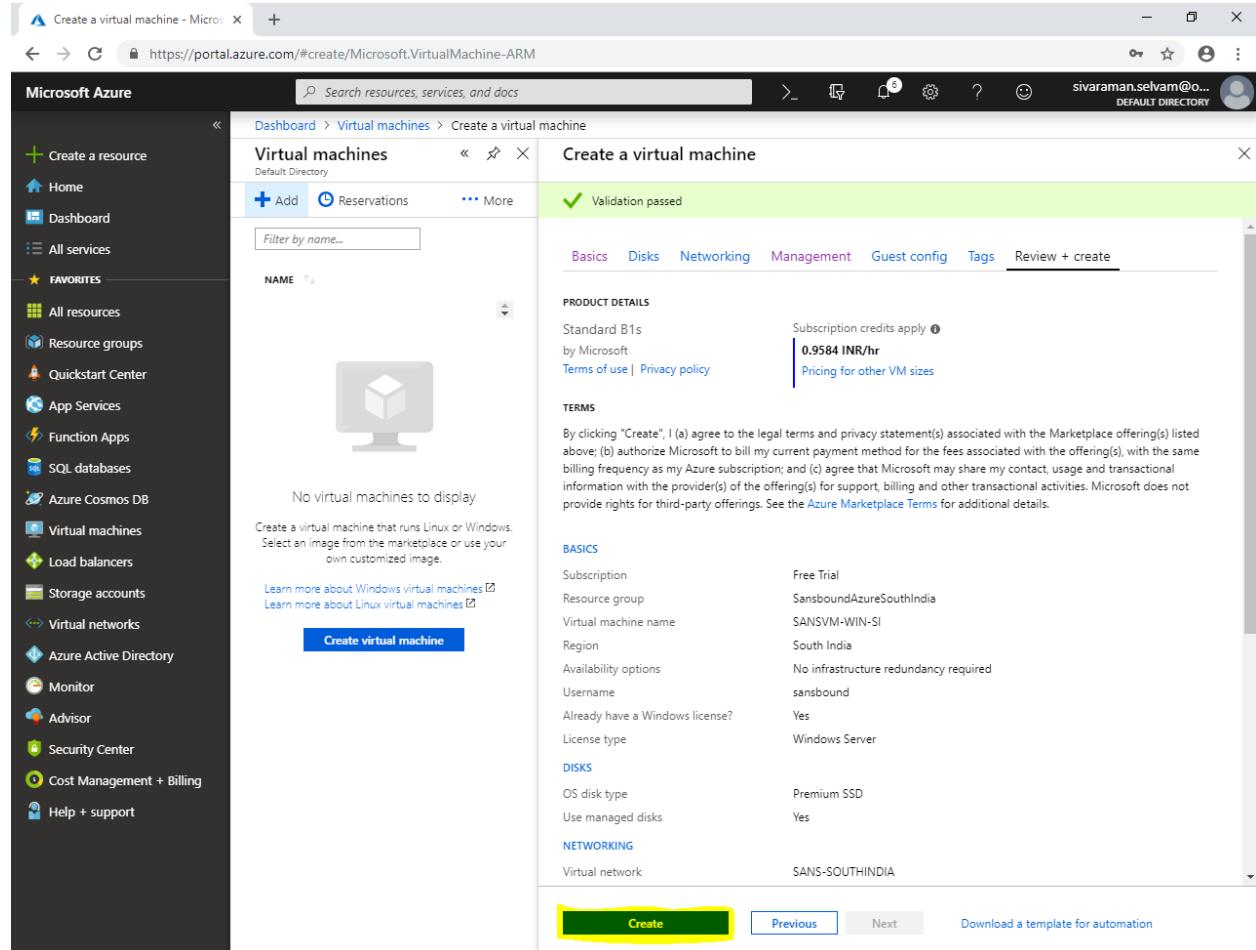
In “Tags”,

Click “Next : Review + create”.



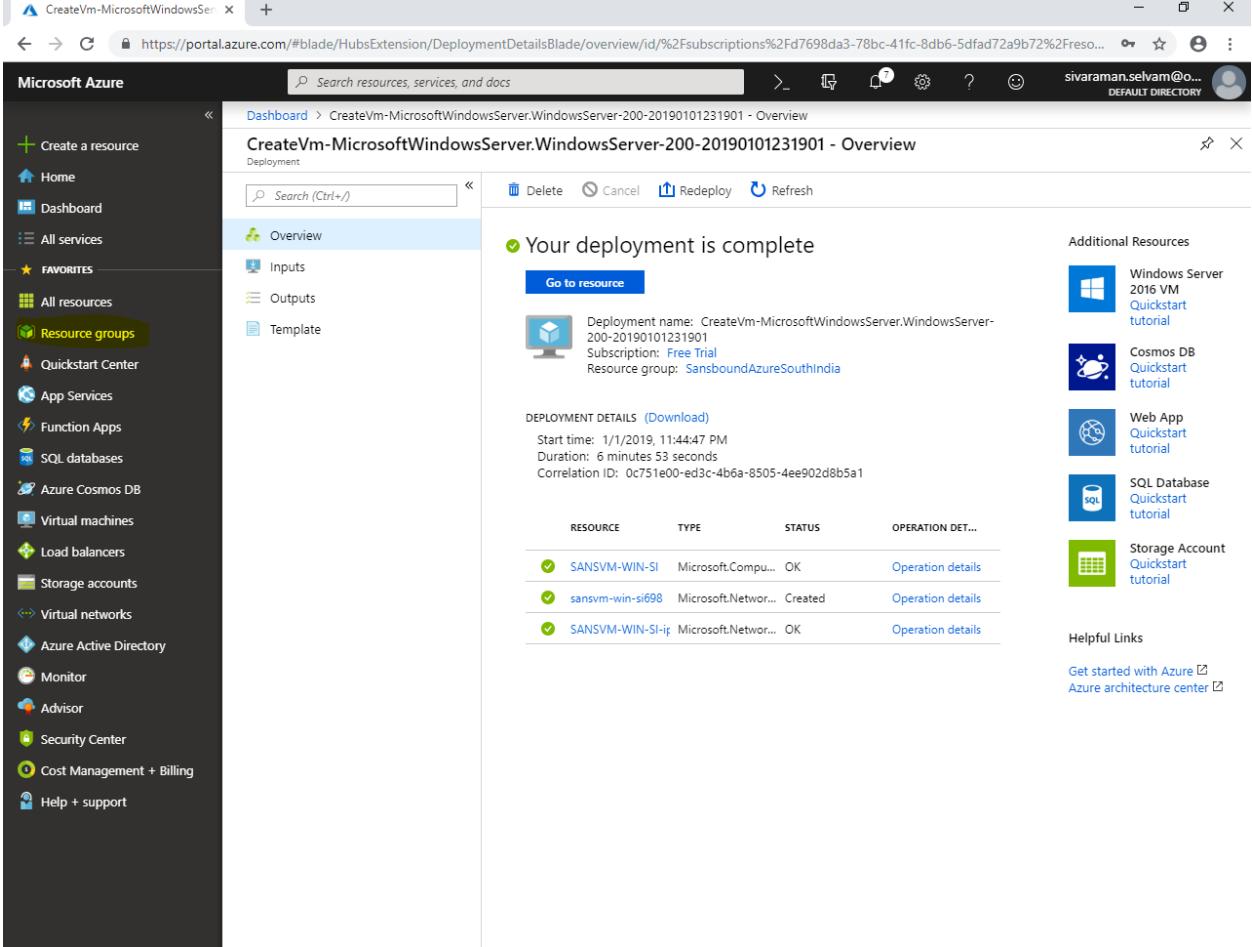
The screenshot shows the Microsoft Azure portal interface for creating a virtual machine. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area is titled "Create a virtual machine" and is currently on the "Tags" tab. It displays a table for adding tags with columns for KEY, VALUE, and RESOURCE TYPE. A note states that tags are name/value pairs used for categorizing resources. At the bottom, there are buttons for "Review + create", "Previous", and "Next : Review + create >". The URL in the browser bar is https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM.

Click “Create”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, and Virtual machines. The main area is titled 'Virtual machines' and shows a 'Create a virtual machine' wizard. A green banner at the top right indicates 'Validation passed'. The 'Review + create' tab is selected. The 'PRODUCT DETAILS' section shows a Standard B1s plan by Microsoft at 0.9584 INR/hr. The 'TERMS' section contains legal text about agreeing to terms and privacy policies. The 'BASICS' section includes fields for Subscription (Free Trial), Resource group (SansboundAzureSouthIndia), Virtual machine name (SANSVM-WIN-SI), Region (South India), Availability options (No infrastructure redundancy required), Username (sansbound), Already have a Windows license? (Yes), and License type (Windows Server). The 'DISKS' section shows OS disk type as Premium SSD and Use managed disks as Yes. The 'NETWORKING' section shows the Virtual network as SANS-SOUTHINDIA. At the bottom, a large green 'Create' button is highlighted with a yellow box, and other buttons for 'Previous', 'Next', and 'Download a template for automation' are visible.

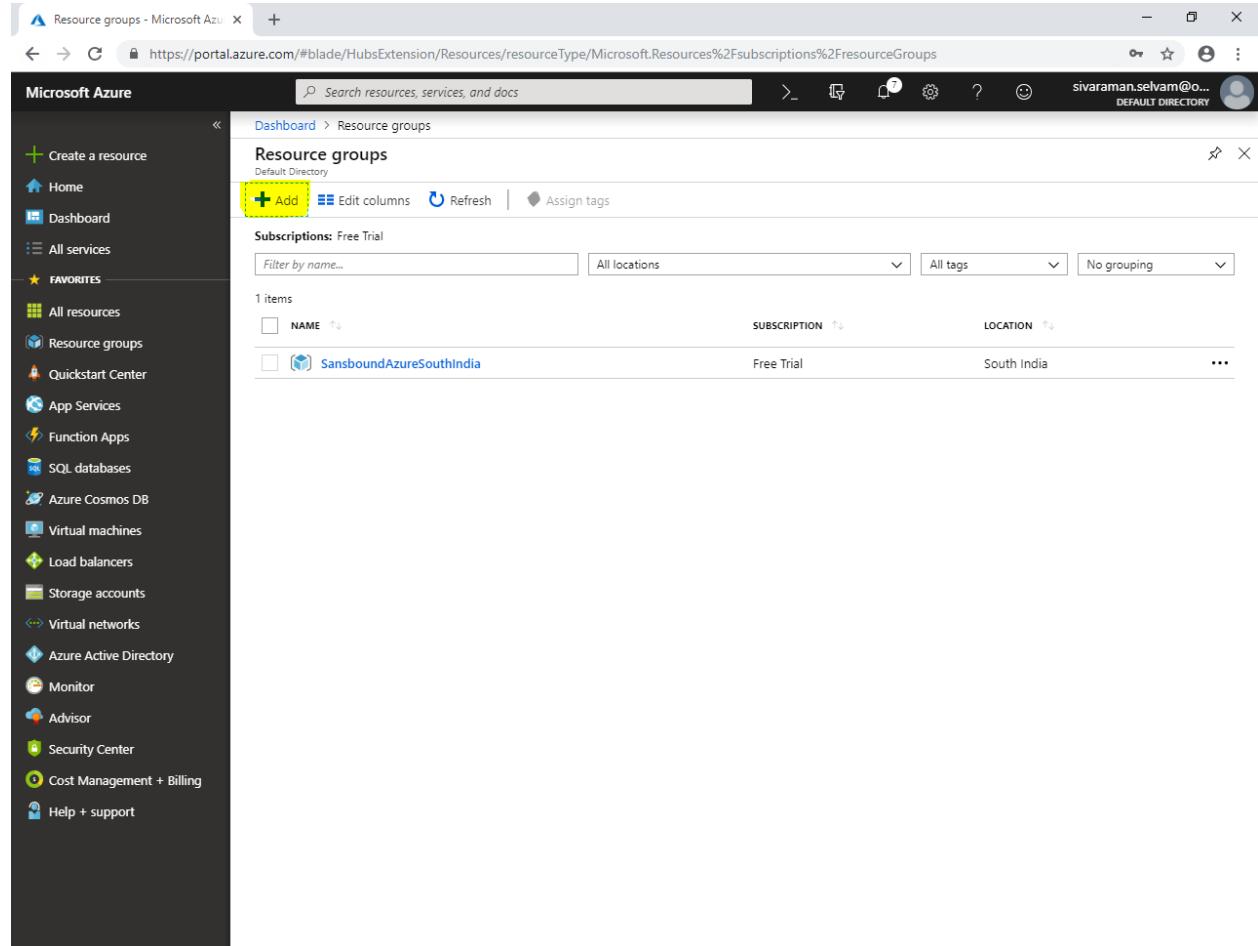
Click “Resource groups” in left side panel.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is dark-themed and features a navigation menu with various service icons. The "Resource groups" option is highlighted with a yellow box. The main content area displays the "CreateVm-MicrosoftWindowsServer.WindowsServer-200-20190101231901 - Overview" page. At the top, it says "Your deployment is complete". Below this, there's a summary box with deployment details: Deployment name: CreateVm-MicrosoftWindowsServer.WindowsServer-200-20190101231901, Subscription: Free Trial, and Resource group: SansboundAzureSouthIndia. A "DEPLOYMENT DETAILS" table follows, listing three resources: SANSVM-WIN-SI (Microsoft.Compu... OK), sansvm-win-si698 (Microsoft.Networ... Created), and SANSVM-WIN-SI-ip (Microsoft.Networ... OK). To the right of the main content, there's a sidebar titled "Additional Resources" with links to Windows Server 2016 VM Quickstart tutorial, Cosmos DB Quickstart tutorial, Web App Quickstart tutorial, SQL Database Quickstart tutorial, and Storage Account Quickstart tutorial. At the bottom, there are "Helpful Links" for Get started with Azure and Azure architecture center.

RESOURCE	TYPE	STATUS	OPERATION DET...
SANSVM-WIN-SI	Microsoft.Compu...	OK	Operation details
sansvm-win-si698	Microsoft.Networ...	Created	Operation details
SANSVM-WIN-SI-ip	Microsoft.Networ...	OK	Operation details

In “Resource groups”, click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is dark-themed and includes a 'Create a resource' button, 'Home', 'Dashboard', 'All services', and a 'FAVORITES' section with links to 'All resources', 'Resource groups', 'Quickstart Center', 'App Services', 'Function Apps', 'SQL databases', 'Azure Cosmos DB', 'Virtual machines', 'Load balancers', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', 'Monitor', 'Advisor', 'Security Center', 'Cost Management + Billing', and 'Help + support'. The main content area is titled 'Resource groups' under 'Default Directory'. It shows a table with one item: 'SansboundAzureSouthIndia' under 'NAME', 'Free Trial' under 'SUBSCRIPTION', and 'South India' under 'LOCATION'. A yellow box highlights the '+ Add' button at the top left of the table header. The URL in the browser bar is https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Resources%2Fsubscriptions%2FresourceGroups.

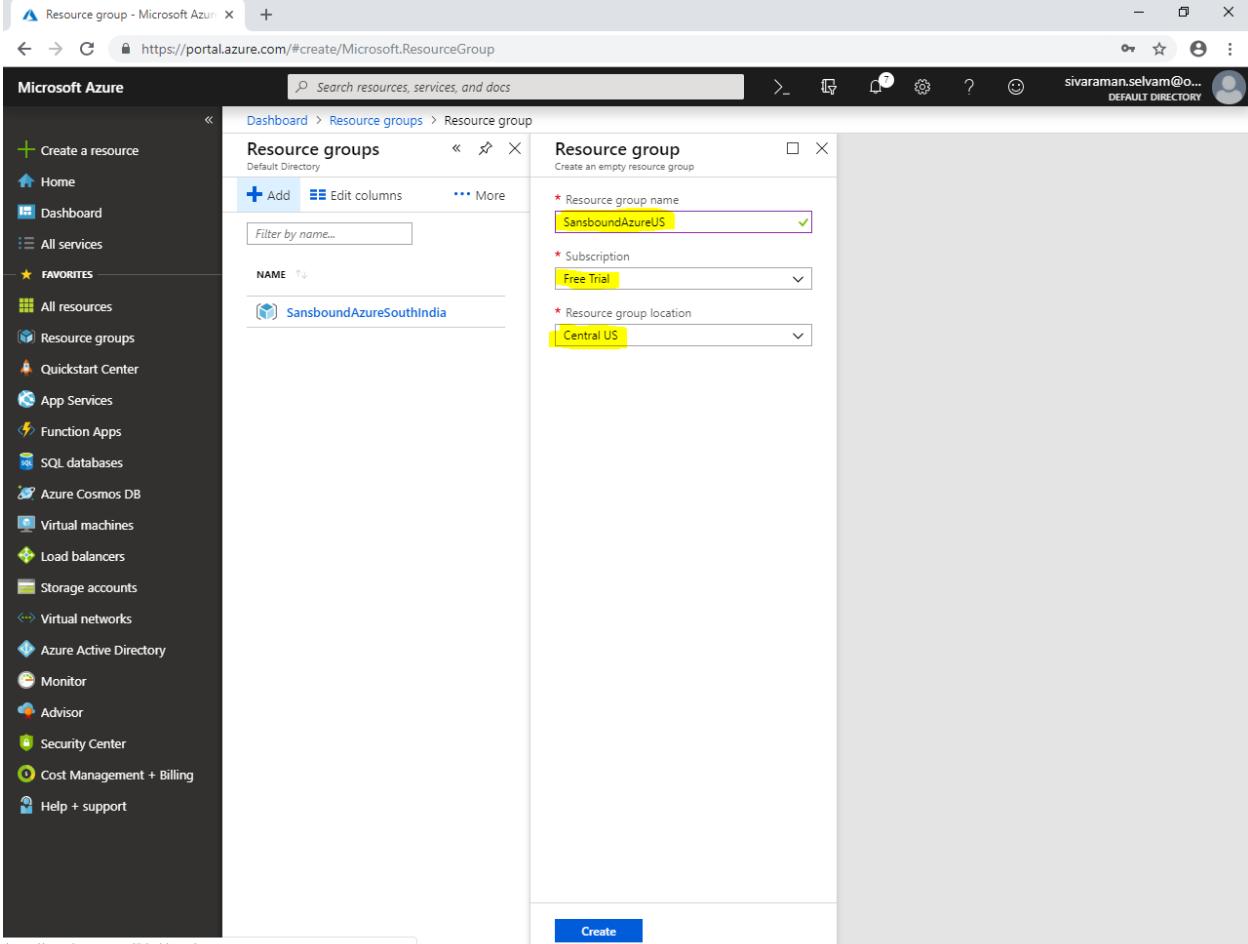
NAME	SUBSCRIPTION	LOCATION
SansboundAzureSouthIndia	Free Trial	South India

While create “Resource group”,

Type “Resource group name” as “**SansboundAzureUS**”.

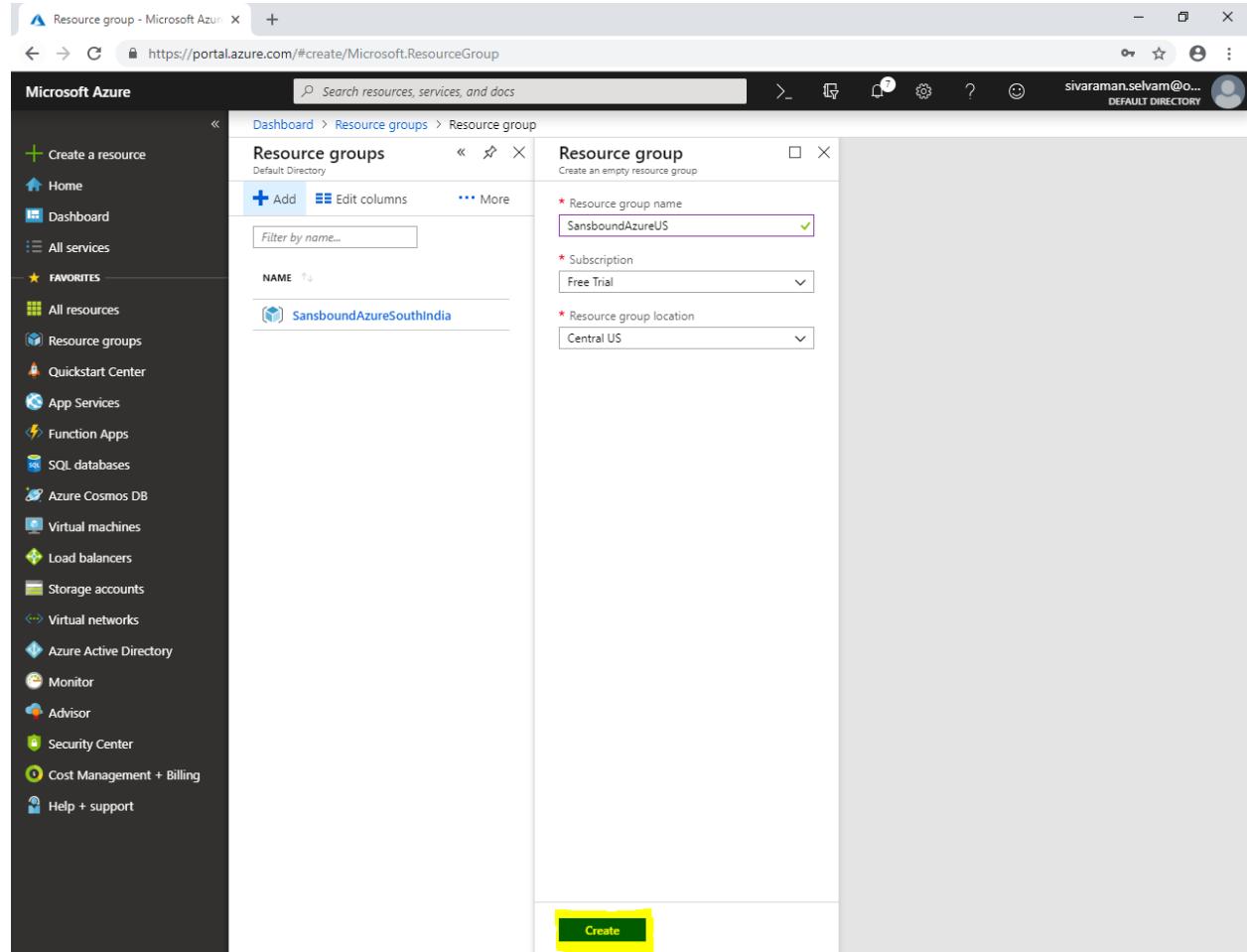
Select “Subscription” as “**Free Trial**”.

Select “Resource group location” as “**Central US**”.



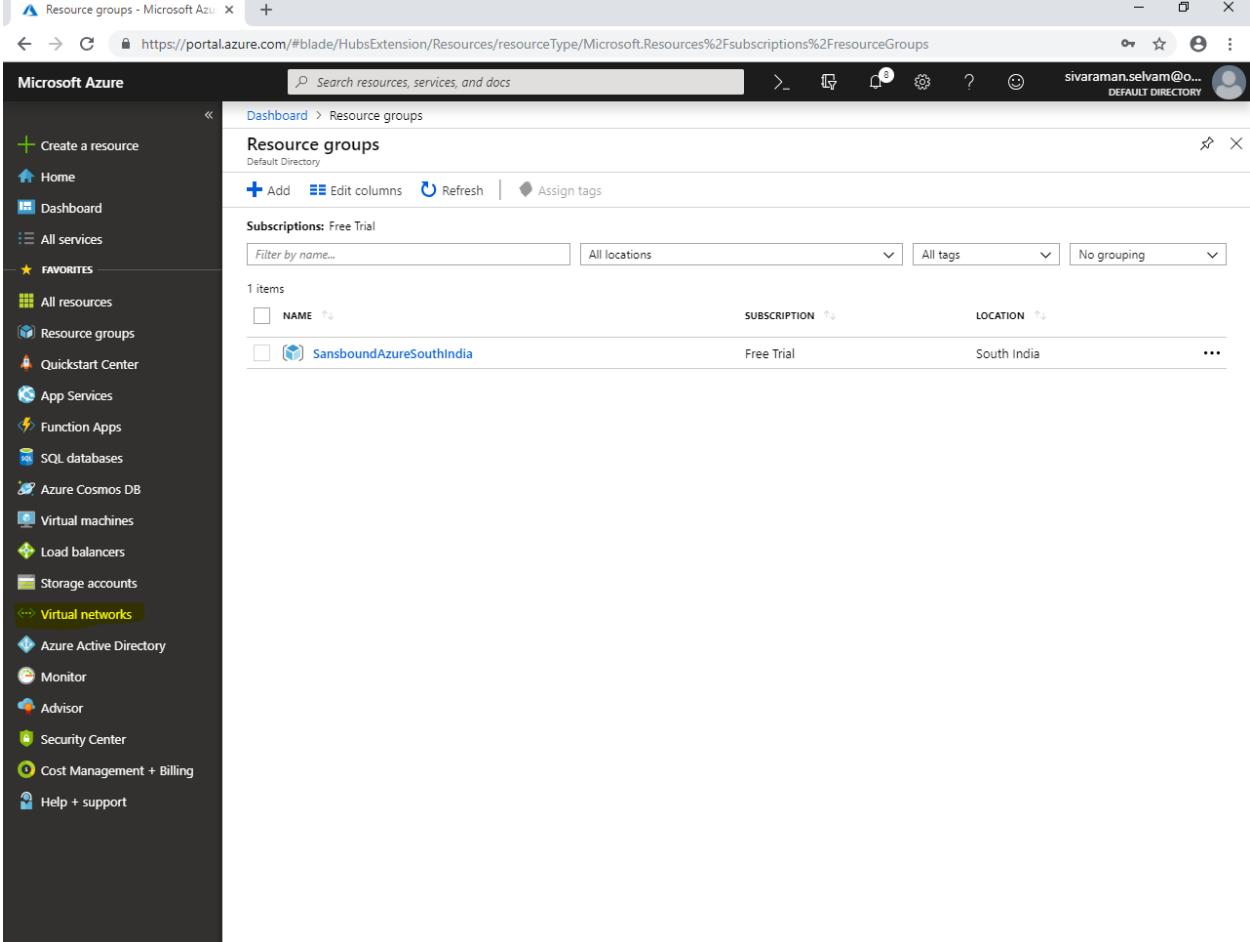
The screenshot shows the Microsoft Azure portal interface for creating a new Resource Group. The left sidebar contains navigation links for various services like Home, Dashboard, and Storage accounts. The main area is titled 'Resource groups' and shows a list of existing groups, including 'SansboundAzureSouthIndia'. A form on the right is used to create a new group, with fields for 'Resource group name' (set to 'SansboundAzureUS'), 'Subscription' (set to 'Free Trial'), and 'Resource group location' (set to 'Central US'). A large yellow box highlights the 'Resource group location' field. At the bottom of the form is a blue 'Create' button.

Click “Create”.



The screenshot shows the Microsoft Azure portal interface for creating a new Resource Group. The left sidebar contains various service links like Home, Dashboard, All services, Favorites (All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, Help + support), and a prominent 'Create a resource' button. The main content area shows the 'Resource groups' blade with a 'Resource group' card. The 'Resource group name' field is filled with 'SansboundAzureUS'. The 'Subscription' dropdown is set to 'Free Trial' and the 'Resource group location' dropdown is set to 'Central US'. A yellow box highlights the 'Create' button at the bottom of the card.

Click “Virtual networks” in left side panel.

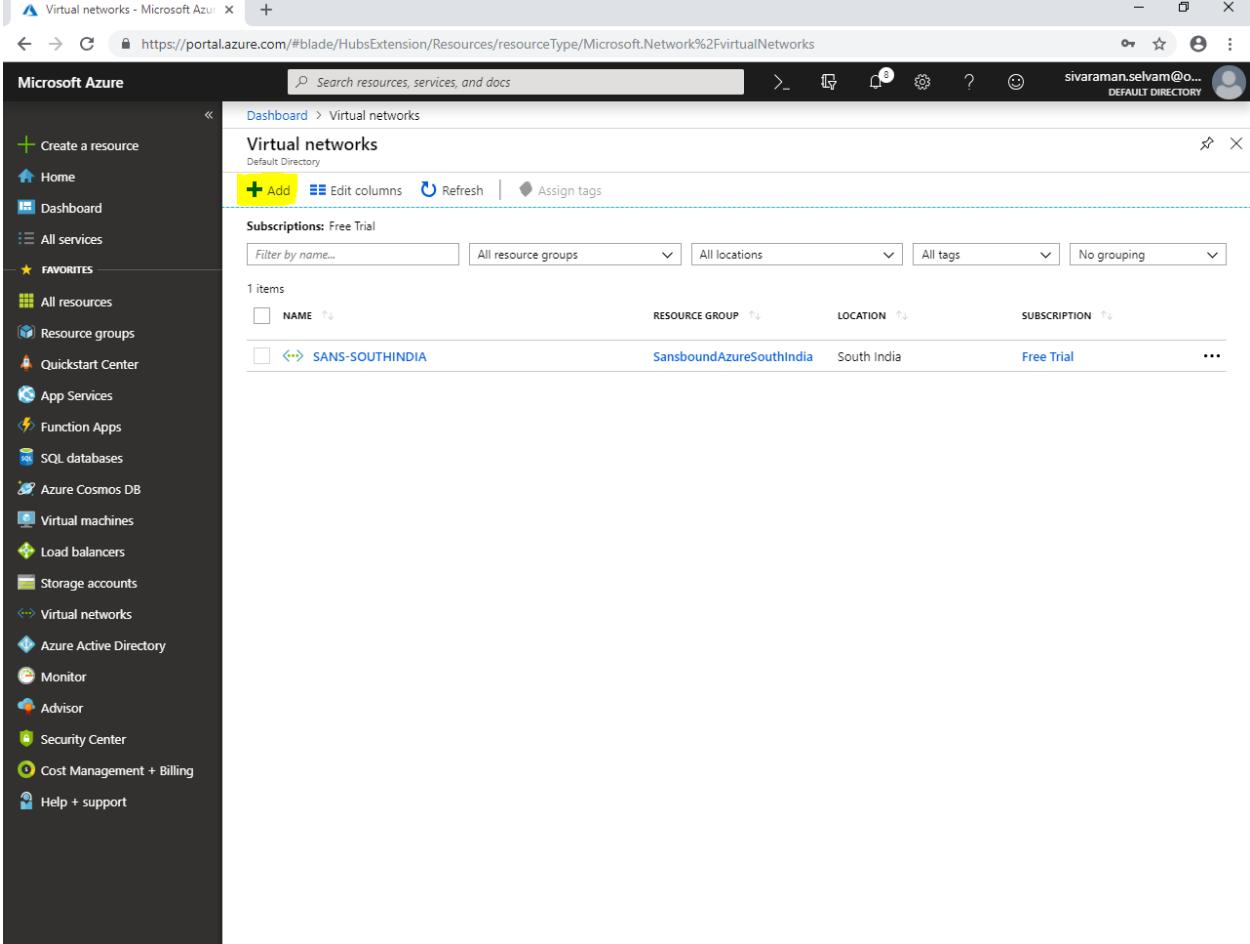


The screenshot shows the Microsoft Azure portal interface. The left sidebar is titled "Microsoft Azure" and contains a list of services. The "Virtual networks" option is highlighted with a yellow background, indicating it is the selected item. The main content area is titled "Resource groups" and shows a table with one item: "SansboundAzureSouthIndia" under the "Subscriptions: Free Trial" section. The table has columns for NAME, SUBSCRIPTION, and LOCATION. The NAME column shows a small icon followed by the resource name. The SUBSCRIPTION column shows "Free Trial". The LOCATION column shows "South India".

NAME	SUBSCRIPTION	LOCATION
 SansboundAzureSouthIndia	Free Trial	South India

In “Virtual networks”,

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is open, displaying various service categories under 'FAVORITES'. The main content area is titled 'Virtual networks' and shows a single item named 'SANS-SOUTHINDIA' listed under 'Subscriptions: Free Trial'. The 'NAME' column is sorted by name, 'RESOURCE GROUP' by resource group, 'LOCATION' by location, and 'SUBSCRIPTION' by subscription. A yellow box highlights the '+ Add' button at the top of the list.

NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-SOUTHINDIA	SansboundAzureSouthIndia	South India	Free Trial

While create virtual network,

Type “**Name**” as “**SANS-CENTRALUS**”.

Type “**Address space**” as **172.16.0.0/16**.

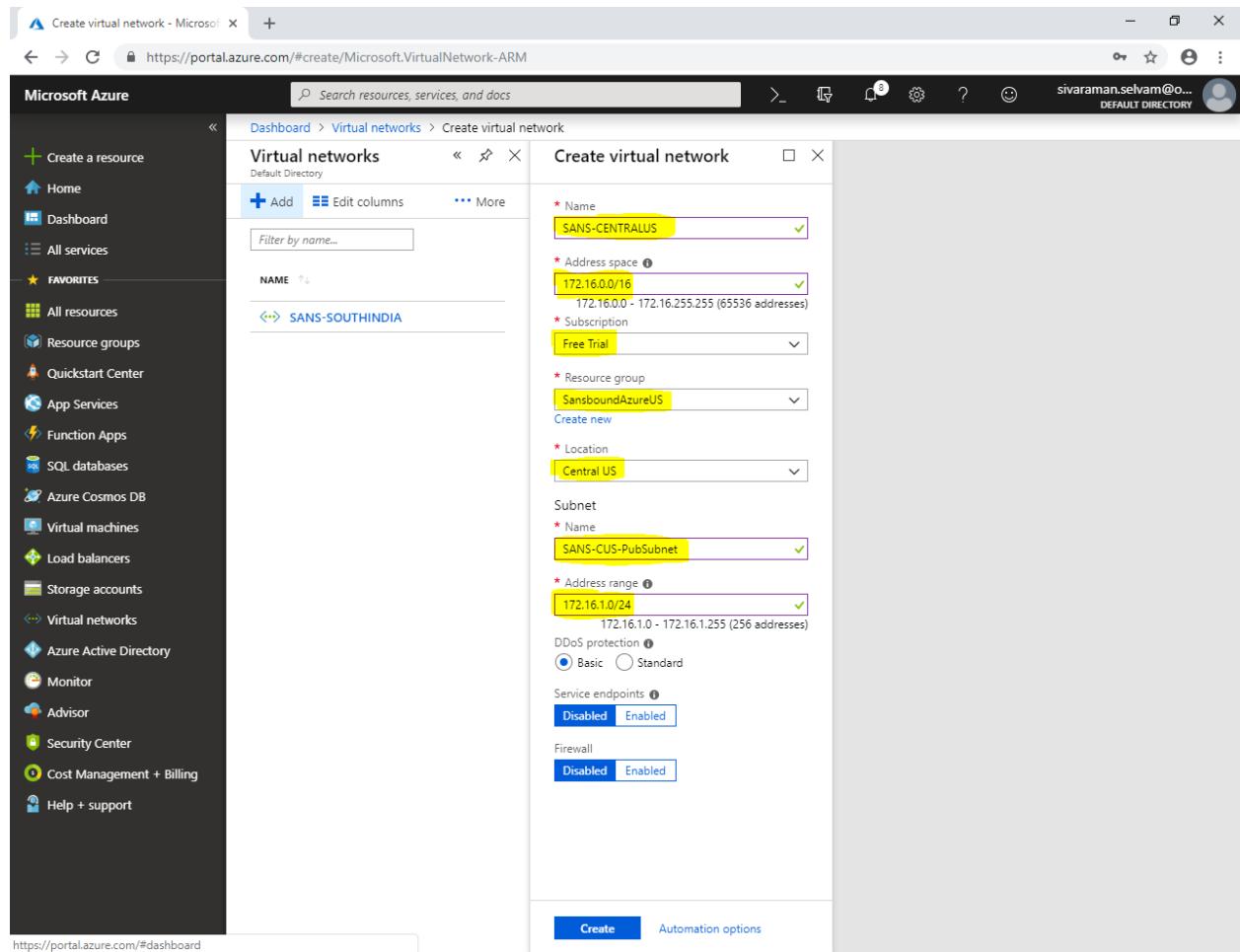
Select “**Subscription**” as “**Free Trial**”.

Select “**Resource group**” as “**SansboundAzureUS**”.

Select “**Location**” as “**Central US**”.

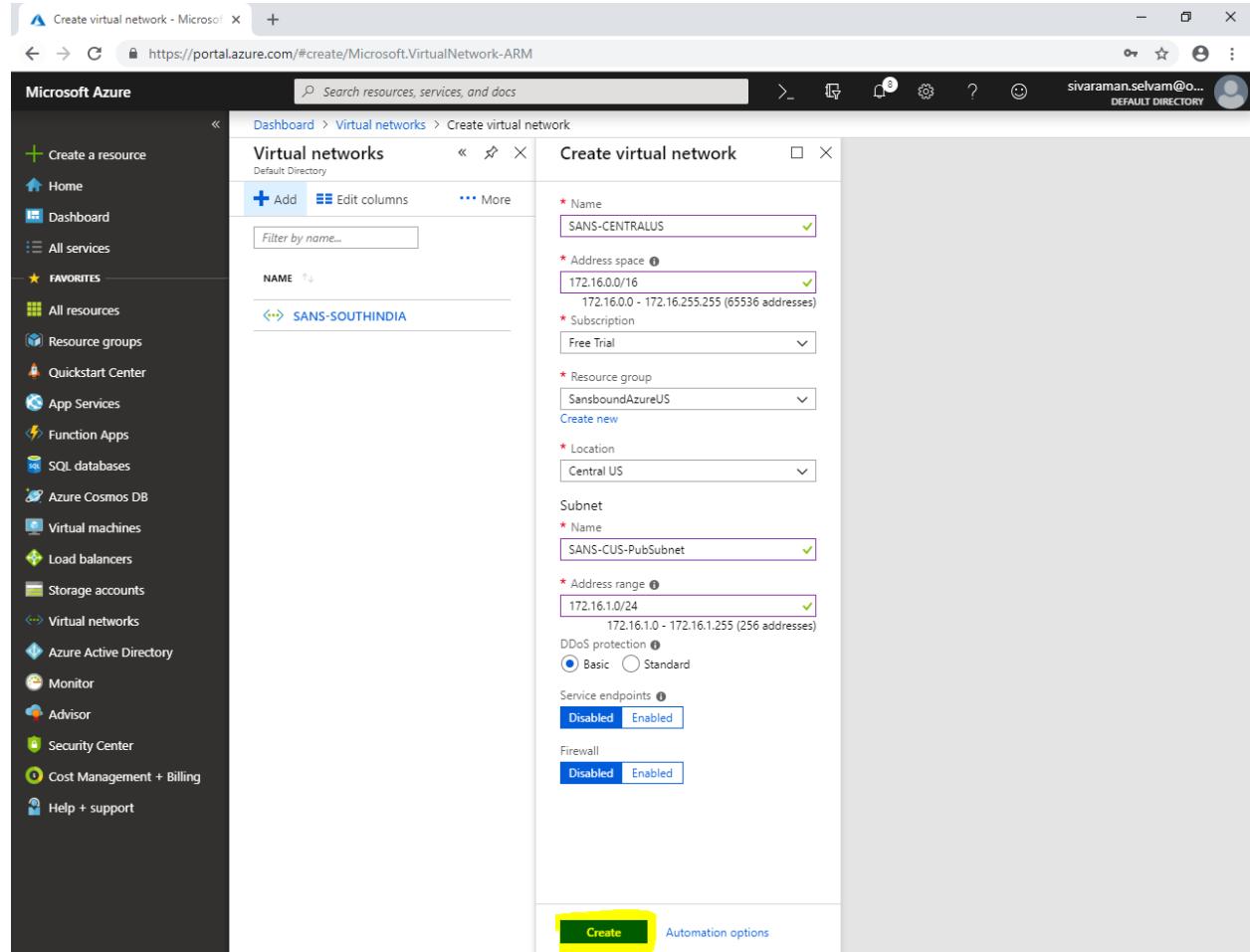
In “**Subnet**” type name as “**SANS-CUS-PubSubnet**”.

Type “**Address range**” as **172.16.1.0/24**.



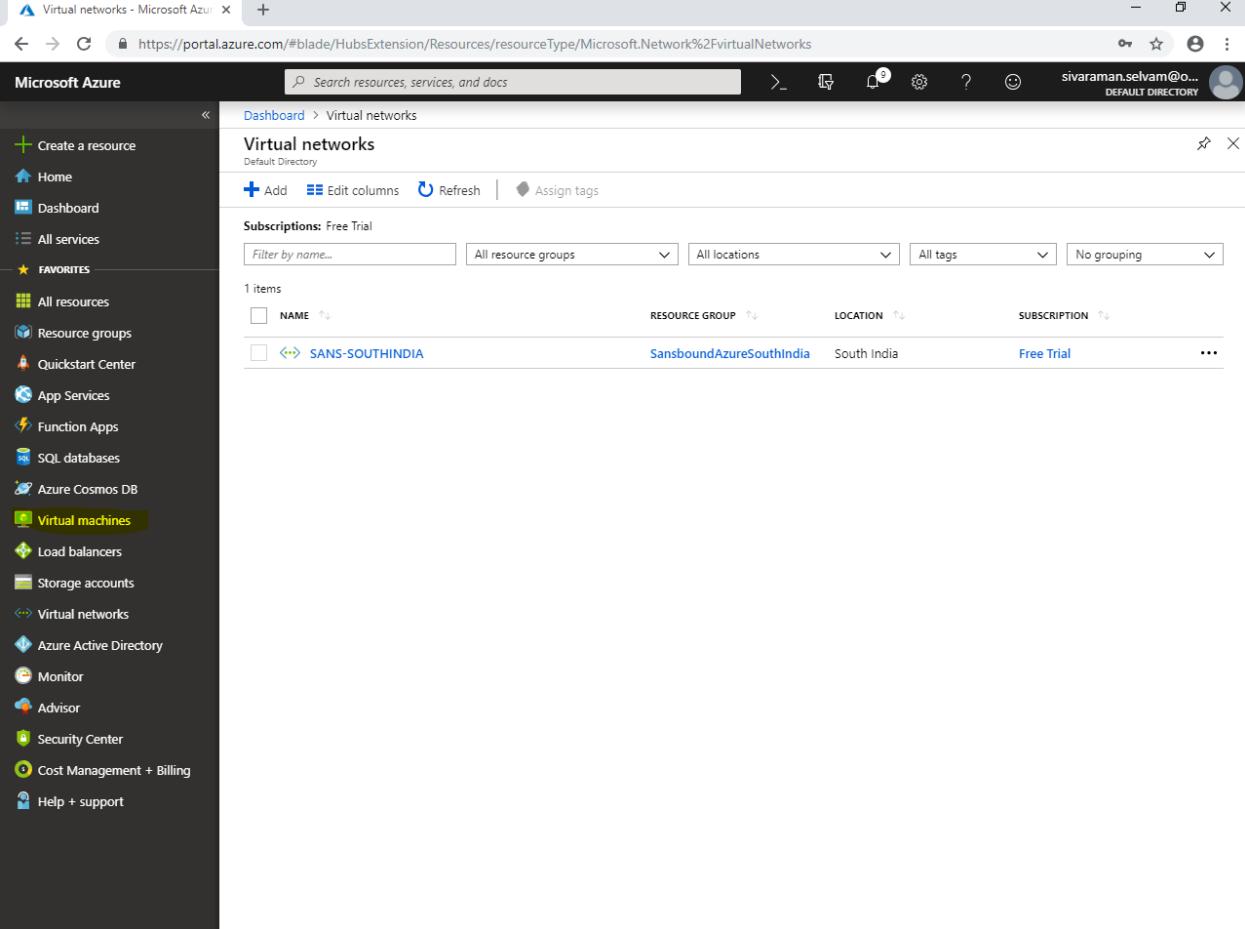
The screenshot shows the Microsoft Azure portal interface for creating a new virtual network. The left sidebar lists various services like Home, Dashboard, Resource groups, and Virtual machines. The main area shows the 'Virtual networks' blade with a table of existing networks and a 'Create virtual network' dialog box. In the dialog, the 'Name' is set to 'SANS-CENTRALUS', 'Address space' is '172.16.0.0/16', 'Subscription' is 'Free Trial', 'Resource group' is 'SansboundAzureUS', 'Location' is 'Central US', 'Subnet Name' is 'SANS-CUS-PubSubnet', and 'Address range' is '172.16.1.0/24'. Buttons at the bottom include 'Create' and 'Automation options'.

Click “Create”.



The screenshot shows the Microsoft Azure portal interface for creating a virtual network. The left sidebar has a dark theme with various service icons. The main area is titled "Create virtual network" under "Virtual networks". The "Name" field is filled with "SANS-CENTRALUS". The "Address space" dropdown shows "172.16.0.0/16" with a note about 65536 addresses. The "Subscription" is set to "Free Trial". The "Resource group" is "SansboundAzureUS". The "Location" is "Central US". A new subnet is being created with the name "SANS-CUS-PubSubnet" and an address range of "172.16.1.0/24" covering 256 addresses. Protection levels are set to "Basic". Service endpoints are disabled. Firewall is enabled. At the bottom right, the "Create" button is highlighted with a yellow box.

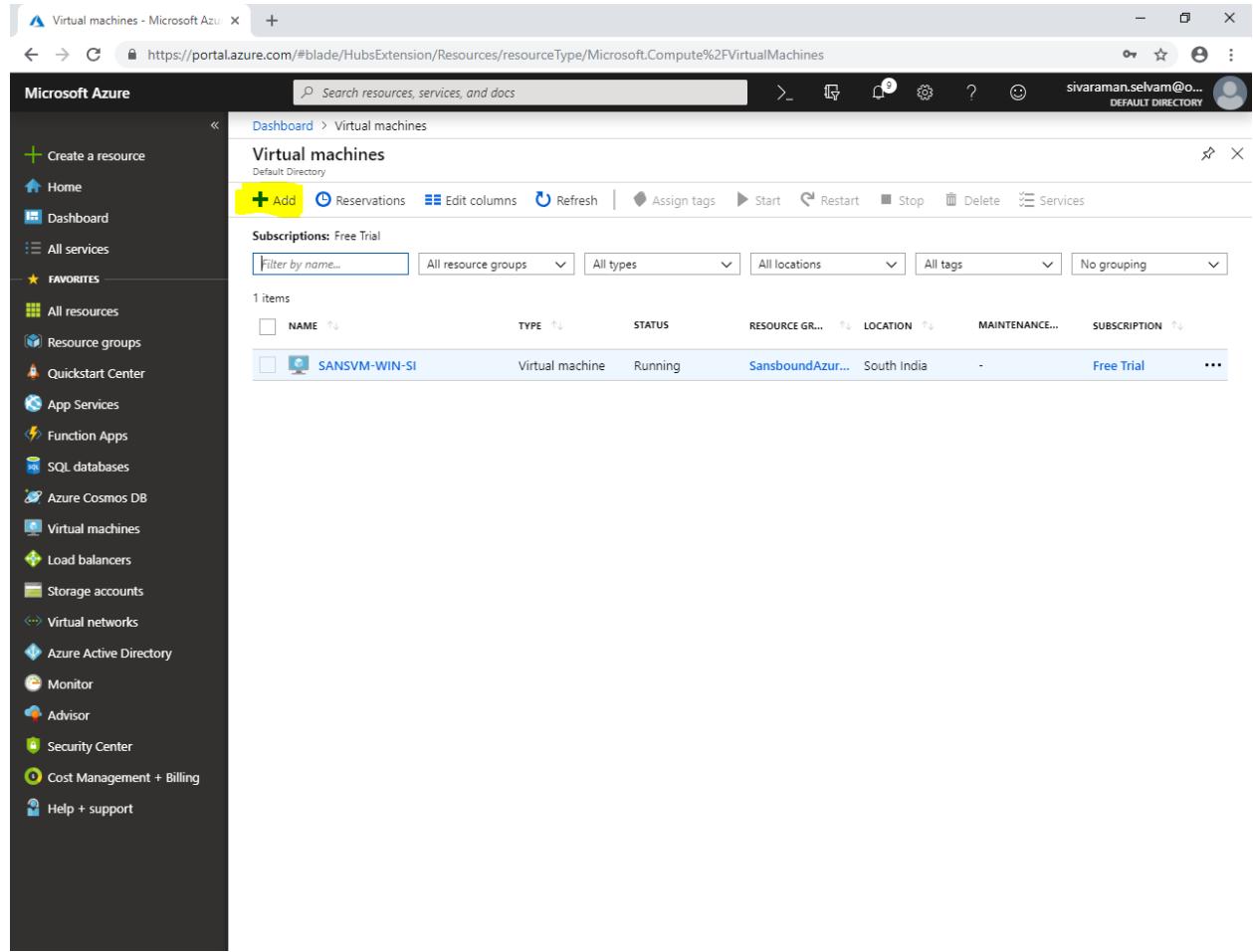
Click “Virtual machines” in left side panel.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is titled "Microsoft Azure" and contains a list of services. The "Virtual machines" option is highlighted with a yellow background. The main content area is titled "Virtual networks" and shows a table with one item. The table columns are NAME, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. The single row displays "SANS-SOUTHINDIA" under NAME, "SansboundAzureSouthIndia" under RESOURCE GROUP, "South India" under LOCATION, and "Free Trial" under SUBSCRIPTION. The URL in the browser bar is https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Network%2FVirtualNetworks.

NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-SOUTHINDIA	SansboundAzureSouthIndia	South India	Free Trial

Click “Add”.



The screenshot shows the Microsoft Azure portal interface for managing virtual machines. On the left, a sidebar lists various services: Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The 'Virtual machines' option is selected. The main content area is titled 'Virtual machines' and shows a list of one item: 'SANSVM-WIN-SI'. The 'NAME' column shows an icon of a computer monitor, the 'TYPE' column shows 'Virtual machine', the 'STATUS' column shows 'Running', the 'RESOURCE GR...' column shows 'SansboundAzur...', the 'LOCATION' column shows 'South India', the 'MAINTENANCE...' column shows a dash, and the 'SUBSCRIPTION' column shows 'Free Trial'. At the top of the main content area, there is a toolbar with several buttons: '+ Add' (which is highlighted with a yellow box), Reservations, Edit columns, Refresh, Assign tags, Start, Restart, Stop, Delete, and Services. Below the toolbar, there are several dropdown filters: 'Filter by name...', 'All resource groups', 'All types', 'All locations', 'All tags', and 'No grouping'. The URL in the browser bar is https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Compute%2FVirtualMachines.

While create virtual machine,

Select “Subscription” as “**Free Trial**”.

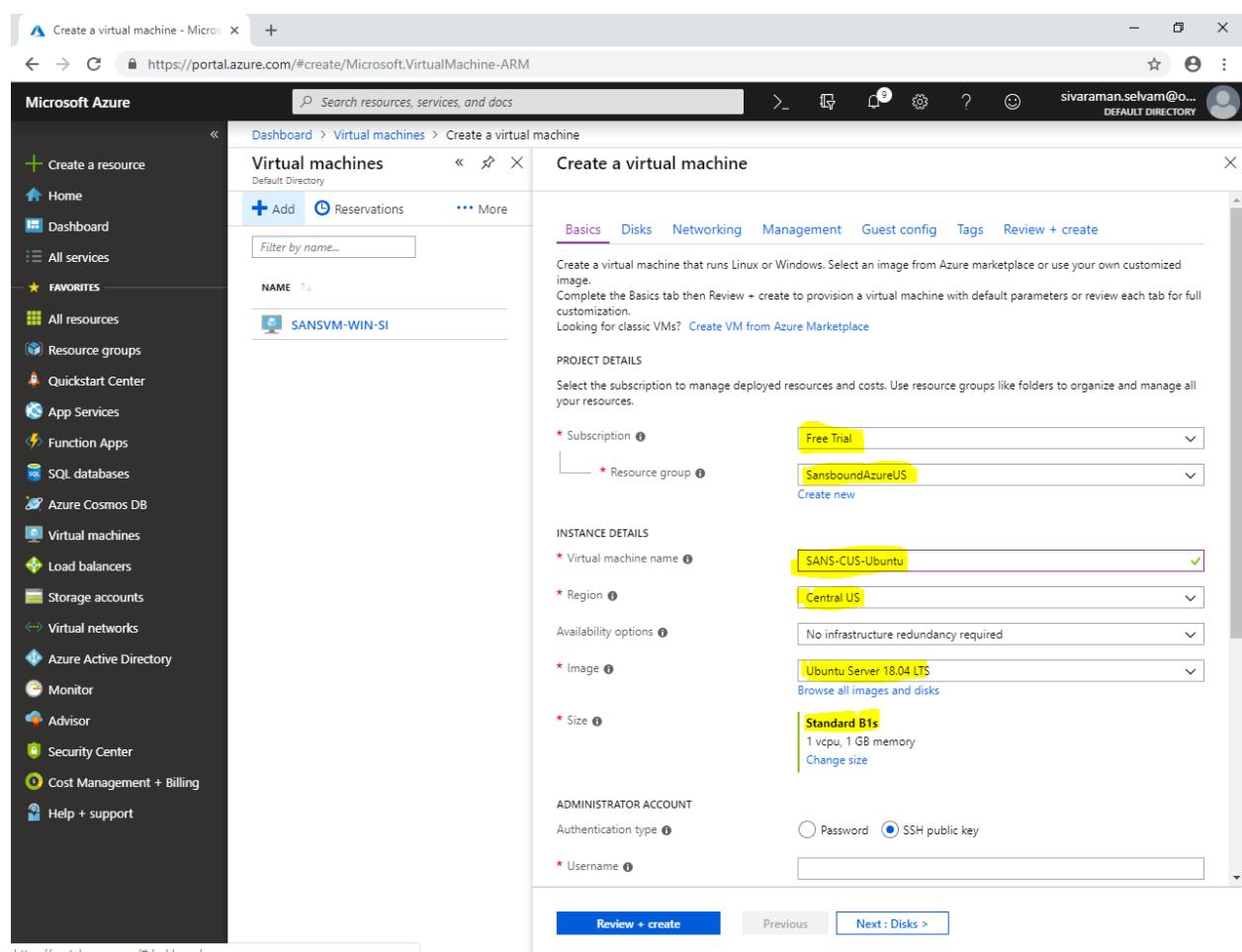
Select “Resource group” as “**SansboundAzureUS**”.

Type “Virtual machine name” as “**SANS-CUS-Ubuntu**”.

Select “Region” as “**Central US**”.

Select “Image” as “**Ubuntu server 18.04 LTS**”.

Change “VM Size” as “**Standard B1s**”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, All resources, and Virtual machines. The main area shows the 'Create a virtual machine' wizard. The 'Basics' tab is active. The 'Subscription' dropdown is set to 'Free Trial'. The 'Resource group' dropdown is set to 'SansboundAzureUS'. The 'Virtual machine name' input field is highlighted with a yellow box and contains 'SANS-CUS-Ubuntu'. The 'Region' dropdown is set to 'Central US'. The 'Image' dropdown is set to 'Ubuntu Server 18.04 LTS'. The 'Size' dropdown is set to 'Standard B1s'. Other tabs like Disks, Networking, Management, Guest config, Tags, and Review + create are visible at the top.

In “Administrator account”,

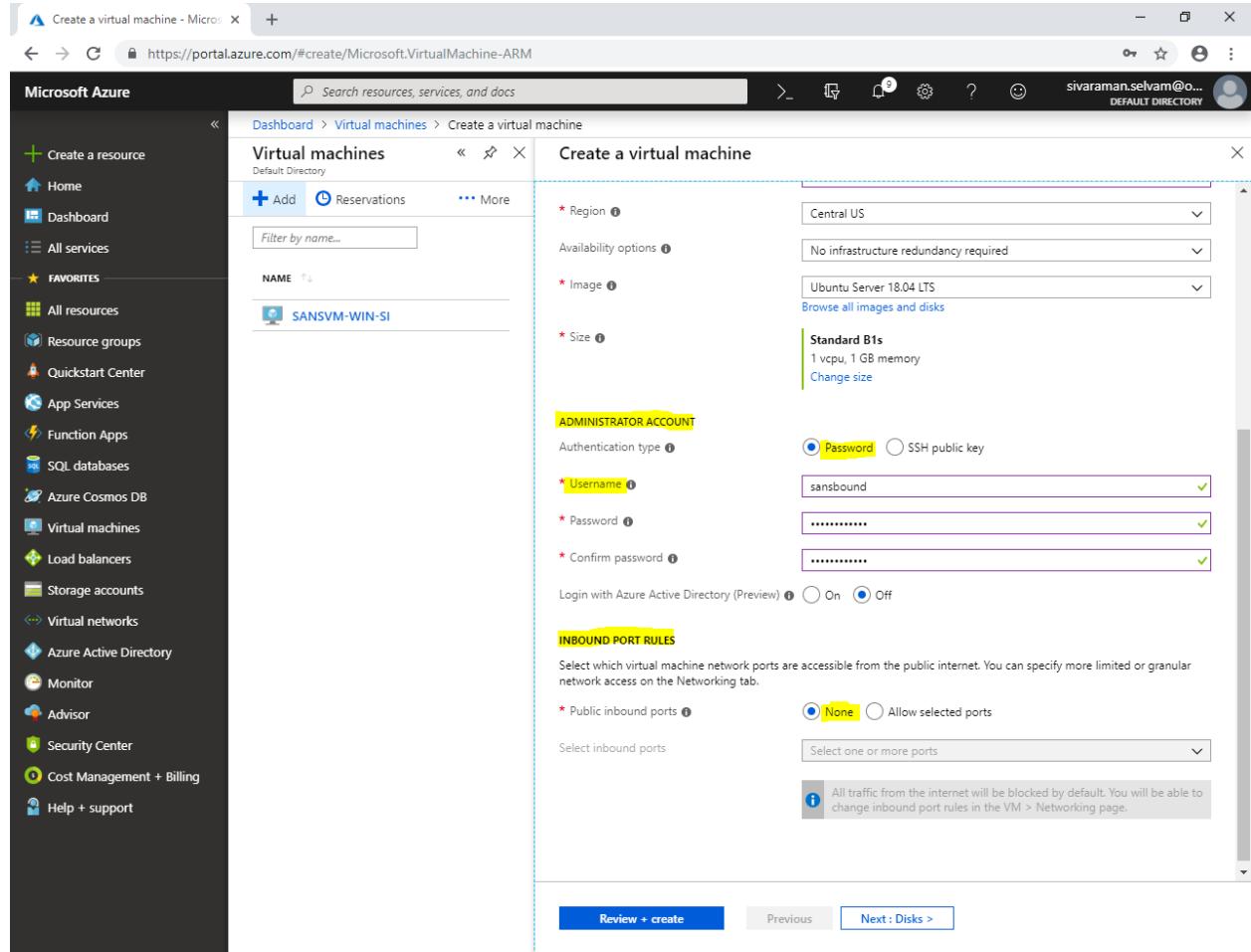
Select “Authentication type” as “Password”.

Type “username” as “sansbound”

Type “Password” for Ubuntu as per your wish.

In “Inbound Port Rules”,

Public Inbound rules as “None”.

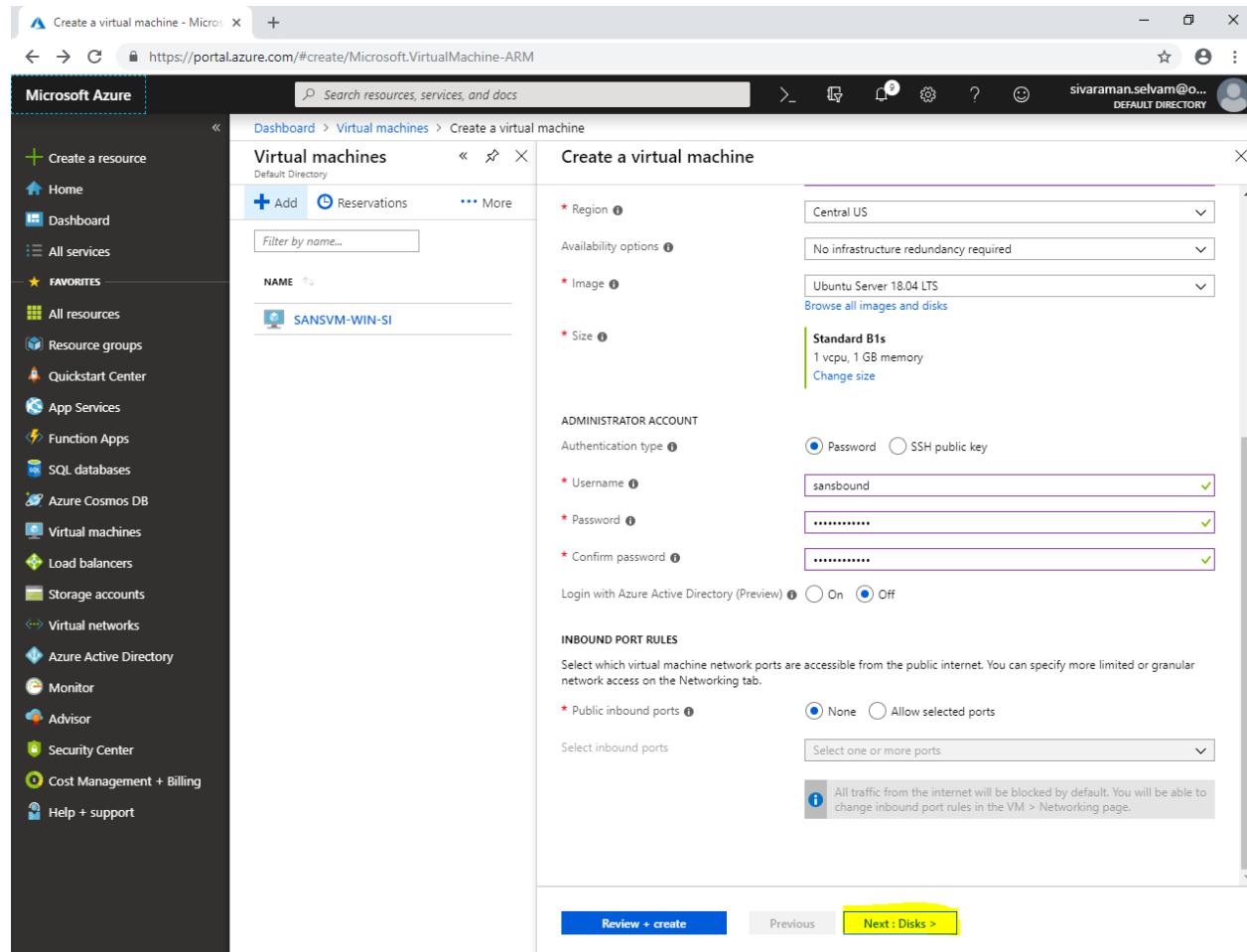


The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, All services, and Virtual machines. The main area shows the 'Virtual machines' blade with a list of existing VMs and a 'Create a virtual machine' form. The 'Create a virtual machine' form has the following settings:

- Region:** Central US
- Availability options:** No infrastructure redundancy required
- Image:** Ubuntu Server 18.04 LTS
- Size:** Standard B1s (1 vcpu, 1 GB memory)
- Administrator Account:** Authentication type is set to "Password" (highlighted), Username is "sansbound", and Password and Confirm password fields are filled with dots.
- Inbound Port Rules:** Public inbound ports are set to "None".

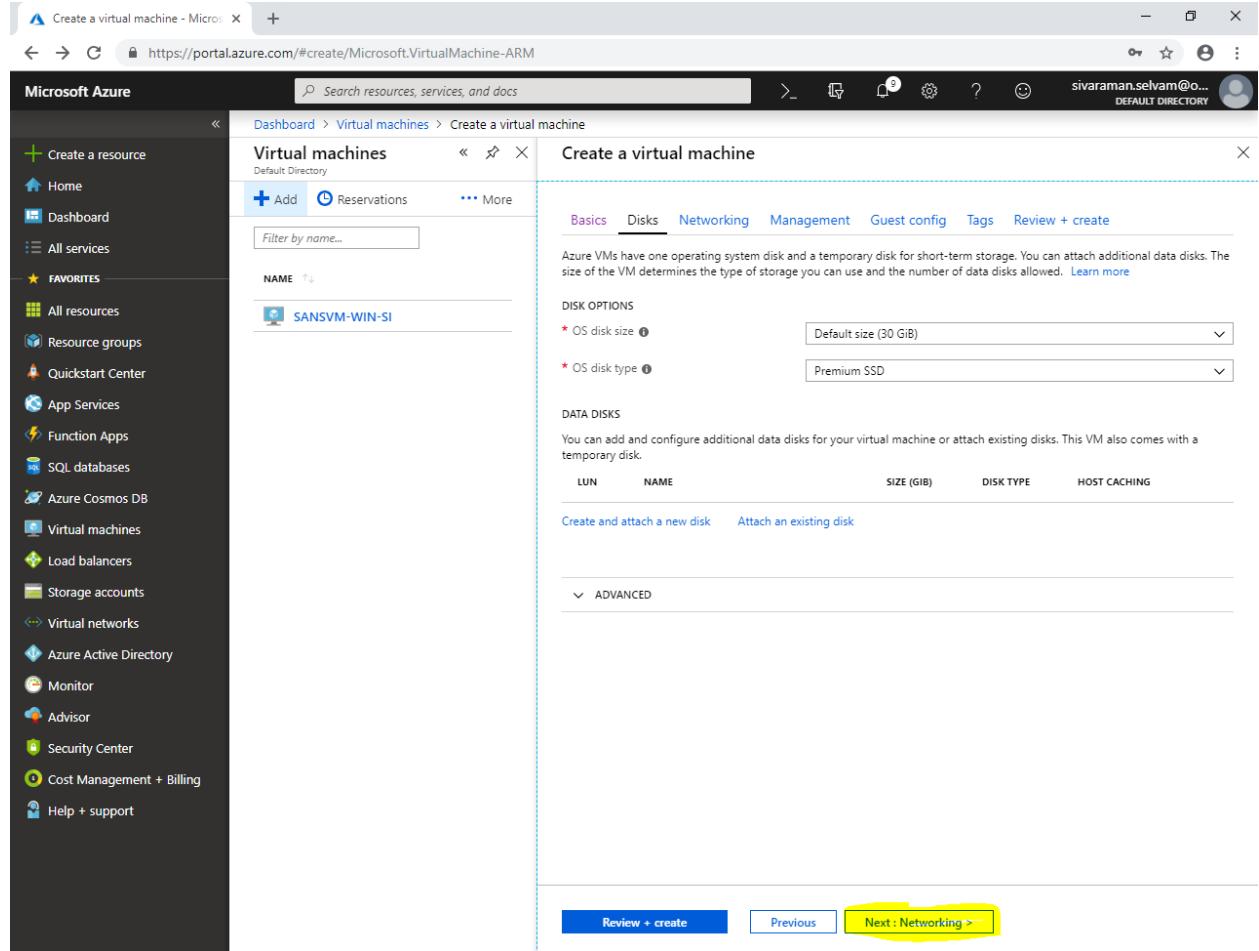
The URL in the browser is https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM.

Click “Next : Disks >”.



The screenshot shows the Microsoft Azure portal interface. On the left, the sidebar includes options like Home, Dashboard, All services, Favorites, and Virtual machines. The main area displays the 'Virtual machines' blade with a list of existing VMs and a 'Create a virtual machine' dialog. The dialog is filled with configuration details: Region set to Central US, Availability options set to 'No infrastructure redundancy required', Image set to Ubuntu Server 18.04 LTS, and Size set to Standard B1s (1 vcpu, 1 GB memory). Under the 'ADMINISTRATOR ACCOUNT' section, Authentication type is set to Password, with 'sansbound' entered as the Username, a password entered, and 'Confirm password' also entered. The 'INBOUND PORT RULES' section has 'Public inbound ports' set to 'None'. At the bottom, the 'Review + create' button is visible, and the 'Next : Disks >' button is highlighted with a yellow box.

Click “Next : Networking >”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main area is titled 'Create a virtual machine' under 'Virtual machines'. The 'Networking' tab is highlighted. The 'Disk Options' section shows an OS disk size of 'Default size (30 GiB)' and an OS disk type of 'Premium SSD'. Below this, the 'Data Disks' section allows for adding new disks or attaching existing ones. At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Networking >' (which is highlighted with a yellow box).

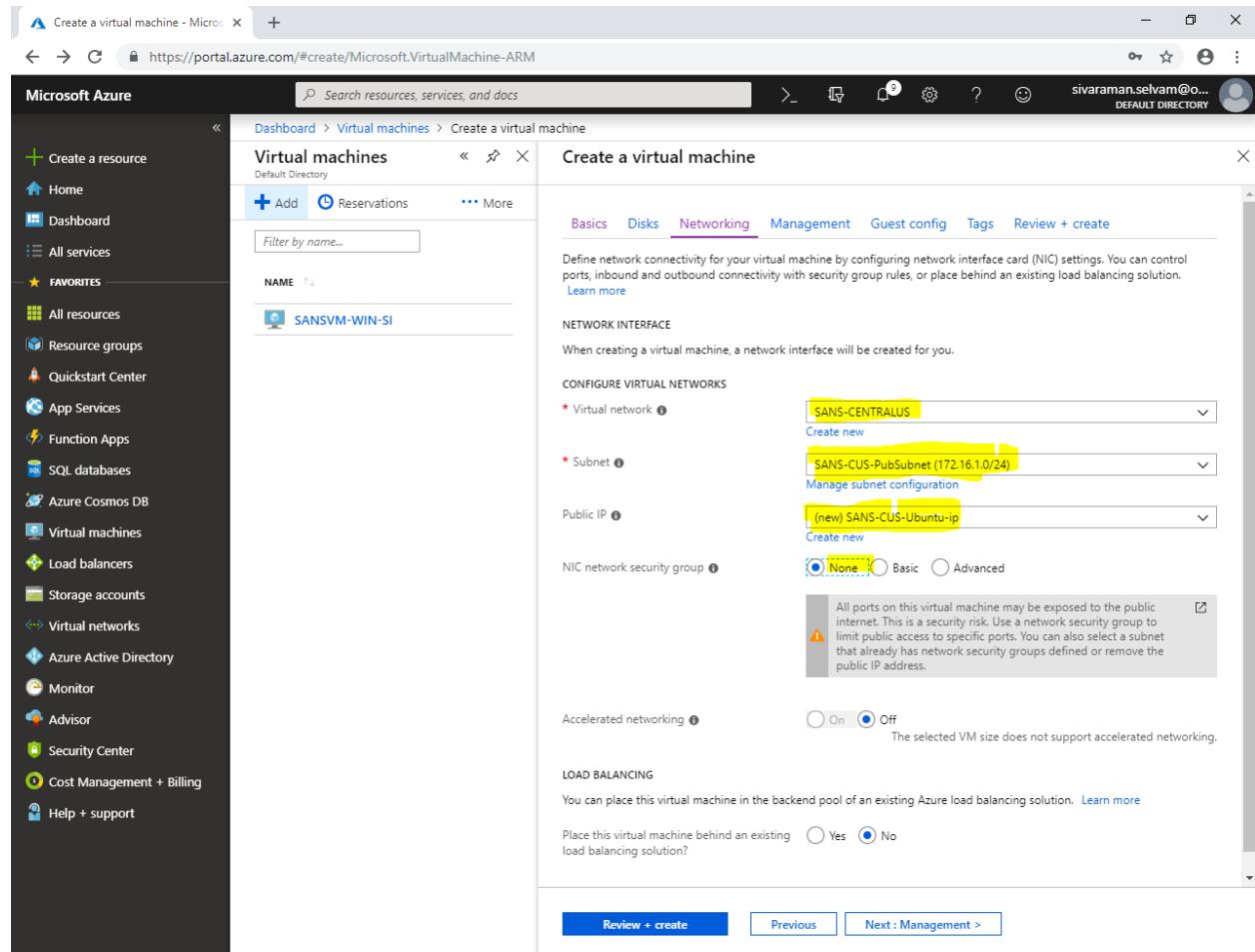
In “Networking”,

Ensure that “Virtual network” as “**SANS-CENTRALUS**”.

Ensure “Subnet” as “**SANS-CUS-PubSubnet**”.

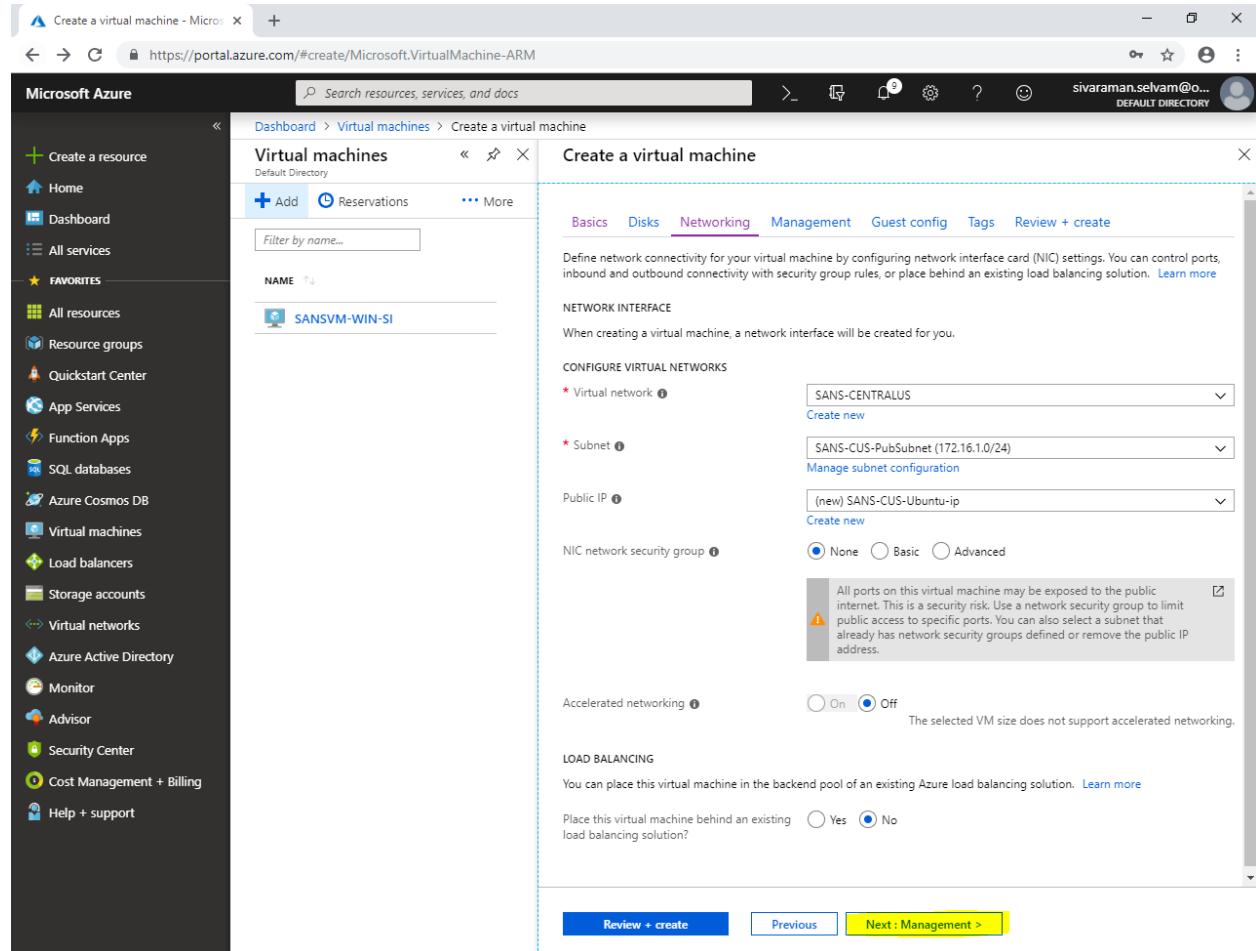
Public IP provision to be set.

You need click “NIC network security group” as “**None**”.



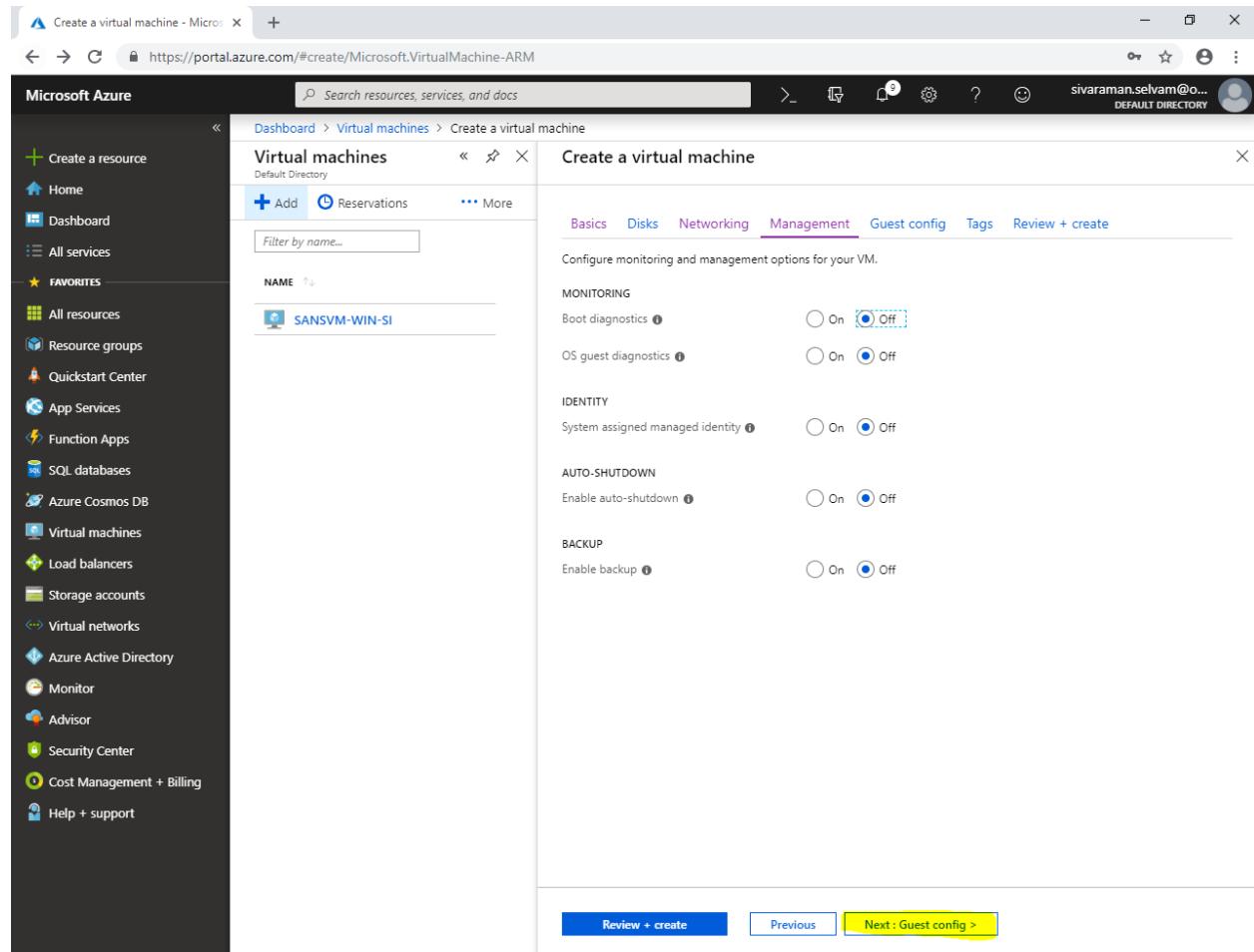
The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, and Virtual machines. The main area is titled 'Create a virtual machine' under 'Virtual machines'. The 'Networking' tab is selected. In the 'CONFIGURE VIRTUAL NETWORKS' section, the 'Virtual network' dropdown is set to 'SANS-CENTRALUS'. The 'Subnet' dropdown is set to 'SANS-CUS-PubSubnet (172.16.1.0/24)'. The 'Public IP' dropdown is set to '(new) SANS-CUS-Ubuntu-ip'. Under 'NIC network security group', the 'None' radio button is selected, which is highlighted with a yellow box. A tooltip explains that selecting 'None' exposes all ports to the public internet, which is a security risk. At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Management >'.

Click "Next : Management".



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main area is titled 'Create a virtual machine' and is currently on the 'Networking' tab. The 'Virtual machines' blade is open on the left, showing a list with one item: 'SANSVM-WIN-SI'. The networking configuration section includes fields for 'Virtual network' (set to 'SANS-CENTRALUS'), 'Subnet' (set to 'SANS-CUS-PubSubnet (172.16.1.0/24)'), and 'Public IP' (set to '(new) SANS-CUS-Ubuntu-ip'). It also includes options for 'NIC network security group' (set to 'None') and 'Accelerated networking' (set to 'Off'). Below these are sections for 'LOAD BALANCING' and 'Firewall rules'. At the bottom, there are buttons for 'Review + create', 'Previous', and 'Next : Management >'.

Click "Next : Guest config >".



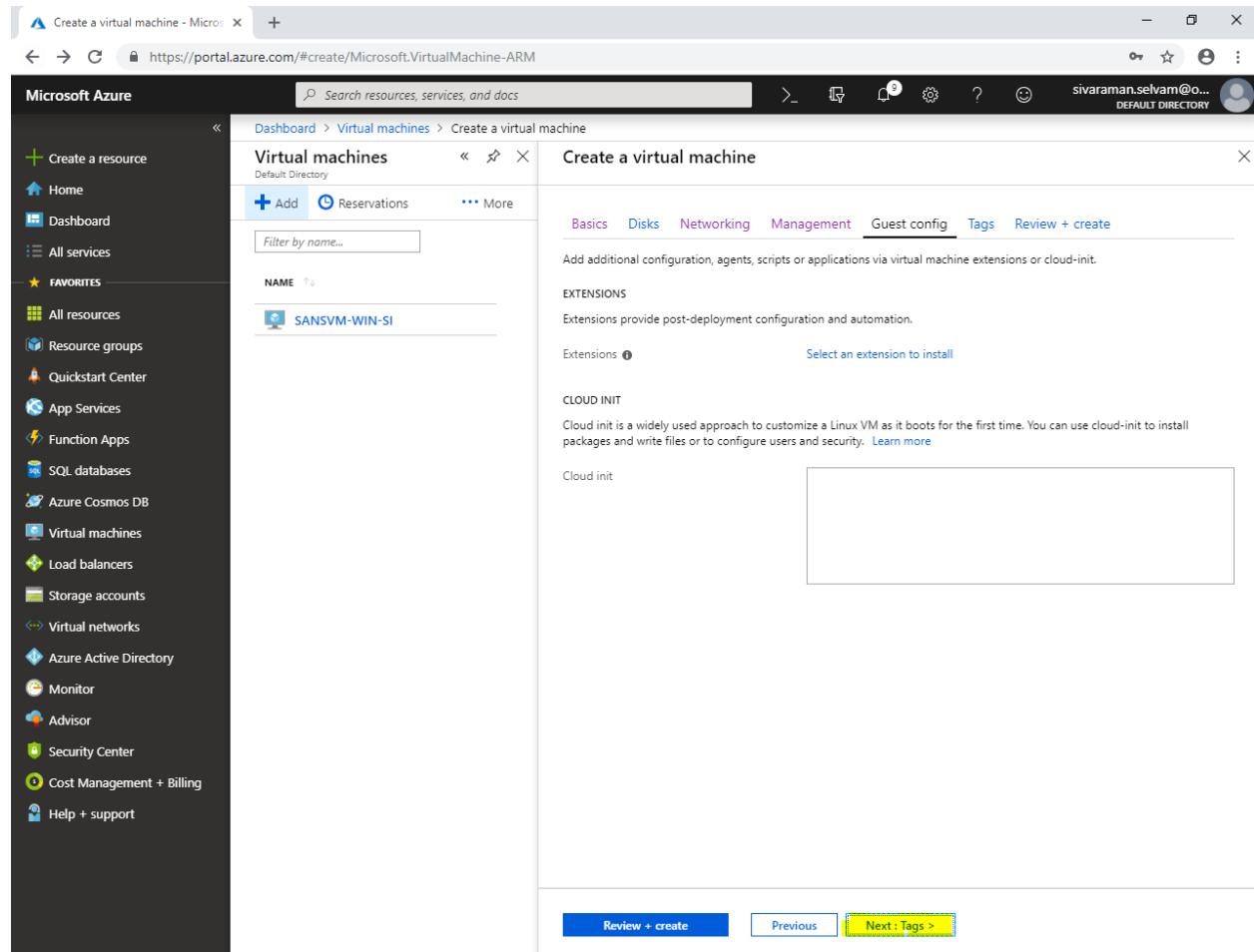
The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains various service icons under 'Microsoft Azure'. The main area is titled 'Create a virtual machine' and is currently on the 'Guest config' tab. The configuration options shown include:

- MONITORING**: Boot diagnostics (radio button set to Off), OS guest diagnostics (radio button set to Off).
- IDENTITY**: System assigned managed identity (radio button set to Off).
- AUTO-SHUTDOWN**: Enable auto-shutdown (radio button set to Off).
- BACKUP**: Enable backup (radio button set to Off).

At the bottom of the page, there are three buttons: 'Review + create' (blue), 'Previous' (light blue), and 'Next : Guest config >' (yellow, indicating it is the current step). The URL in the browser bar is <https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM>.

In “Guest config”,

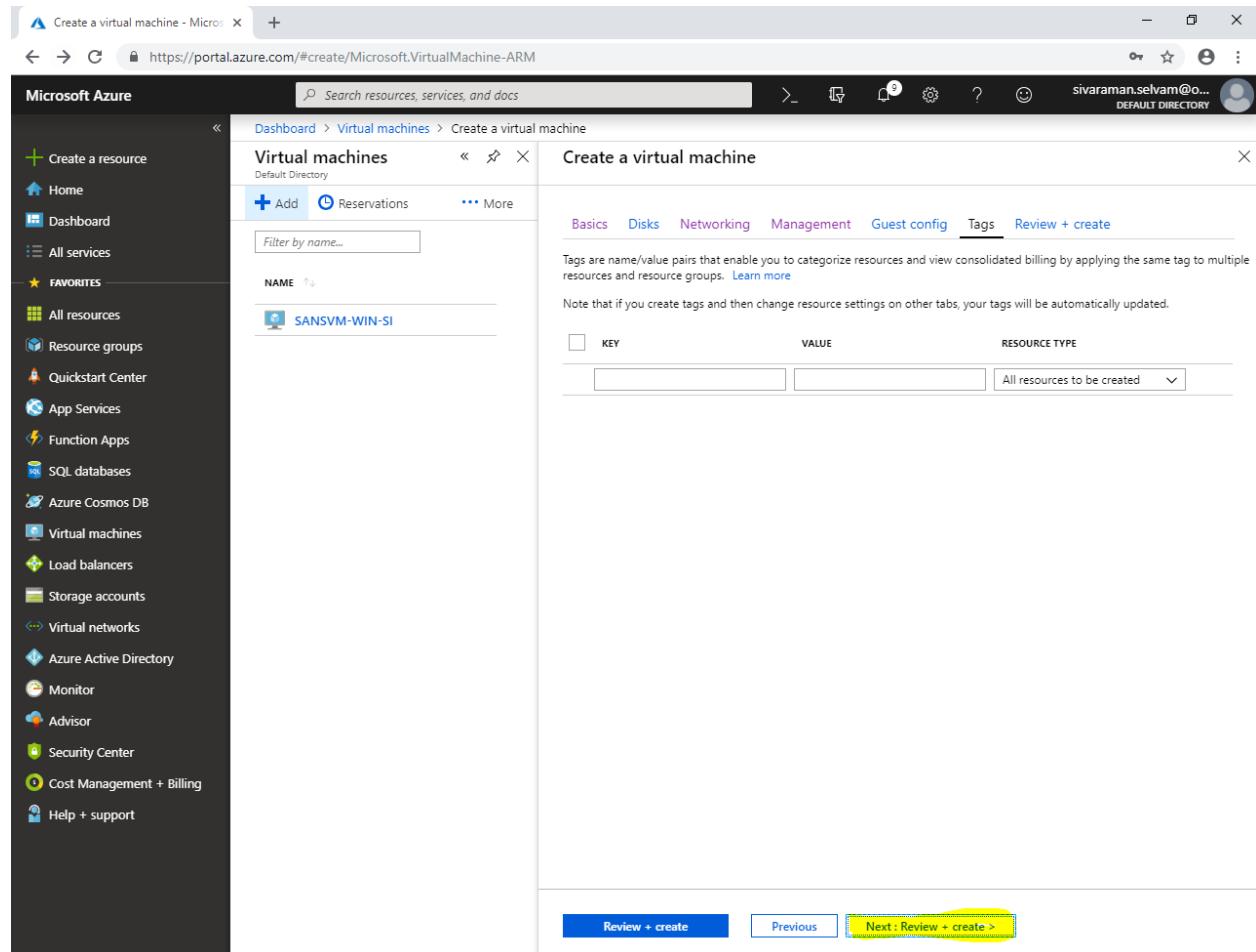
Click “Next : Tags >”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains a list of services: Create a resource, Home, Dashboard, All services, Favorites (All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, Help + support). The main area shows the 'Virtual machines' section under 'Create a virtual machine'. The 'Guest config' tab is selected. Below it, there's a note about adding configuration via extensions or cloud-init. Under 'EXTENSIONS', there's a link to 'Select an extension to install'. Under 'CLOUD INIT', there's a note about using cloud-init for Linux VMs. At the bottom, there are 'Review + create', 'Previous', and 'Next: Tags >' buttons. The URL in the browser is https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM.

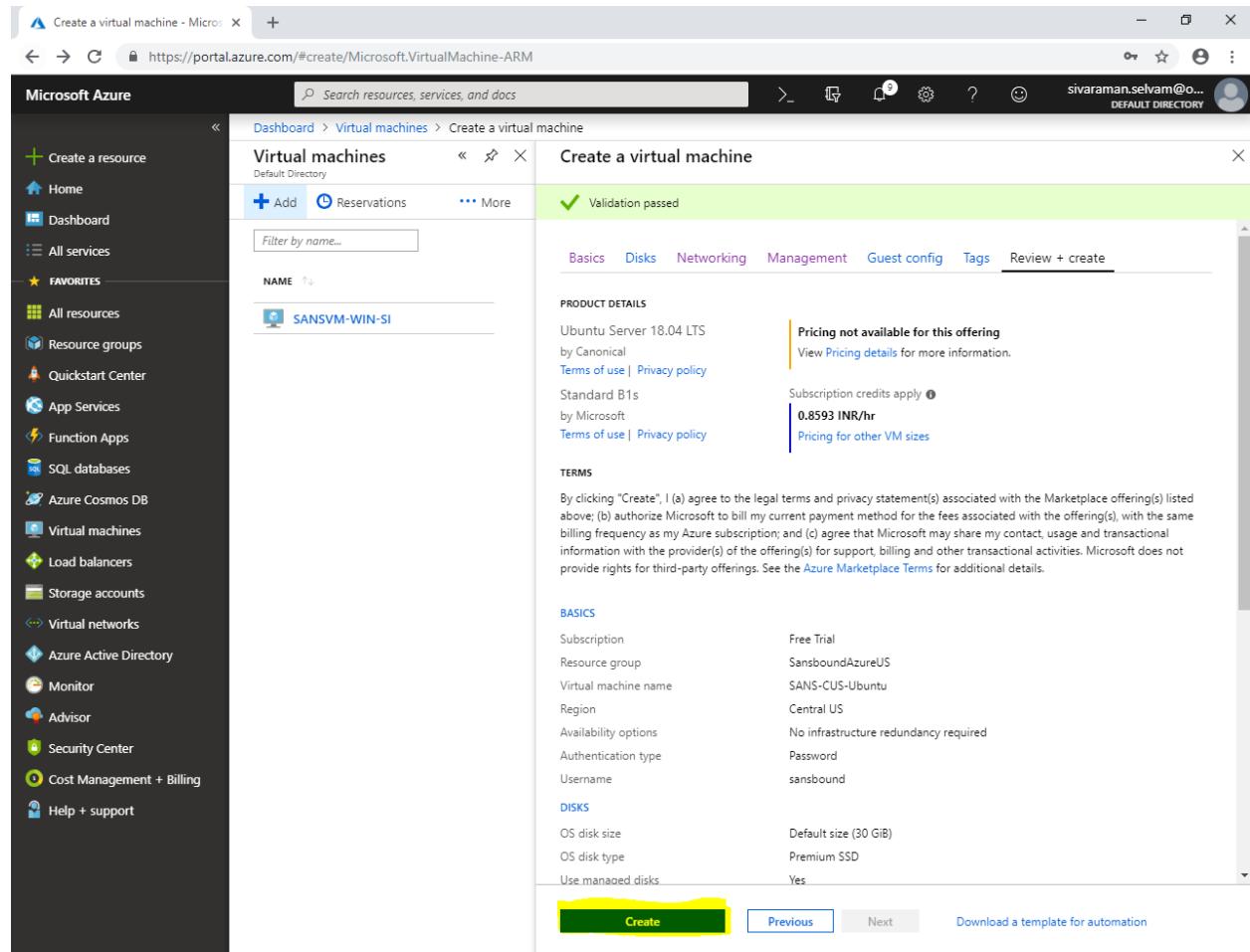
In “Tags”,

Click “Review + create”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar lists various services like Home, Dashboard, and Storage accounts. The main area shows the 'Virtual machines' blade with a 'Create a virtual machine' wizard. The 'Tags' tab is currently selected. A table allows adding key-value pairs for tags. At the bottom, there are 'Review + create', 'Previous', and 'Next: Review + create >' buttons. The 'Next: Review + create >' button is highlighted with a yellow box.

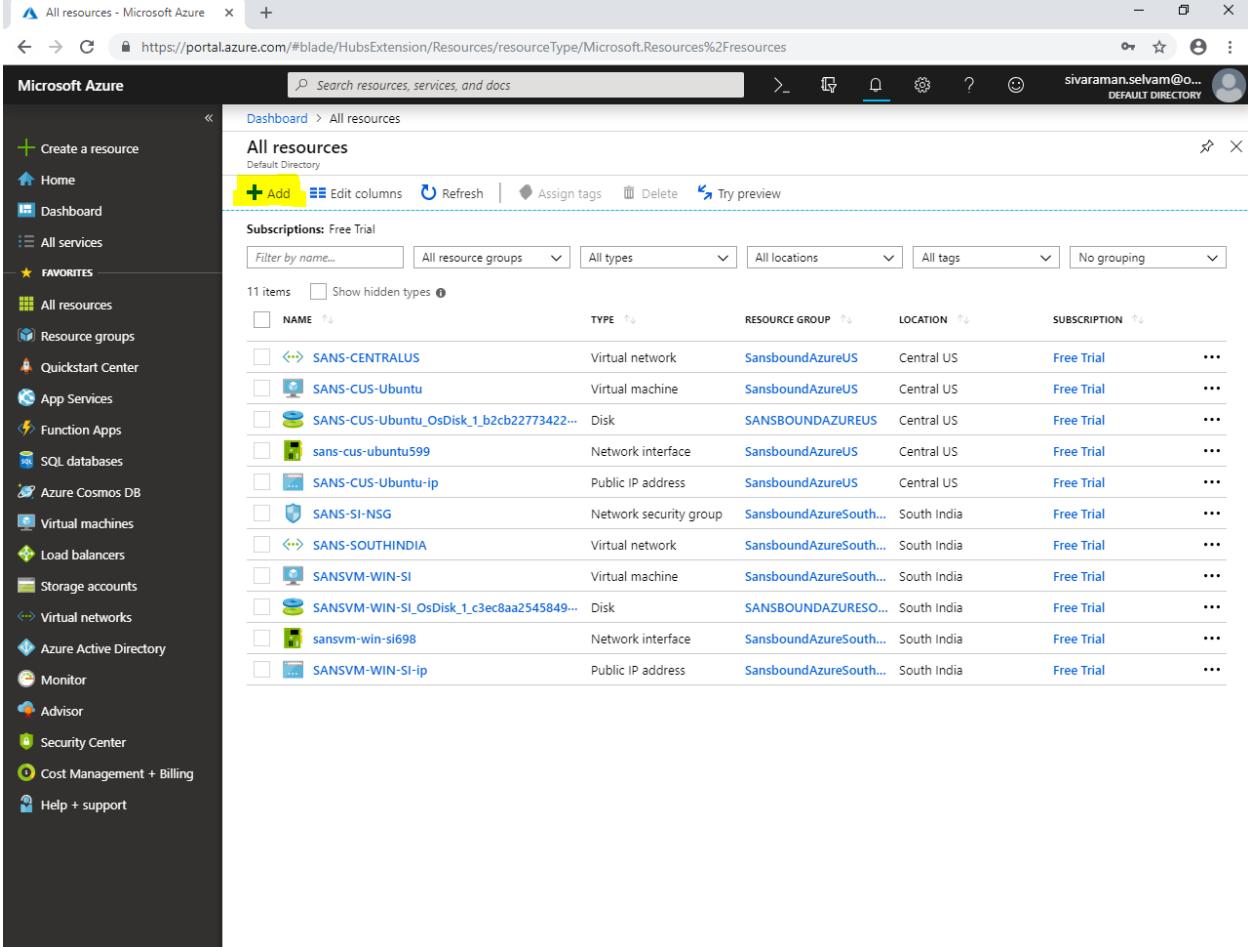
Click “Create”.



The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. The left sidebar contains navigation links for Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main area is titled "Create a virtual machine" and shows the "Virtual machines" blade with a list of existing VMs including "SANSVM-WIN-SI". The "Create a virtual machine" wizard is open, showing the "Review + create" step. A green validation message "Validation passed" is displayed. The "PRODUCT DETAILS" section lists "Ubuntu Server 18.04 LTS" by Canonical, Standard B1s by Microsoft, and a price of "0.8593 INR/hr". The "TERMS" section contains legal agreement text. The "BASICS" section displays configuration details: Subscription (Free Trial), Resource group (SansboundAzureUS), Virtual machine name (SANS-CUS-Ubuntu), Region (Central US), Availability options (No infrastructure redundancy required), Authentication type (Password), Username (sansbound). The "DISKS" section shows OS disk size (Default size (30 GB)), OS disk type (Premium SSD), and Use managed disks (Yes). At the bottom, there are "Create" (highlighted in yellow), "Previous", "Next", and "Download a template for automation" buttons.

In “All resources”,

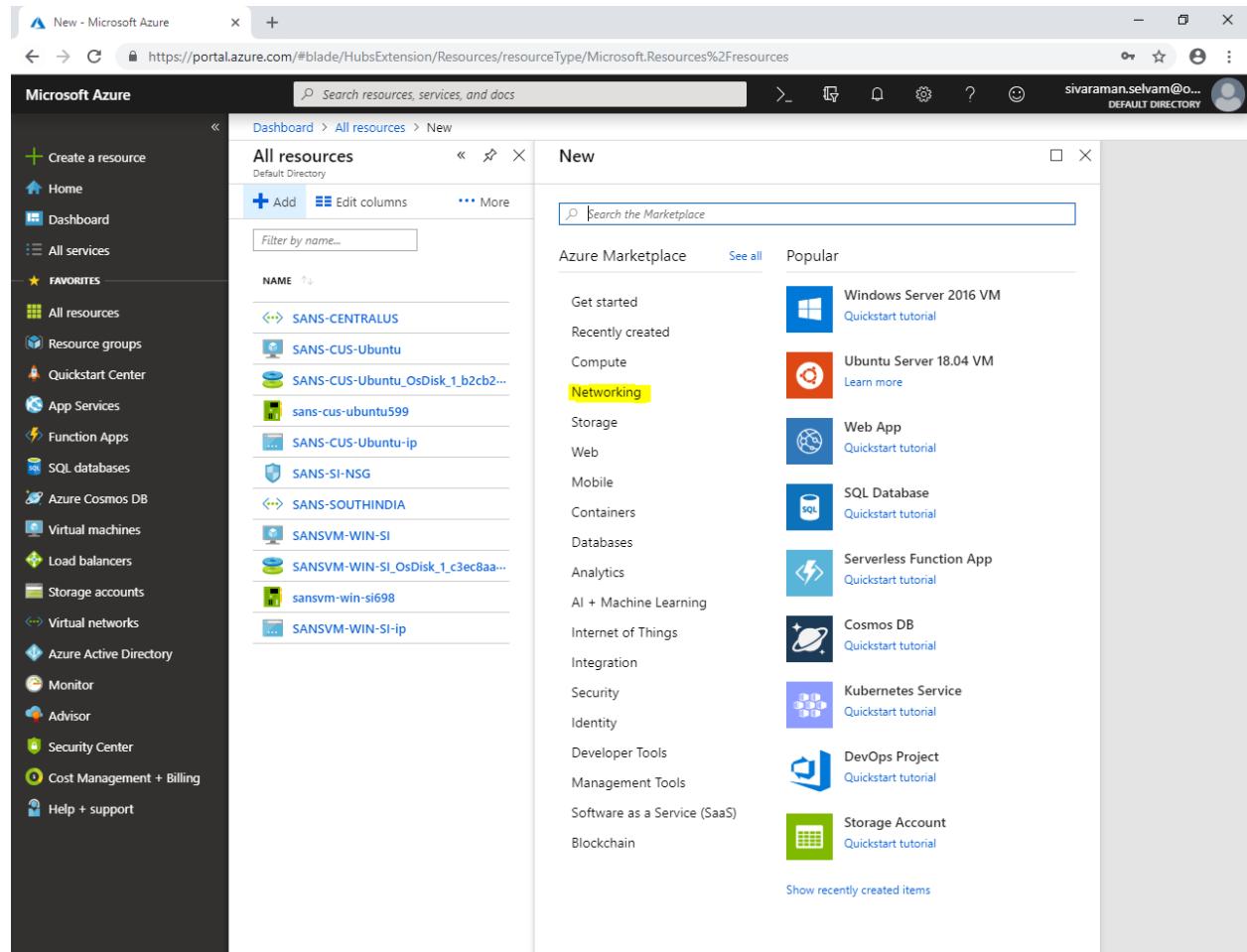
Click “Add”.



The screenshot shows the Microsoft Azure portal's "All resources" blade. On the left is a dark sidebar with various service icons and links like "Create a resource", "Home", "Dashboard", and "All services". The main area has a light background. At the top, there's a search bar and several filter and action buttons: "+ Add", "Edit columns", "Refresh", "Assign tags", "Delete", and "Try preview". Below these are dropdown menus for "Subscriptions", "Filter by name...", "All resource groups", "All types", "All locations", "All tags", and "No grouping". A table lists 11 items, each with a checkbox, a small icon, a name, its type, resource group, location, and subscription status. The first item listed is "SANS-CENTRALUS".

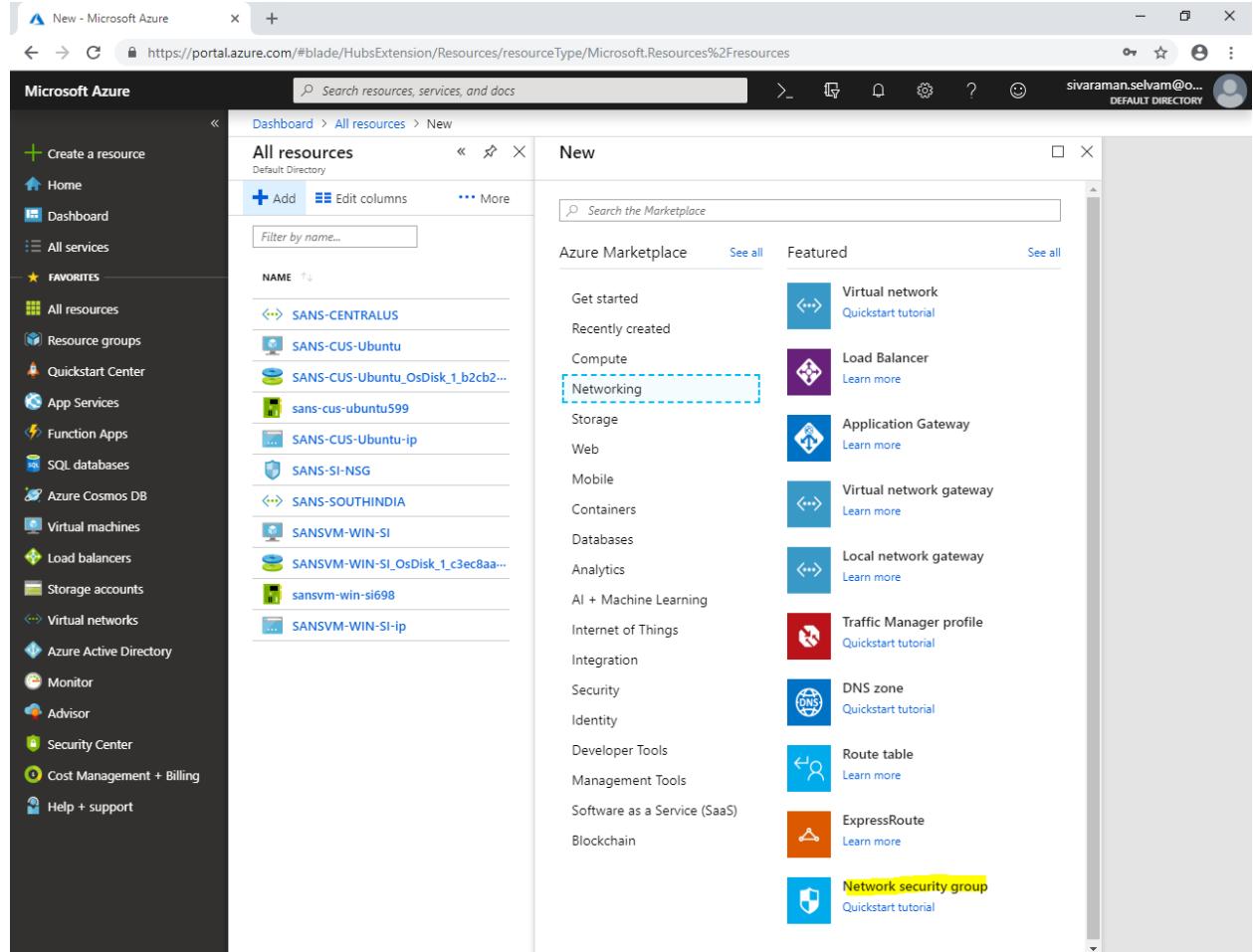
	NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION
<input type="checkbox"/>	SANS-CENTRALUS	Virtual network	SansboundAzureUS	Central US	Free Trial
<input type="checkbox"/>	SANS-CUS-Ubuntu	Virtual machine	SansboundAzureUS	Central US	Free Trial
<input type="checkbox"/>	SANS-CUS-Ubuntu_OsDisk_1_b2cb2773422...	Disk	SANBOUNDAZUREUS	Central US	Free Trial
<input type="checkbox"/>	sans-cus-ubuntu599	Network interface	SansboundAzureUS	Central US	Free Trial
<input type="checkbox"/>	SANS-CUS-Ubuntu-ip	Public IP address	SansboundAzureUS	Central US	Free Trial
<input type="checkbox"/>	SANS-SI-NSG	Network security group	SansboundAzureSouth...	South India	Free Trial
<input type="checkbox"/>	SANS-SOUTHINDIA	Virtual network	SansboundAzureSouth...	South India	Free Trial
<input type="checkbox"/>	SANSVM-WIN-SI	Virtual machine	SansboundAzureSouth...	South India	Free Trial
<input type="checkbox"/>	SANSVM-WIN-SI_OsDisk_1_c3ec8aa2545849...	Disk	SANBOUNDAZURESO...	South India	Free Trial
<input type="checkbox"/>	sansvm-win-si698	Network interface	SansboundAzureSouth...	South India	Free Trial
<input type="checkbox"/>	SANSVM-WIN-SI-ip	Public IP address	SansboundAzureSouth...	South India	Free Trial

Click on “Networking”,



The screenshot shows the Microsoft Azure portal interface. On the left, there's a navigation sidebar with various service icons and links like Home, Dashboard, All services, Favorites, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The 'Favorites' section is currently selected. The main content area has a breadcrumb navigation bar: Dashboard > All resources > New. Below this is a search bar labeled 'Search resources, services, and docs'. The main panel is titled 'All resources' and shows a list of resources with columns for NAME, TYPE, and STATUS. Several resources are listed, including 'SANS-CENTRALUS', 'SANS-CUS-Ubuntu', 'SANS-CUS-Ubuntu\_OsDisk\_1\_b2cb2...', 'sans-cus-ubuntu599', 'SANS-CUS-Ubuntu-ip', 'SANS-SI-NSG', 'SANS-SOUTHINDIA', 'SANsvm-WIN-SI', 'SANsvm-WIN-SI\_OsDisk\_1\_c3ec8aa...', 'sanvm-win-si698', and 'SANsvm-WIN-SI-ip'. To the right of the resource list is a 'New' section titled 'Azure Marketplace' with a search bar. Under 'Popular', the 'Networking' category is highlighted with a yellow box. Other categories shown include Get started, Recently created, Compute, Storage, Web, Mobile, Containers, Databases, Analytics, AI + Machine Learning, Internet of Things, Integration, Security, Identity, Developer Tools, Management Tools, Software as a Service (SaaS), and Blockchain. Each category has a corresponding icon and a 'Quickstart tutorial' link.

Click “**Network security group**”.



The screenshot shows the Microsoft Azure portal interface. On the left, there's a navigation sidebar with various service icons and links like Home, Dashboard, All services, Favorites, and Resource groups. The main area is titled 'All resources' and shows a list of existing resources with names like 'SANS-CENTRALUS', 'SANS-CUS-Ubuntu', etc. To the right, a 'New' blade is open, allowing users to search the Marketplace for new resources. The 'Networking' category is expanded, listing options such as Virtual network, Load Balancer, Application Gateway, Virtual network gateway, Local network gateway, Traffic Manager profile, DNS zone, Route table, ExpressRoute, and Network security group. The 'Network security group' option is specifically highlighted with a yellow box.

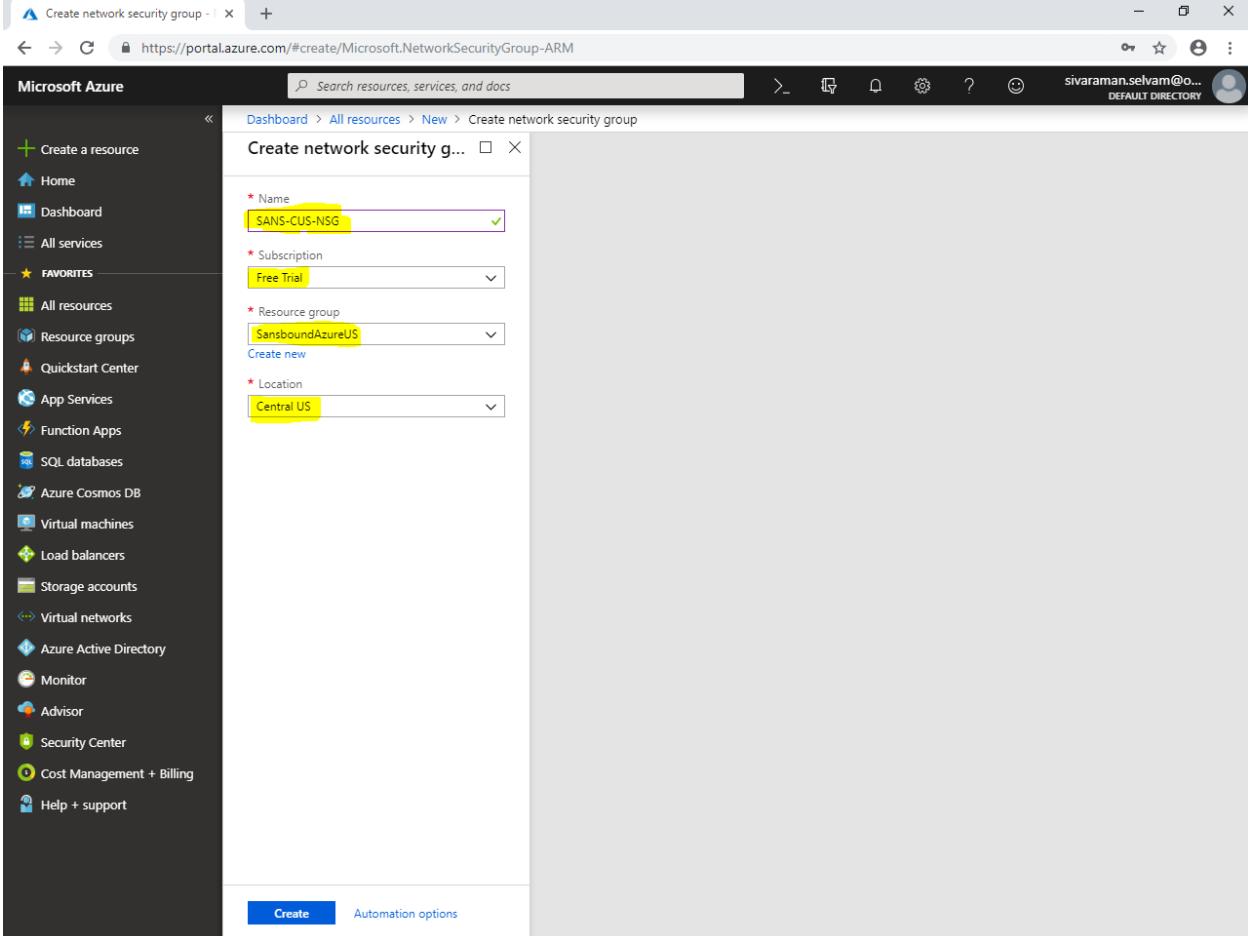
While create network security group,

Type “**Name**” as “**SANS-CUS-NSG**”.

Select “**Subscription**” as “**Free Trial**”.

Select “**Resource group**” as “**SansboundAzureUS**”.

Select “**Location**” as “**Central US**”.

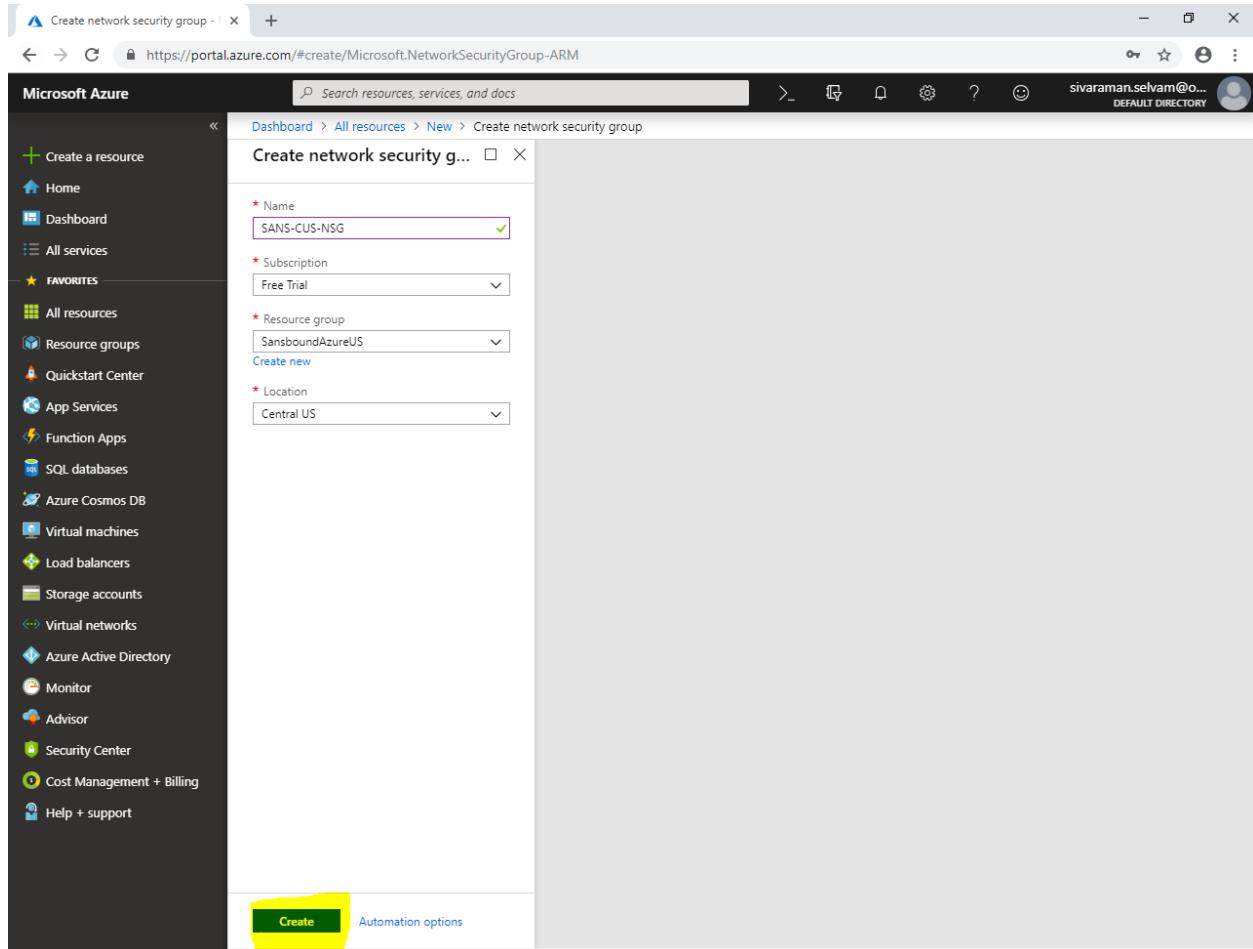


The screenshot shows the Microsoft Azure portal interface for creating a Network Security Group (NSG). The left sidebar contains a navigation menu with various services like Home, Dashboard, All services, and Favorites. The main content area is titled "Create network security g..." and shows the configuration steps:

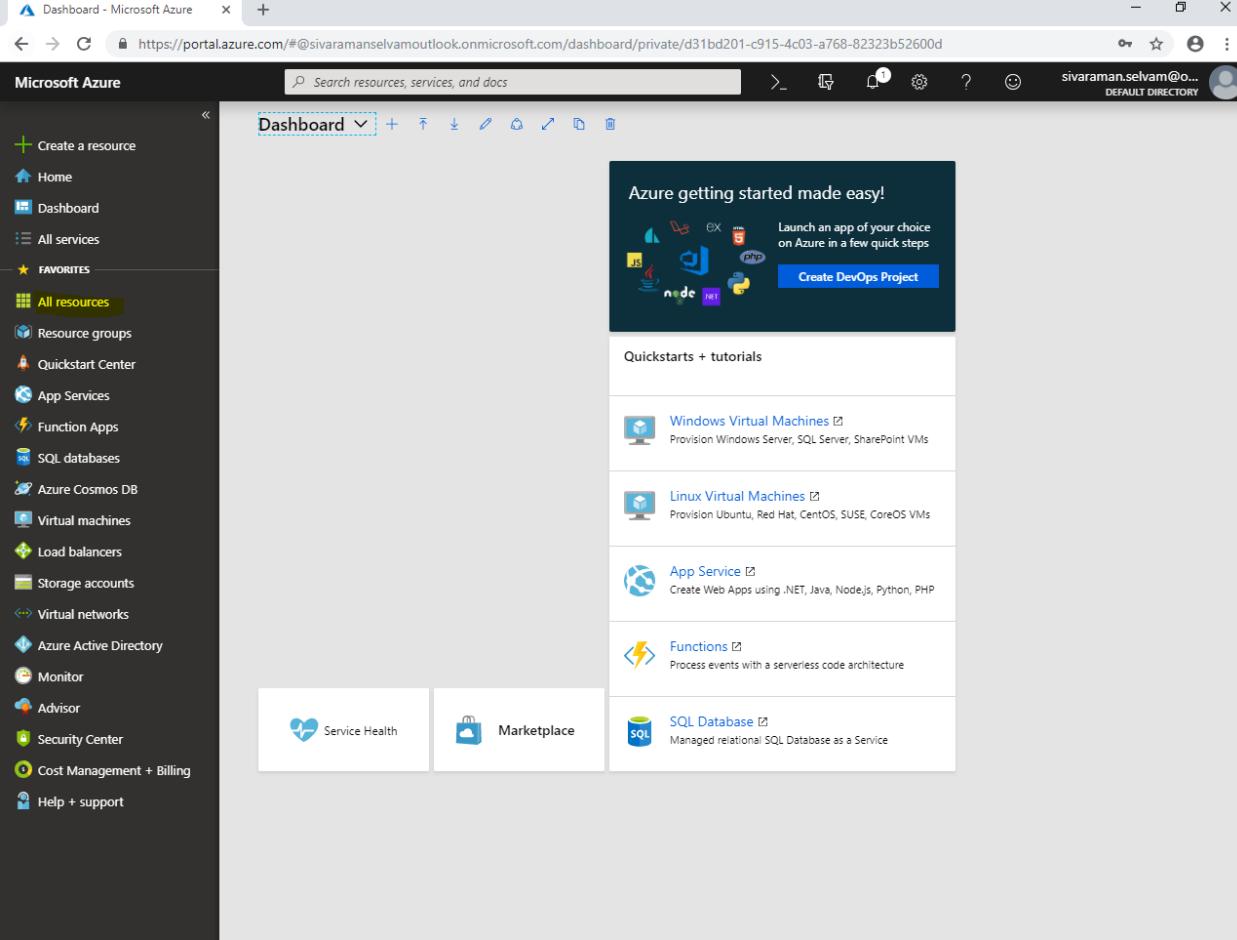
- Name:** SANS-CUS-NSG
- Subscription:** Free Trial
- Resource group:** SansboundAzureUS
- Location:** Central US

At the bottom of the form are two buttons: "Create" (highlighted in blue) and "Automation options".

Click “Create”.



Click “**All resources**” in left side panel.

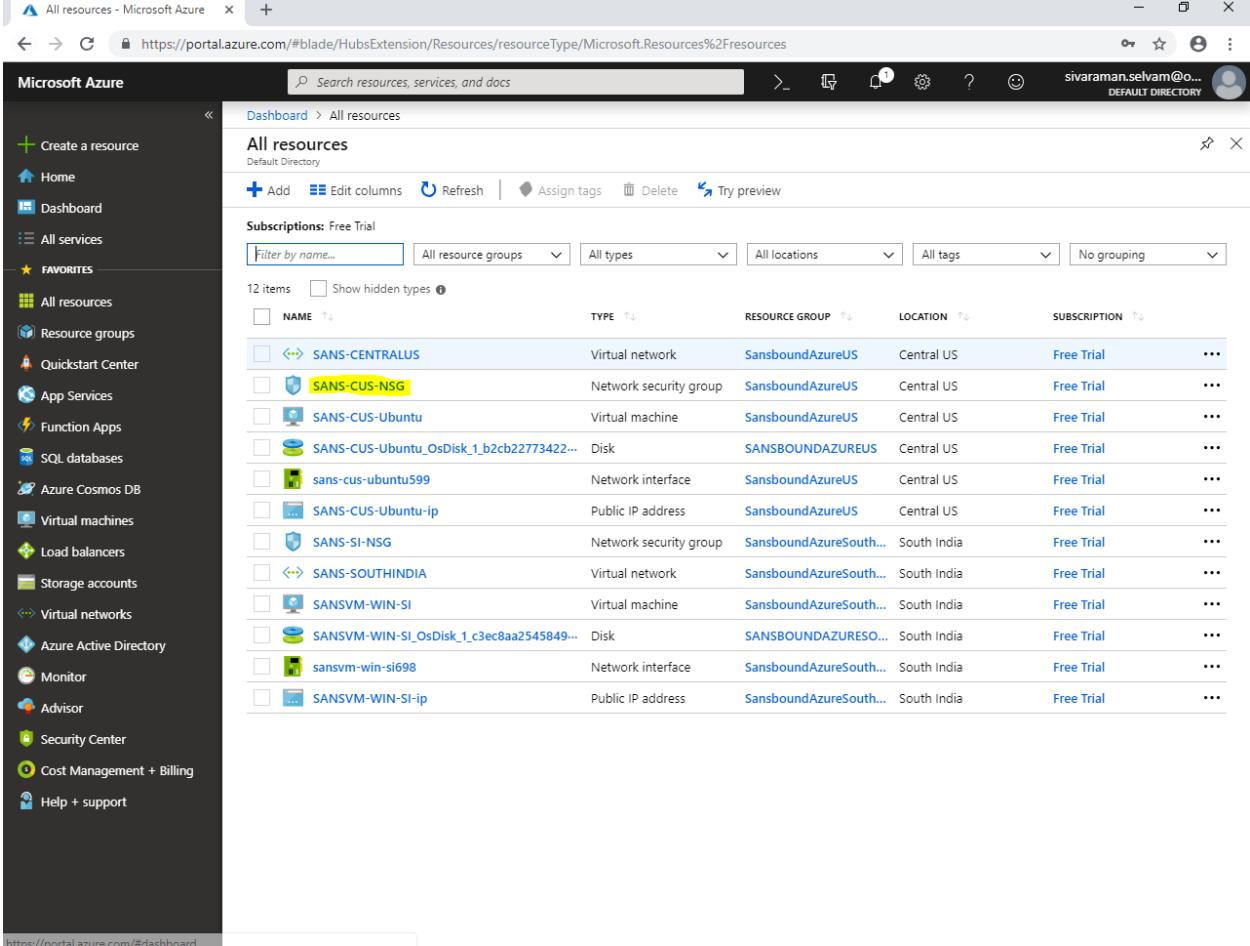


The screenshot shows the Microsoft Azure portal interface. On the left, there is a dark sidebar with various navigation options. The 'All resources' option is highlighted with a yellow background. The main content area features a 'Dashboard' header with a search bar and several quick access icons. Below this is a promotional banner for 'Azure getting started made easy!' which includes icons for Java, Python, Node.js, and PHP, along with a 'Create DevOps Project' button. The main content area is titled 'Quickstarts + tutorials' and lists several services with their icons and descriptions:

- Windows Virtual Machines: Provision Windows Server, SQL Server, SharePoint VMs
- Linux Virtual Machines: Provision Ubuntu, Red Hat, CentOS, SUSE, CoreOS VMs
- App Service: Create Web Apps using .NET, Java, Node.js, Python, PHP
- Functions: Process events with a serverless code architecture
- SQL Database: Managed relational SQL Database as a Service

At the bottom of the sidebar, there are links for 'Service Health' and 'Marketplace'. The top right corner shows the user's email (sivaraman.selvam@o...), the 'DEFAULT DIRECTORY' setting, and a profile icon.

Click “**SANS-CUS-NSG**” network security group.

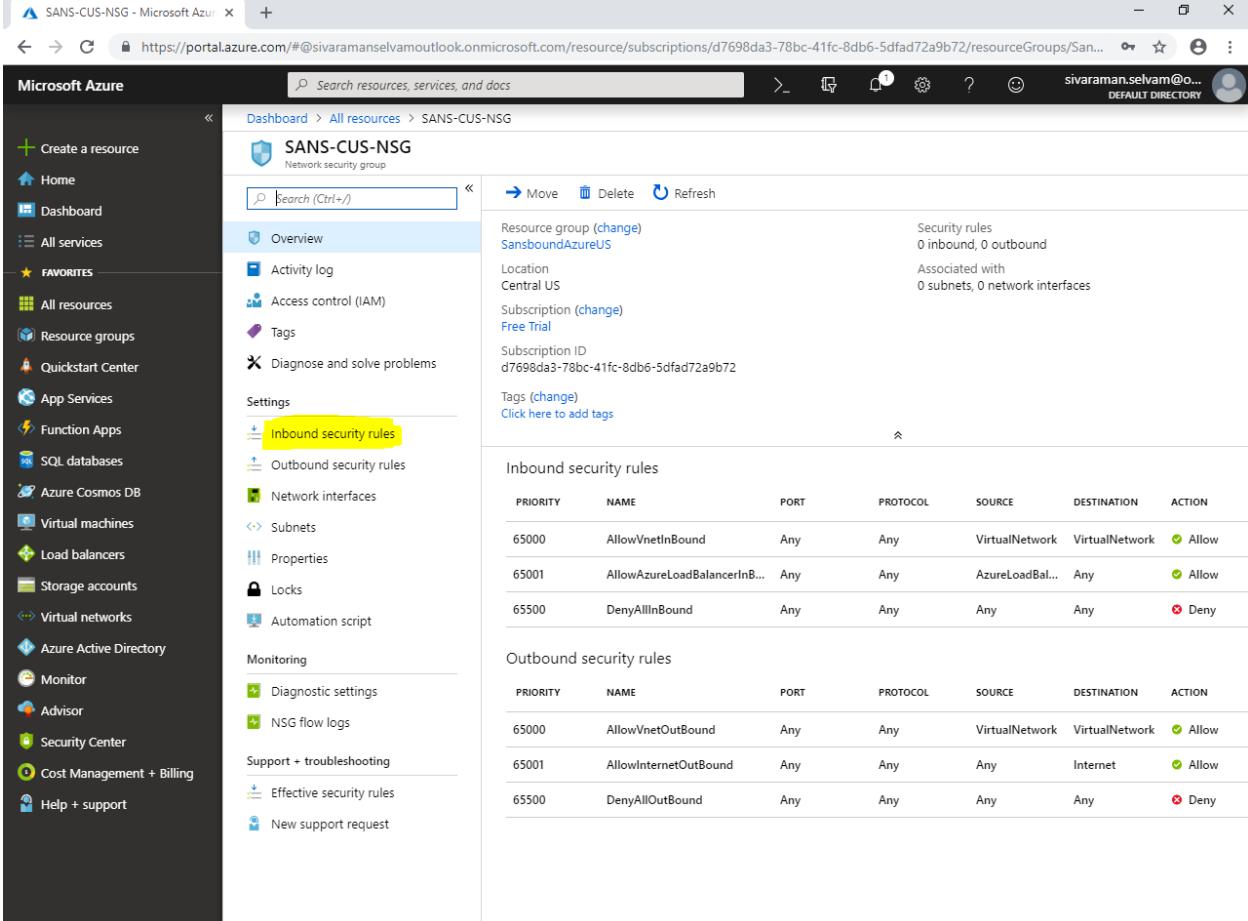


The screenshot shows the Microsoft Azure portal's "All resources" blade. The left sidebar contains a "FAVORITES" section with items like Home, Dashboard, All services, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area displays a table of resources under the heading "All resources". The table has columns for NAME, TYPE, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. There are 12 items listed. One item, "SANS-CUS-NSG", is highlighted with a yellow box. The table data is as follows:

NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-CENTRALUS	Virtual network	SansboundAzureUS	Central US	Free Trial
<b>SANS-CUS-NSG</b>	Network security group	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu	Virtual machine	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu_OsDisk_1_b2cb22773422...	Disk	SANBOUNDAZUREUS	Central US	Free Trial
sans-cus-ubuntu599	Network interface	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu-ip	Public IP address	SansboundAzureUS	Central US	Free Trial
SANS-SI-NSG	Network security group	SansboundAzureSouth...	South India	Free Trial
SANS-SOUTHINDIA	Virtual network	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI	Virtual machine	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI_OsDisk_1_c3ec8aa2545849...	Disk	SANBOUNDAZURESO...	South India	Free Trial
sansvm-win-si698	Network interface	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI-ip	Public IP address	SansboundAzureSouth...	South India	Free Trial

In “**SANS-CUS-NSG**” network security group,

Click “**Inbound security rules**”.



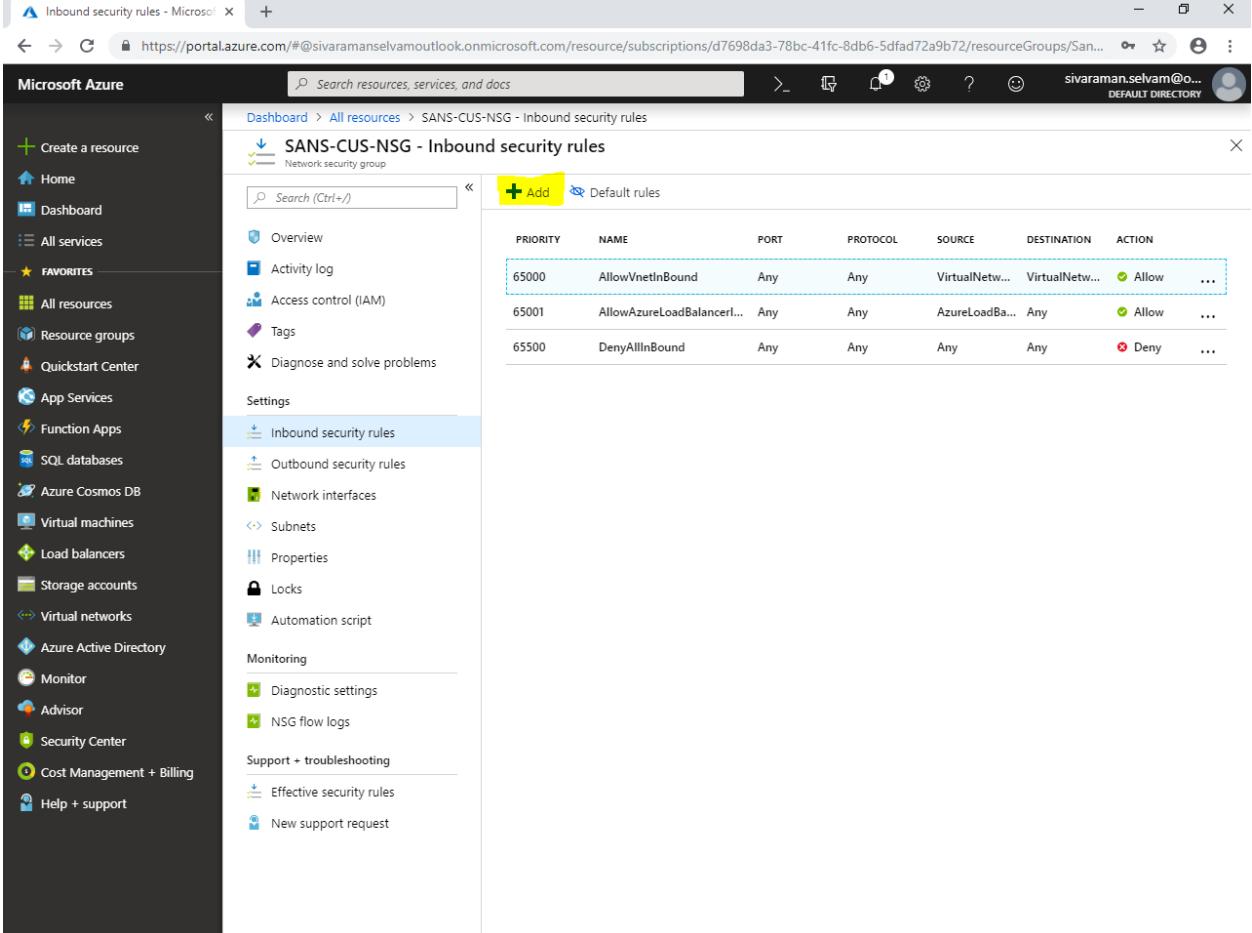
The screenshot shows the Microsoft Azure portal interface for managing a Network Security Group (NSG). The left sidebar contains a navigation menu with various service icons. The main content area displays the details for the "SANS-CUS-NSG" NSG, which is associated with the "SansboundAzureUS" subscription and located in Central US. The "Overview" tab is selected. On the right, there are sections for "Inbound security rules" and "Outbound security rules". The "Inbound security rules" table lists three rules:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBal...	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

The "Outbound security rules" table lists three rules:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons. The main content area is titled "SANS-CUS-NSG - Inbound security rules". On the right, there is a table listing three existing security rules. A yellow box highlights the "+ Add" button located above the table. The table has columns: PRIORITY, NAME, PORT, PROTOCOL, SOURCE, DESTINATION, and ACTION. The first rule is "AllowVnetInBound" with priority 65000, protocol Any, source VirtualNetwork..., destination VirtualNetwork..., action Allow. The second rule is "AllowAzureLoadBalancer..." with priority 65001, protocol Any, source AzureLoadBalancer..., destination Any, action Allow. The third rule is "DenyAllInBound" with priority 65500, protocol Any, source Any, destination Any, action Deny.

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetInBound	Any	Any	VirtualNetw...	VirtualNetw...	<span style="color: green;">Allow</span>
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBa...	Any	<span style="color: green;">Allow</span>
65500	DenyAllInBound	Any	Any	Any	Any	<span style="color: red;">Deny</span>

While “Add inbound security rule”,

Select “Source” as “Any”.

Select “Source port ranges” as “\*”.

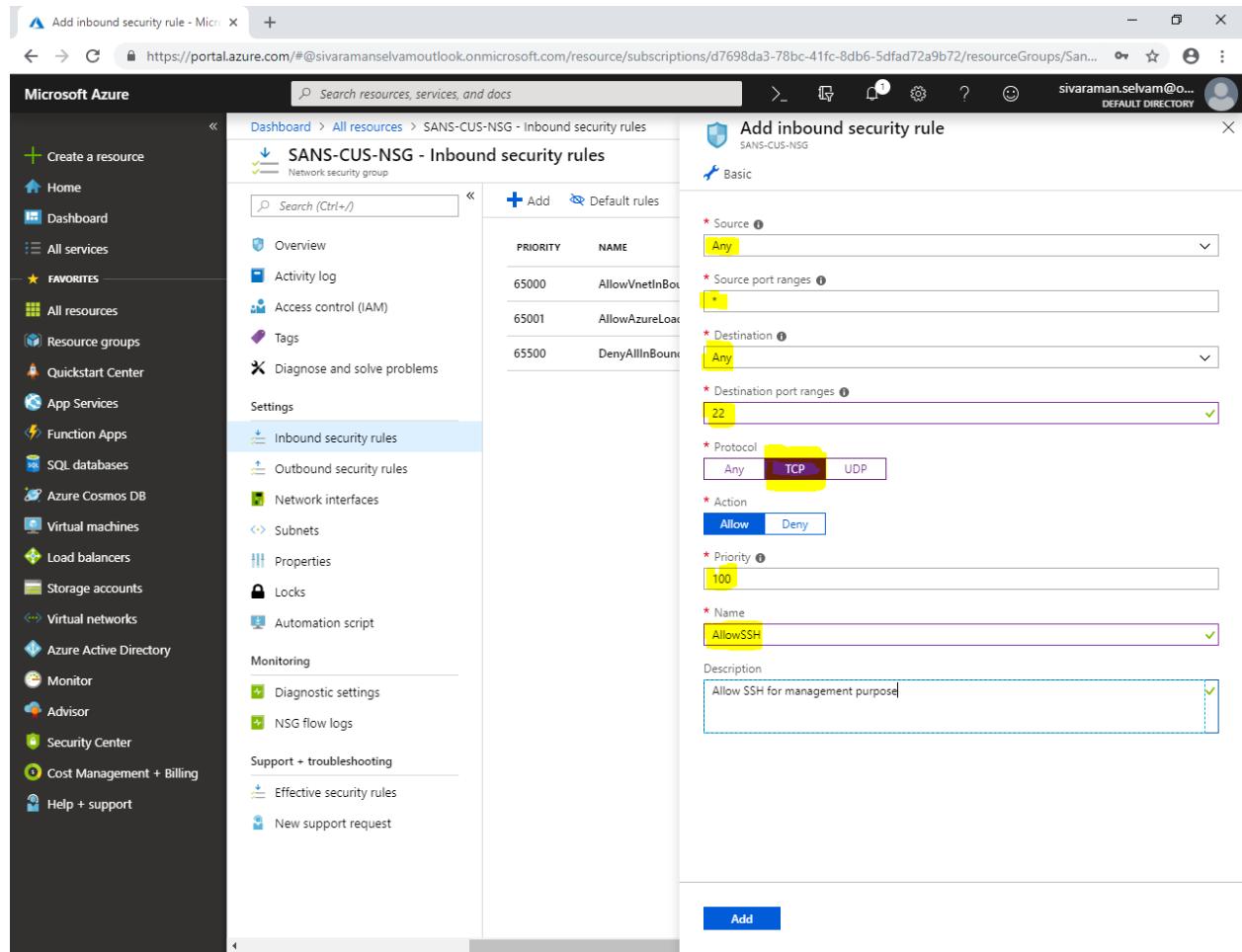
Select “Destination” as “Any”.

Specify “Destination port ranges” as “22”.

In Protocol, click “TCP”.

Ensure “Priority” as “100”.

Type “Name” as “AllowSSH”.

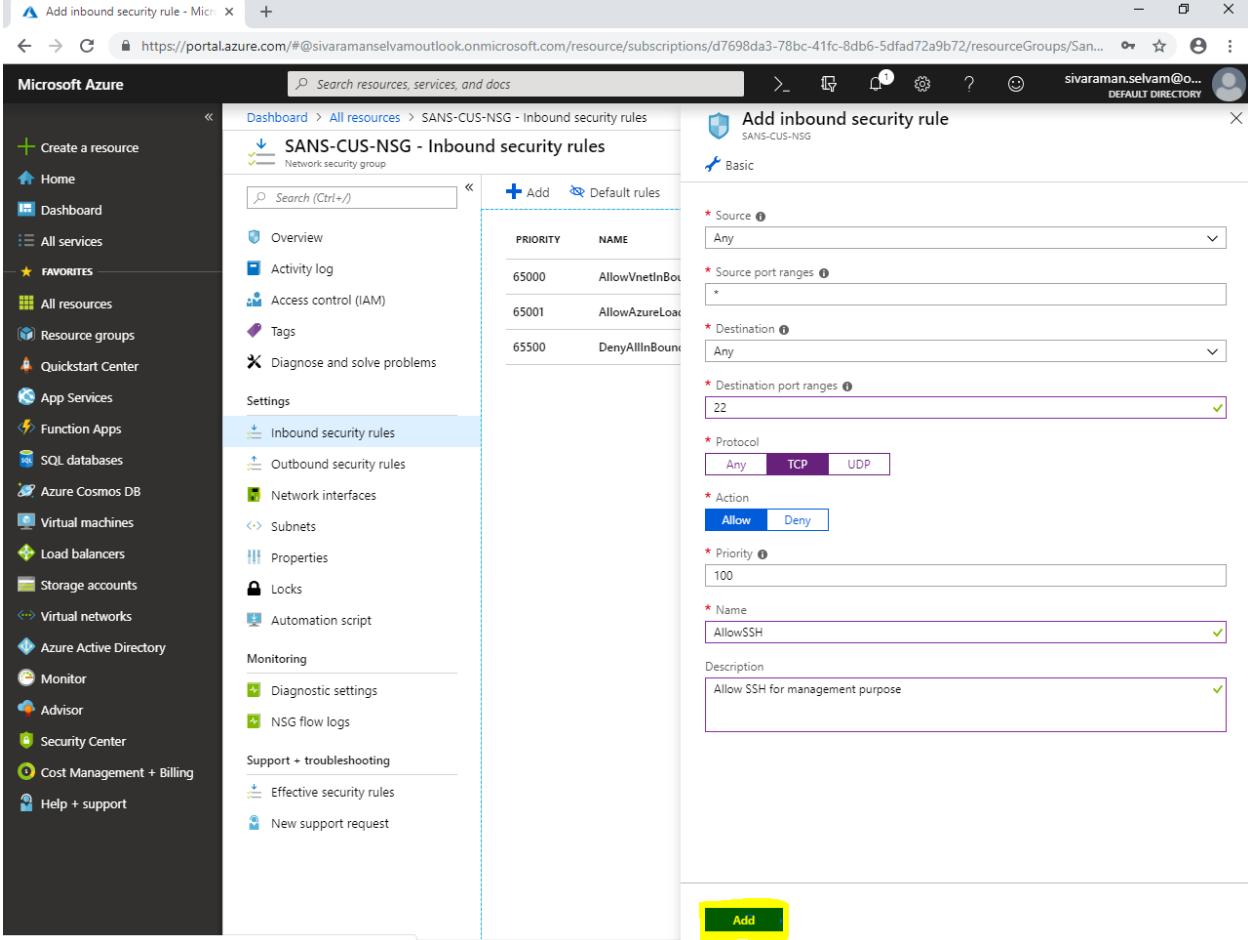


The screenshot shows the Microsoft Azure portal interface for managing Network Security Groups (NSGs). On the left, the navigation menu includes options like 'Create a resource', 'Home', 'Dashboard', 'All services', 'Favorites', 'All resources', 'Resource groups', 'Quickstart Center', 'App Services', 'Function Apps', 'SQL databases', 'Azure Cosmos DB', 'Virtual machines', 'Load balancers', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', 'Monitor', 'Advisor', 'Security Center', 'Cost Management + Billing', and 'Help + support'. The main content area displays the 'SANS-CUS-NSG - Inbound security rules' section. A table lists existing rules: 'AllowVnetInBound' (Priority 65000), 'AllowAzureLoadBalancer' (Priority 65001), and 'DenyAllInBound' (Priority 65500). A new rule is being added, with the following details:

PRIORITY	NAME
65000	AllowVnetInBound
65001	AllowAzureLoadBalancer
65500	DenyAllInBound
100	AllowSSH

The 'Protocol' dropdown is set to 'TCP'. The 'Action' dropdown is set to 'Allow'. The 'Priority' is set to '100'. The 'Name' is set to 'AllowSSH'. The 'Description' field contains the text 'Allow SSH for management purpose'.

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is visible with various service icons. In the center, the main content area displays the 'SANS-CUS-NSG - Inbound security rules' page under the 'Network security group' section. A search bar at the top of this page contains the placeholder 'Search (Ctrl+Shift+F)'. Below the search bar, there are two buttons: '+ Add' and 'Default rules'. To the right of these buttons is a table listing three existing security rules:

PRIORITY	NAME
65000	AllowVnetInBound
65001	AllowAzureLoadBalancing
65500	DenyAllInBound

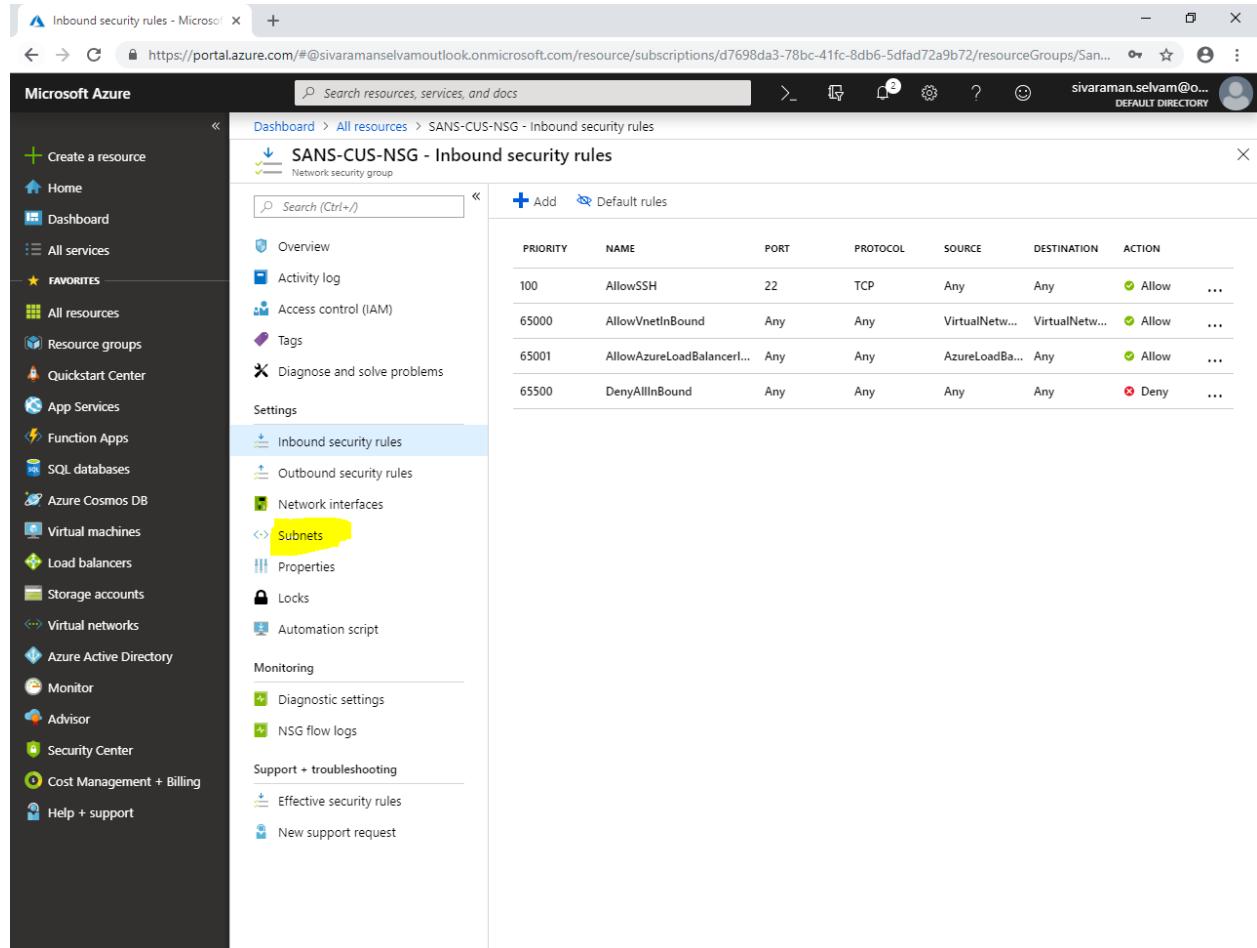
On the far right of the table, there is a 'Edit' icon. The right side of the screen shows the 'Add inbound security rule' dialog box. This dialog has several fields:

- Source:** Any
- Source port ranges:** \*
- Destination:** Any
- Destination port ranges:** 22
- Protocol:** TCP
- Action:** Allow
- Priority:** 100
- Name:** AllowSSH
- Description:** Allow SSH for management purpose

A large yellow callout box highlights the 'Add' button at the bottom of the dialog.

In “**SANS-CUS-NSG**”,

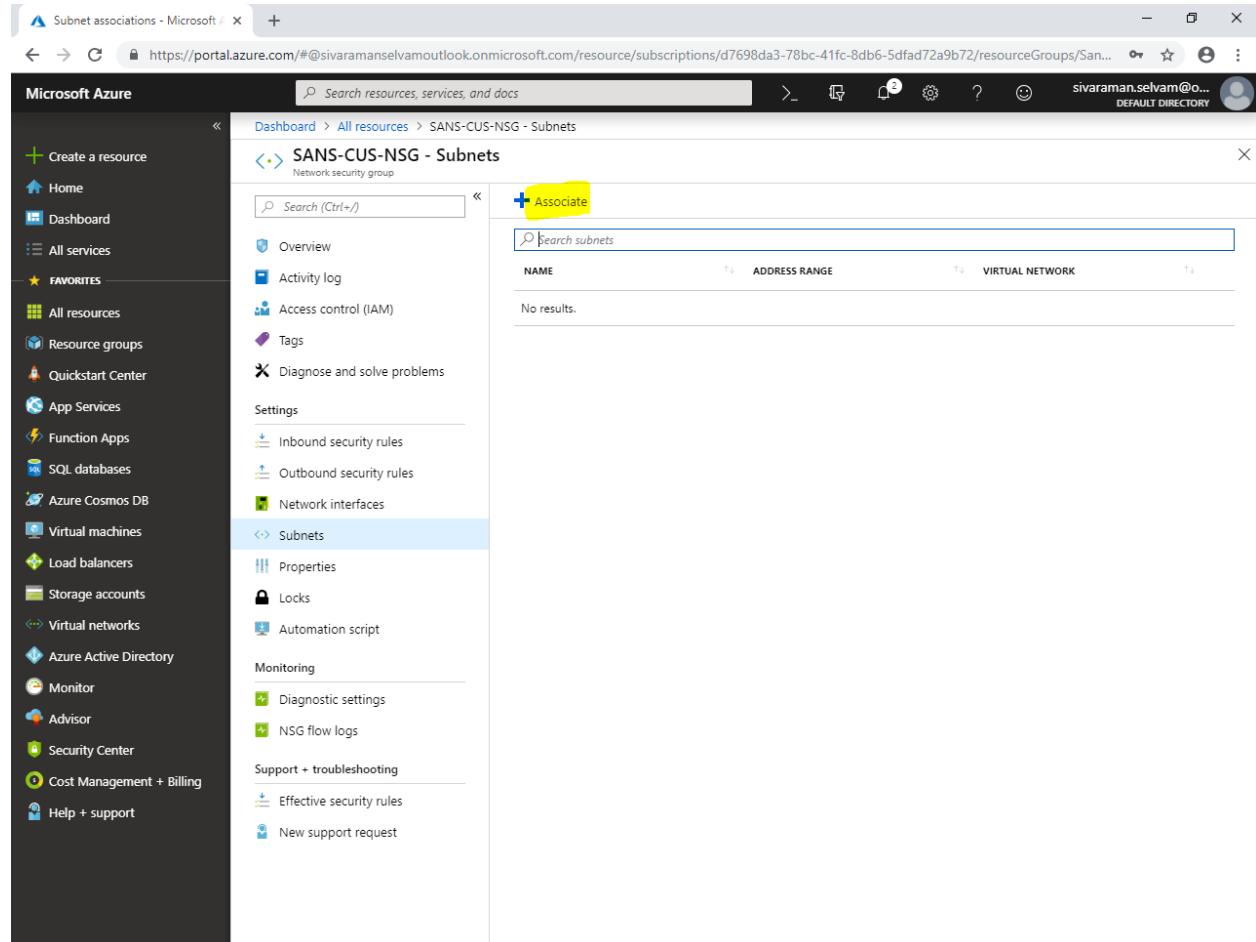
Click “**Subnets**”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a list of services and resources. The main content area displays the "Inbound security rules" for the "SANS-CUS-NSG - Inbound security rules" section. The "Subnets" option in the left sidebar is highlighted with a yellow box. The main pane shows a table of security rules:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	...
100	AllowSSH	22	TCP	Any	Any	Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNetw...	VirtualNetw...	Allow	...
65001	AllowAzureLoadBalancerl...	Any	Any	AzureLoadBa...	Any	Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	Deny	...

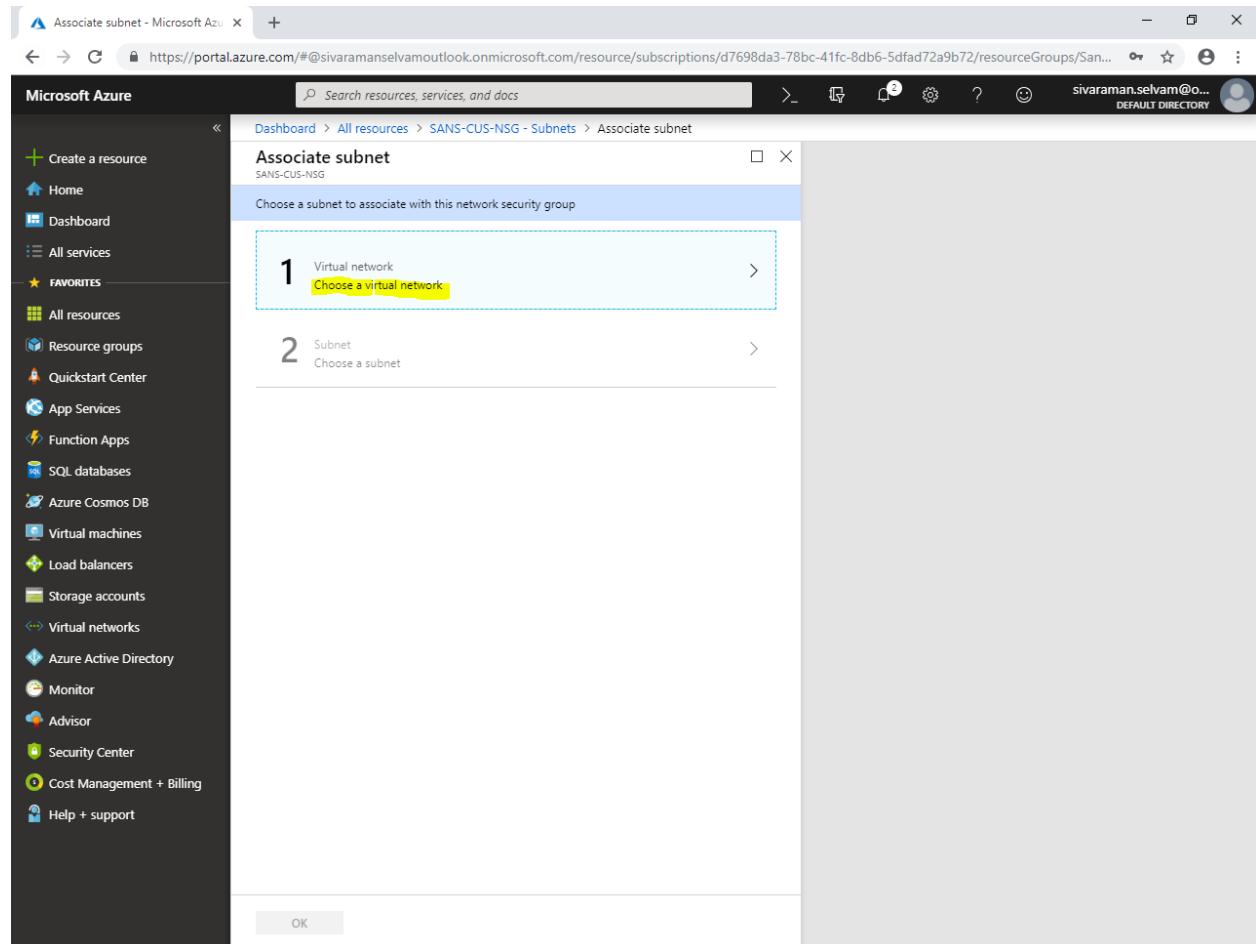
Click “Associate” to associate the subnet to network security group named “**SANS-CUS-NSG**”.



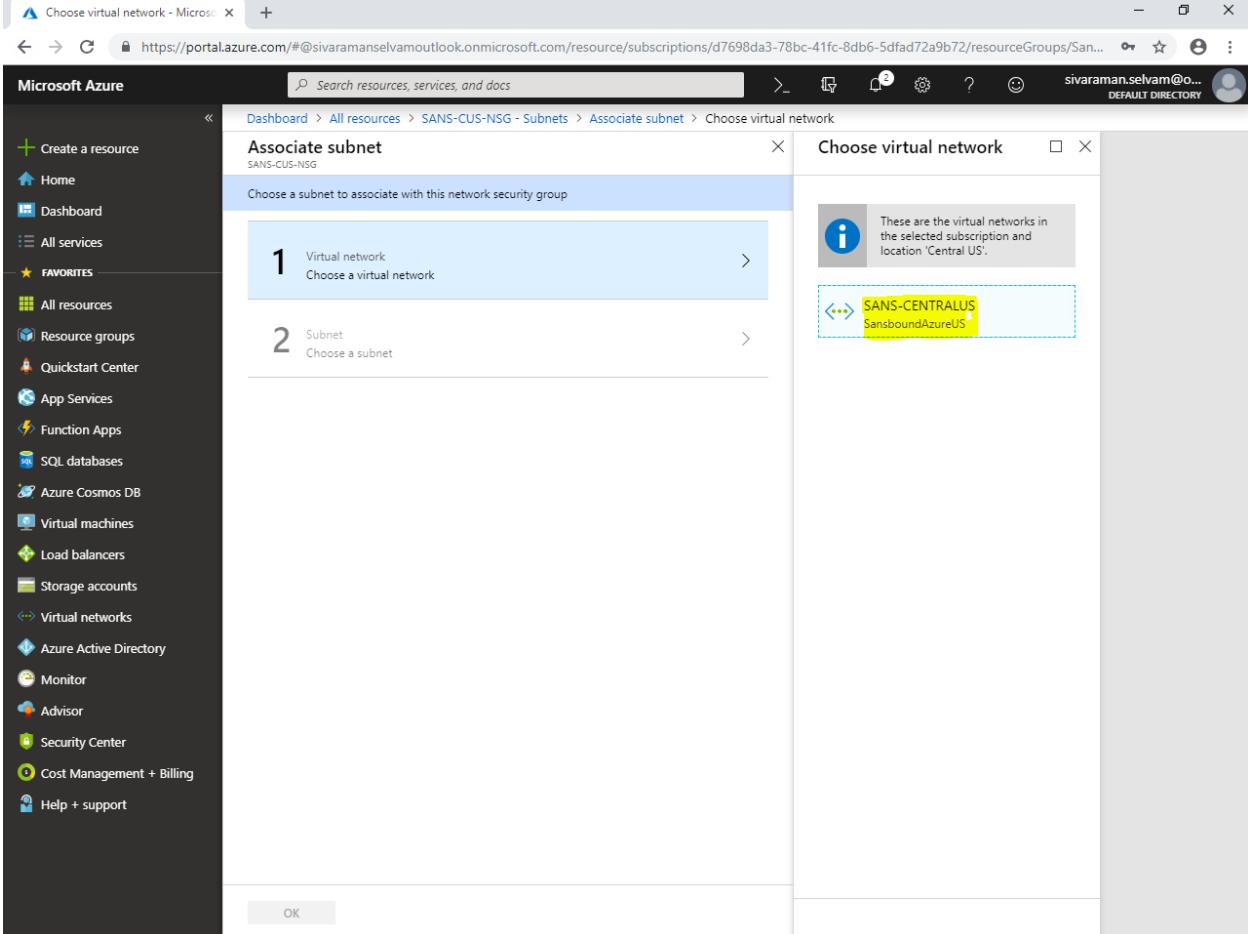
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons. The main content area is titled "SANS-CUS-NSG - Subnets". On the right, there is a table with columns: NAME, ADDRESS RANGE, and VIRTUAL NETWORK. A search bar labeled "Search subnets" is present above the table. At the top right of the main content area, there is a button labeled "+ Associate". The entire "+ Associate" button is highlighted with a yellow box.

While “Associate subnet”,

Click “Choose a virtual network”.

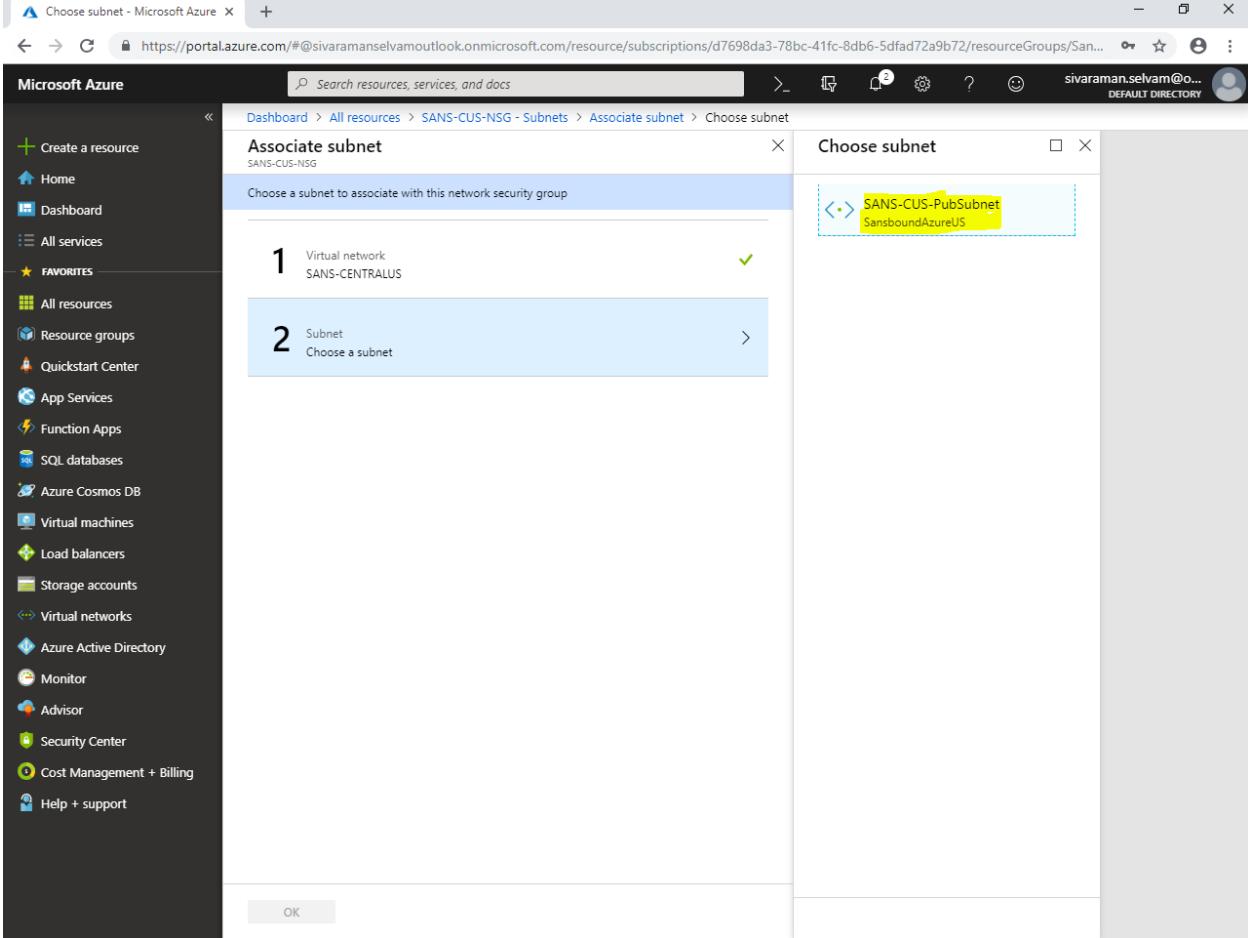


Click on “**SANS-CENTRALUS**” virtual network to select.



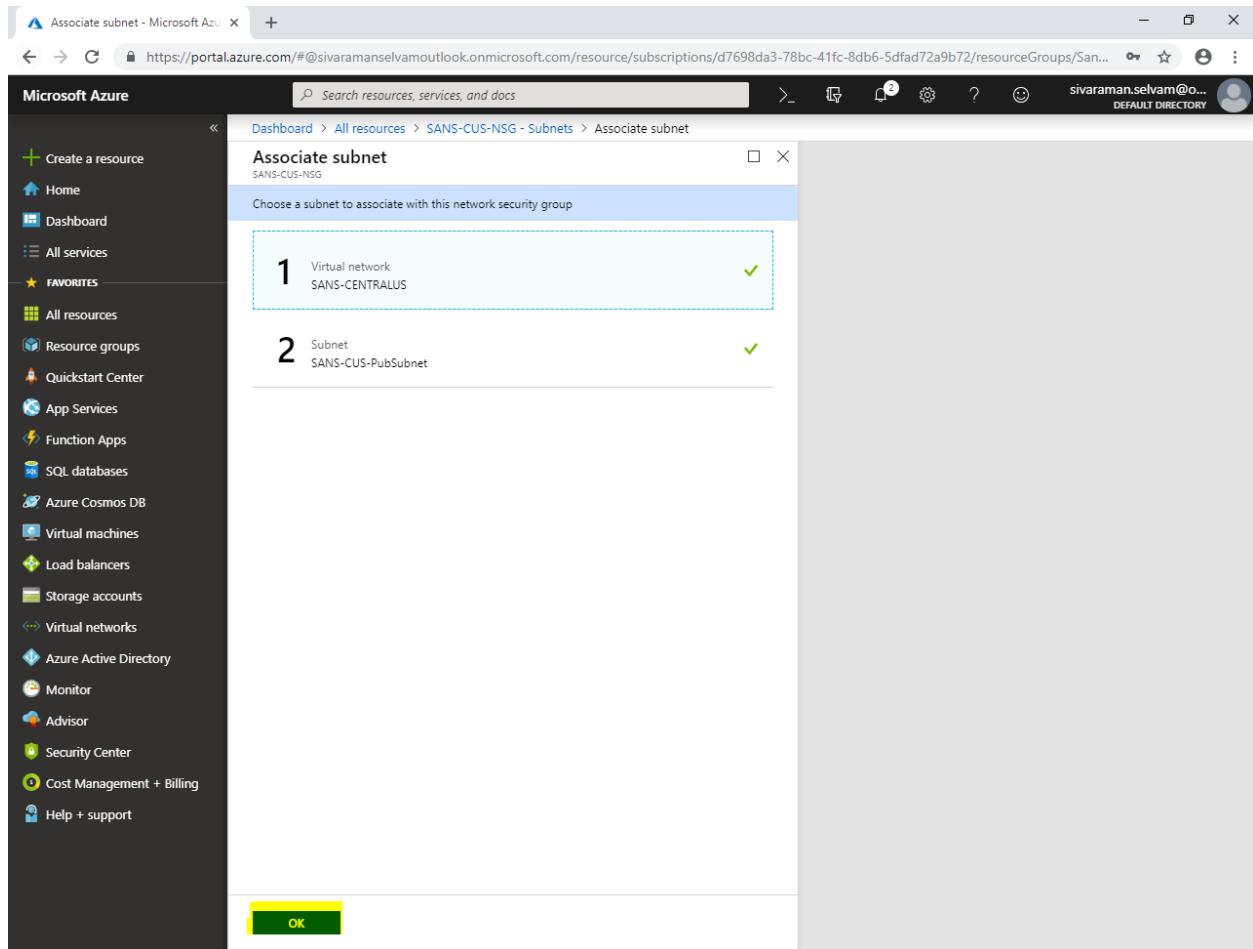
The screenshot shows the Microsoft Azure portal interface. The user is navigating through the 'Associate subnet' wizard. The first step, 'Choose a virtual network', displays a list of virtual networks under the subscription 'SANS-CUS-NSG'. One virtual network, 'SANS-CENTRALUS', is highlighted with a yellow box and a callout, indicating it is selected. The second step, 'Choose a subnet', is visible below. The left sidebar contains the Azure navigation menu with various service icons and links like Home, Dashboard, All services, Favorites, and Resource groups. The top right corner shows the user's email (sivaraman.selvam@o...), the default directory, and other account settings.

To “Choose a subnet” click on “**SANS-CUS-PubSubnet**”.

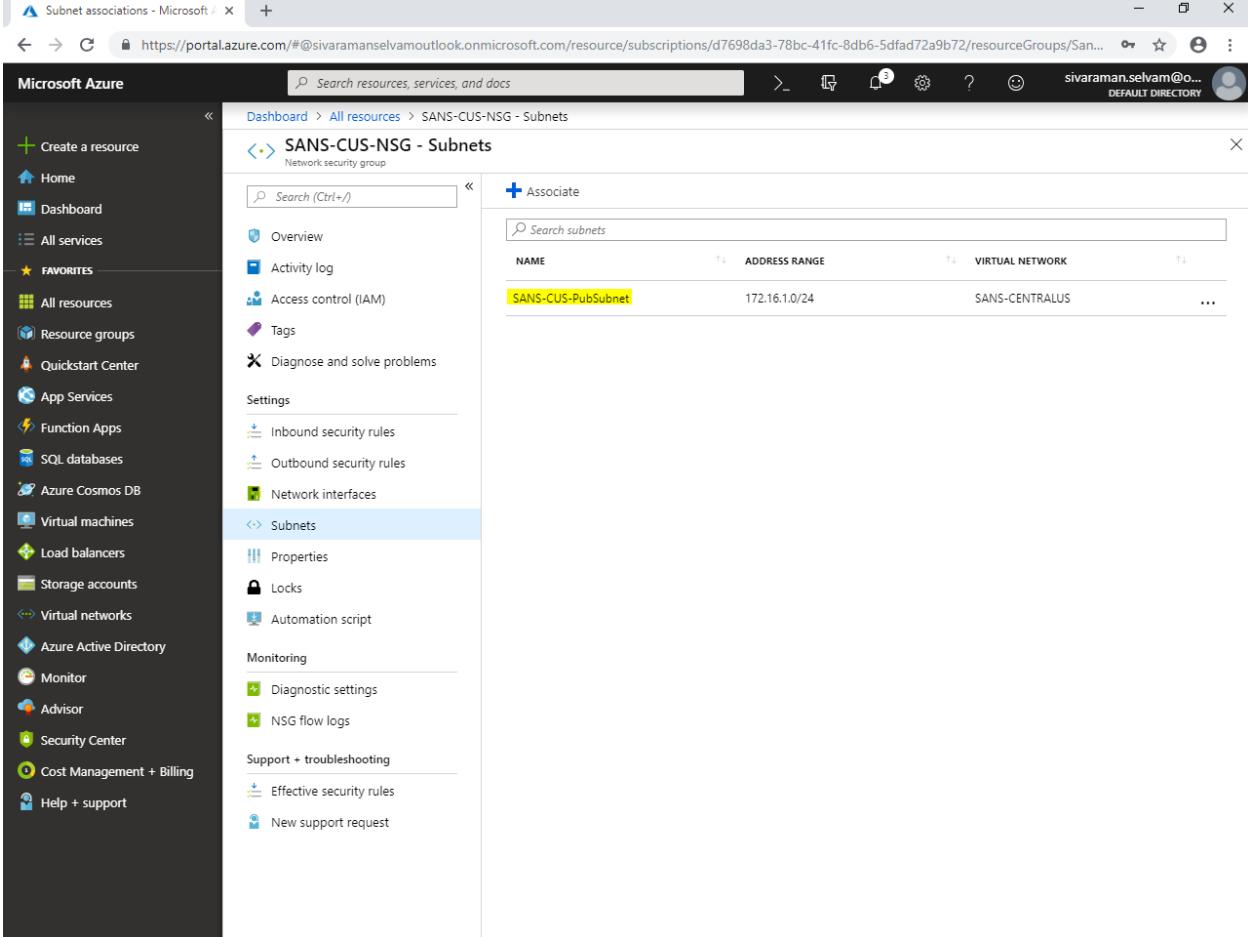


The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various service icons. The main area has a breadcrumb navigation path: Dashboard > All resources > SANS-CUS-NSG - Subnets > Associate subnet > Choose subnet. The current step is labeled 'Associate subnet' under 'SANS-CUS-NSG'. Step 1 shows a list of 'Virtual network' items, with 'SANS-CENTRALUS' selected. Step 2 shows a list of 'Subnet' items, with 'Choose a subnet' highlighted. A yellow box highlights the 'SANS-CUS-PubSubnet' item in the list, which is part of the 'SansboundAzureUS' subnet group. At the bottom of the dialog, there's an 'OK' button.

Click "Ok".



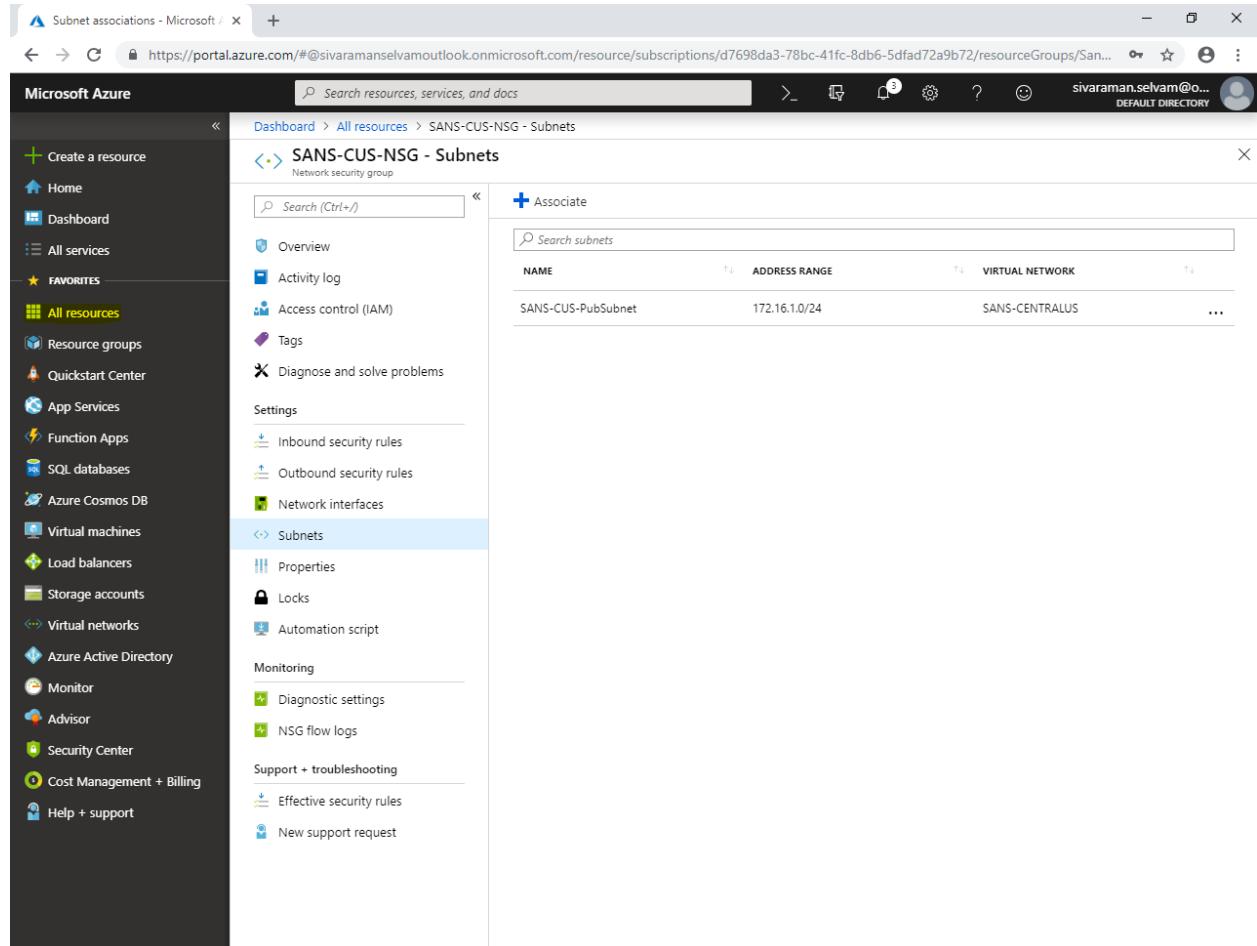
You have successfully associated “**SANS-CUS-PubSubnet**” with “**SANS-CUS-NSG**” network security group.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons. The main content area is titled "SANS-CUS-NSG - Subnets". On the right, there is a table titled "Associate" showing the subnet "SANS-CUS-PubSubnet" associated with the virtual network "SANS-CENTRALUS".

NAME	ADDRESS RANGE	VIRTUAL NETWORK
SANS-CUS-PubSubnet	172.16.1.0/24	SANS-CENTRALUS

Click “All resources”.

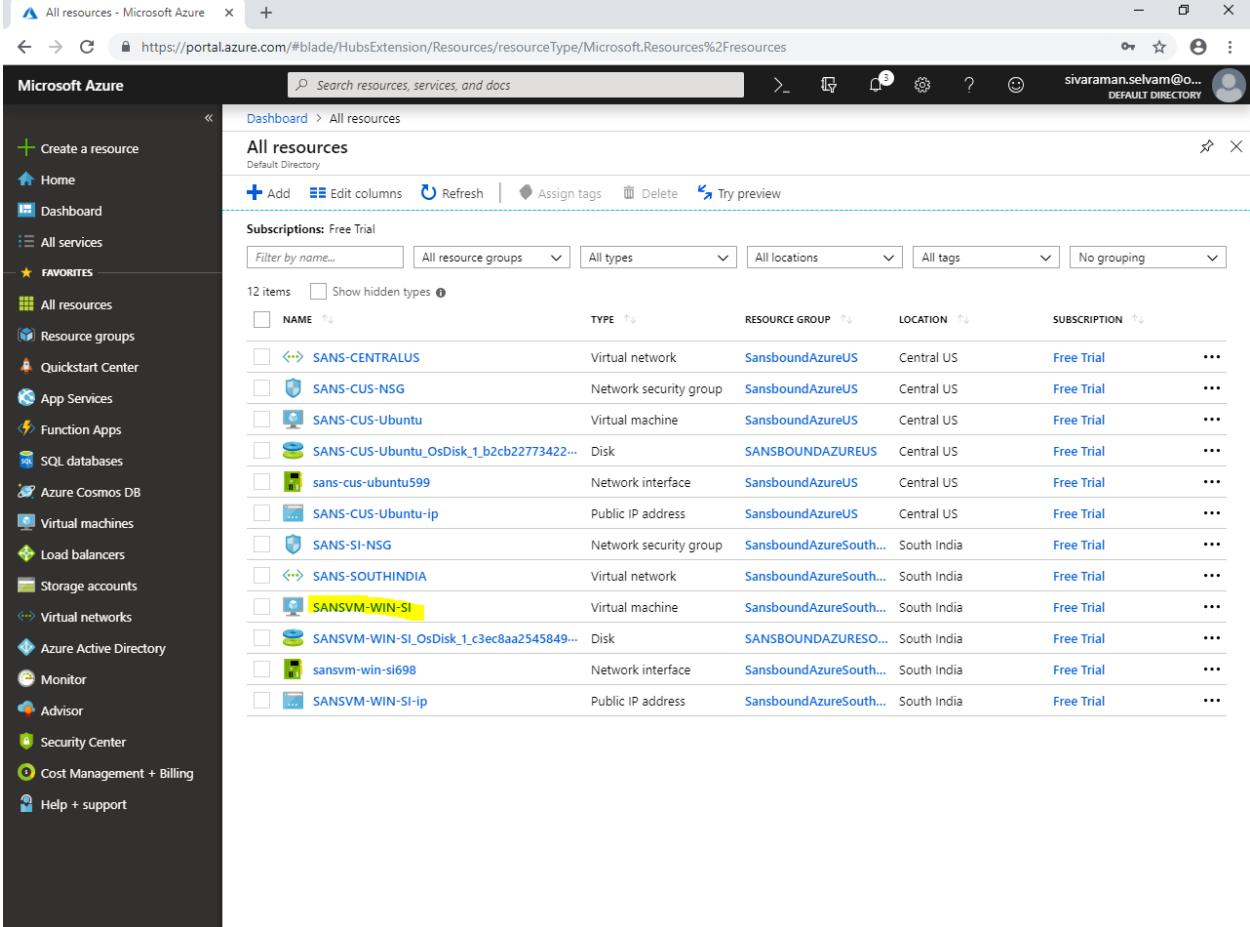


The screenshot shows the Microsoft Azure portal interface. The left sidebar is the navigation menu with various service icons. The main content area is titled "SANS-CUS-NSG - Subnets". On the right, there is a table listing subnets. One row is visible:

NAME	ADDRESS RANGE	VIRTUAL NETWORK	...
SANS-CUS-PubSubnet	172.16.1.0/24	SANS-CENTRALUS	...

In “All resources”,

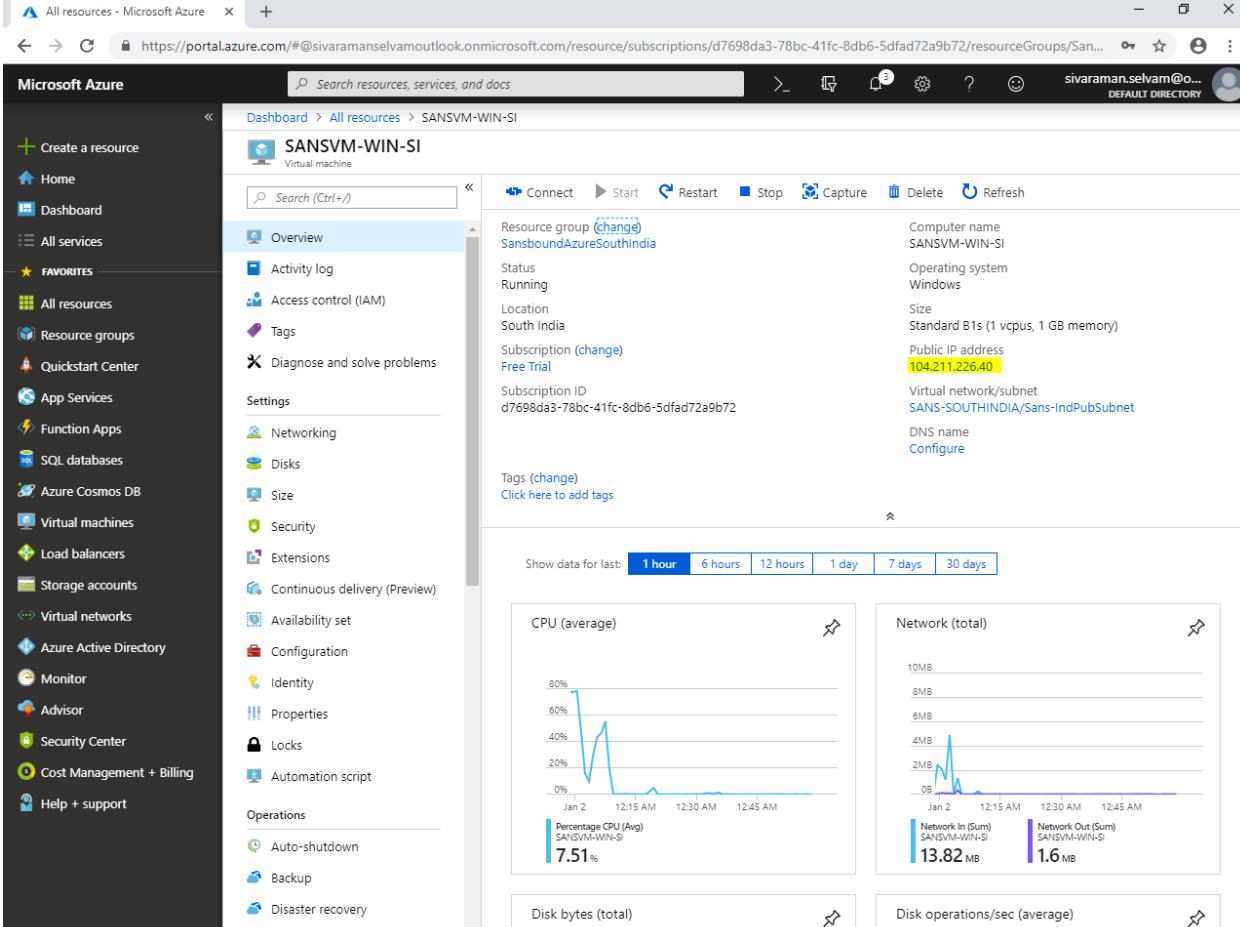
Click “**SANSVM-WIN-SI**”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is titled "Microsoft Azure" and includes sections for "Create a resource", "Home", "Dashboard", "All services", and "FAVORITES". Under "FAVORITES", there are links to "All resources", "Resource groups", "Quickstart Center", "App Services", "Function Apps", "SQL databases", "Azure Cosmos DB", "Virtual machines", "Load balancers", "Storage accounts", "Virtual networks", "Azure Active Directory", "Monitor", "Advisor", "Security Center", "Cost Management + Billing", and "Help + support". The main content area is titled "All resources" and shows a list of 12 items. The columns are NAME, TYPE, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. The resources listed are:

NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-CENTRALUS	Virtual network	SansboundAzureUS	Central US	Free Trial
SANS-CUS-NSG	Network security group	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu	Virtual machine	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu_OsDisk_1_b2cb2773422...	Disk	SANSBOUNDAZUREUS	Central US	Free Trial
sans-cus-ubuntu599	Network interface	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu-ip	Public IP address	SansboundAzureUS	Central US	Free Trial
SANS-SI-NSG	Network security group	SansboundAzureSouth...	South India	Free Trial
SANS-SOUTHINDIA	Virtual network	SansboundAzureSouth...	South India	Free Trial
<b>SANSVM-WIN-SI</b>	Virtual machine	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI_OsDisk_1_c3ec8aa2545849...	Disk	SANSBOUNDAZURESO...	South India	Free Trial
sansvm-win-si698	Network interface	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI-ip	Public IP address	SansboundAzureSouth...	South India	Free Trial

Kindly note the Public IP address of **SANSVM-WIN-SI** virtual machine.



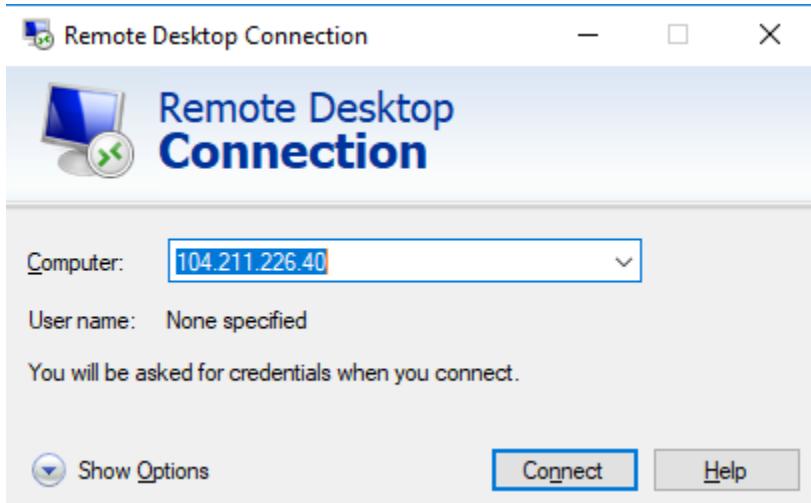
The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is visible with various service icons. The main content area is titled "SANSVM-WIN-SI" under "Virtual machine". The "Overview" tab is selected. Key details shown include:

- Resource group: SansboundAzureSouthIndia
- Status: Running
- Location: South India
- Subscription: Free Trial
- Subscription ID: d7698da3-78bc-41fc-8db6-5dfad72a9b72
- Public IP address: **104.211.226.40** (highlighted in yellow)
- Computer name: SANSVM-WIN-SI
- Operating system: Windows
- Size: Standard B1s (1 vcpus, 1 GB memory)
- Virtual network/subnet: SANS-SOUTHINDIA/Sans-IndPubSubNet
- DNS name: Configure

Below the details, there are four performance charts: CPU (average), Network (total), Disk bytes (total), and Disk operations/sec (average). The CPU chart shows a peak of 7.51% usage on Jan 2 at 12:15 AM. The Network chart shows Network In (Sum) at 13.82 MB and Network Out (Sum) at 1.6 MB.

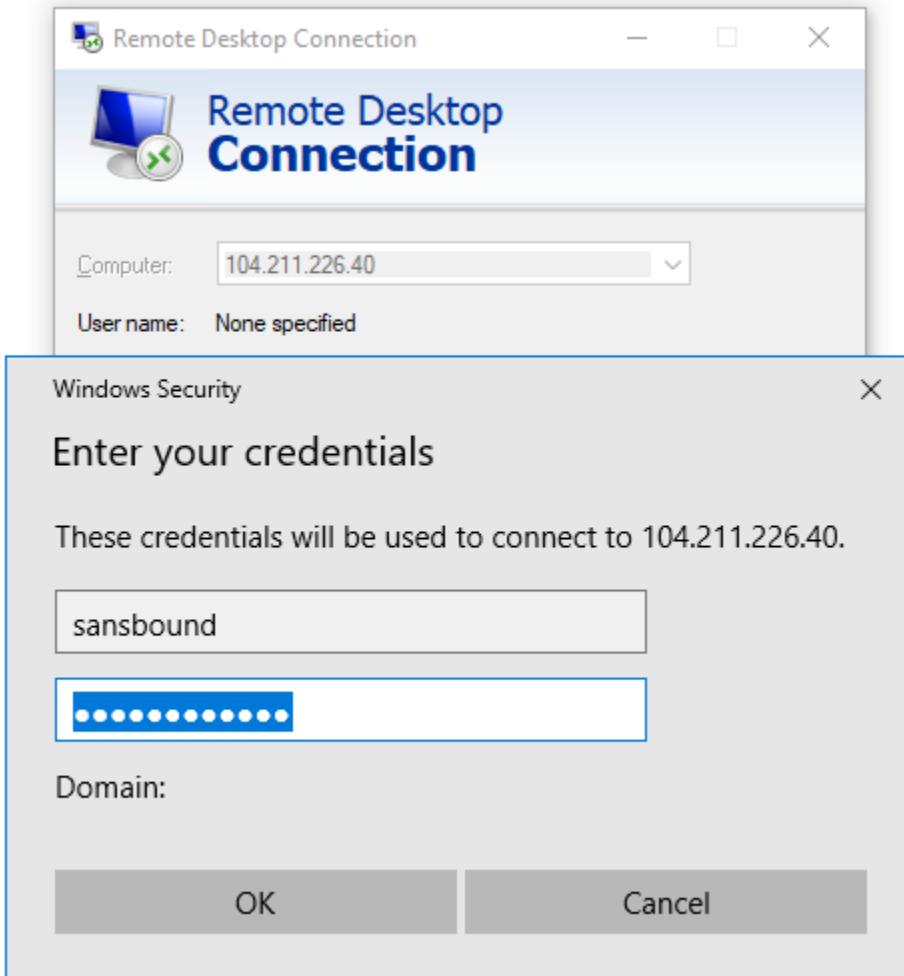
In your local machine, type “**mstsc**” in Run box and press “**Enter**”.

Type the Public IP address of Windows server 2008 R2 which you have got from Azure portal.



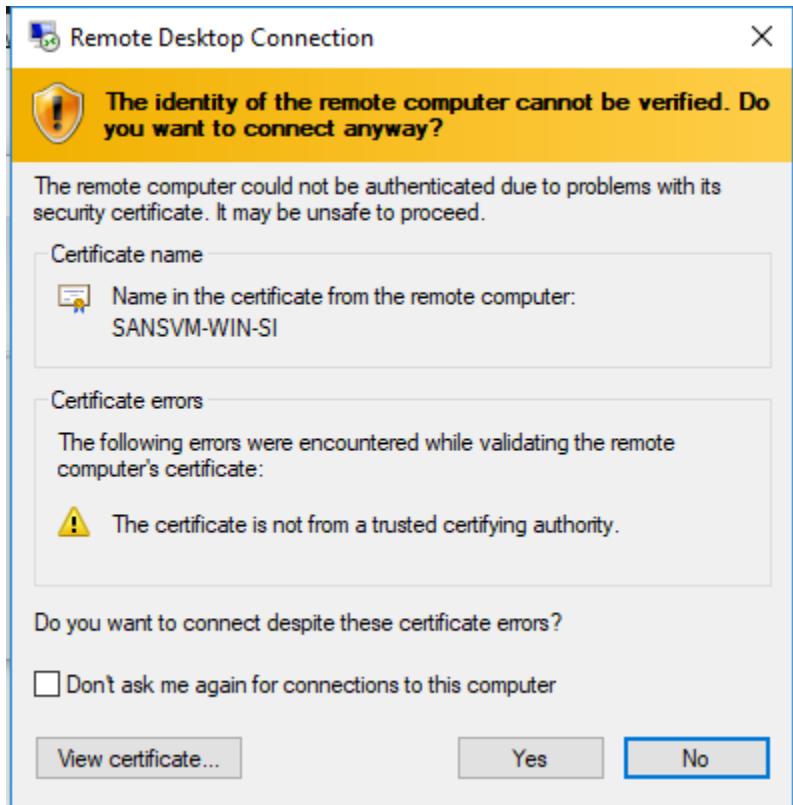
Click “**Connect**”.

Type username and password of the windows server 2008 R2 server.



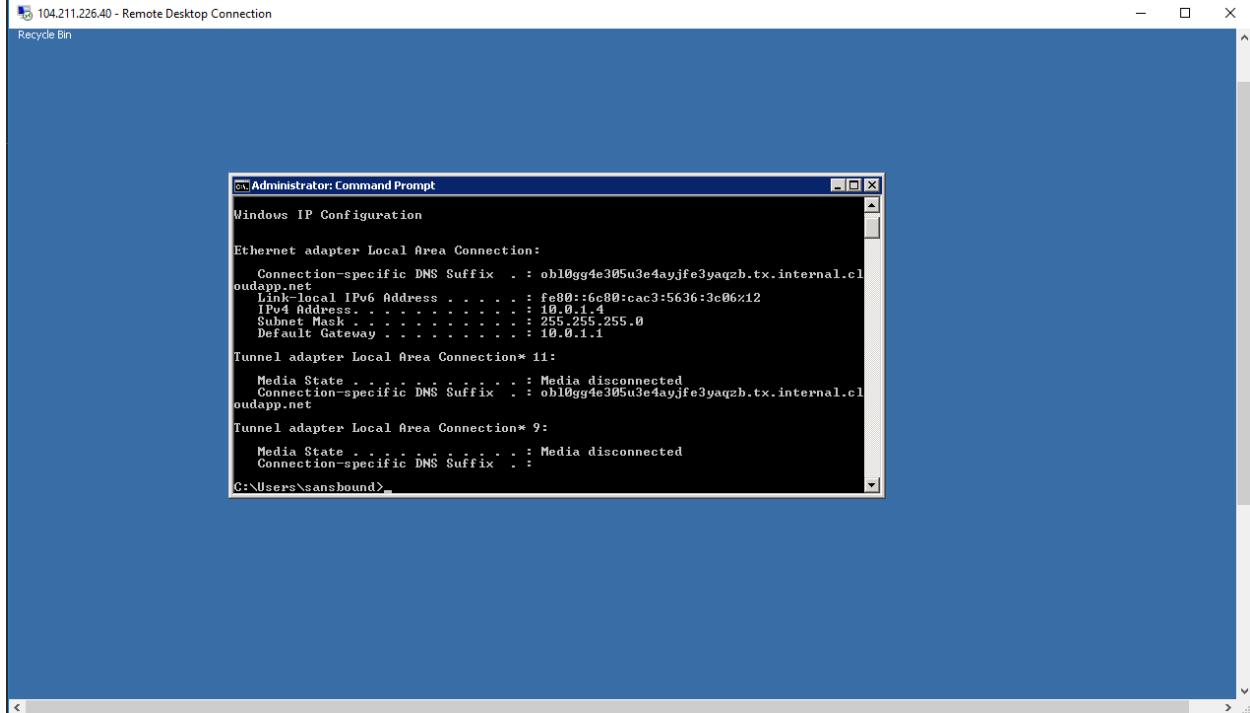
Click "**Ok**".

Click "Yes".

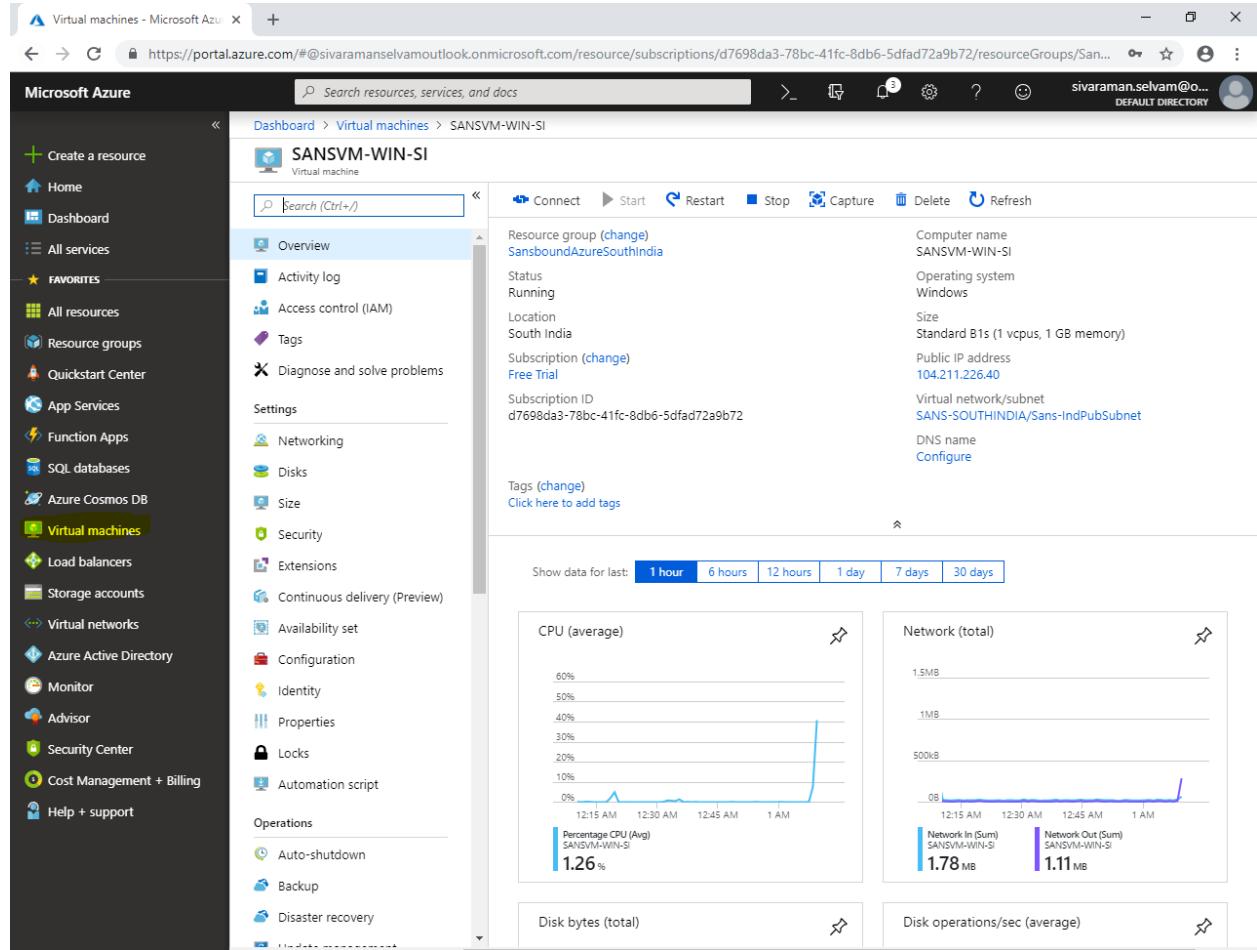


You have successfully logged into Windows 2008 R2 server.

In command prompt, type “**ipconfig**” and press “**Enter**”.



Click “Virtual machines” in left side panel.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is collapsed, showing the "Virtual machines" option under the "All services" section. The main content area displays the details for a virtual machine named "SANSVM-WIN-SI".

**Virtual machine Overview:**

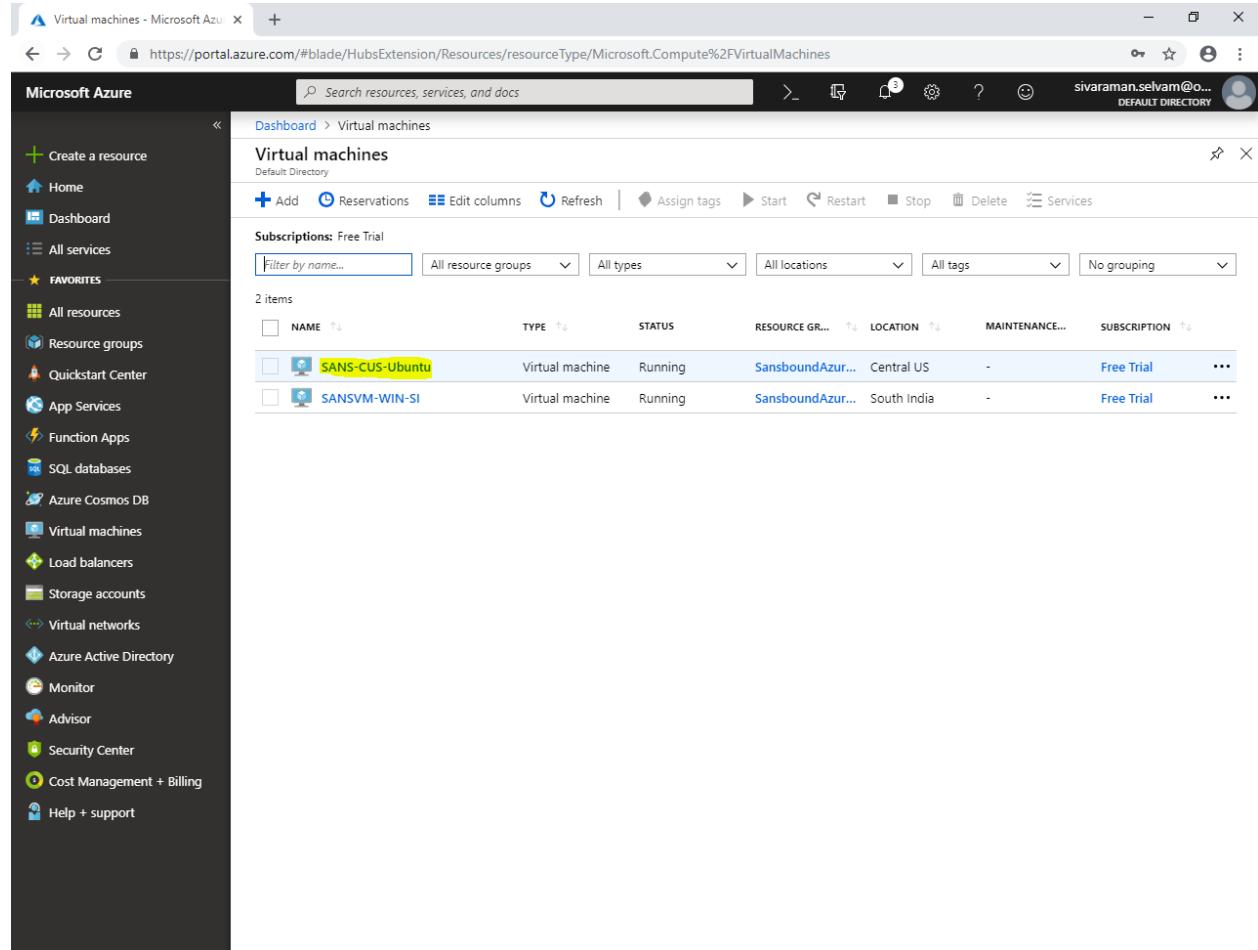
- Resource group:** SansboundAzureSouthIndia
- Status:** Running
- Location:** South India
- Subscription:** Free Trial (d7698da3-78bc-41fc-8db6-5dfad72a9b72)
- Computer name:** SANSVM-WIN-SI
- Operating system:** Windows
- Size:** Standard B1s (1 vcpus, 1 GB memory)
- Public IP address:** 104.211.226.40
- Virtual network/subnet:** SANS-SOUTHINDIA/Sans-IndPubSubNet
- DNS name:** Configure

**Metrics:**

- CPU (average):** Percentage CPU (Avg) SANSVM-WIN-SI: 1.26%
- Network (total):** Network In (Sum) SANSVM-WIN-SI: 1.78 MB; Network Out (Sum) SANSVM-WIN-SI: 1.11 MB
- Disk bytes (total):**
- Disk operations/sec (average):**

**Actions:** Connect, Start, Restart, Stop, Capture, Delete, Refresh

Click virtual machine named "**SANS-CUS-Ubuntu**".



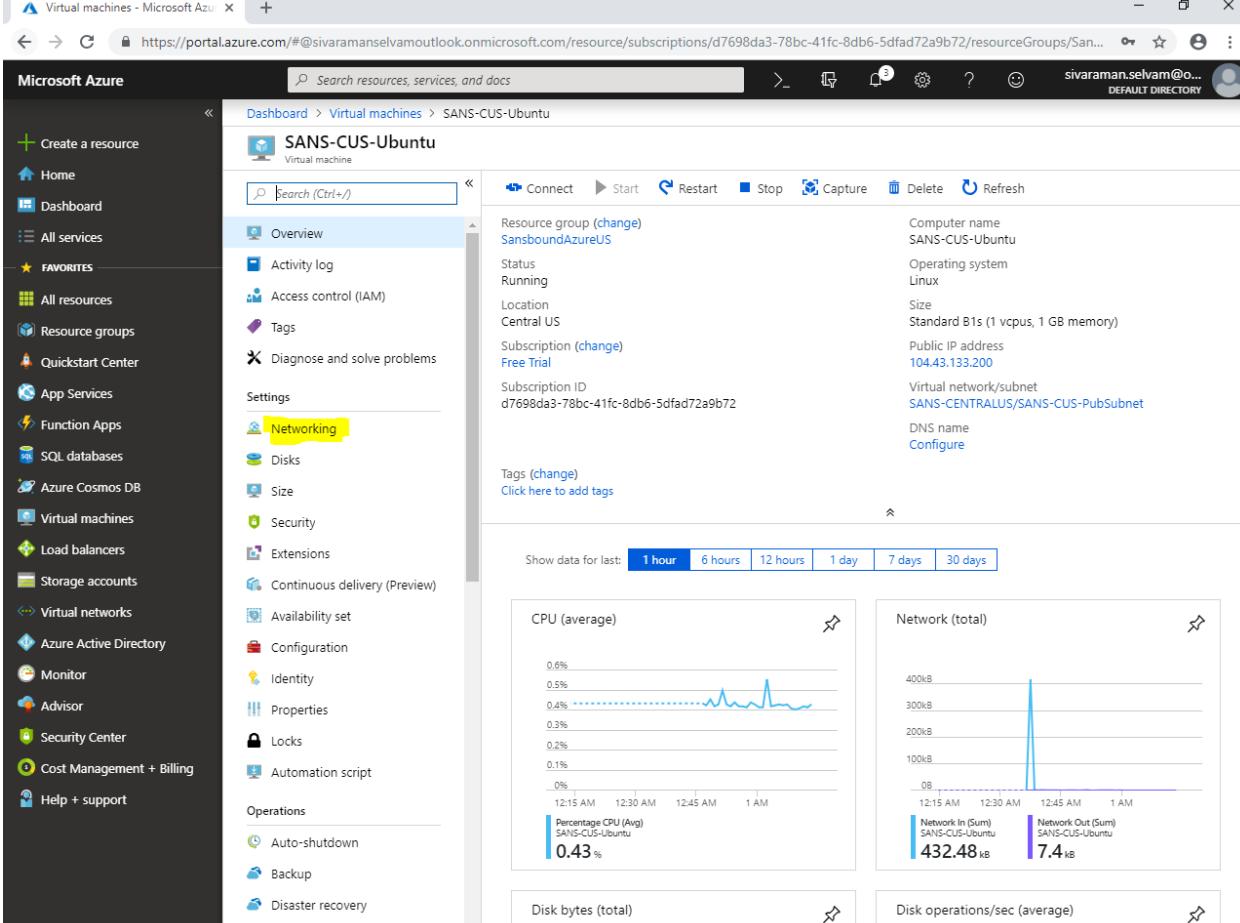
The screenshot shows the Microsoft Azure portal interface. The left sidebar is the navigation menu, and the main area is the "Virtual machines" blade under the "Compute" category. The URL in the browser is https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Compute%2FVirtualMachines.

**Virtual machines** (Default Directory)

NAME	TYPE	STATUS	RESOURCE GR...	LOCATION	MAINTENANCE...	SUBSCRIPTION
SANS-CUS-Ubuntu	Virtual machine	Running	SansboundAzur...	Central US	-	Free Trial
SANVM-WIN-SI	Virtual machine	Running	SansboundAzur...	South India	-	Free Trial

In "SANS-CUS-Ubuntu" virtual machine,

Click "Networking".



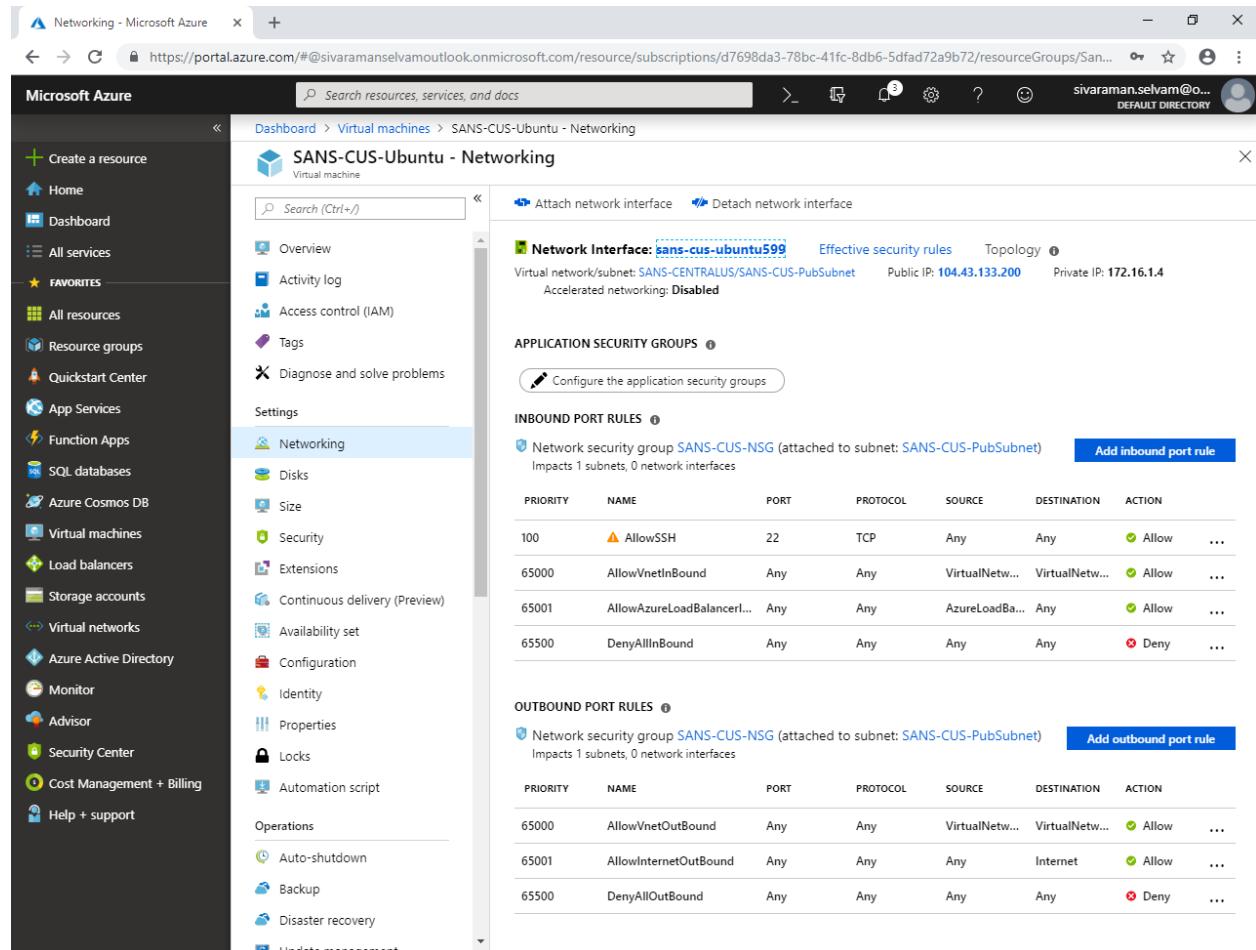
The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing various services like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. Under the Virtual machines section, the "Networking" link is highlighted with a yellow box. The main content area displays the "SANS-CUS-Ubuntu" virtual machine details. The "Overview" tab is selected. Key information shown includes:

- Resource group: SANSboundAzureUS
- Status: Running
- Location: Central US
- Subscription: Free Trial
- Subscription ID: d7698da3-78bc-41fc-8db6-5dfad72a9b72
- Computer name: SANS-CUS-Ubuntu
- Operating system: Linux
- Size: Standard B1s (1 vcpus, 1 GB memory)
- Public IP address: 104.43.133.200
- Virtual network/subnet: SANS-CENTRALUS/SANS-CUS-PubSubNet
- DNS name: Configure

Below the overview, there are four performance charts: CPU (average), Network (total), Disk bytes (total), and Disk operations/sec (average). The CPU chart shows an average of 0.43%. The Network chart shows Network In (Sum) at 432.48 kB and Network Out (Sum) at 7.4 kB.

In “Networking”,

Kindly note the public IP address and private IP address of **SANS-CUS-Ubuntu** virtual machine.



The screenshot shows the Microsoft Azure portal interface for managing the networking of a virtual machine named "SANS-CUS-Ubuntu". The left sidebar contains various service icons, and the main content area is titled "SANS-CUS-Ubuntu - Networking". The "Networking" tab is selected under the "Settings" section. Key details shown include:

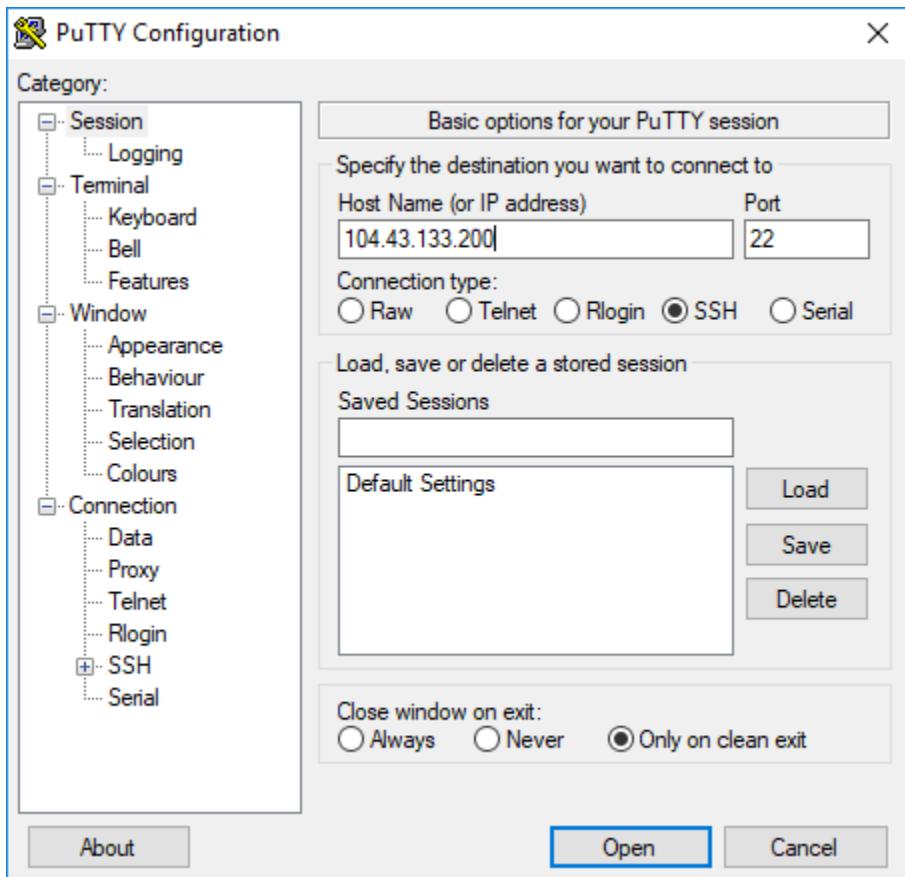
- Network Interface:** `sans-cus-ubuntu599` (highlighted in blue)
- Effective security rules**: None listed
- Topology**: `104.43.133.200` (Public IP)
- Accelerated networking**: `Disabled`
- Virtual network/subnet**: `SANS-CENTRALUS/SANS-CUS-PubSubnet`
- Private IP**: `172.16.1.4`
- APPLICATION SECURITY GROUPS**: None listed
- INBOUND PORT RULES**:
  - Network security group `SANS-CUS-NSG` (attached to subnet: `SANS-CUS-PubSubnet`)
  - Impacts 1 subnets, 0 network interfaces
  - Add inbound port rule
  - Table:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
100	AllowSSH	22	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetw...	VirtualNetw...	Allow
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBa...	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
- OUTBOUND PORT RULES**:
  - Network security group `SANS-CUS-NSG` (attached to subnet: `SANS-CUS-PubSubnet`)
  - Impacts 1 subnets, 0 network interfaces
  - Add outbound port rule
  - Table:

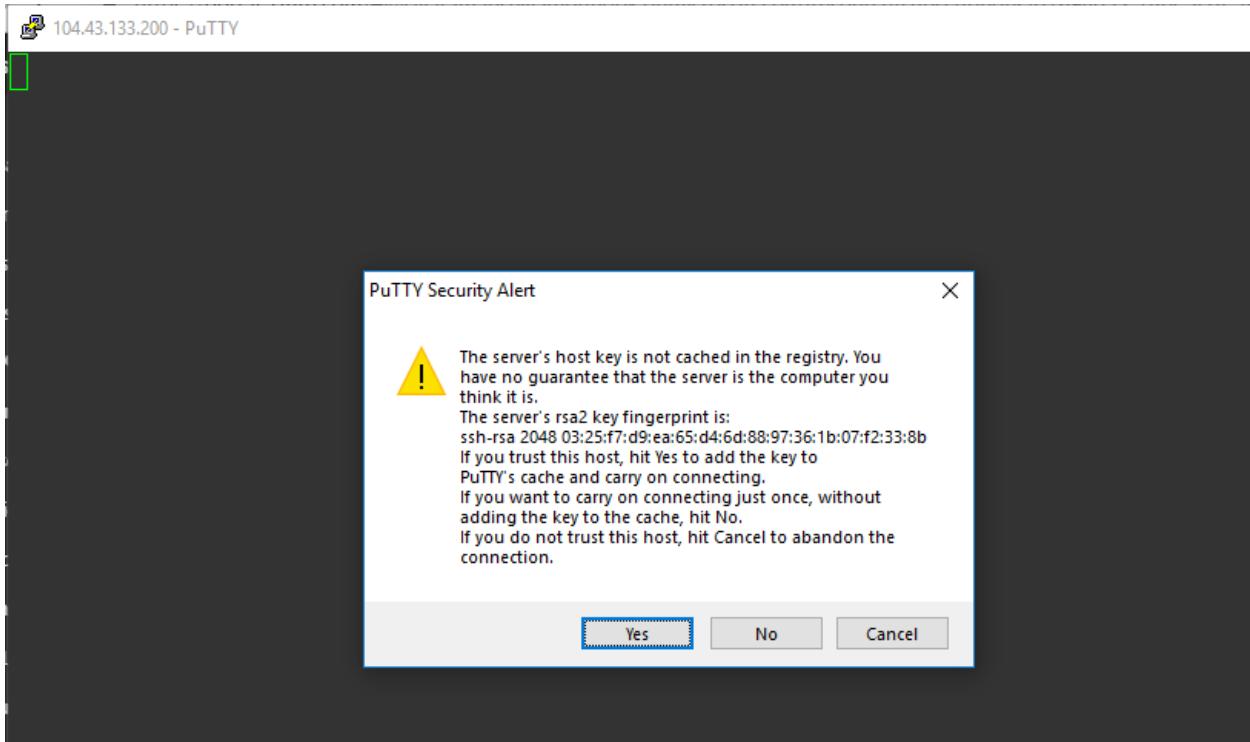
PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetOutBound	Any	Any	VirtualNetw...	VirtualNetw...	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

In your local machine, launch putty.exe

Type Public IP address of the Ubuntu and click “Open”.

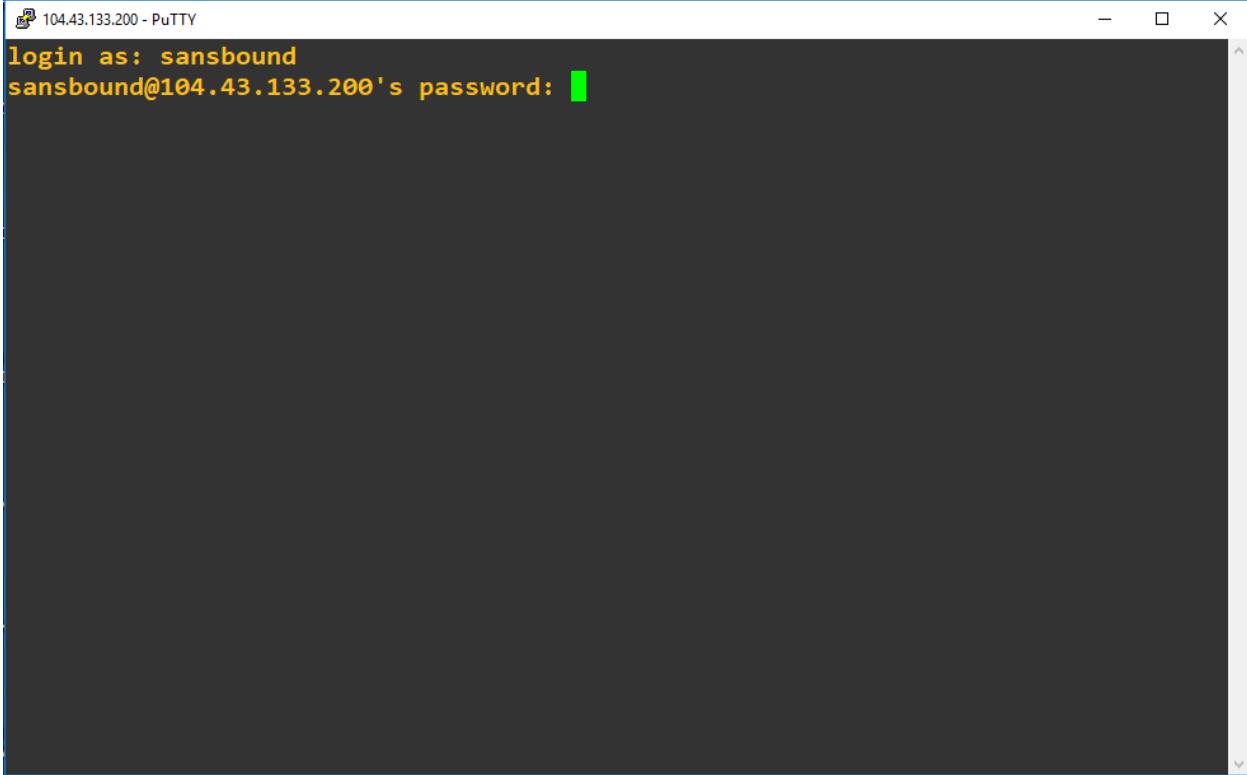


Click “Yes”.



Type “**username**” and press “**Enter**”.

Type “**Password**” and press “**Enter**”.



A screenshot of a PuTTY terminal window titled "104.43.133.200 - PuTTY". The window shows a login prompt: "login as: sansbound" followed by "sansbound@104.43.133.200's password: [redacted]". The password field is redacted with a green rectangular box. The background of the terminal is dark gray, and the text is white.

You have logged into Ubuntu successfully.

```
sansbound@sANS-CUS-Ubuntu: ~
* Full K8s GPU support is now available!
- https://blog.ubuntu.com/2018/12/10/using-gpgpus-with-kubernetes

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

3 packages can be updated.
3 updates are security updates.

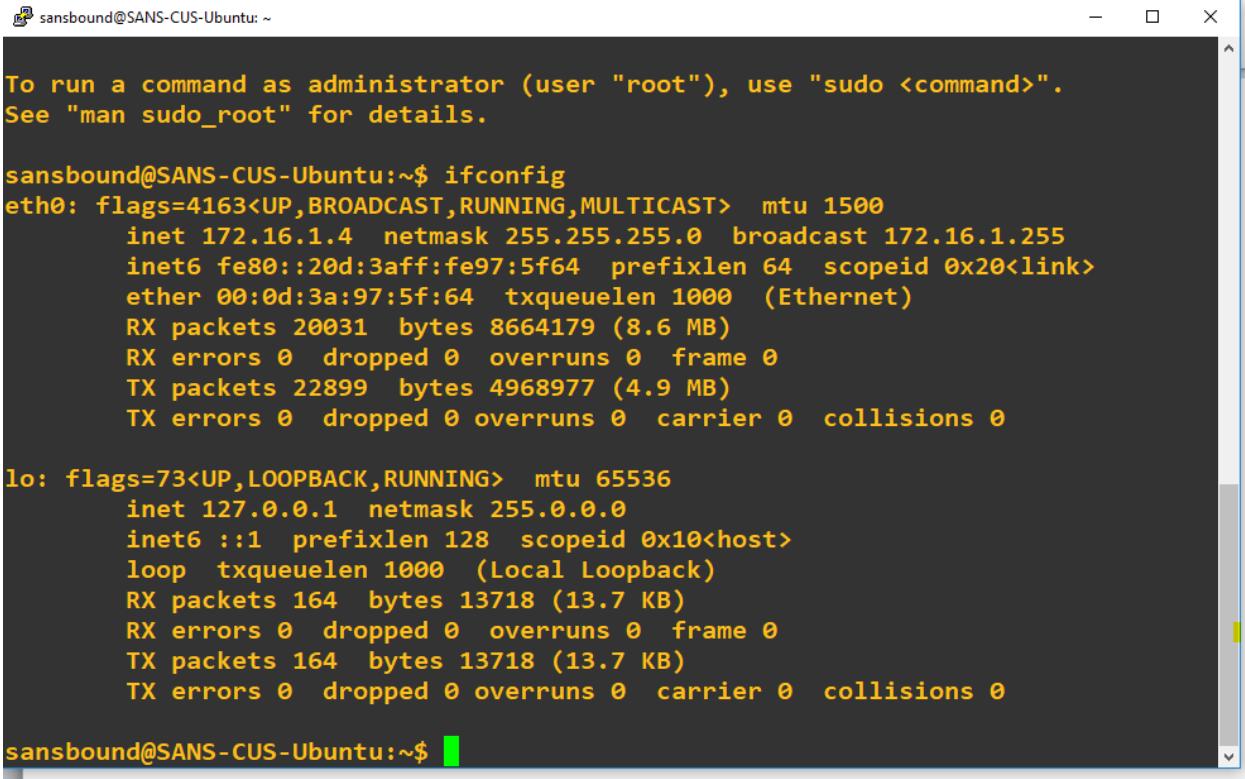
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

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.

sansbound@sANS-CUS-Ubuntu:~$
```

Type “**ifconfig**” and press “**Enter**”.



```
sansbound@sANS-CUS-Ubuntu:~$ ifconfig
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
      inet 172.16.1.4 netmask 255.255.255.0 broadcast 172.16.1.255
          inet6 fe80::20d:3aff:fe97:5f64 prefixlen 64 scopeid 0x20<link>
            ether 00:0d:3a:97:5f:64 txqueuelen 1000 (Ethernet)
              RX packets 20031 bytes 8664179 (8.6 MB)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 22899 bytes 4968977 (4.9 MB)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

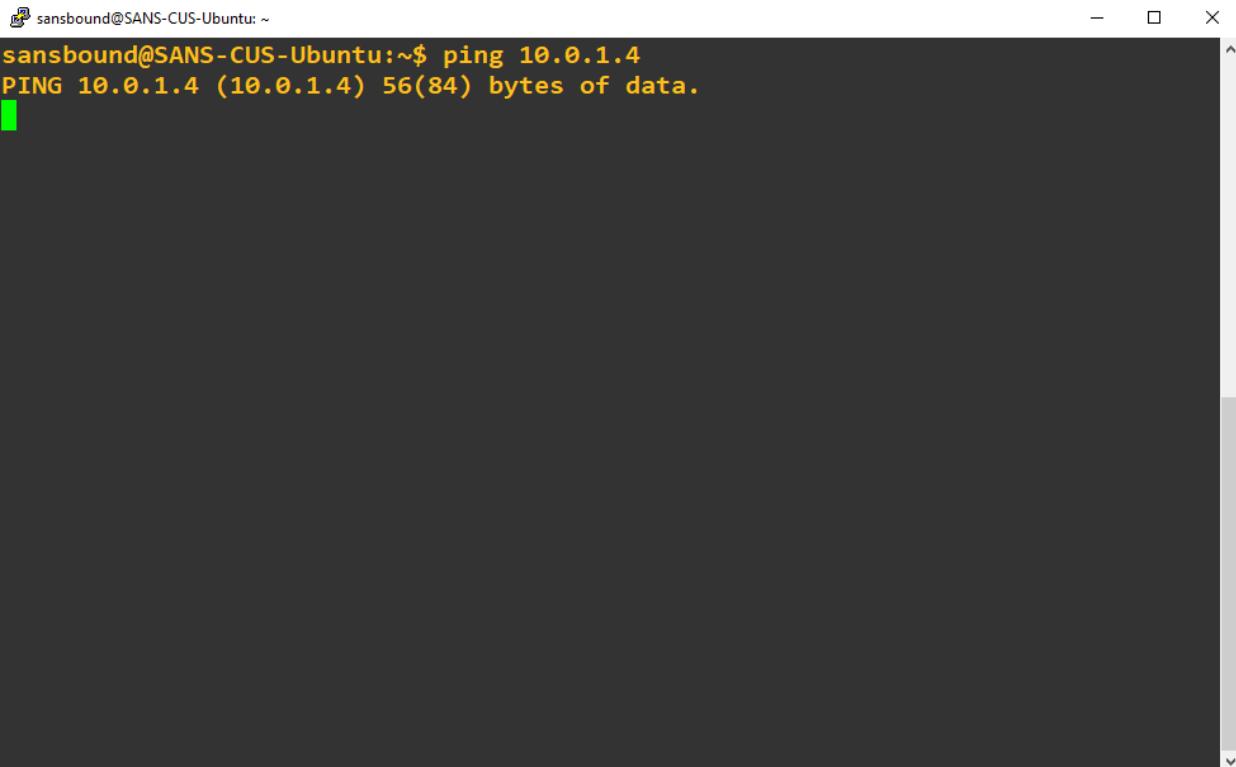
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
      inet 127.0.0.1 netmask 255.0.0.0
          inet6 ::1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 1000 (Local Loopback)
              RX packets 164 bytes 13718 (13.7 KB)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 164 bytes 13718 (13.7 KB)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

sansbound@sANS-CUS-Ubuntu:~$
```

In Ubuntu, type **ping 10.0.1.4** (Windows 2008 R2 server) of “**SANS-SOUTHINDIA**” virtual network in South India region.

But, your Ubuntu virtual machine is running on “Central US” region with “**SANS-CENTRALUS**” virtual network.

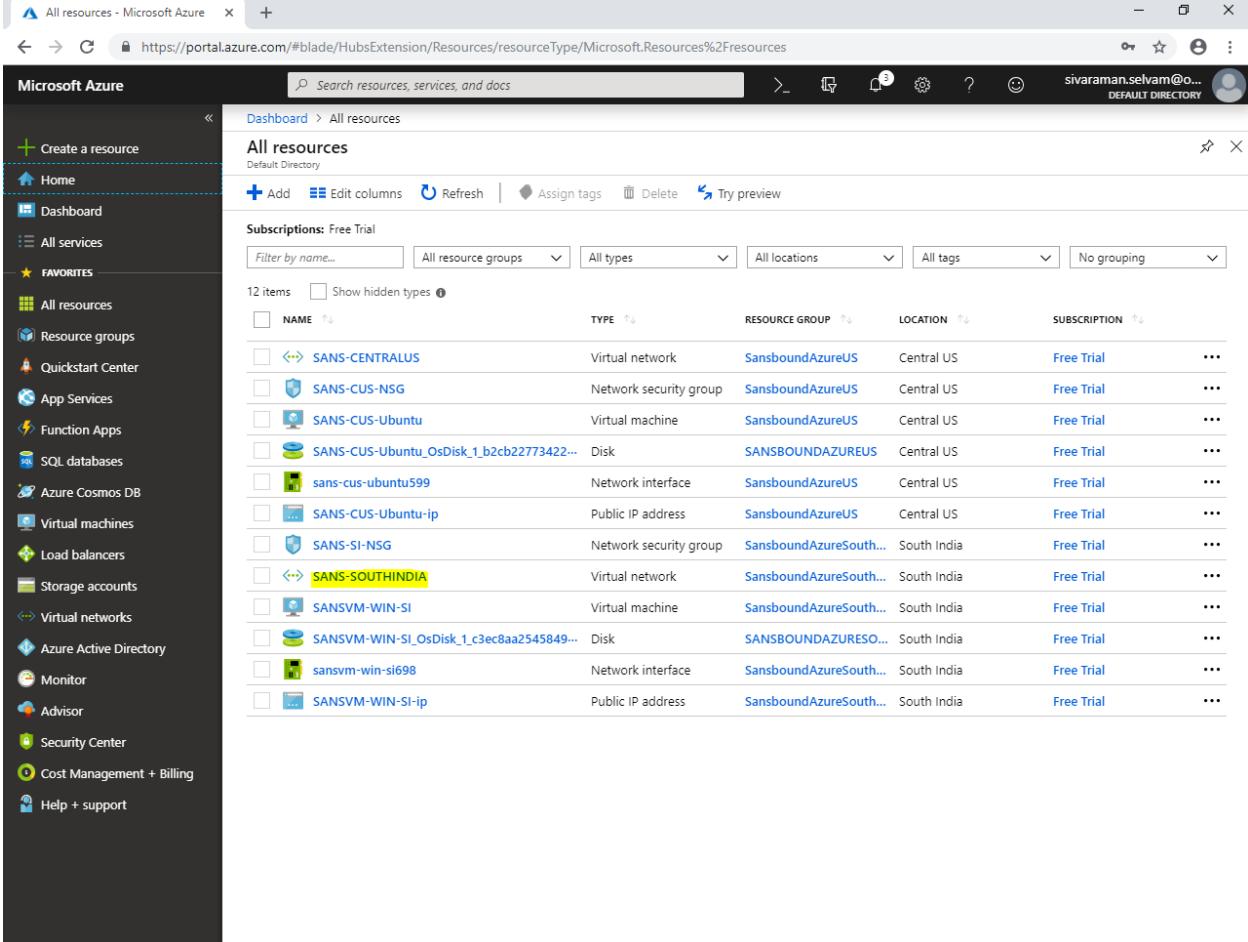
**That's the reason both Virtual networks not communicated with each other. We have required configuring VNET peering on both virtual networks.**



```
sansbound@sans-cus-Ubuntu:~$ ping 10.0.1.4
PING 10.0.1.4 (10.0.1.4) 56(84) bytes of data.
```

In “All resources”,

Click “**SANS-SOUTHINDIA**” virtual network.

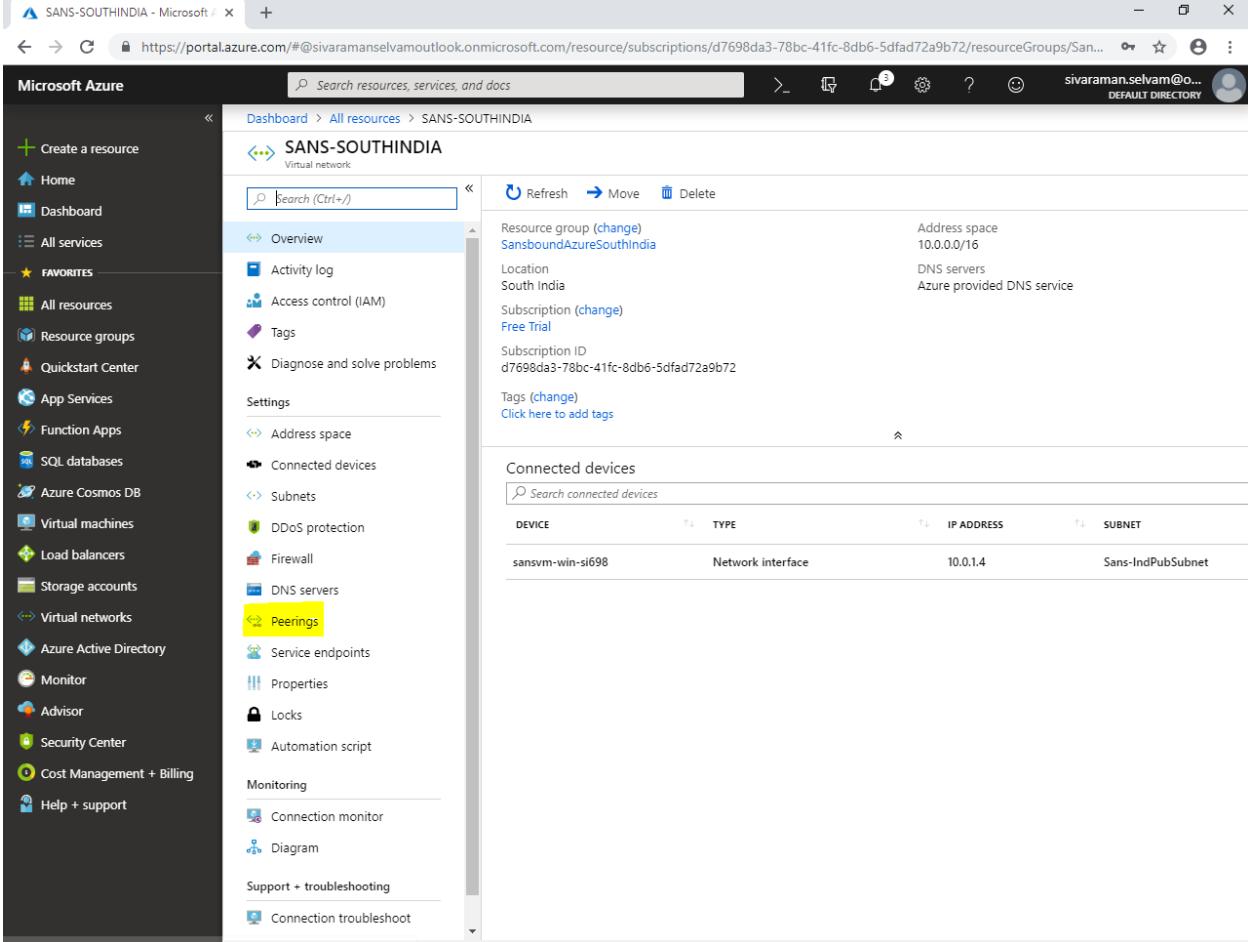


The screenshot shows the Microsoft Azure 'All resources' blade. The left sidebar has 'All resources' selected. The main area displays a table of resources with columns: NAME, TYPE, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. One row, 'SANS-SOUTHINDIA', is highlighted in yellow. The table data is as follows:

NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-CENTRALUS	Virtual network	SansboundAzureUS	Central US	Free Trial
SANS-CUS-NSG	Network security group	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu	Virtual machine	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu_OsDisk_1_b2cb22773422...	Disk	SANSBOUNDAZUREUS	Central US	Free Trial
sans-cus-ubuntu599	Network interface	SansboundAzureUS	Central US	Free Trial
SANS-CUS-Ubuntu-ip	Public IP address	SansboundAzureUS	Central US	Free Trial
SANS-SI-NSG	Network security group	SansboundAzureSouth...	South India	Free Trial
SANS-SOUTHINDIA	Virtual network	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI	Virtual machine	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI_OsDisk_1_c3ec8aa2545849...	Disk	SANSBOUNDAZURESO...	South India	Free Trial
sansvm-win-si698	Network interface	SansboundAzureSouth...	South India	Free Trial
SANSVM-WIN-SI-ip	Public IP address	SansboundAzureSouth...	South India	Free Trial

In “**SANS-SOUTHINDIA**” virtual network,

Click “**Peerings**”.



The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is visible with various service icons. The main content area displays the "SANS-SOUTHINDIA" virtual network details. The "Overview" tab is selected. Key information shown includes:

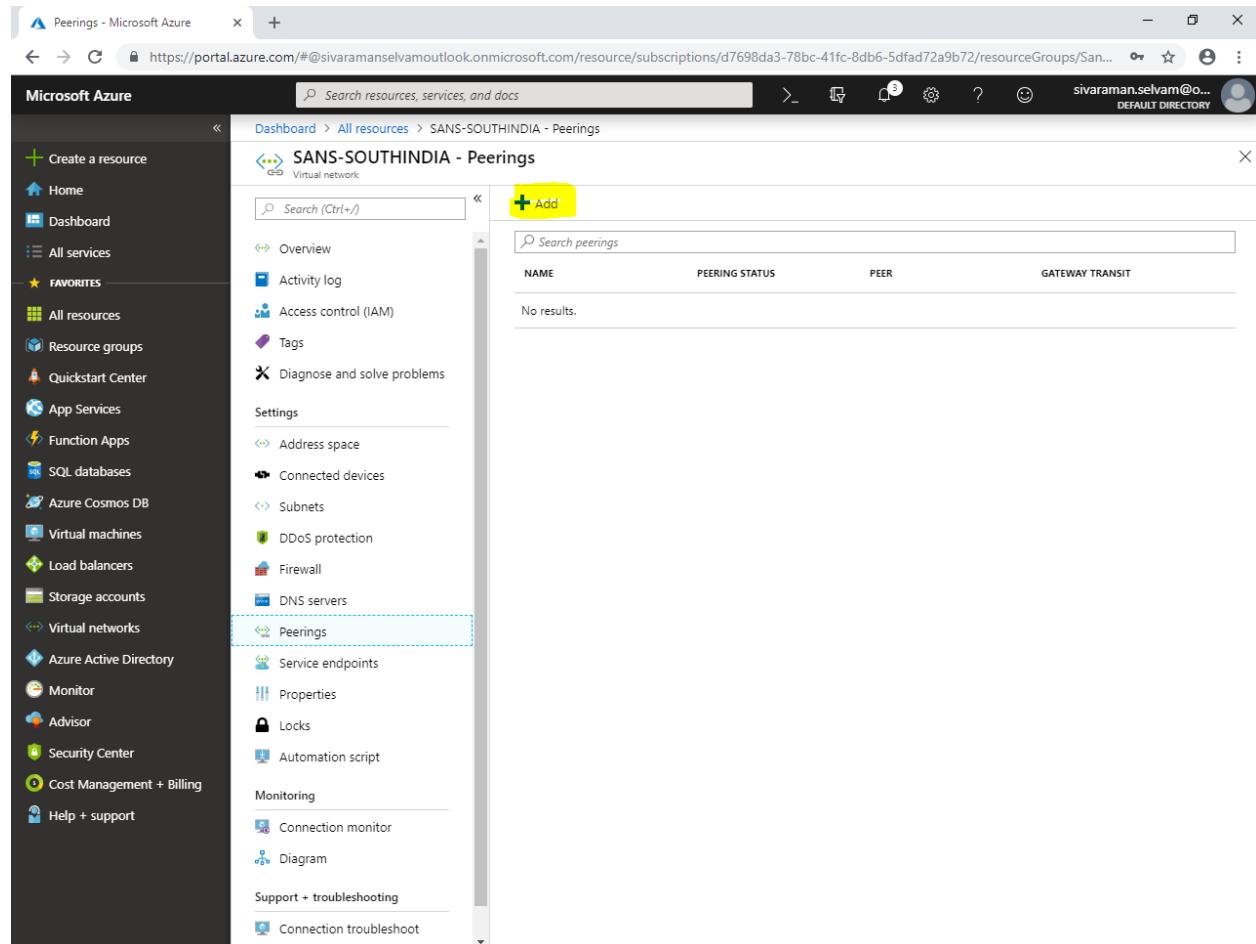
- Resource group: SansboundAzureSouthIndia
- Address space: 10.0.0.0/16
- Location: South India
- Subscription: Free Trial
- Subscription ID: d7698da3-78bc-41fc-8db6-5dfad72a9b72
- DNS servers: Azure provided DNS service

Under the "Connected devices" section, there is one entry:

DEVICE	TYPE	IP ADDRESS	SUBNET
sansvm-win-si698	Network interface	10.0.1.4	Sans-IndPubSubnet

The "Peerings" option in the sidebar is highlighted with a yellow box.

Click "Add".



The screenshot shows the Microsoft Azure portal interface for managing Peering. The left sidebar lists various services, and the main content area shows the 'Peering' section for a specific virtual network named 'SANS-SOUTHINDIA'. A yellow box highlights the '+ Add' button at the top right of the main content area. Below it, there is a search bar labeled 'Search peerings' and a table with columns: NAME, PEERING STATUS, PEER, and GATEWAY TRANSIT. The table displays the message 'No results.'

While “Add peering”,

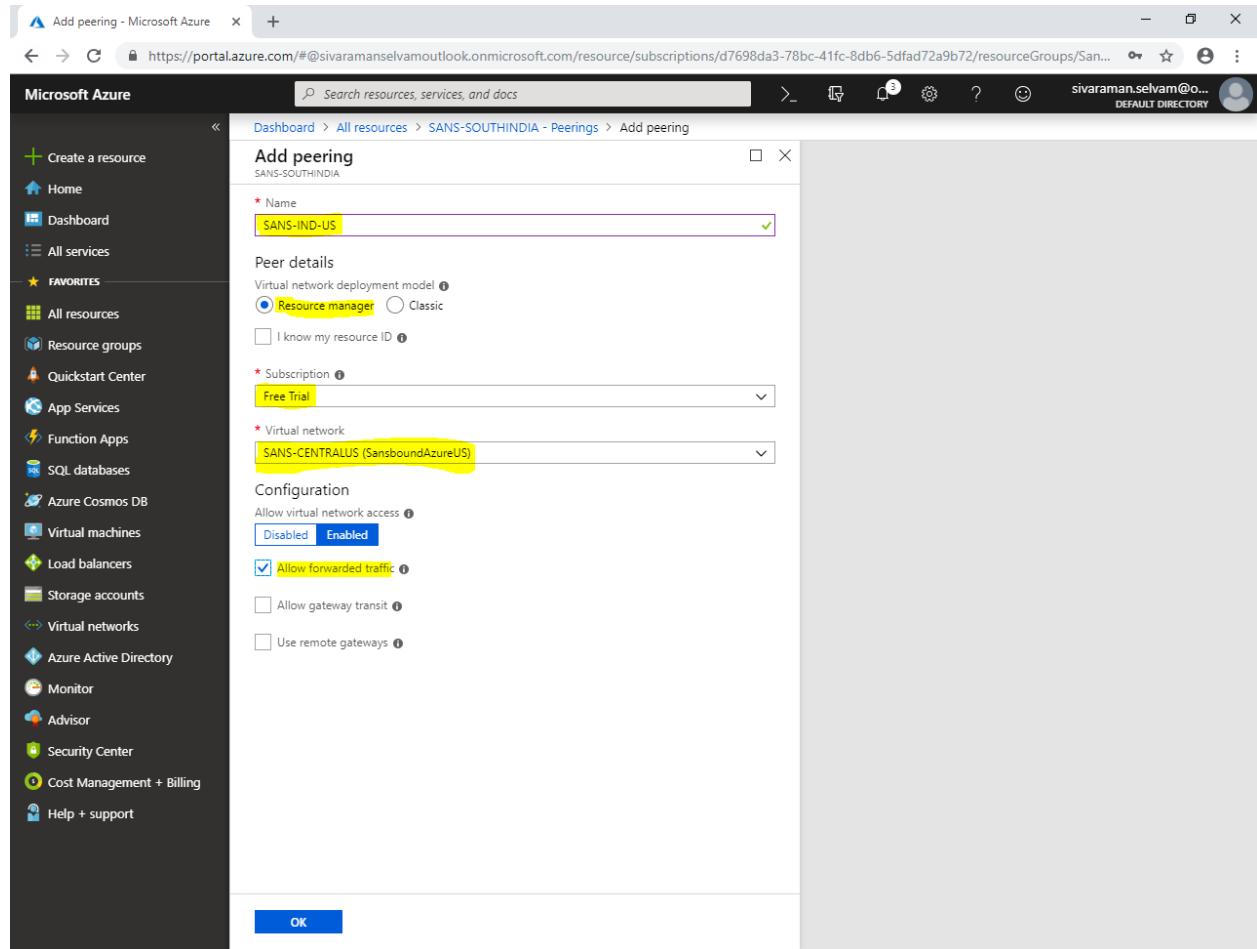
Type “Name” as “**SANS-IND-US**”.

Click Peer details as “**Resource manager**”.

Select “**Subscription**” as “**Free Trial**”.

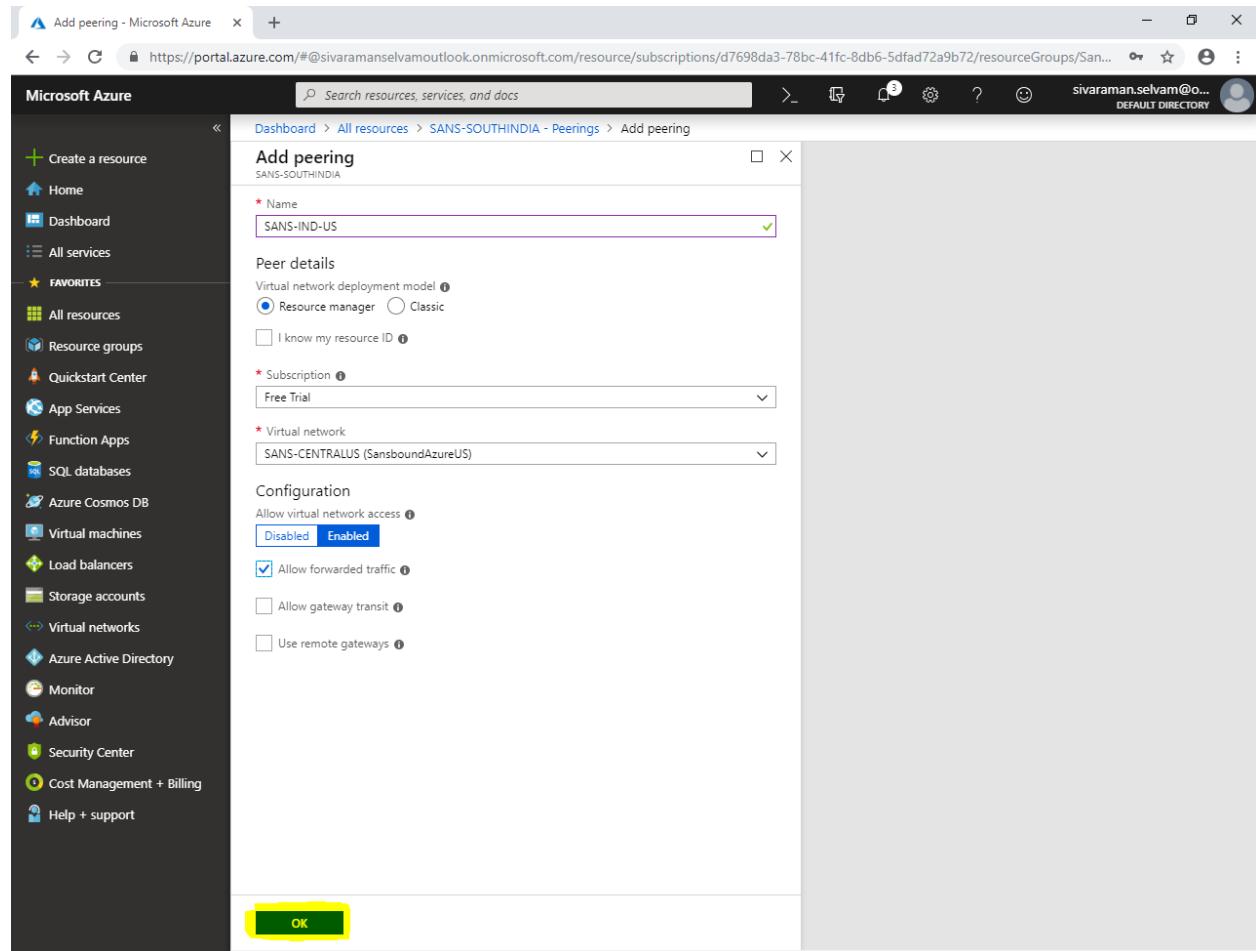
Select “**Virtual network**” as “**SANS-CENTRALUS**” (Remote virtual network)

Need to check “**Allow forwarded traffic**”.

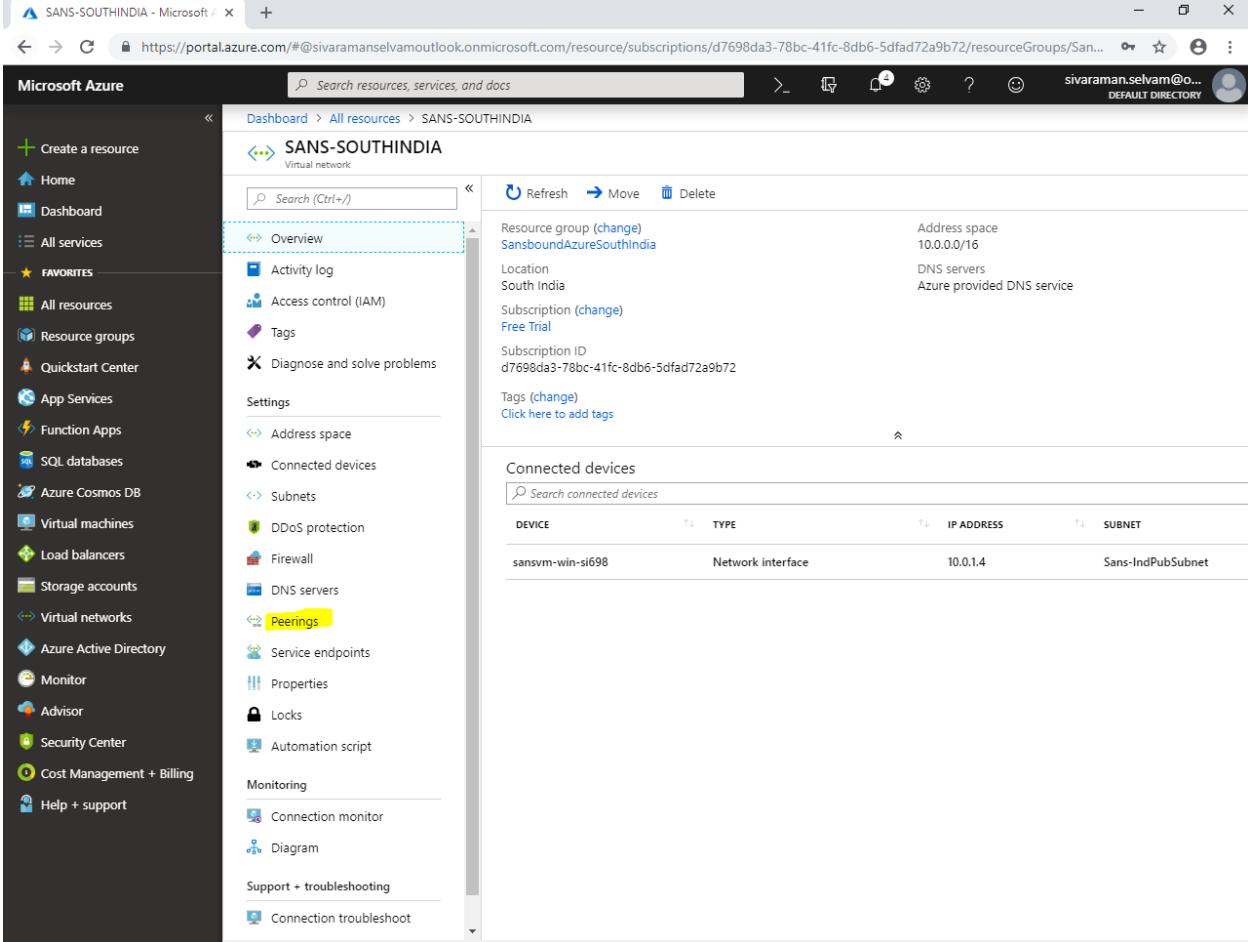


The screenshot shows the Microsoft Azure portal interface for adding a peering connection. The left sidebar contains various service icons like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area is titled "Add peering" under "SANS-SOUTHINDIA". It includes fields for "Name" (set to "SANS-IND-US"), "Peer details" (Deployment model: "Resource manager" selected), "Subscription" (set to "Free Trial"), and "Virtual network" (set to "SANS-CENTRALUS (SansboundAzureUS)"). Under "Configuration", the "Allow forwarded traffic" checkbox is checked. At the bottom right is a blue "OK" button.

Click “Ok”.

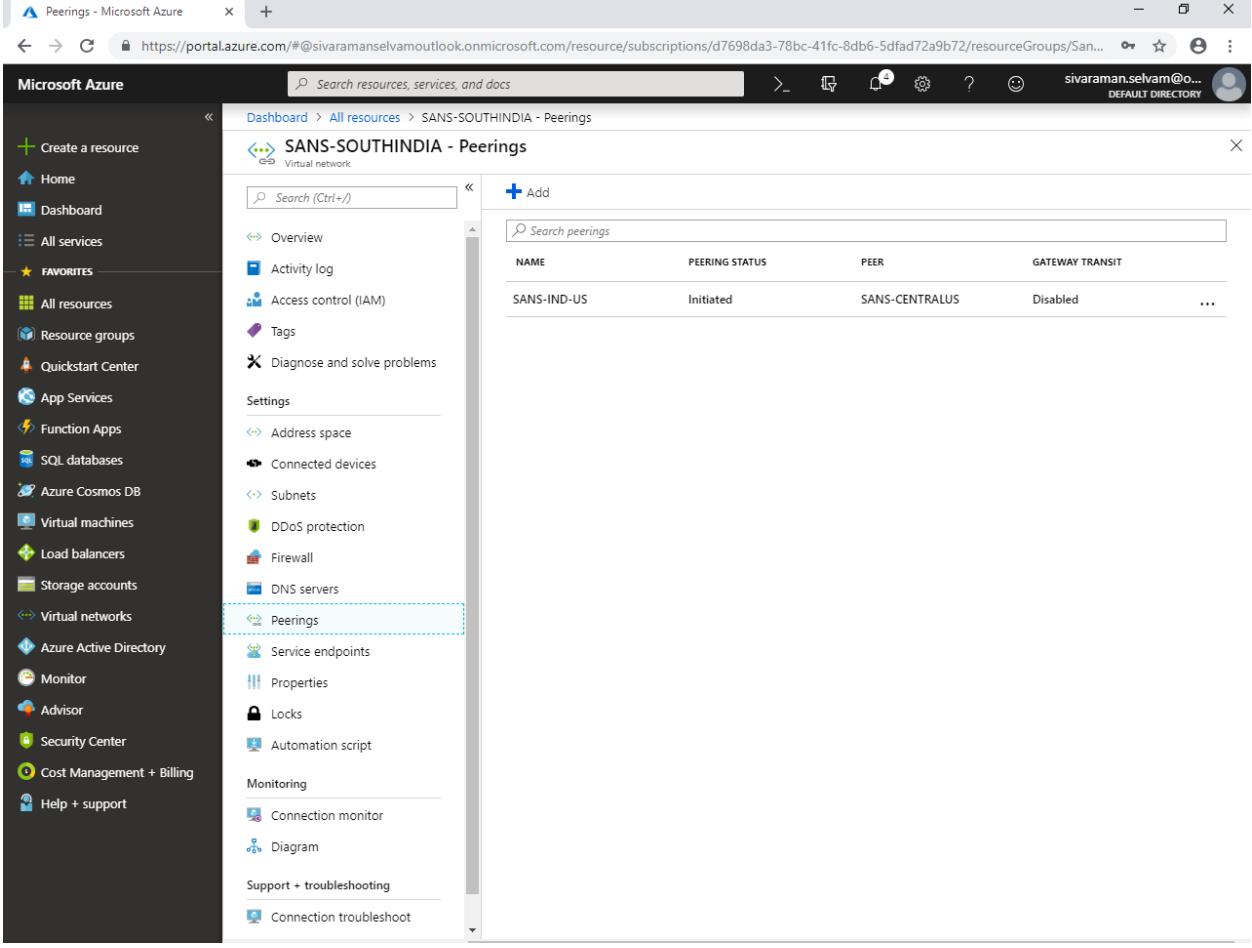


By default you are not able to view the Peering Virtual network details. So click on “Overview” and click again in “Peerings”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar is filled with various service icons under the 'FAVORITES' section. The main content area displays the 'SANS-SOUTHINDIA' virtual network. The 'Overview' tab is selected, showing basic information like Resource group (change), SansboundAzureSouthIndia, Location South India, Subscription (change) Free Trial, and Subscription ID d7698da3-78bc-41fc-8db6-5dfad72a9b72. Below this, there's a 'Connected devices' table with one entry: sansvm-win-si698, which is a Network interface with IP address 10.0.1.4 in the Sans-IndPubSubnet. On the left sidebar, the 'Virtual networks' icon is highlighted, and the 'Peerings' option under it is also highlighted.

Now you are able to view the Peering details of SANS-SOUTHINDIA virtual network.



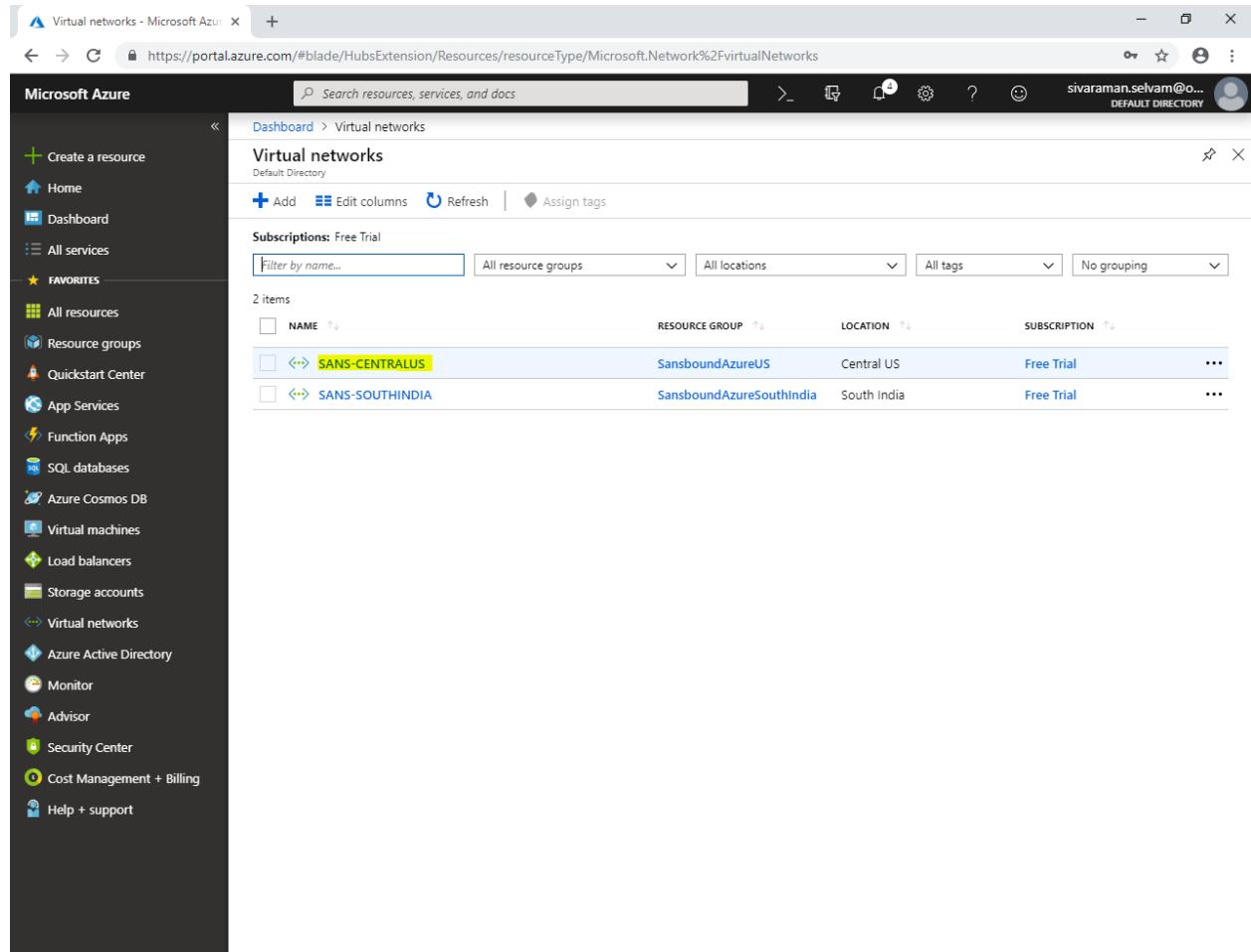
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons and links. The main content area is titled "SANS-SOUTHINDIA - Peerings". It includes a search bar, a "Add" button, and a table displaying a single peering entry. The table has columns for NAME, PEERING STATUS, PEER, and GATEWAY TRANSIT. The entry shown is "SANS-IND-US" with status "Initiated", peer "SANS-CENTRALUS", and gateway transit "Disabled". The "Peerings" link in the sidebar is highlighted with a dashed blue box.

NAME	PEERING STATUS	PEER	GATEWAY TRANSIT
SANS-IND-US	Initiated	SANS-CENTRALUS	Disabled

Now, we have required configuring VNET peering in “SANS-CENTRALUS” virtual network.

In “Virtual networks”,

Click “**SANS-CENTRALUS**”.

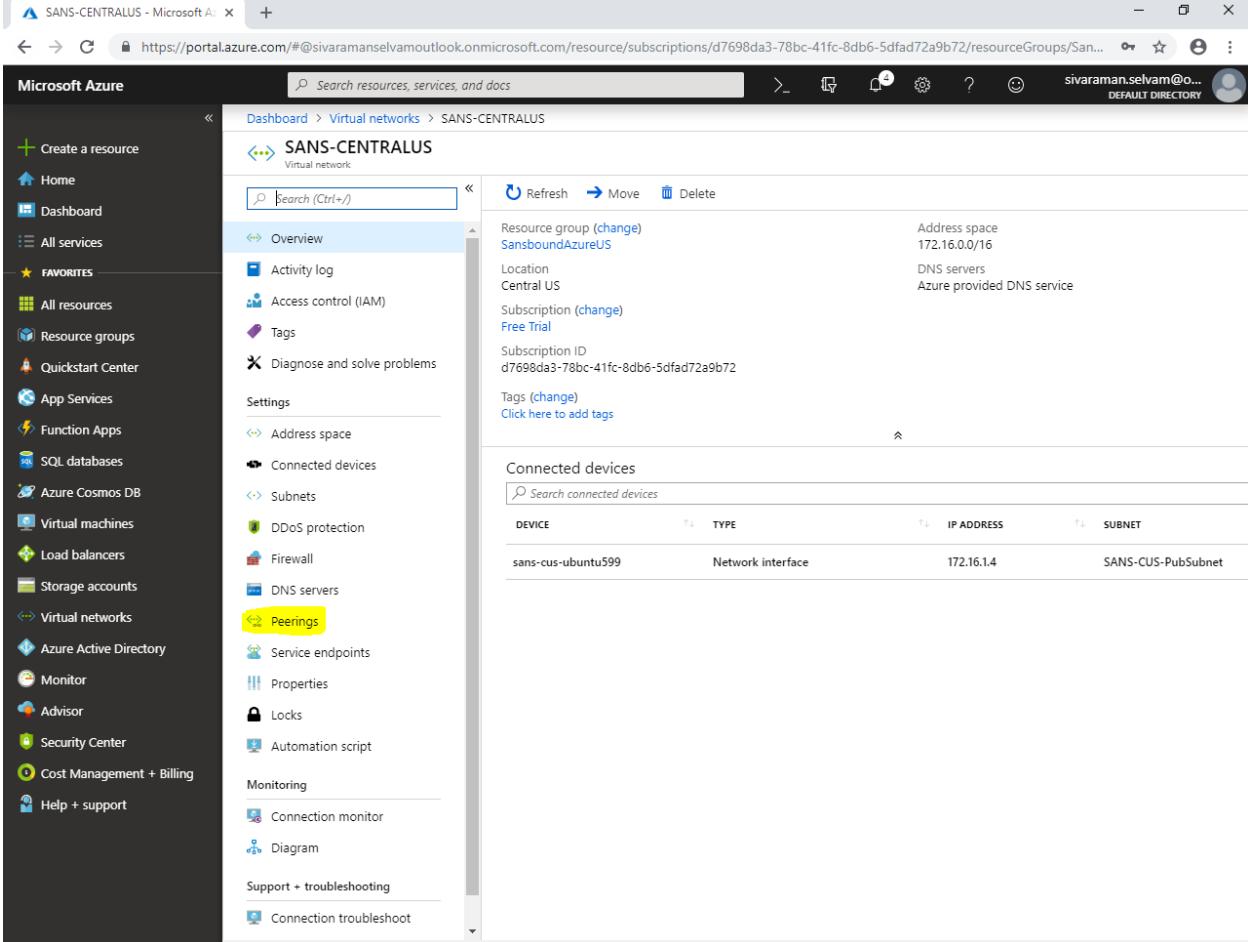


The screenshot shows the Microsoft Azure portal interface for managing Virtual Networks. The left sidebar navigation bar includes options like Home, Dashboard, All services, and Favorites (with items such as All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support). The main content area is titled "Virtual networks" under "Default Directory". It displays a table with two entries:

NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
SANS-CENTRALUS	SansboundAzureUS	Central US	Free Trial
SANS-SOUTHINDIA	SansboundAzureSouthIndia	South India	Free Trial

In “**SANS-CENTRALUS**” virtual network,

Click “**Peerings**”.



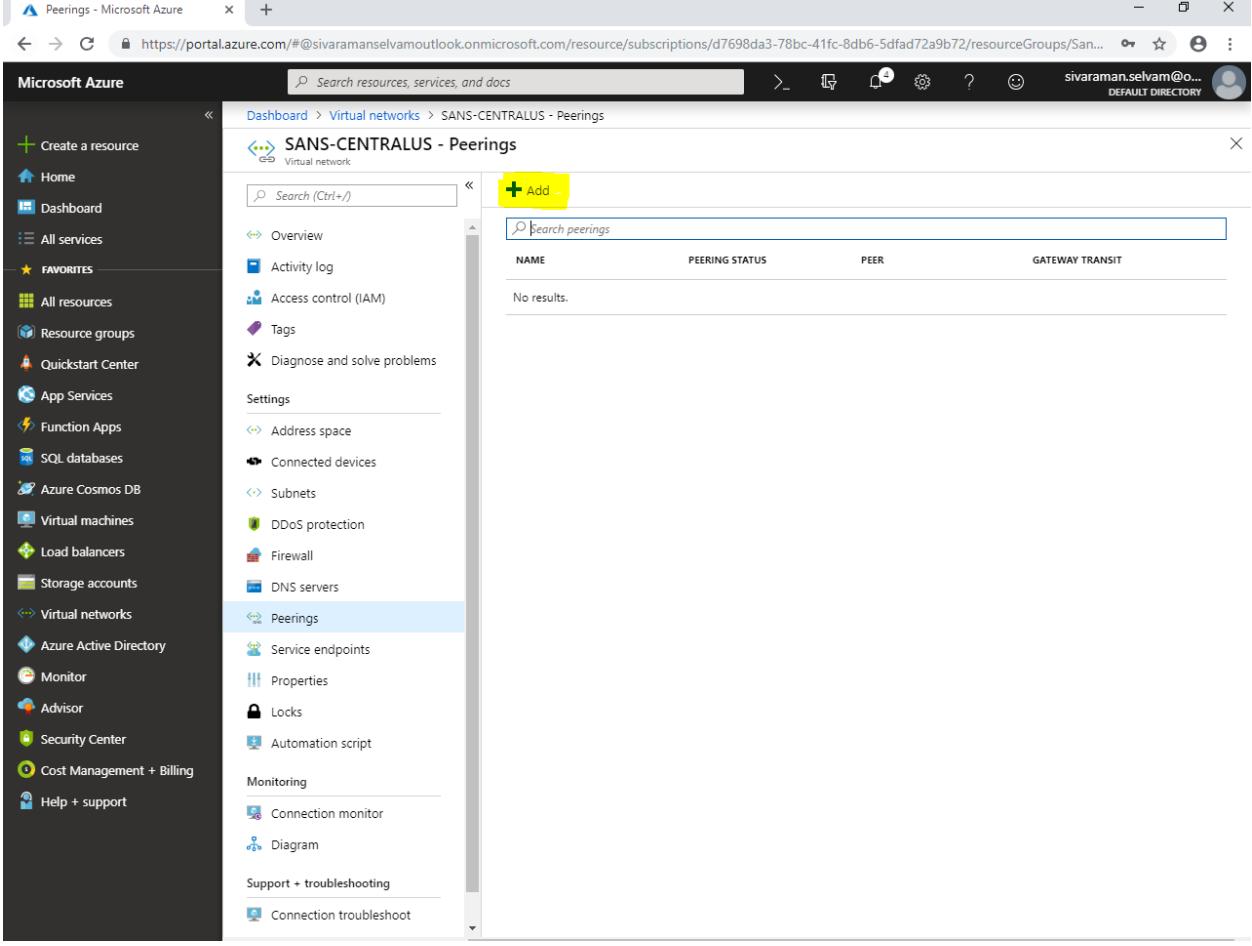
The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar includes options like Create a resource, Home, Dashboard, All services, Favorites (All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, Help + support). The main content area is titled "SANS-CENTRALUS" (Virtual network) and shows the following details:

- Resource group (change): SansboundAzureUS
- Address space: 172.16.0.0/16
- Location: Central US
- Subscription (change): Free Trial
- Subscription ID: d7698da3-78bc-41fc-8db6-5dfad72a9b72
- DNS servers: Azure provided DNS service

The "Peerings" option in the sidebar is highlighted with a yellow box. The main pane also lists "Connected devices" with one entry:

DEVICE	TYPE	IP ADDRESS	SUBNET
sans-cus-ubuntu599	Network interface	172.16.1.4	SANS-CUS-PubSubnet

Click “Add”.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various service icons and links. The main content area is titled "SANS-CENTRALUS - Peerings". It features a search bar at the top right and a table below it. The table has columns for NAME, PEERING STATUS, PEER, and GATEWAY TRANSIT. A message "No results." is displayed above the table. On the far left of the main content area, there is a vertical list of options under "Virtual networks", with "Peerings" currently selected. At the top center of the main content area, there is a prominent yellow button labeled "+ Add".

While “Add peering”,

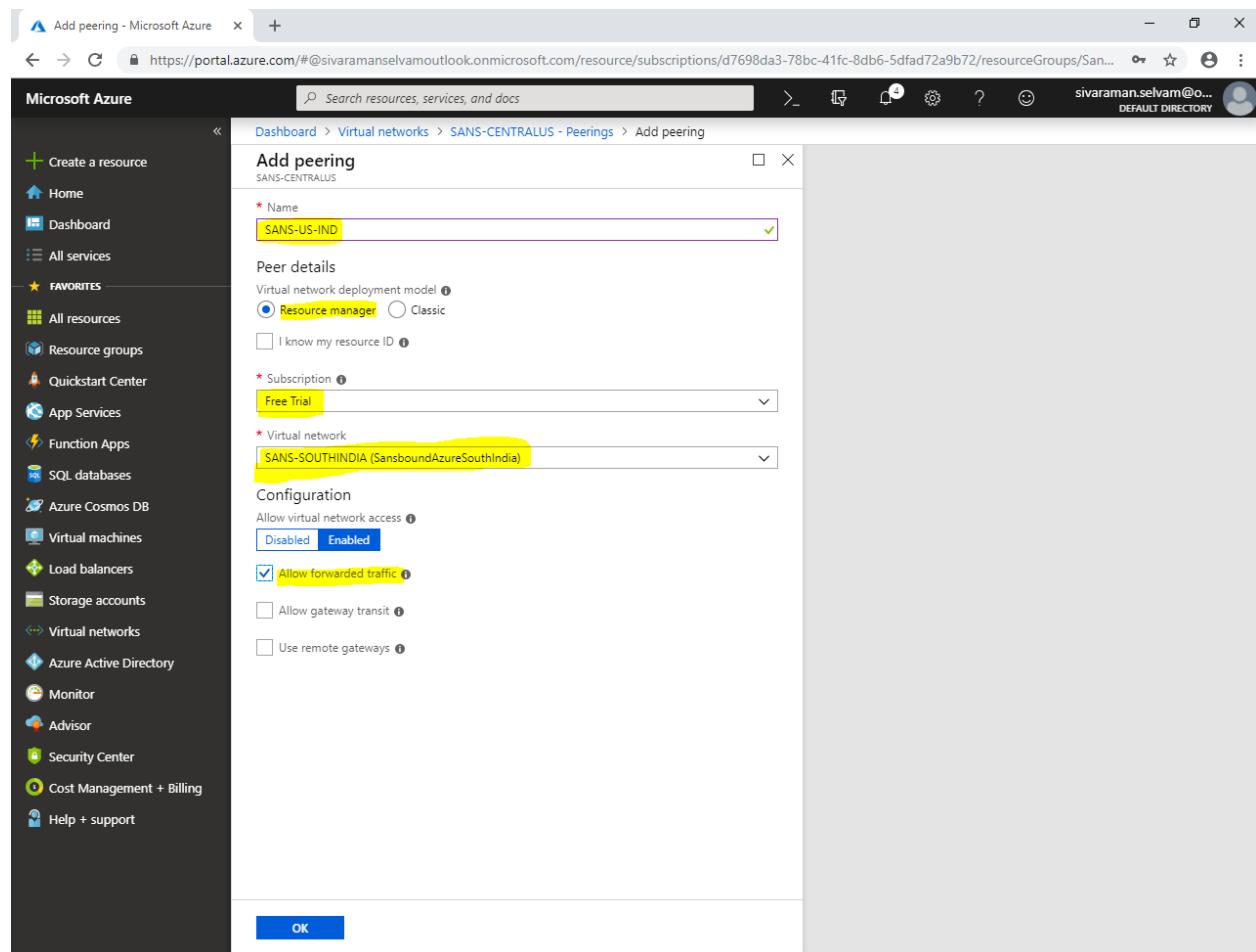
Type “Name” as “**SANS-US-IND**”.

In “Virtual network deployment model” click “**Resource manager**”.

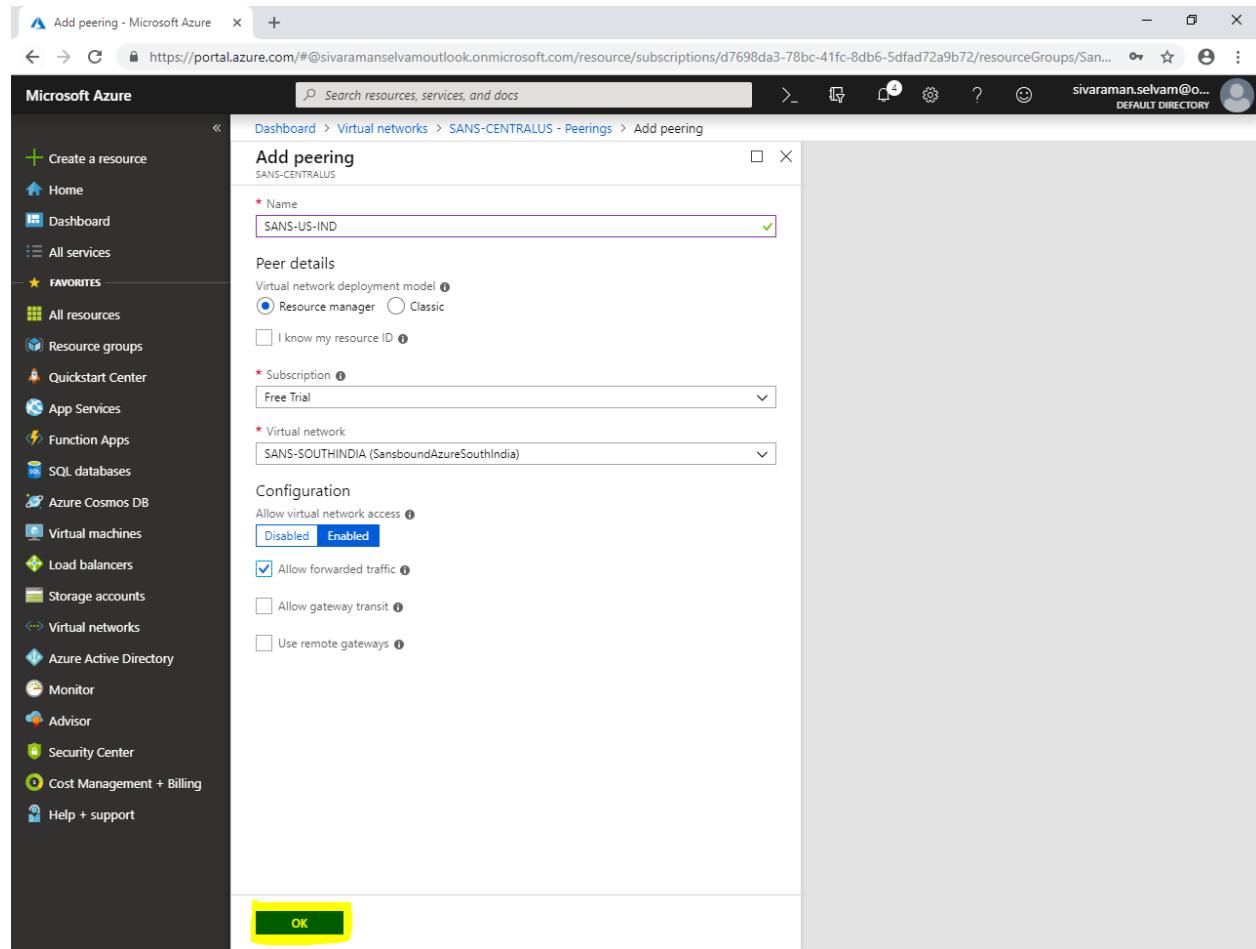
Select “Subscription” as “**Free Trial**”.

Select “Virtual network” as “**SANS-SOUTHINDIA**” (Remote Virtual network).

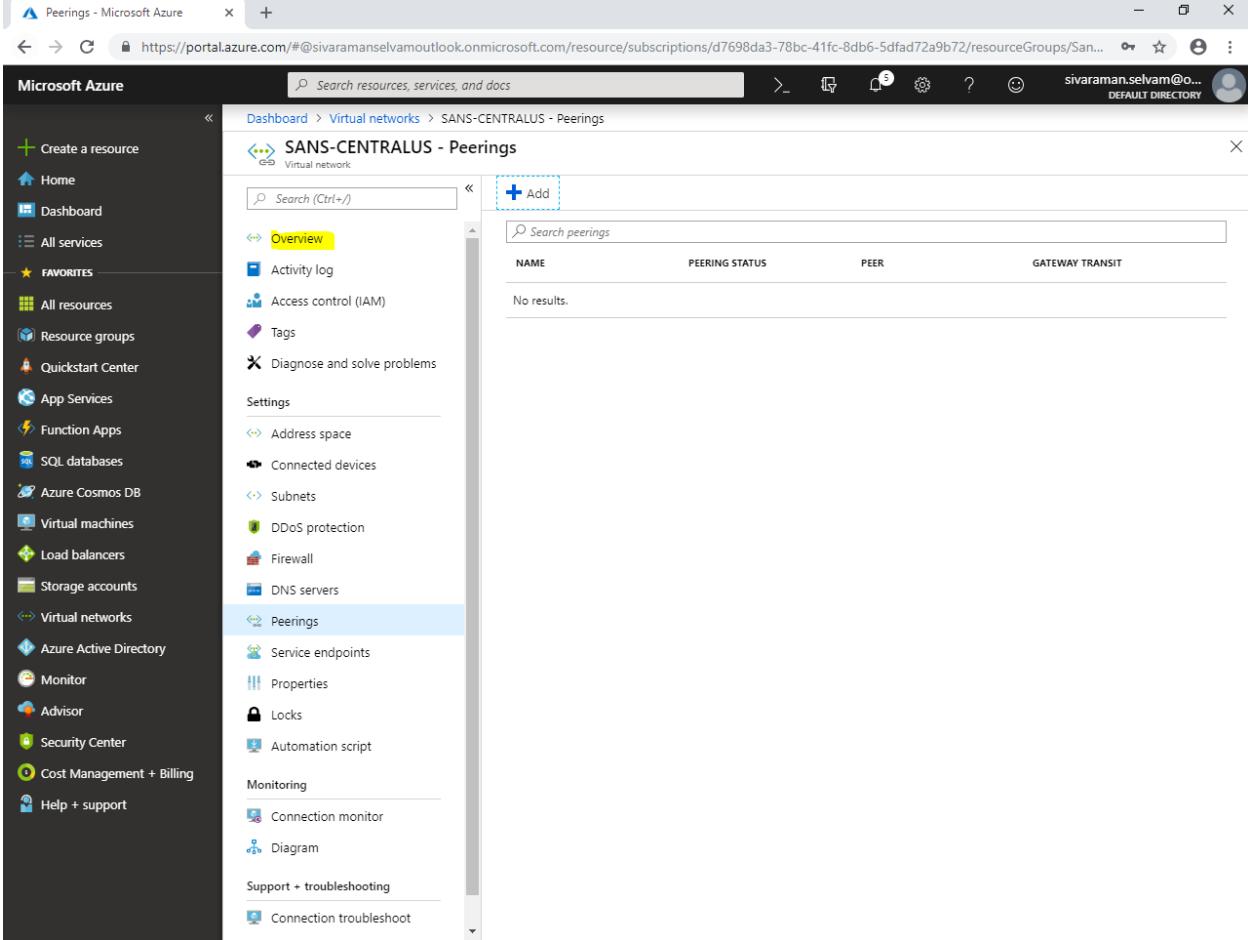
Need to Check “**Allow forwarded traffic**”.



Click "Ok".

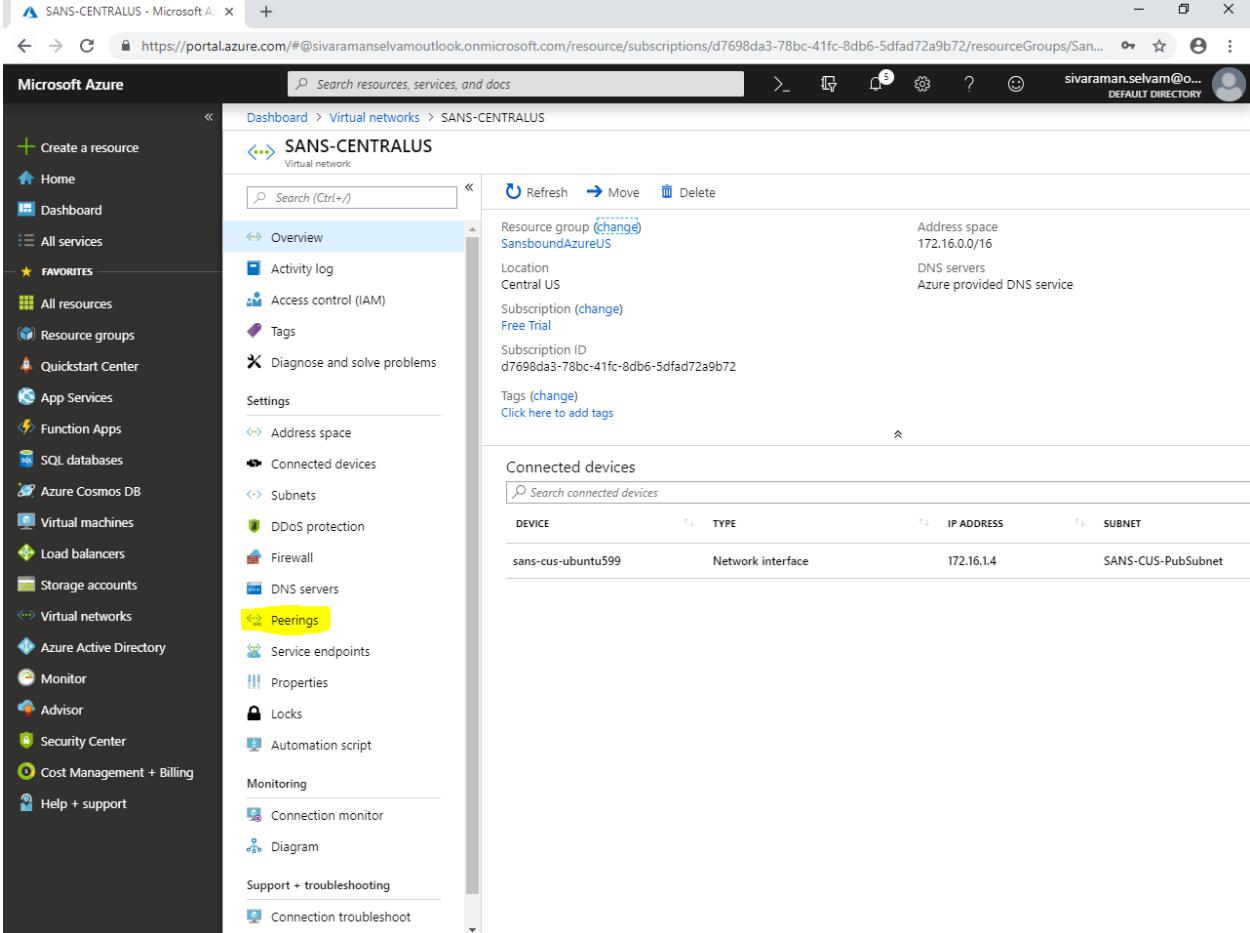


By default you are not able to view peering details in Peerings. You have required clicking any other options like "Overview".



The screenshot shows the Microsoft Azure portal interface. The left sidebar is filled with various service icons under the 'Virtual networks' category. The main content area is titled 'SANS-CENTRALUS - Peerings' and shows the 'Overview' tab selected. A search bar at the top right says 'Search peerings'. Below it is a table with columns: NAME, PEERING STATUS, PEER, and GATEWAY TRANSIT. The table displays the message 'No results.'

Click "Peerings".

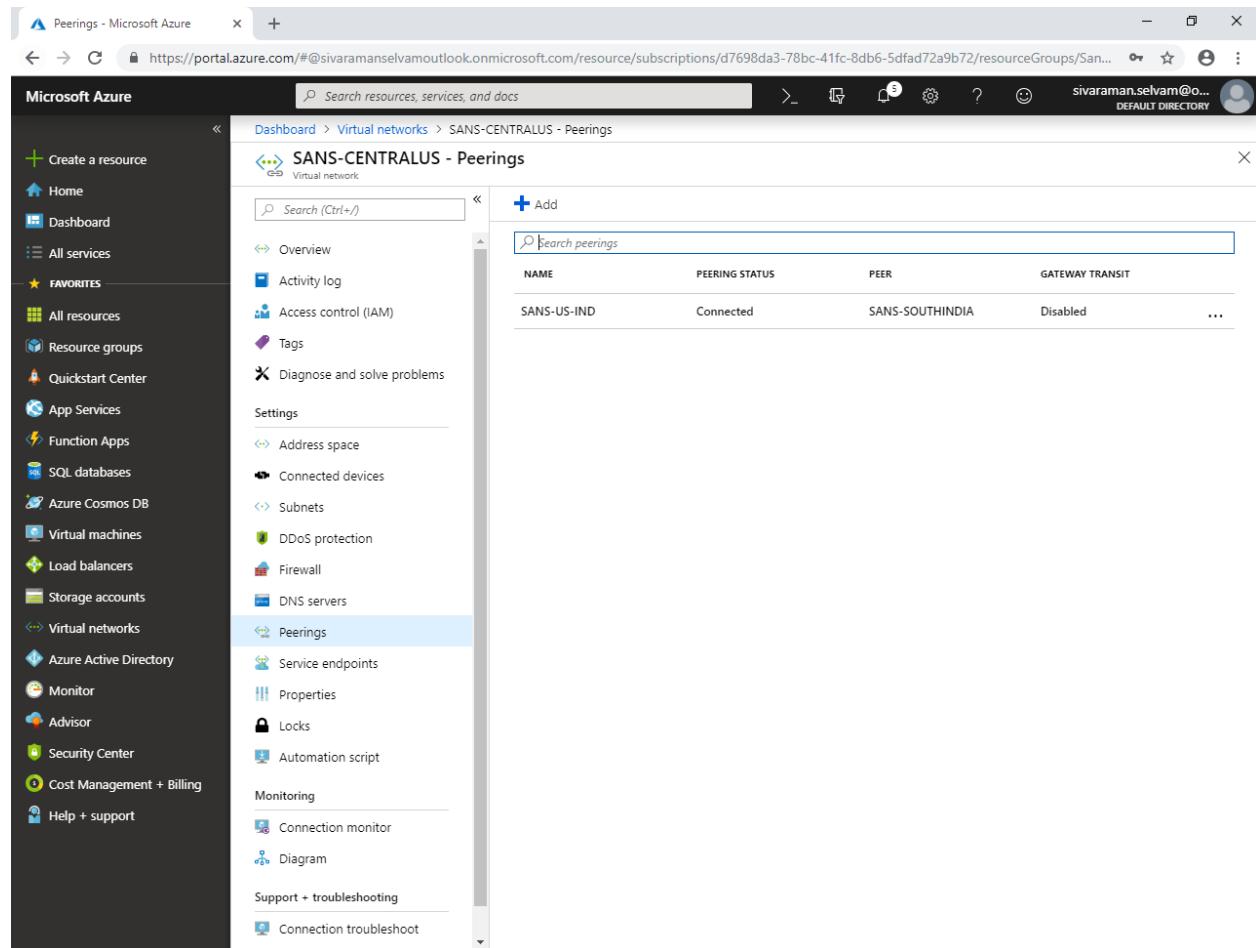


The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar is visible, showing various service categories like Home, Dashboard, All services, Favorites, All resources, Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area displays the 'Virtual networks' section for the resource group 'SANS-CENTRALUS'. The 'Overview' tab is selected. Key details shown include:

- Resource group: SANS-CENTRALUS
- Address space: 172.16.0.0/16
- Location: Central US
- Subscription: Free Trial
- Subscription ID: d7698da3-78bc-41fc-8db6-5dfad72a9b72
- Tags: Click here to add tags
- Connected devices table:

DEVICE	TYPE	IP ADDRESS	SUBNET
sans-cus-ubuntu599	Network interface	172.16.1.4	SANS-CUS-PubSubnet
- Peerings: This option is highlighted with a yellow box.

Now you are able to see that you have configured Peerings successfully in **SANS-CENTRALUS** virtual network.



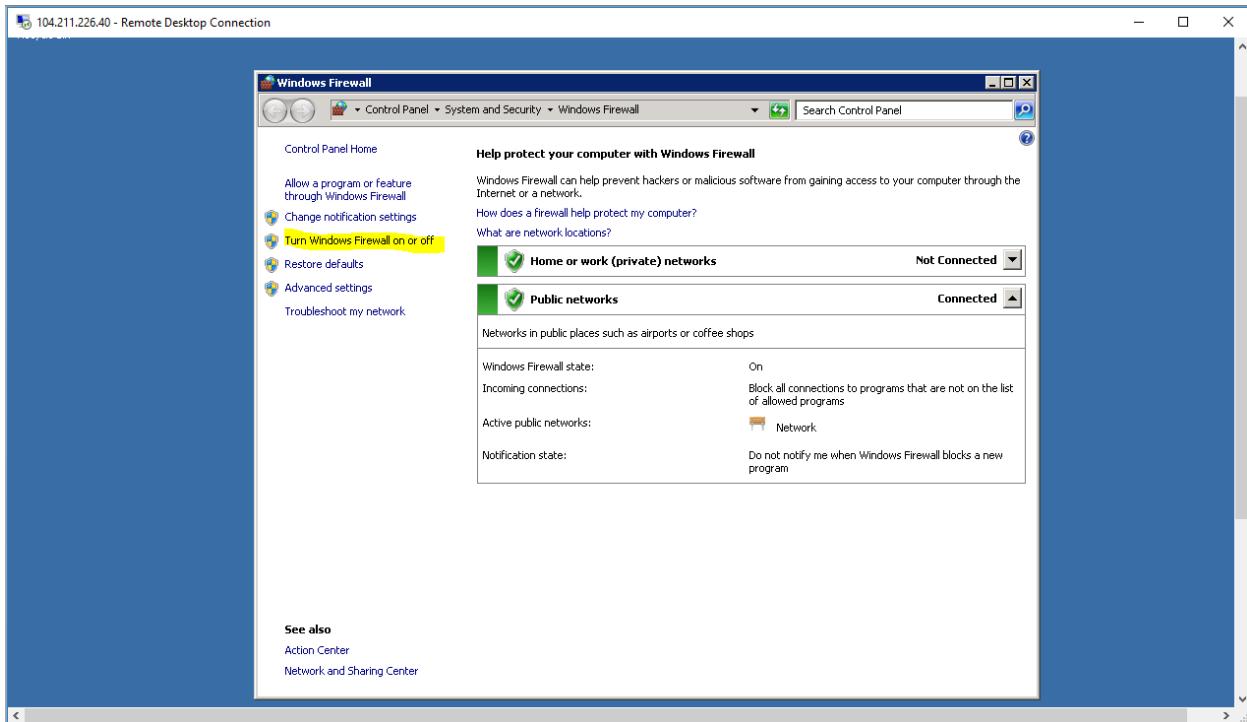
The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar includes Home, Dashboard, All services, Favorites (with All resources selected), Resource groups, Quickstart Center, App Services, Function Apps, SQL databases, Azure Cosmos DB, Virtual machines, Load balancers, Storage accounts, Virtual networks (selected), Azure Active Directory, Monitor, Advisor, Security Center, Cost Management + Billing, and Help + support. The main content area displays the 'SANS-CENTRALUS - Peering' page under 'Virtual networks'. The left sidebar for this page lists Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Address space, Connected devices, Subnets, DDoS protection, Firewall, DNS servers, Peerings selected), Monitoring (Connection monitor, Diagram), and Support + troubleshooting (Connection troubleshoot). The right side shows a table of peerings:

NAME	PEERING STATUS	PEER	GATEWAY TRANSIT
SANS-US-IND	Connected	SANS-SOUTHINDIA	Disabled

In “Windows 2008 R2 server”,

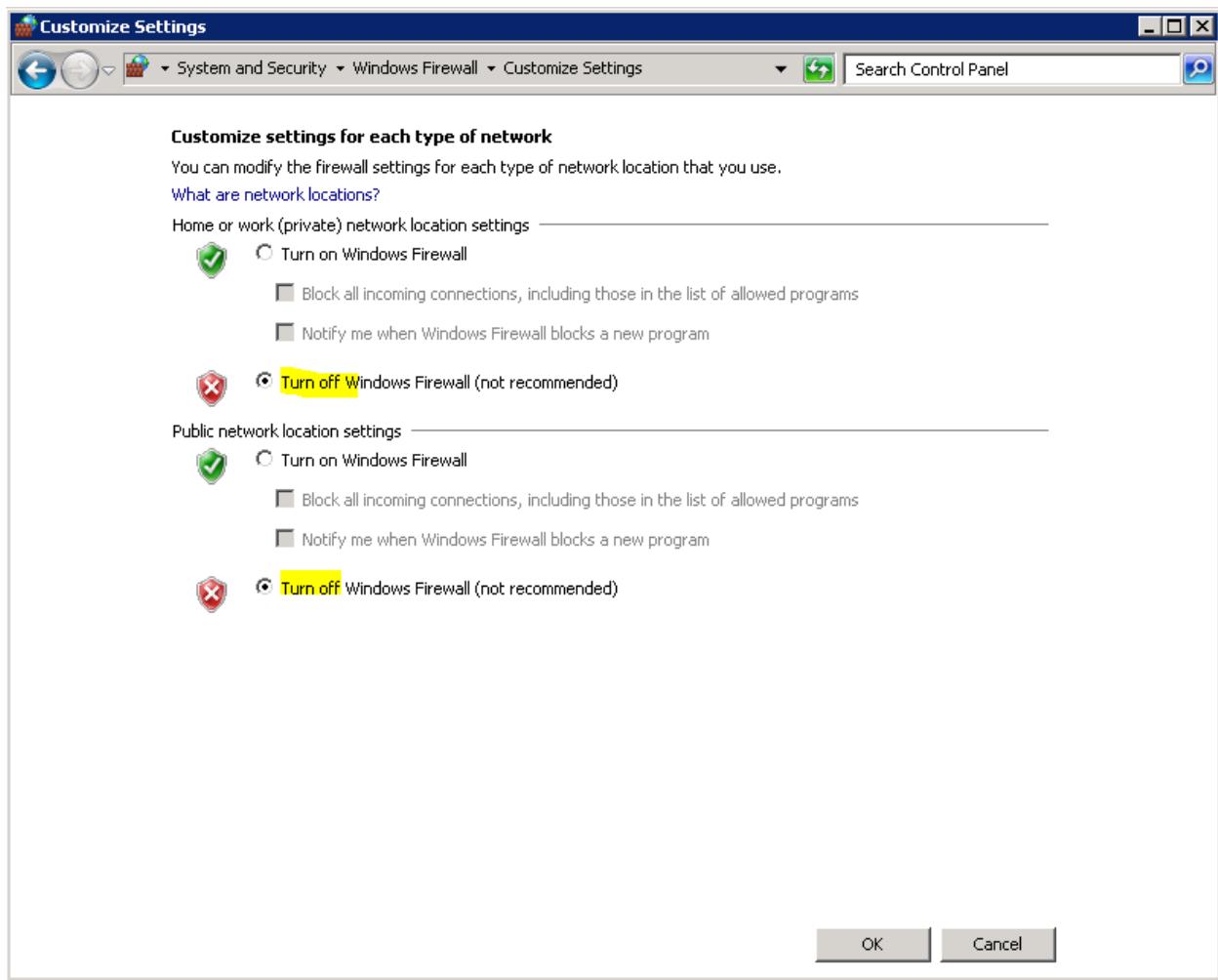
Type “**firewall.cpl**” in Run box and press “**Enter**”.

Click “**Turn Windows Firewall on or off**”.

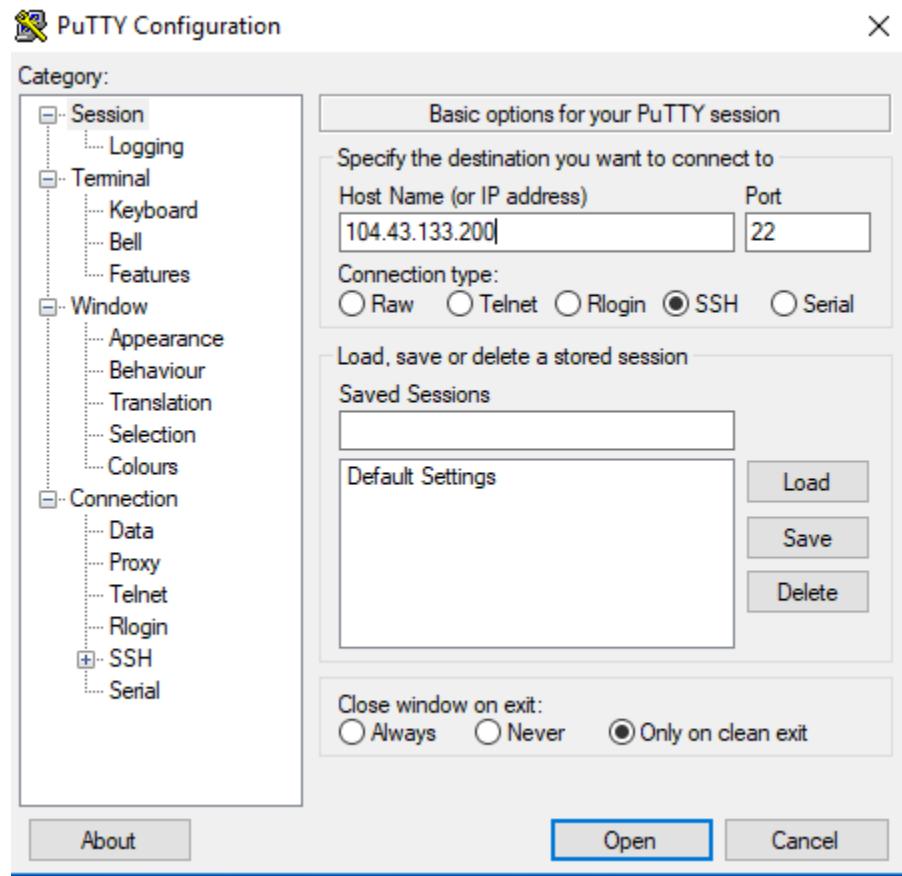


You have required to turn off the windows firewall.

Click "Ok".



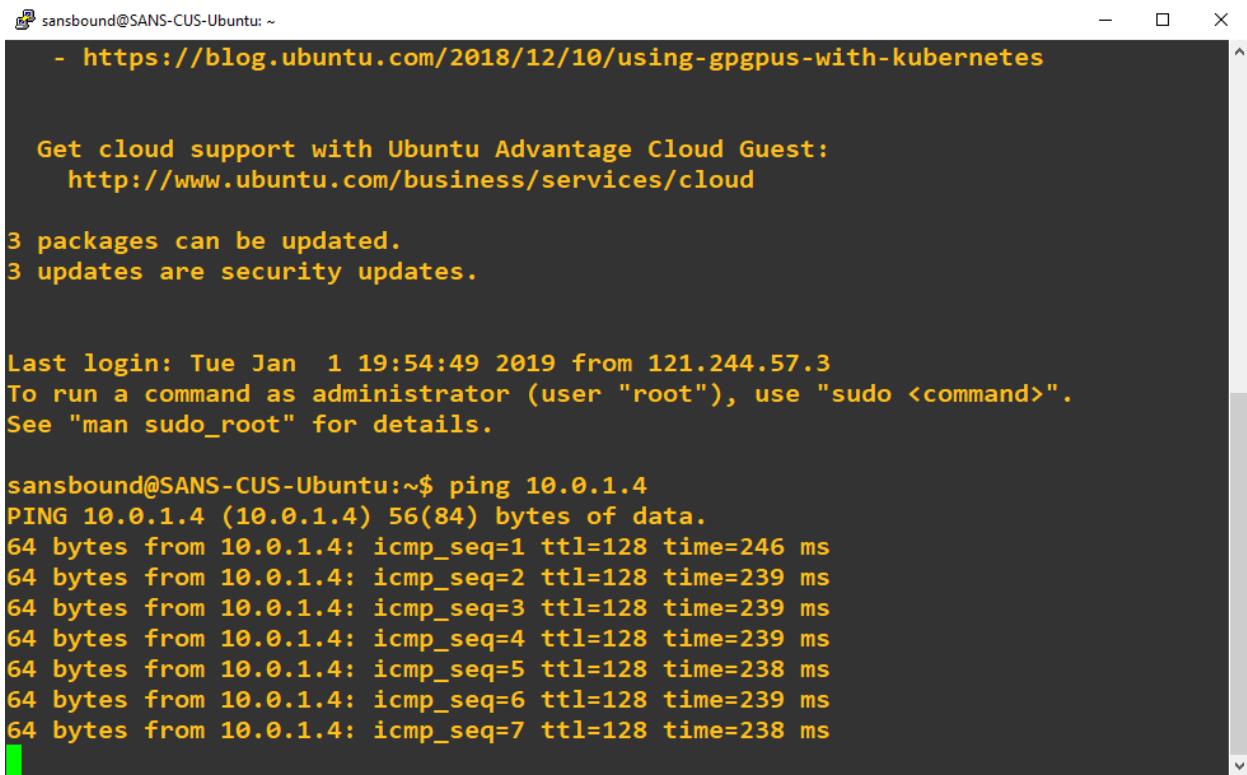
Type Public IP address of the Ubuntu server and click “**Open**”.



Login to Ubuntu server.

Once you have successfully logged into the Ubuntu,

Type **ping 10.0.1.4** and press “Enter”.



```
sansbound@SANS-CUS-Ubuntu: ~
- https://blog.ubuntu.com/2018/12/10/using-gpgpus-with-kubernetes

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

3 packages can be updated.
3 updates are security updates.

Last login: Tue Jan  1 19:54:49 2019 from 121.244.57.3
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

sansbound@SANS-CUS-Ubuntu:~$ ping 10.0.1.4
PING 10.0.1.4 (10.0.1.4) 56(84) bytes of data.
64 bytes from 10.0.1.4: icmp_seq=1 ttl=128 time=246 ms
64 bytes from 10.0.1.4: icmp_seq=2 ttl=128 time=239 ms
64 bytes from 10.0.1.4: icmp_seq=3 ttl=128 time=239 ms
64 bytes from 10.0.1.4: icmp_seq=4 ttl=128 time=239 ms
64 bytes from 10.0.1.4: icmp_seq=5 ttl=128 time=238 ms
64 bytes from 10.0.1.4: icmp_seq=6 ttl=128 time=239 ms
64 bytes from 10.0.1.4: icmp_seq=7 ttl=128 time=238 ms
```

You have got reply now, because we have configured VNET peering between South India and Central US regions successfully.