# Bahria University,

## Karachi Campus

**COURSE: SEN-401**
**CLOUD COMPUTING**
**TERM: SPRING 2024, CLASS: BSE- 6(B)**

**Submitted By:**

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**Submitted To:**

**Engr. Faisal/Engr. Noor us Sabah**

**Signed** **Remarks:**

# INDEX

| SNO | DATE | LAB NO | LAB OBJECTIVE | SIGN |
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| 01 | 15/Feb/2024 | 01 | Intro To Cloud Computing | |
| 02 | 22/Feb/2024 | 02 | Creating Virtual Machine Using Microsoft Azure | |
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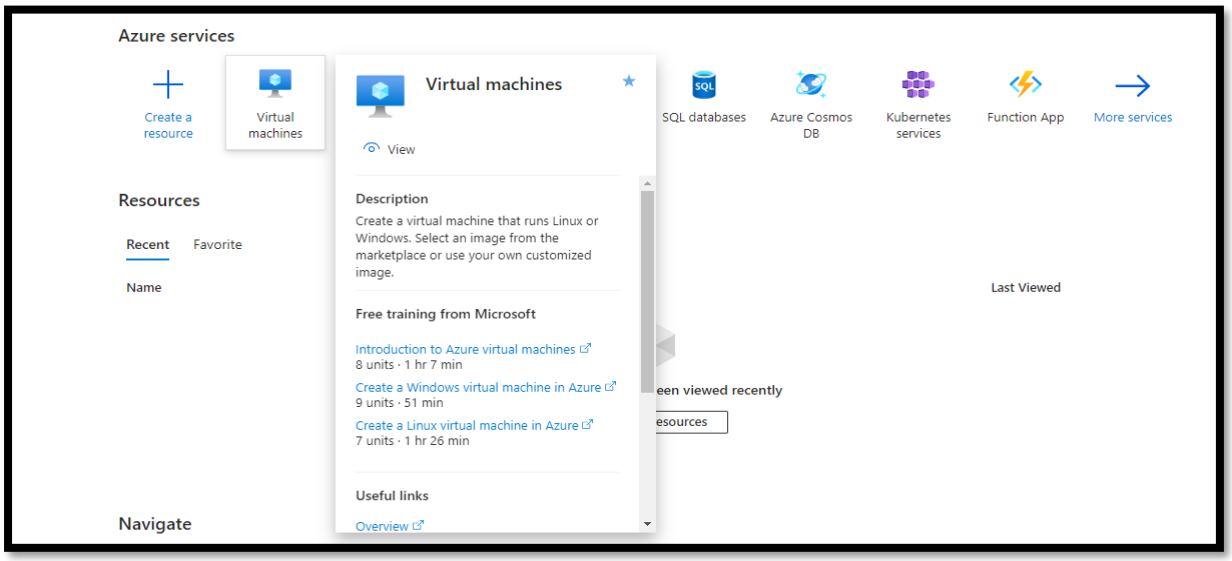
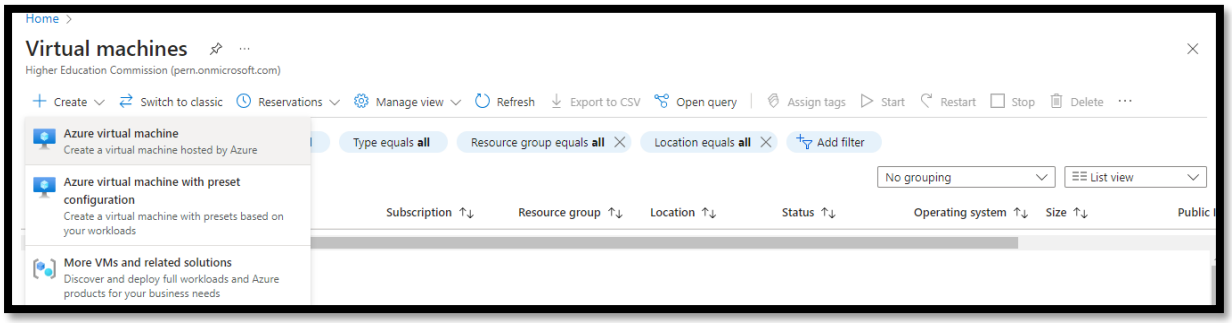
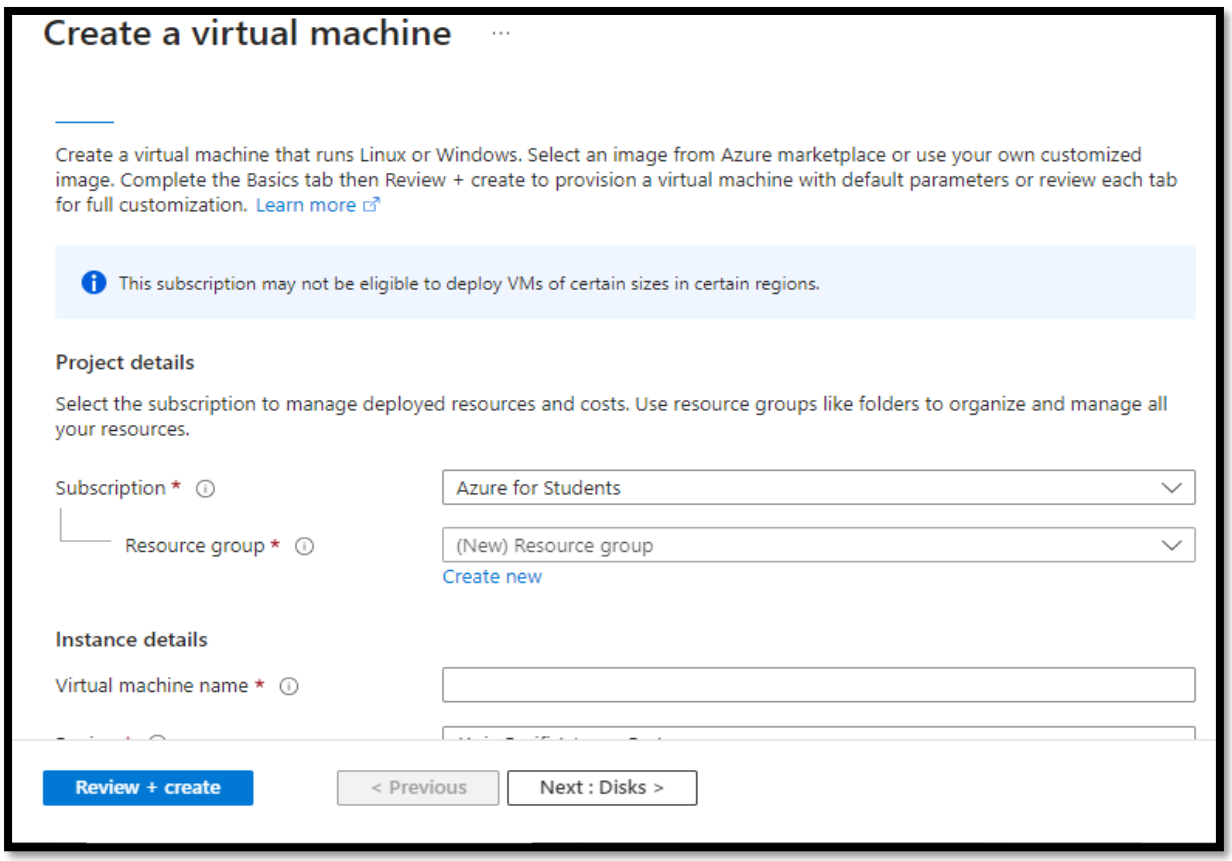
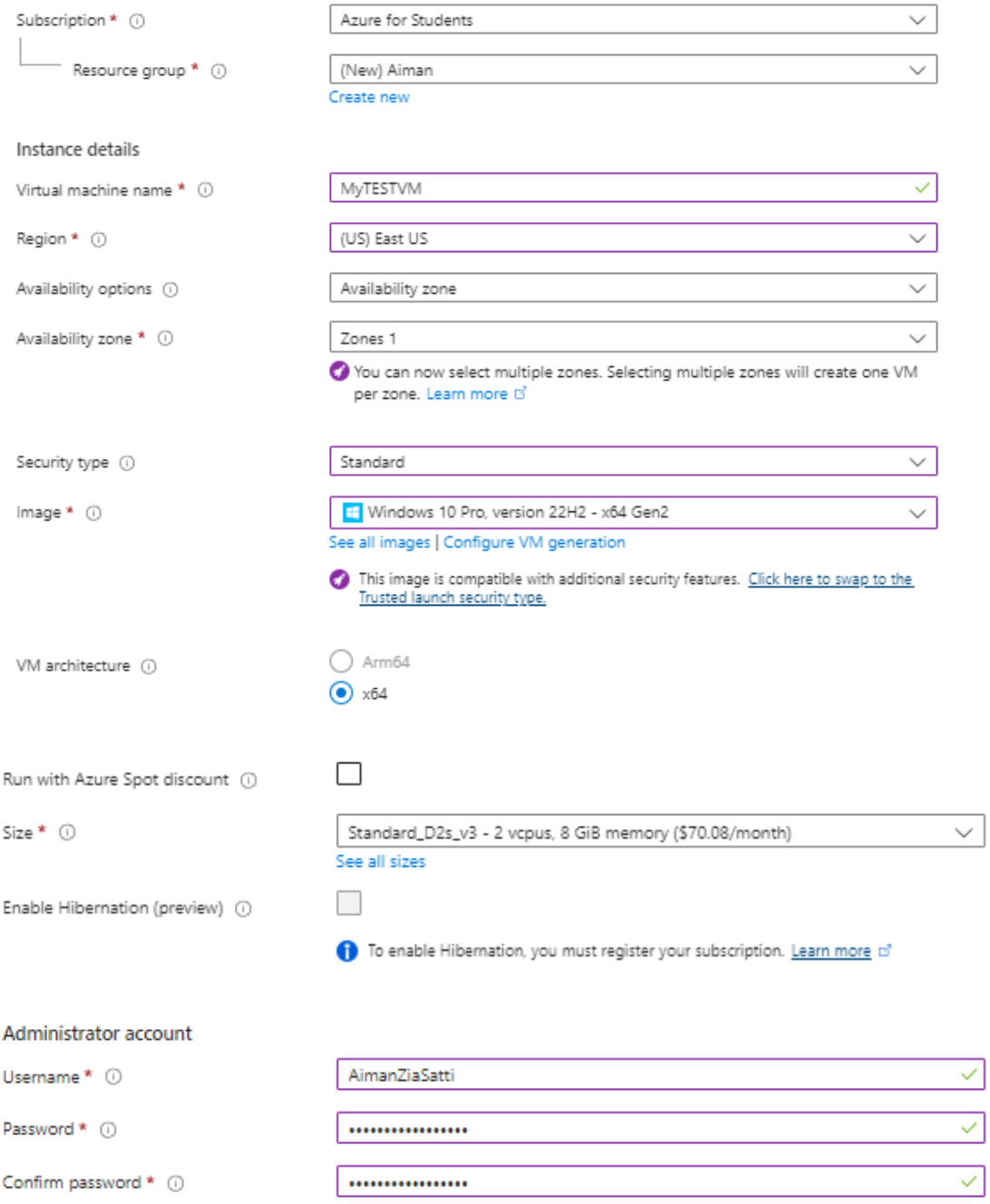
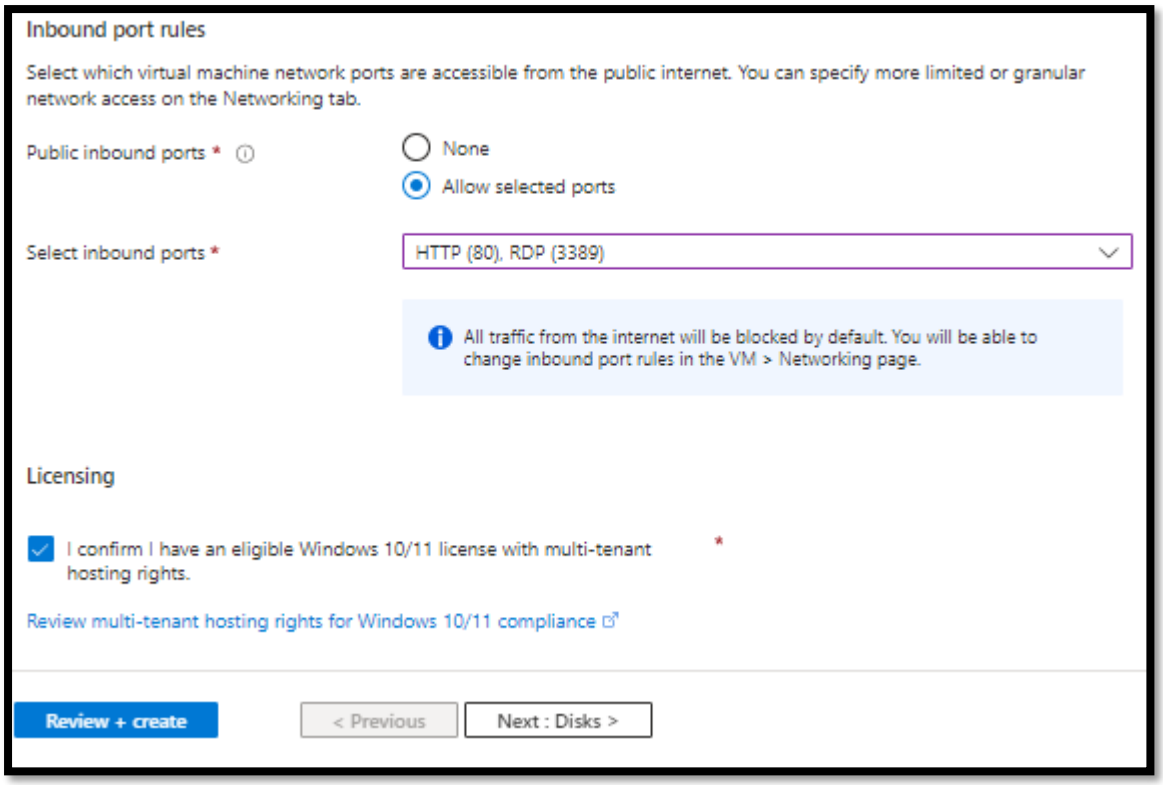
**TASK # 1:** Create Windows Virtual Machine in Azure.

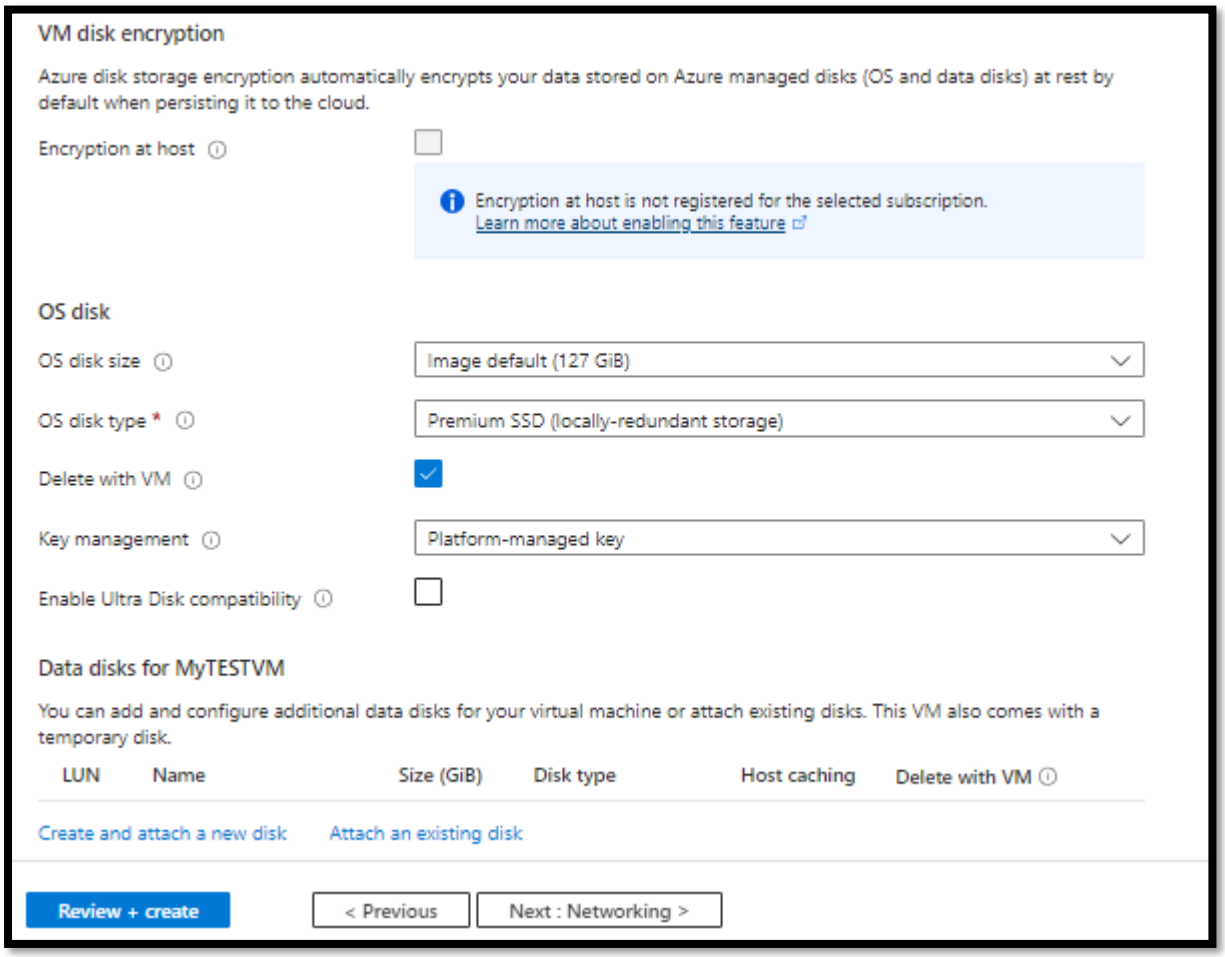



Subscription * Azure for Students
Resource group * (New) Aiman
Create new
Instance details
Virtual machine name * MyTESTVM
Region * (US) East US
Availability options Availability zone
Availability zone * Zones 1
You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more
Security type Standard
Image * Windows 10 Pro, version 22H2 - x64 Gen2
See all images | Configure VM generation
This image is compatible with additional security features. Click here to swap to the Trusted launch security type.
VM architecture Arm64
x64
Run with Azure Spot discount
Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory ($70.08/month)
See all sizes
Enable Hibernation (preview)
To enable Hibernation, you must register your subscription. Learn more
Administrator account
Username * AimanZiaSatti
Password *
Confirm password *


Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports *
None
Allow selected ports
Select inbound ports *
HTTP (80), RDP (3389)
All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.
Licensing
I confirm I have an eligible Windows 10/11 license with multi-tenant hosting rights.
*
Review multi-tenant hosting rights for Windows 10/11 compliance
Review + create
< Previous
Next : Disks >


VM disk encryption
Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.
Encryption at host
Encryption at host is not registered for the selected subscription.
Learn more about enabling this feature
OS disk
OS disk size
Image default (127 GiB)
OS disk type *
Premium SSD (locally-redundant storage)
Delete with VM
Key management
Platform-managed key
Enable Ultra Disk compatibility
Data disks for MyTESTVM
You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.
LUN
Name
Size (GiB)
Disk type
Host caching
Delete with VM
Create and attach a new disk
Attach an existing disk
Review + create
< Previous
Next : Networking >

## Create a new disk ...

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. Learn more

Name * MyTESTVM_DataDisk_0

Source type * None (empty disk)

Size * **1024 GiB**
Premium SSD LRS
Change size

Key management Platform-managed key

Enable shared disk ○ Yes ◉ No

Delete disk with VM ☐

### Data disks for MyTESTVM

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

| LUN | Name | Size (GiB) | Disk type | Host caching | Delete with VM |
|---|---|---|---|---|---|
| 0 | MyTESTVM_DataDisk_0 | 1024 | Premium SSD LRS | Read-only | ☐ |

Create and attach a new disk  Attach an existing disk

### Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * (new) MyTESTVM-vnet
Create new

Subnet * (new) default (10.0.0.0/24)

Public IP (new) MyTESTVM-ip
Create new

NIC network security group ○ None ◉ Basic ○ Advanced

Public inbound ports * ○ None ◉ Allow selected ports

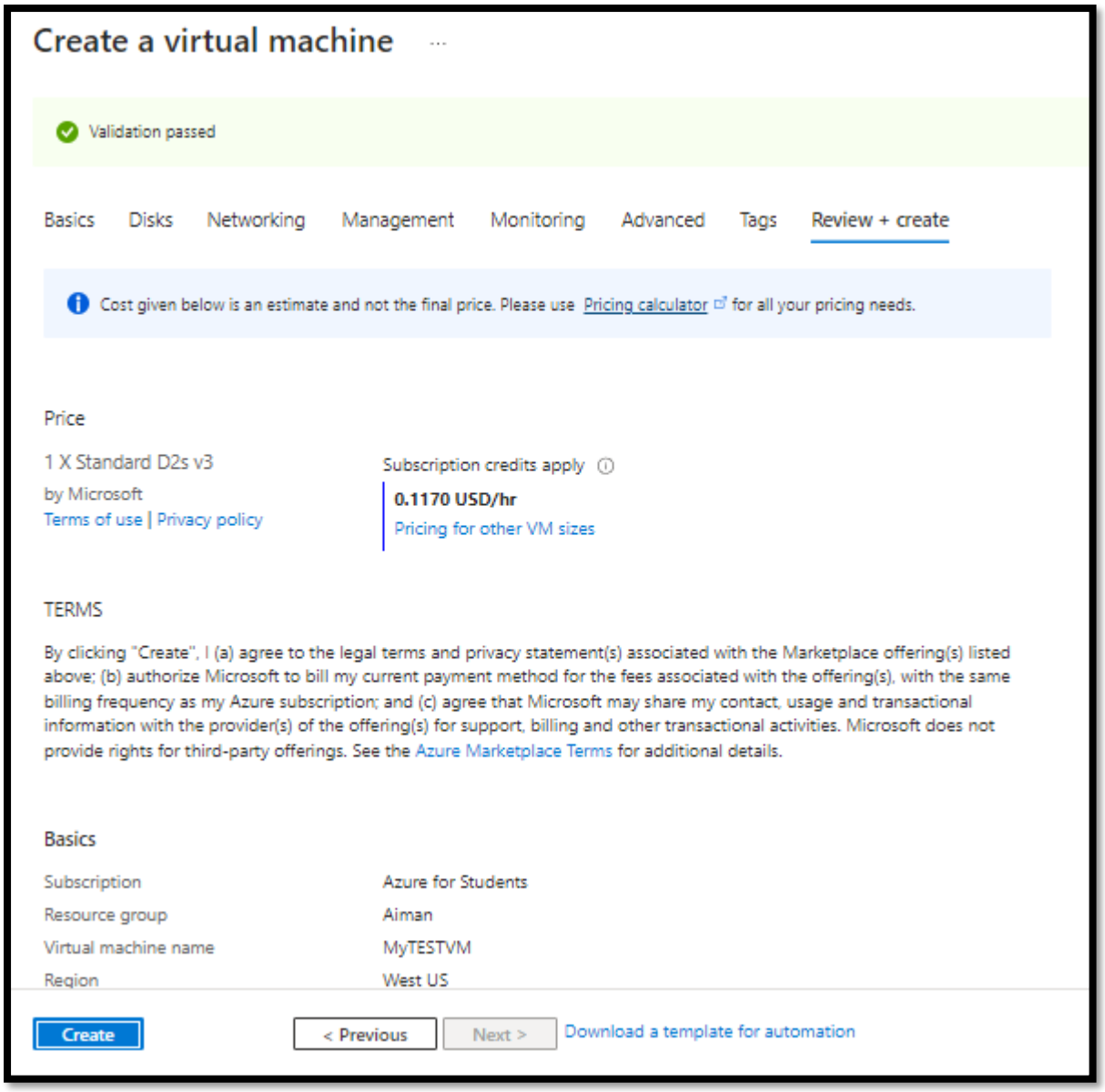
Select inbound ports * HTTP (80), RDP (3389)

⚠ **This will allow all IP addresses to access your virtual machine.** This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Delete public IP and NIC when VM is deleted ☐

Enable accelerated networking ☐

Review + create  < Previous  Next : Management >


Create a virtual machine
Validation passed
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Cost given below is an estimate and not the final price. Please use Pricing calculator for all your pricing needs.
Price
1 X Standard D2s v3
by Microsoft
Terms of use | Privacy policy
Subscription credits apply
0.1170 USD/hr
Pricing for other VM sizes
TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the Azure Marketplace Terms for additional details.
Basics
Subscription Azure for Students
Resource group Aiman
Virtual machine name MyTESTVM
Region West US
Create
< Previous
Next >
Download a template for automation

### Basics

| | |
|---|---|
| Subscription | Azure for Students |
| Resource group | Aiman |
| Virtual machine name | MyTESTVM |
| Region | West US |
| Availability options | No infrastructure redundancy required |
| Security type | Trusted launch virtual machines |
| Enable secure boot | Yes |
| Enable vTPM | Yes |
| Integrity monitoring | No |
| Image | Windows 10 Pro, version 22H2 - Gen2 |
| VM architecture | x64 |
| Size | Standard D2s v3 (2 vcpus, 8 GiB memory) |
| Username | AimanZiaSatti |
| Public inbound ports | HTTP |
| Already have a Windows license? | Yes |
| License type | Windows Client |
| Azure Spot | No |

### Disks

| | |
|---|---|
| OS disk size | Image default |
| OS disk type | Premium SSD LRS |
| Use managed disks | Yes |
| Delete OS disk with VM | Enabled |
| Ephemeral OS disk | No |

### Networking

| | |
|---|---|
| Virtual network | (new) MyTESTVM-vnet |
| Subnet | (new) default (10.0.0.0/24) |
| Public IP | (new) MyTESTVM-ip |
| Accelerated networking | On |
| Place this virtual machine behind an existing load balancing solution? | No |
| Delete public IP and NIC when VM is deleted | Disabled |

### Management

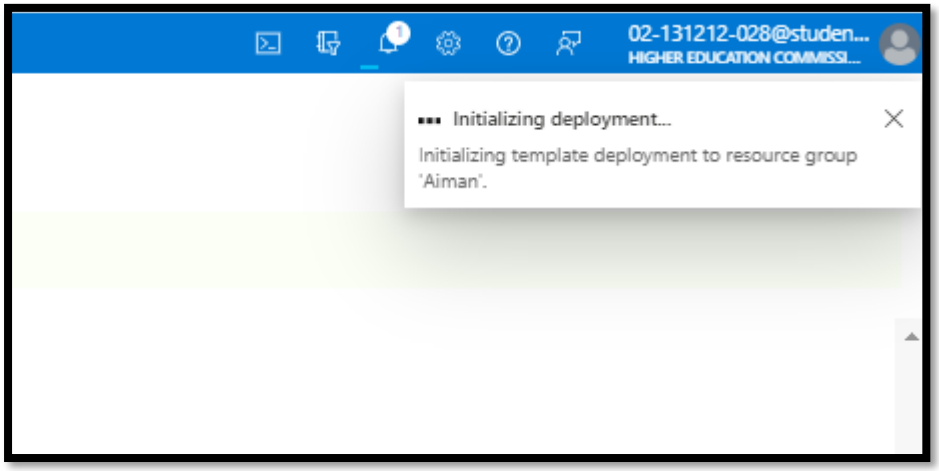
| | |
|---|---|
| Microsoft Defender for Cloud | Basic (free) |
| System assigned managed identity | Off |
| Login with Azure AD | Off |
| Auto-shutdown | Off |
| Backup | Disabled |
| Site Recovery | Disabled |
| Enable hotpatch | Off |
| Patch orchestration options | OS-orchestrated patching: patches will be installed by OS |

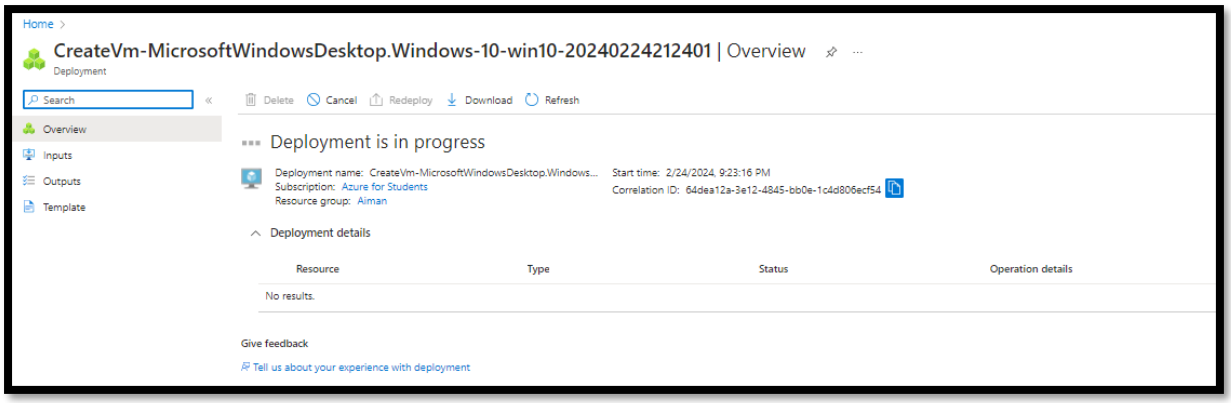
### Monitoring

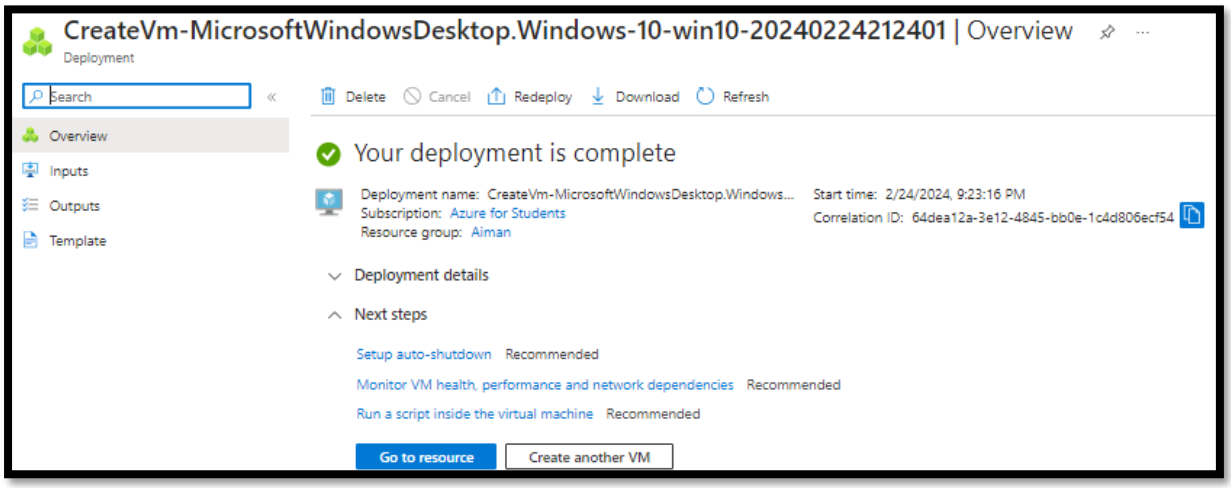
| | |
|---|---|
| Alerts | Off |
| Boot diagnostics | On |
| Enable OS guest diagnostics | Off |
| Enable application health monitoring | Off |

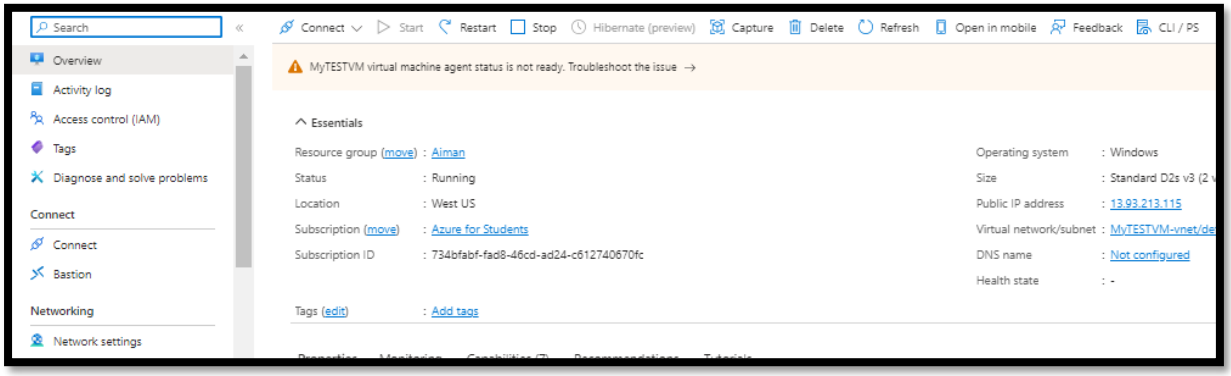
### Advanced

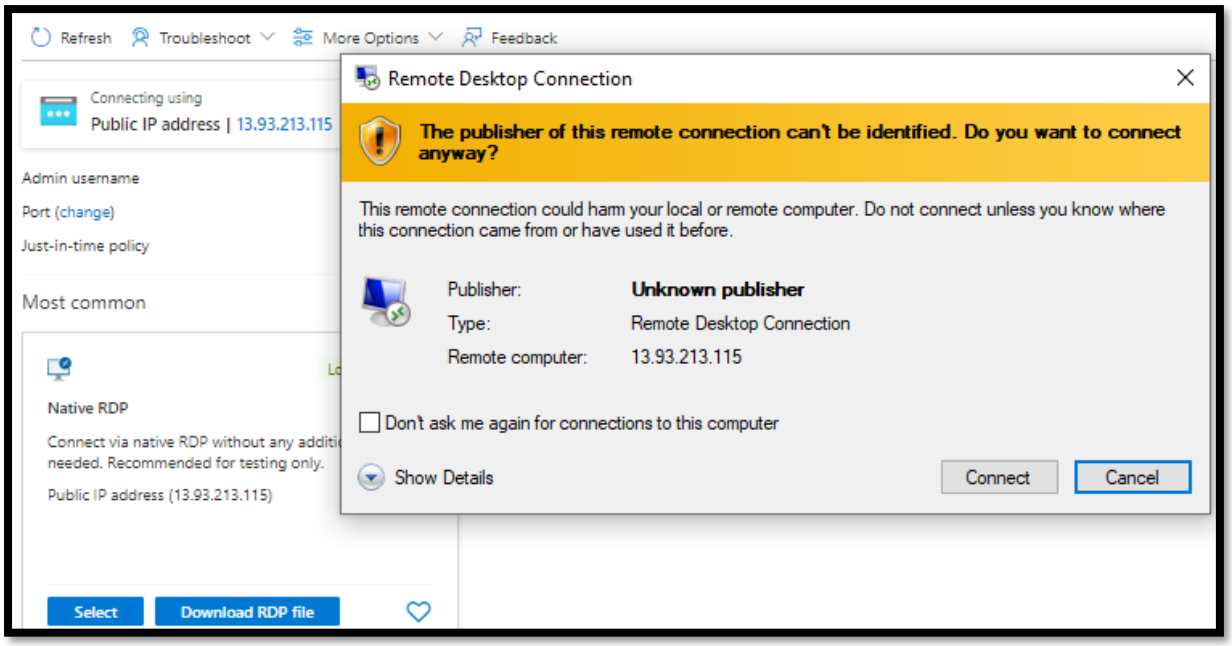
| | |
|---|---|
| Extensions | None |
| VM applications | None |
| Cloud init | No |
| User data | No |
| Disk controller type | SCSI |
| Proximity placement group | None |
| Capacity reservation group | None |

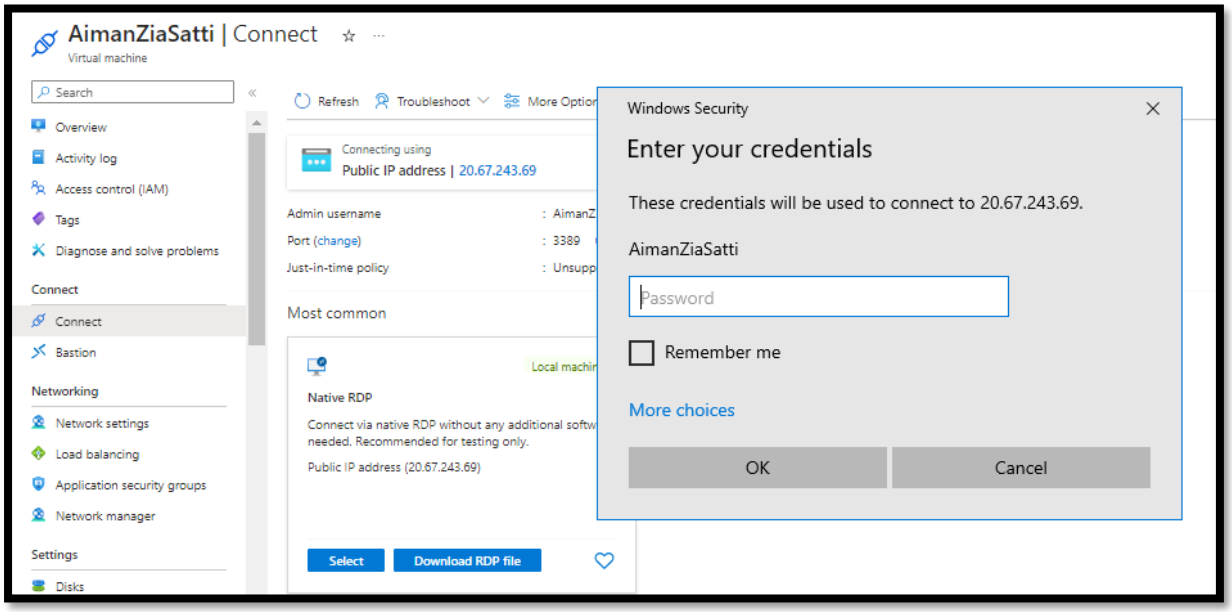


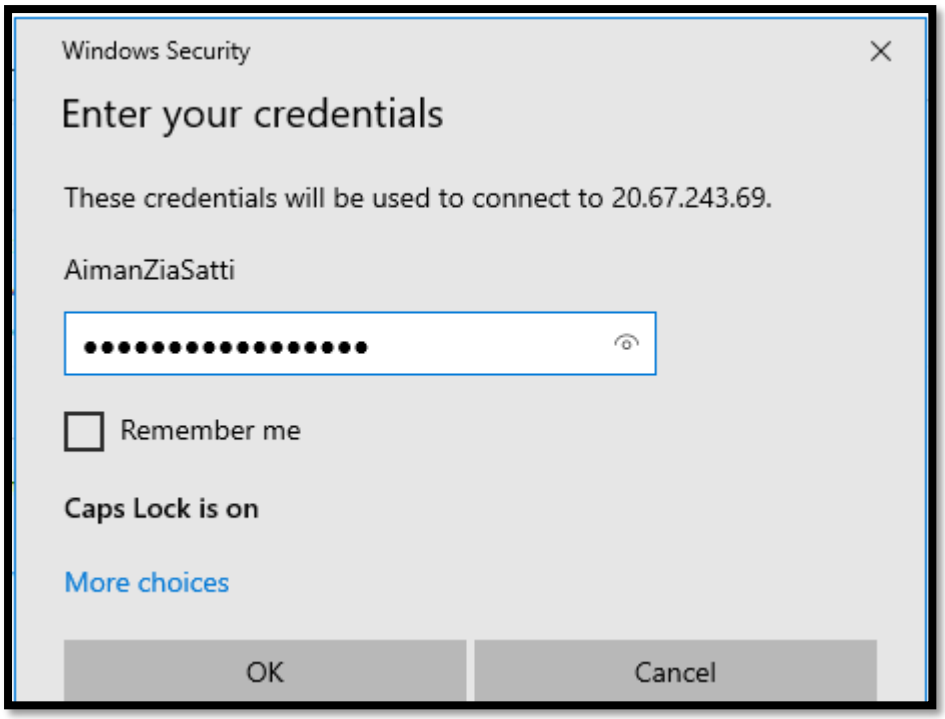

Home
CreateVm-MicrosoftWindowsDesktop.Windows-10-win10-20240224212401 | Overview
Deployment
Search
Overview
Inputs
Outputs
Template
Delete
Cancel
Redeploy
Download
Refresh
Deployment is in progress
Deployment name: CreateVm-MicrosoftWindowsDesktop.Windows...
Subscription: Azure for Students
Resource group: Aiman
Start time: 2/24/2024, 9:23:16 PM
Correlation ID: 64dea12a-3e12-4845-bb0e-1c4d806ecf54
Deployment details
Resource
Type
Status
Operation details
No results.
Give feedback
Tell us about your experience with deployment

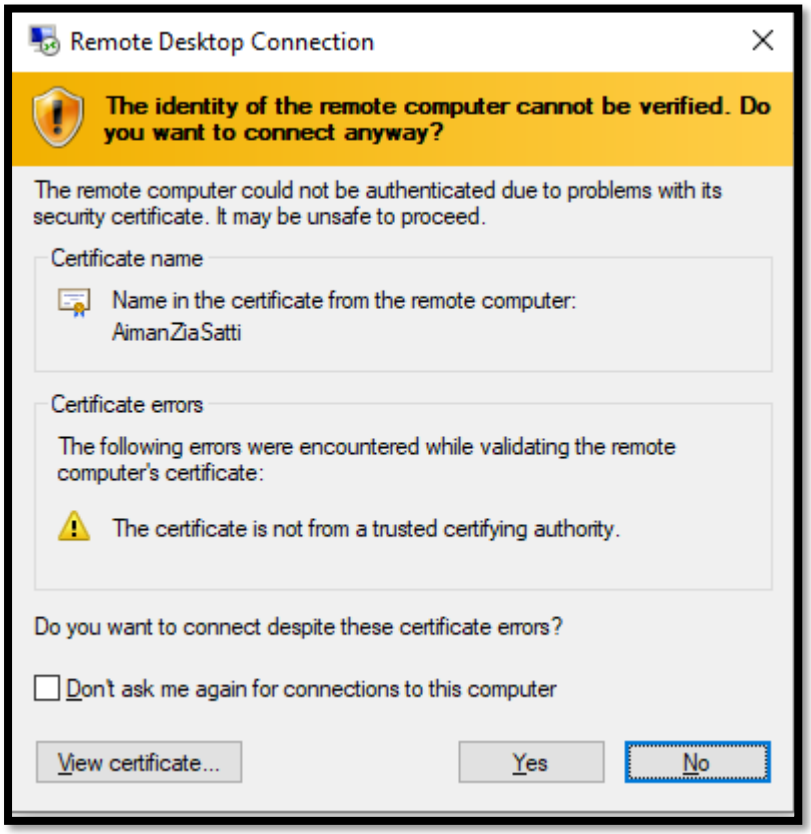

CreateVm-MicrosoftWindowsDesktop.Windows-10-win10-20240224212401 | Overview
Deployment
Search
Overview
Inputs
Outputs
Template
Delete
Cancel
Redeploy
Download
Refresh
Your deployment is complete
Deployment name: CreateVm-MicrosoftWindowsDesktop.Windows...
Subscription: Azure for Students
Resource group: Aiman
Start time: 2/24/2024, 9:23:16 PM
Correlation ID: 64dea12a-3e12-4845-bb0e-1c4d806ecf54
Deployment details
Next steps
Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended
Go to resource
Create another VM


Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Connect
Connect
Bastion
Networking
Network settings
Connect
Start
Restart
Stop
Hibernate (preview)
Capture
Delete
Refresh
Open in mobile
Feedback
CLI / PS
MyTESTVM virtual machine agent status is not ready. Troubleshoot the issue
Essentials
Resource group (move) : Aiman
Status : Running
Location : West US
Subscription (move) : Azure for Students
Subscription ID : 734bfabf-fad8-46cd-ad24-c61740670fc
Operating system : Windows
Size : Standard D2s v3
Public IP address : 13.93.213.115
Virtual network/subnet : MyTESTVM-vnet/de
DNS name : Not configured
Health state : -
Tags (edit) : Add tags

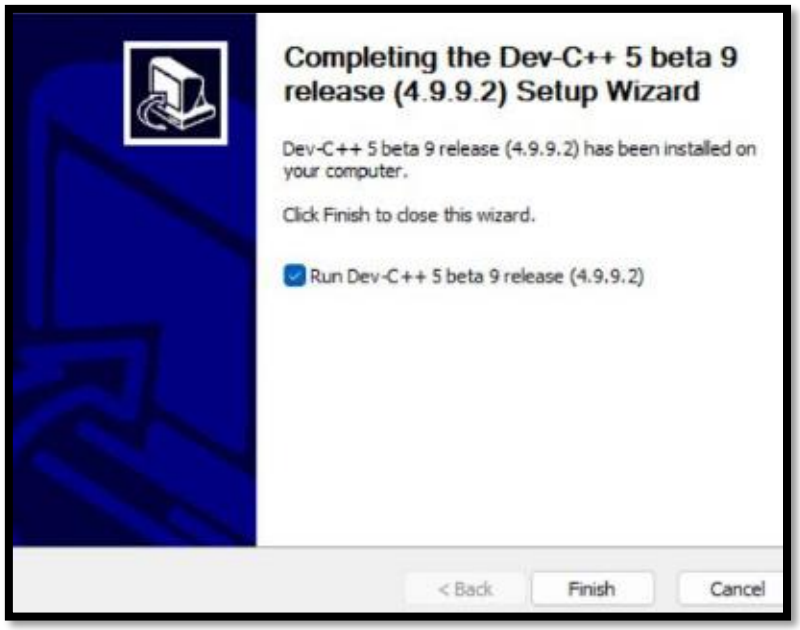

Refresh
Troubleshoot
More Options
Feedback
Connecting using
Public IP address | 13.93.213.115
Admin username
Port (change)
Just-in-time policy
Most common
Native RDP
Connect via native RDP without any additi
needed. Recommended for testing only.
Public IP address (13.93.213.115)
Select
Download RDP file
Remote Desktop Connection
The publisher of this remote connection can't be identified. Do you want to connect anyway?
This remote connection could harm your local or remote computer. Do not connect unless you know where this connection came from or have used it before.
Publisher: Unknown publisher
Type: Remote Desktop Connection
Remote computer: 13.93.213.115
Don't ask me again for connections to this computer
Show Details
Connect
Cancel


AimanZiaSatti | Connect
Virtual machine
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Connect
Connect
Bastion
Networking
Network settings
Load balancing
Application security groups
Network manager
Settings
Disks
Refresh
Troubleshoot
Connecting using
Public IP address | 20.67.243.69
Admin username
Port (change)
Just-in-time policy
Most common
Native RDP
Public IP address (20.67.243.69)
Select
Download RDP file
Windows Security
Enter your credentials
These credentials will be used to connect to 20.67.243.69.
AimanZiaSatti
Password
Remember me
More choices
OK
Cancel


Windows Security
Enter your credentials
These credentials will be used to connect to 20.67.243.69.
AimanZiaSatti
Remember me
Caps Lock is on
More choices
OK
Cancel


Remote Desktop Connection
The identity of the remote computer cannot be verified. Do you want to connect anyway?
The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.
Certificate name
Name in the certificate from the remote computer:
AimanZiaSatti
Certificate errors
The following errors were encountered while validating the remote computer's certificate:
The certificate is not from a trusted certifying authority.
Do you want to connect despite these certificate errors?
Don't ask me again for connections to this computer
View certificate...
Yes
No

**TASK # 2:** Install different software on the created VM (including VS Code and Dev++).



**TASK # 3:** Create simple login and sign up page on VS Code using VM.

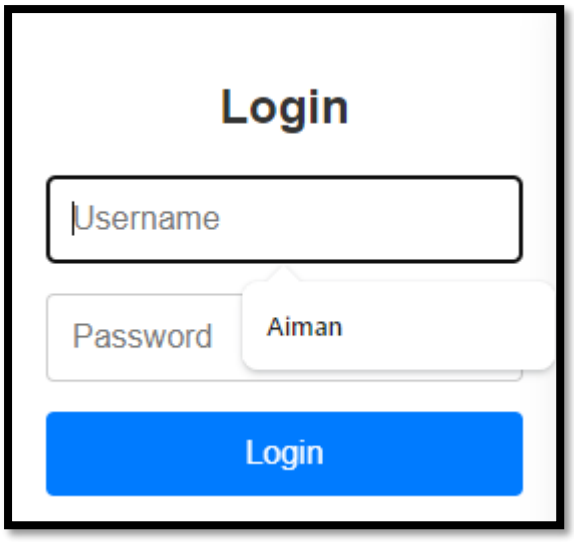
```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Login & Sign Up</title>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <div class="container">
    <form id="loginForm" class="form">
      <h2>Login</h2>
      <input type="text" id="loginUsername" placeholder="Username" required>
      <input type="password" id="loginPassword" placeholder="Password" required>
      <button type="submit">Login</button>
    </form>
    <form id="signupForm" class="form">
      <h2>Sign Up</h2>
      <input type="text" id="signupUsername" placeholder="Username" required>
      <input type="password" id="signupPassword" placeholder="Password" required>
      <button type="submit">Sign Up</button>
    </form>
  </div>
  <script src="script.js"></script>
</body>
</html>
```

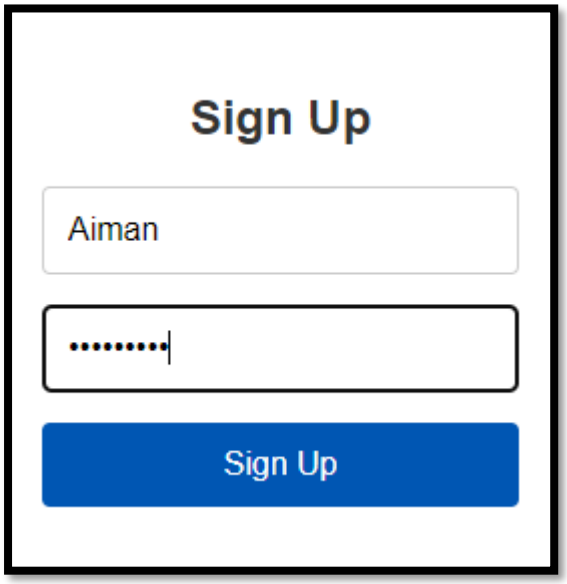
```
body {
  font-family: Arial, sans-serif;
  background-color: #f0f0f0;
  margin: 0;
```

```
    padding: 0;
}
.container {
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
}
.form {
    background-color: #fff;
    padding: 20px;
    border-radius: 8px;
    box-shadow: 0 0 20px rgba(0, 0, 0, 0.1);
    width: 350px;
    text-align: center;
}
.form h2 {
    margin-bottom: 20px;
    color: #333;
}

input[type="text"],
input[type="password"],
button {
    width: 100%;
    margin-bottom: 15px;
    padding: 12px;
    border: 1px solid #ccc;
    border-radius: 4px;
    box-sizing: border-box;
    font-size: 16px;
```

```
}
button {
  background-color: #007bff;
  color: #fff;
  border: none;
  cursor: pointer;
  transition: background-color 0.3s ease;
}
button:hover {
  background-color: #0056b3;
}
.link {
  font-size: 14px;
  color: #007bff;
  text-decoration: none;
  transition: color 0.3s ease;
}
.link:hover {
  color: #0056b3;
}
document.getElementById('loginForm').addEventListener('submit', function(event) {
  event.preventDefault();
  alert('Login button clicked');
});
document.getElementById('signupForm').addEventListener('submit', function(event) {
  event.preventDefault();
  alert('Sign Up button clicked');
});
```


Login
Username
Password
Aiman
Login


Sign Up
Aiman
Sign Up