

About Rahul Joshi:

22 Years exp, 15th year as Microsoft certified trainer & AWS Authorized instructor

- Helping customers add Application Modernization capabilities by Replatforming ASP.NET sites to Azure App Services, Replatforming of monolithic applications to microservices or containers.
- Reengineering of legacy applications to cloud-native apps with improved user experience.
- Designing cloud strategy, solution design, cloud adoption frameworks, app modernization and cloud migration.
- Develop Proof of Concept by working closely with Microsoft and Amazon Web Services and design frameworks for cloud adoption and Enterprise Architecture, Cloud Infrastructure/ Migrations.
- Responsible for Migration to Microsoft Azure (Brownfield and Greenfield Projects). In-Premise To Cloud Migration and Storage Migration.
- Perform Application Readiness Assessment, an investigation at application level in preparation for cloud deployment, to look at issues that will either block or detract from the application's abilities to fully utilize the cloud, then act on this report to ensure cloud readiness.
- Designing applications for scalability
- Migrating to PaaS & Container Architecture, Migrating from Traditional .NET Application Web Apps

"Executed more than 580+ Trainings engagements on Microsoft Azure for more than 220+ clients"

Google Drive Link:

https://drive.google.com/drive/folders/181ebdbVLk5xpLu5ArR_BFWem9b3N2x3?usp=sharing

Recording:

Please Note, Post Session Completes Zoom Recording Link will be shared on WhatsApp, Download it from Zoom Directly. It will not be uploaded on Google Drive

One Note Documentation:

<https://1drv.ms/u/s!Aht-oGFG3XwWgagy2dnZHuXQmk0wkg>

Create a virtual machine

Subscription * ⓘ MSDN Platforms

Resource group * ⓘ (New) rg-client-dev
Create new

Instance details

Virtual machine name * ⓘ vmwebserver01 ✓

Region * ⓘ (US) East US ✓

Availability options ⓘ Availability set

⚠ Based on your input, you might want to consider creating this resource as a virtual machine scale set, which allows you to manage, configure and scale load balanced virtual machines. [Create as VMSS](#)

Availability set * ⓘ No existing availability sets in current resource group and location.
Create new

Create availability set

Group two or more VMs in an availability set to ensure that at least one is available during planned or unplanned maintenance events. [Learn more](#)

Name *

Fault domains ①

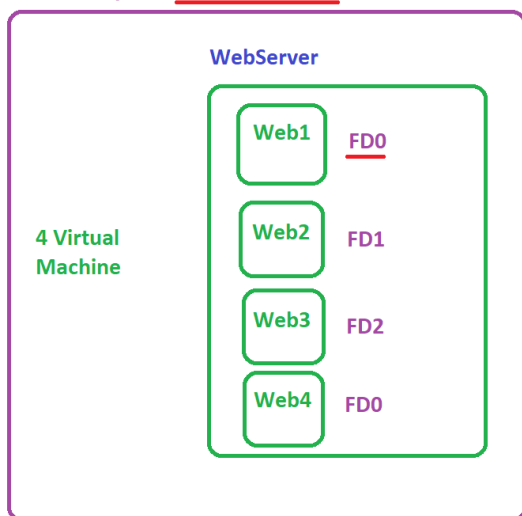
Update domains ①

Use managed disks ①
☐ No (Classic) ☒ Yes (Aligned)

1-2-3-4
 update

OK

Availability Set: WebServerSet



Availability Set: DBSet

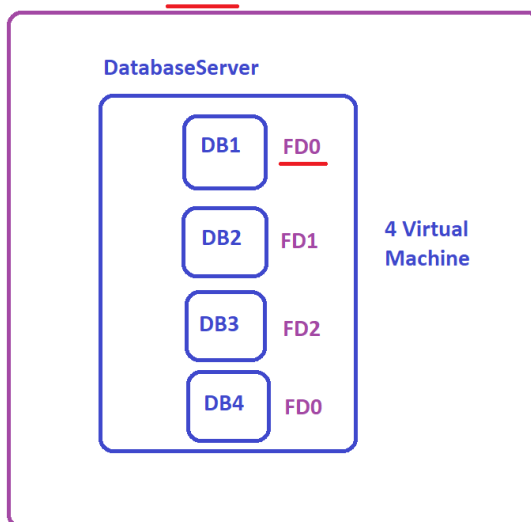


Image: Image means, what kind of operating system do you wish to install on the underlying Virtual Machine

Azure Has two types of VMs

1. Standard Operating system
2. Workload Virtual Machine

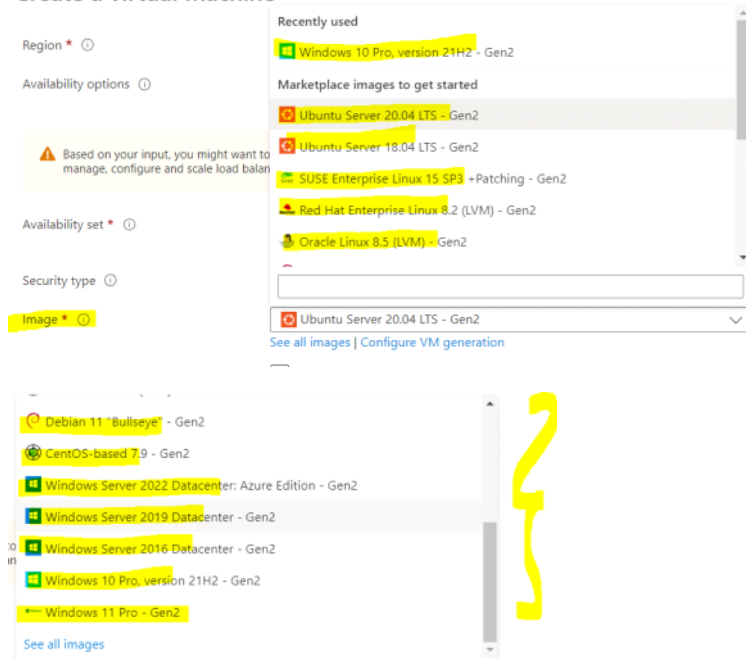
Standard Operating system: Windows 10, Windows 11, Windows Server Family, Linux Family (Ubuntu, Red Hat)

Workload Virtual Machine: SQL Server Virtual Machine, Visual Studio Virtual Machine, Oracle Linux Virtual Machine

Workload means, that VM will have a software pre-installed, and you do not have to efforts to install the software

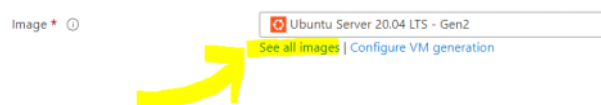
Standard Virtual Machine Images

Create a virtual machine



Amazon Web Services also has MAC, Microsoft Azure still does not MAC Operating system

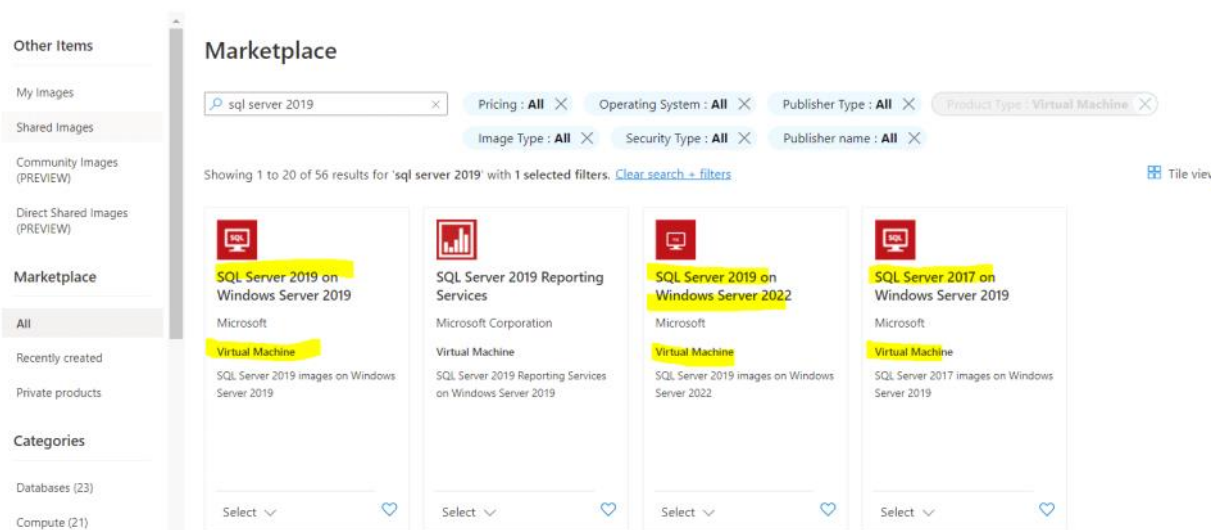
How to get Workload Virtual Machines



Select an image



Select an image



This VM gets created in 8 to 10 minutes

Select an image ...

Rahul V Joshi | 1.01.19

Other Items

- My Images
- Shared Images
- Community Images (PREVIEW)
- Direct Shared Images (PREVIEW)
- Marketplace
- All
- Recently created
- Private products
- Categories
- Developer Tools (37)
- Compute (19)
- Analytics (9)

Marketplace

visual studio x Pricing: All x Operating System: All x Publisher Type: All x Product Type: Virtual Machine x Image Type: All x Security Type: All x Publisher name: All x

Showing 1 to 20 of 54 results for 'visual studio' with 1 selected filters. [Clear search + filters](#)

Visual Studio

Microsoft

Virtual Machine

Visual Studio images for Azure

Select v

Visual Studio 2019 Latest

Microsoft

Virtual Machine

Visual Studio images for Azure

Select v

Visual Studio 2022

Microsoft

Virtual Machine

Visual Studio images for Azure

Select v

Visual Studio Code in Browser

TechLatest

Virtual Machine

Visual Studio Code in your browser

Select v

Dev

This VM gets created in 8 to 10 minutes

Marketplace

oracle x Pricing: All x Operating System: All x Publisher Type: All x Product Type: Virtual Machine x Image Type: All x Security Type: All x Publisher name: All x

Showing 1 to 20 of 127 results for 'oracle' with 1 selected filters. [Clear search + filters](#)

Oracle Linux

Oracle America, Inc.

Virtual Machine

Oracle Linux is an optimized and secure operating environment.

Oracle Database

Oracle America, Inc.

Virtual Machine

Oracle Database offers market-leading performance, scalability, reliability, and security.

Oracle Database 19c 3.0.0

Oracle America, Inc.

Virtual Machine

Oracle Database 19c offers market-leading performance, scalability, reliability & security in cloud.

Oracle Database 12.1.0.2 Standard Edition

Oracle

Virtual Machine

Oracle Database 12c Standard Edition is an affordable, full-featured data management solution that is ideal for midsize companies.

1

Plain Operating System
Win | Linux

You can create Windows 10, Server VM

2

Workload VM
SQL
Visual Studio
Oracle

You can create SQL VM

Create a VM

Win Server 2016
SQL Server 2017
WinZip
Powershell | CLI
Sample Database

Your Image
From this VM

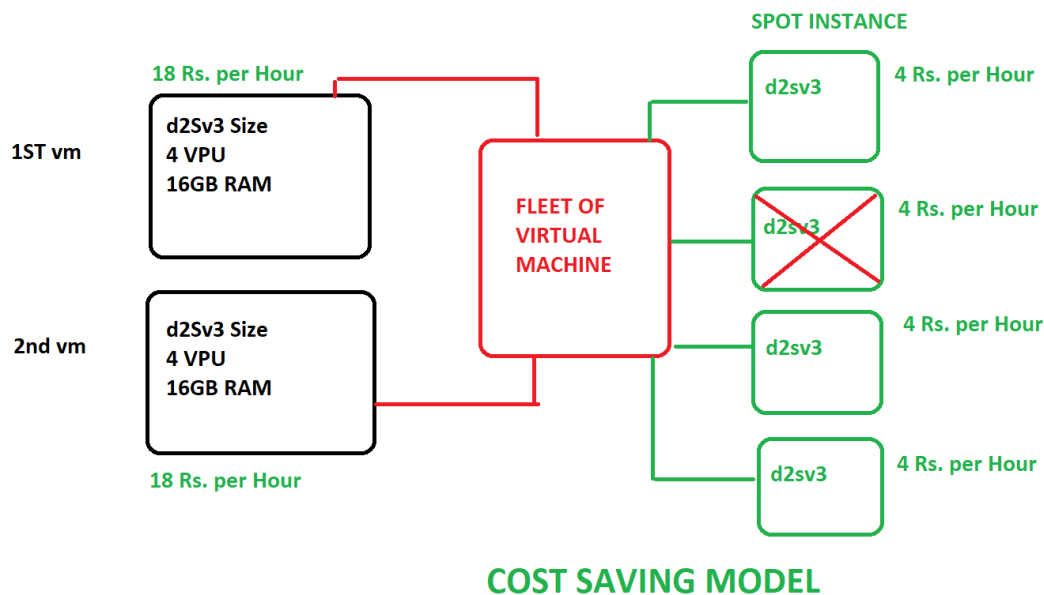
3

rahul's image

Create VM

Win Server 2016
SQL Server 2017
WinZip
Powershell | CLI
Sample Database

Day 3 Page 5



Size * Standard_D4ds_v4 - 4 vcpus, 16 GiB memory (₹11,886.03/month)

[See all sizes](#)

Interview - Architects | Admin

VM Sizes

<https://docs.microsoft.com/en-us/azure/virtual-machines/sizes>

Type	Sizes	Description
General purpose	B, Dsv3, Dv3, Dasv4, Dav4, DSv2, Dv2, Av2, DC, DCv2, Dv4, Dsv4, Ddv4, Ddsv4, Dv5, Dsv5, Ddv5, Ddsv5, Dasv5, Dadsv5	Balanced CPU-to-memory ratio. Ideal for testing and development, small to medium databases, and low to medium traffic web servers.
Compute optimized	F, Fs, Fsv2, FX	High CPU-to-memory ratio. Good for medium traffic web servers, network appliances, batch processes, and application servers.
Memory optimized	Esv3, Ev3, Easv4, Eav4, Ebdsv5, Ebsv5, Ev4, Esv4, Edv4, Fdsv4, Ev5, Esv5, Edv5, Ebsv5, Easv5, Eadsv5, Mv2, M, DSv2, Dv2	High memory-to-CPU ratio. Great for relational database servers, medium to large caches, and in-memory analytics.
Storage optimized	Lsv2, Lsv3, Lasv3	High disk throughput and IO ideal for Big Data, SQL, NoSQL databases, data warehousing and large transactional databases.
GPU	NC, NCv2, NCv3, NCasT4_v3, ND, NDv2, NV, NVv3, NVv4, NDasrA100_v4, NDm_A100_v4	Specialized virtual machines targeted for heavy graphic rendering and video editing, as well as model training and inferencing (ND) with deep learning. Available with single or multiple GPUs.
High performance compute	HB, HBv2, HBv3, HC, H	Our fastest and most powerful CPU virtual machines with optional high-throughput network interfaces (RDMA).

Deep Dive - Memory Optimized

Memory optimized VM sizes offer a high memory-to-CPU

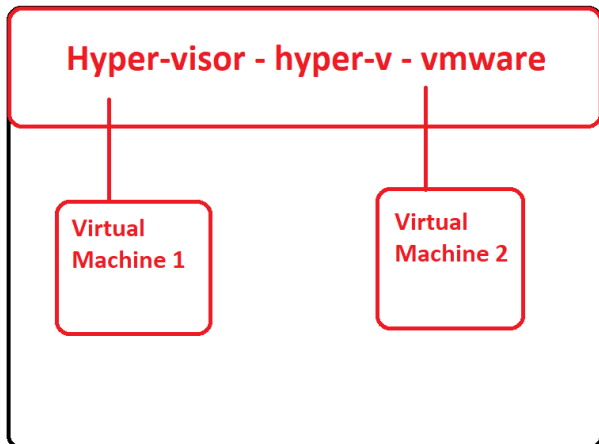
- Dv2 and DSv2-series, a follow-on to the original D-series, features a more powerful CPU. The Dv2-series is about 35% faster than the D-series. It runs on the Intel® Xeon® 8171M 2.1 GHz (Skylake) or the Intel® Xeon® E5-2673 v4 2.3 GHz (Broadwell) or the Intel® Xeon® E5-2673 v3 2.4 GHz (Haswell) processors, and with the Intel Turbo Boost Technology 2.0. The Dv2-series has the same memory and disk configurations as the D-series.

- The Eav4 and Easv4-series utilize AMD's 2.35Ghz EPYC™ 7452 processor in a multi-threaded configuration with up to 256MB L3 cache, increasing options for running most memory optimized workloads. The Eav4-series and Easv4-series have the same memory and disk configurations as the Ev3 & Esv3-series.

Interviews

Can we have a VM inside another VM? YES

Virtual Machine



- The Ev4 and Esv4-series runs on 2nd Generation Intel® Xeon® Platinum 8272CL (Cascade Lake) processors in a hyper-threaded configuration, are ideal for various memory-intensive enterprise applications and feature up to 504 GiB of RAM. It features the Intel® Turbo Boost Technology 2.0, Intel® Hyper-Threading Technology and Intel® Advanced Vector Extensions 512 (Intel AVX-512). The Ev4 and Esv4-series do not include a local temp disk. For more information, refer to Azure VM sizes with no local temp disk.

If the CPU supports Hyper-Threaded Technology you can achieve the above objective

What is the maximum RAM - Memory Provided by Microsoft for a Virtual Machine?

- The M-series offers a high vCPU count (up to 128 vCPUs) and a large amount of memory (up to 3.8 TiB). It's also ideal for extremely large databases or other applications that benefit from high vCPU counts and large amounts of memory.
- The Mv2-series offers the highest vCPU count (up to 416 vCPUs) and largest memory (up to 11.4 TiB) of any VM in the cloud. It's ideal for extremely large databases or other applications that benefit from high vCPU counts and large amounts of memory.

Compute Optimized

Type	Sizes	Description
General purpose	B, Dsv3, Dv3, Dasv4, Dav4, Dsv2, Dv2, Av2, DC, DCv2, Dv4, Dsv4, Ddv4, Ddsv4, Dv5, Dsv5, Ddv5, Ddsv5, Dasv5, Ddsdv5	Balanced CPU-to-memory ratio. Ideal for testing and development, small to medium databases, and low to medium traffic web servers.
Compute optimized	F, Fs, Fsv2, FX	High CPU-to-memory ratio. Good for medium traffic web servers, network appliances, batch processes, and application servers.

Compute optimized VM sizes have a high CPU-to-memory ratio. These sizes are good for medium traffic web servers, network appliances, batch processes, and application servers. This article provides information about the number of vCPUs, data disks, and NICs. It also includes information about storage throughput and network bandwidth for each size in this grouping.

- The **Fsv2-series** runs on 2nd Generation Intel® Xeon® Platinum 8272CL (Cascade Lake) processors and Intel® Xeon® Platinum 8168 (Skylake) processors. It features a sustained all core Turbo clock speed of 3.4 GHz and a maximum single-core turbo frequency of 3.7 GHz. Intel® AVX-512 instructions are new on Intel Scalable Processors. These instructions provide up to a 2X performance boost to vector processing workloads on both single and double precision floating point operations. In other words, they're really fast for any computational workload. At a lower per-hour list price, the Fsv2-series is the best value in price-performance in the Azure portfolio based on the Azure Compute Unit (ACU) per vCPU.
- The **FX-series** runs on the Intel® Xeon® Gold 6246R (Cascade Lake) processors. It features an all-core-turbo frequency of 4.0GHz, 21GB RAM per vCPU, up to 1TB total RAM, and local temporary storage. It will benefit workloads which require a high CPU clock speed and high memory to CPU ratio, workloads with high per-core licensing costs, and applications requiring high a single-core performance. A typical use case for FX-series is the Electronic Design Automation (EDA) workload.

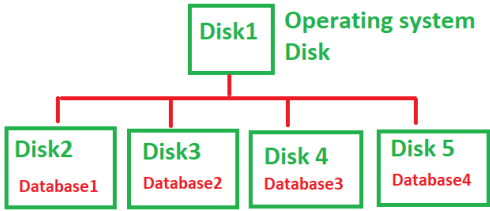
Disk - 1TB

DRIVE NOT DISK - DRIVE IS LOGICAL PARTITION

C:\	D:\	E:\	F:\
	Database1	Database2	Database3

YOU NEVER GET PERFORMANCE BENEFIT IF YOU KEEP DATA ACROSS DIFFERENT DRIVES, BECAUSE DRIVES ARE LOGICAL PARTITION IN THE SAME DISK, EVERY DISK HAS A READ / WRITE HEAD, THE HEAD CANNOT READ IN PARALLEL, THIS IS THE REASON YOU NEVER PERFORMANCE WHEN YOU KEEP DATA ON DRIVES, SOLUTION IS TO USE DISK

Size	vCPU's	Memory: GiB	Temp storage (SSD) GiB	Max data disks	Max cached and temp storage throughput: IOPS/MBps (cache size in GiB)	Max uncached disk throughput: IOPS/MBps	Max burst uncached disk throughput: IOPS/MBps ¹	Max NICs
Standard_F2s_v2 ⁴	2	4	16	4	4000/31 (32)	3200/47	4000/200	2
Standard_F4s_v2	4	8	32	8	8000/63 (64)	6400/95	8000/200	2
Standard_F8s_v2	8	16	64	16	16000/127 (128)	12800/190	16000/400	4
Standard_F16s_v2	16	32	128	32	32000/255 (256)	25600/380	32000/800	4
Standard_F32s_v2	32	64	256	32	64000/512 (512)	51200/750	64000/1600	8
Standard_F48s_v2	48	96	384	32	96000/768 (768)	76800/1100	80000/2000	8
Standard_F64s_v2	64	128	512	32	128000/1024 (1024)	80000/1100	80000/2000	8
Standard_F72s_v2 ^{2,3}	72	144	576	32	144000/1152 (1520)	80000/1100	80000/2000	8



PERFORMANCE - PARALLEL PROCESSING CAN HAPPEN

you use all 8 Disk

Size	vCPU's	Memory: GiB	Temp storage (SSD) GiB	Max data disks	Max cached and temp storage throughput: IOPS/MBps (cache size in GiB)	Max uncached disk throughput: IOPS/MBps	Max burst uncached disk throughput: IOPS/MBps ¹	Max NICs
Standard_F2s_v2 ⁴	2	4	16	4	4000/31 (32)	3200/47	4000/200	2
Standard_F4s_v2	4	8	32	8	8000/63 (64)	6400/95	8000/200	2
Standard_F8s_v2	8	16	64	16	16000/127 (128)	12800/190	16000/400	4
Standard_F16s_v2	16	32	128	32	32000/255 (256)	25600/380	32000/800	4
Standard_F32s_v2	32	64	256	32	64000/512 (512)	51200/750	64000/1600	8
Standard_F48s_v2	48	96	384	32	96000/768 (768)	76800/1100	80000/2000	8
Standard_F64s_v2	64	128	512	32	128000/1024 (1024)	80000/1100	80000/2000	8
Standard_F72s_v2 ^{2,3}	72	144	576	32	144000/1152 (1520)	80000/1100	80000/2000	8

Website Slow
Database Queries running slow

IOPS - Input Output Per Sec

Select a VM size

Display cost: Monthly
vCPUs: All
RAM (GiB): All

Showing 696 VM sizes. | Subscription: MSDN Platforms | Region: East US | Current size: Standard_D4ds_v4

VM Size ↑↓	Type ↑↓	vCPUs ↑↓	RAM (GiB) ↑
Most used by Azure users ↗			
DS1_v2 ↗	General purpose	1	3.5
D2s_v3 ↗	General purpose	2	8
D2as_v4 ↗	General purpose	2	8
B2s ↗	General purpose	2	4
B1s ↗	General purpose	1	1
B2ms ↗	General purpose	2	8
DS2_v2 ↗	General purpose	2	7
B4ms ↗	General purpose	4	16
D4s_v3 ↗	General purpose	4	16
DS3_v2 ↗	General purpose	4	14
D8s_v3 ↗	General purpose	8	32

Select
Prices presented are estimates in your local currency that include only Azure infrastructure costs. Final charges will appear in your local currency in cost analysis and billing views. V

Interviews Question + EXAM question

What is B - Series - what is Burstable Compute?

<https://docs.microsoft.com/en-us/azure/virtual-machines/sizes-b-series-burstable>

B-series burstable virtual machine sizes

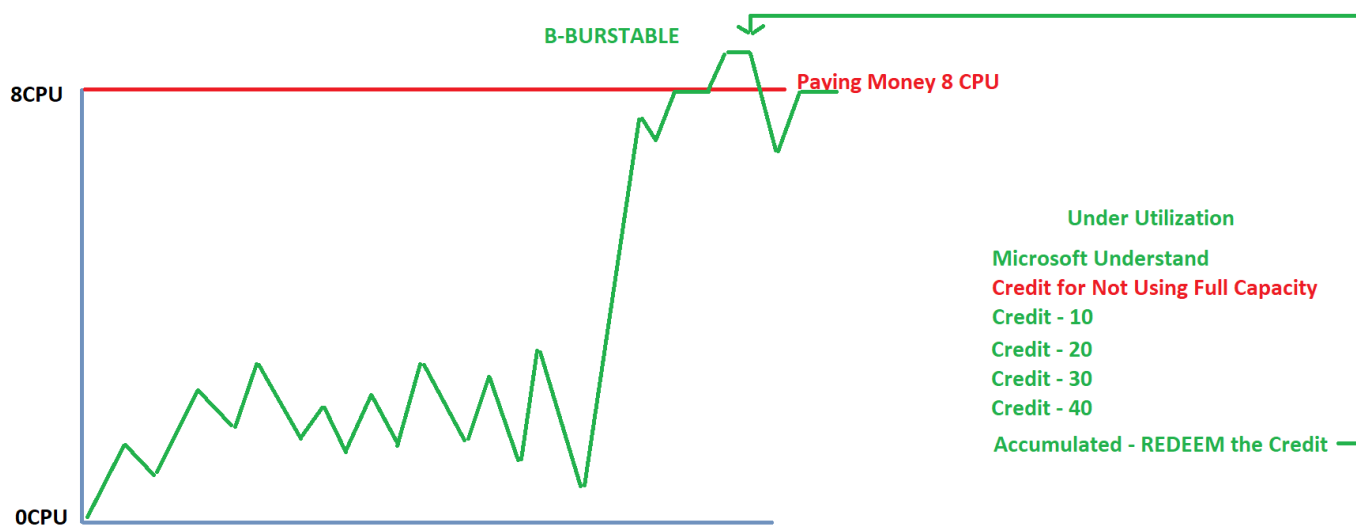
Article • 05/25/2022 • 7 minutes to read • 13 contributors

Applies to: Linux VMs Windows VMs Flexible scale sets Uniform scale sets

The B-series VMs can be deployed on a variety of hardware types and processors, so competitive bandwidth allocation is provided. B-series run on the 3rd Generation Intel® Xeon® Platinum 8370C (Ice Lake), the Intel® Xeon® Platinum 8272CL (Cascade Lake), the Intel® Xeon® 8171M 2.1 GHz (Skylake), the Intel® Xeon® E5-2673 v4 2.3 GHz (Broadwell), or the Intel® Xeon® E5-2673 v3 2.4 GHz (Haswell) processors. B-series VMs are ideal for workloads that do not need the full performance of the CPU continuously, like web servers, proof of concepts, small databases and development build environments. These workloads typically have burstable performance requirements. To determine the physical hardware on which this size is deployed, query the virtual hardware from within the virtual machine. The B-series provides you with the ability to purchase a VM size with baseline performance that can build up credits when it is using less than its baseline. When the VM has accumulated credits, the VM can burst above the baseline using up to 100% of the vCPU when your application requires higher CPU performance.

The B-series provides you with the ability to purchase a VM size with baseline performance that can build up credits when it is using less than its baseline.

When the VM has accumulated credits, the VM can burst above the baseline using up to 100% of the vCPU when your application requires higher CPU performance.



Q & A

Q: What happens when my credits run out?

A: When the credits are exhausted, the VM returns to the baseline performance.

Q: How do you get 135% baseline performance from a VM?

A: The 135% is shared amongst the 8 vCPU's that make up the VM size. For example, if your application uses 4 of the 8 cores working on batch processing and each of those 4 vCPU's are running at 30% utilization the total amount of VM CPU performance would equal 120%. Meaning that your VM would be building credit time based on the 15% delta from your baseline performance. But it also means that when you have credits available that same VM can use 100% of all 8 vCPU's giving that VM a Max CPU performance of 800%.

Q: How can I monitor my credit balance and consumption?

A: The **Credit** metric allows you to view how many credits your VM have been banked and the **ConsumedCredit** metric will show how many CPU credits your VM has consumed from the bank. You will be able to view these metrics from the metrics pane in the portal or programmatically through the Azure Monitor APIs.

For more information on how to access the metrics data for Azure, see [Overview of metrics in Microsoft Azure](#).

Run with Azure Spot discount ☐

Size *

Standard_B2ms - 2 vcpus, 8 GiB memory (₹4,375.74/month)

[See all sizes](#)

Administrator account

Username *

rahul

Password *

Confirm password *

Username and password, we use to login or connect to the Virtual Machine

Username: rahul

Password: Welcome@123456

In case you forget the username, you can get it and in case you forget the password, you can Reset it.

Inbound port rules

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

Public inbound ports * ⓘ

☐ None

☒ Allow selected ports

Select inbound ports *

RDP (3389)

HTTP (80)

HTTPS (443)

SSH (22)

☒ RDP (3389)

Port = Is a number

Port - Where Services Listen

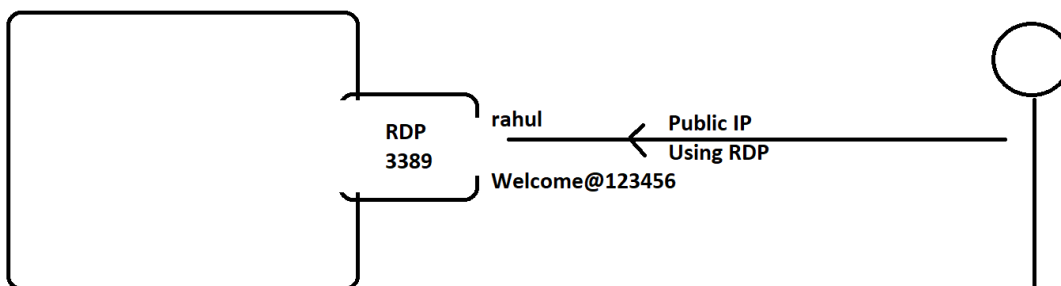
HTTP - Non-Secure Communication - WebServer - 80 (YES) - Communication is allowed from that Port

HTTPS - Secure Communication Port - WebServer - 443 (YES) - Communication is allowed from that Port

SSH - Connect to connect to Linux Virtual Machine - Enable Port 22, you can login to Linux VM

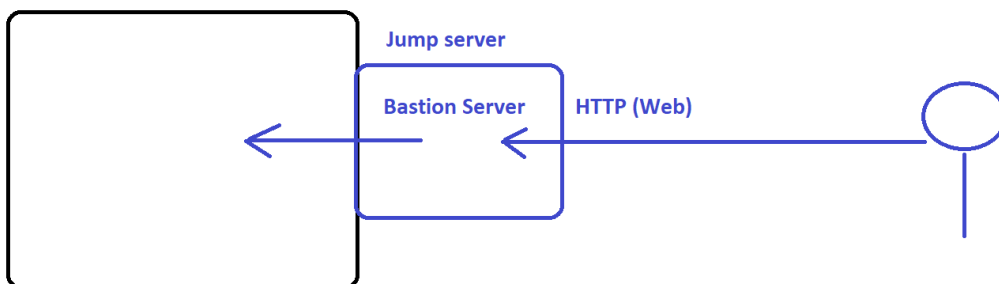
RDP - Remote Desktop Protocol, Port 3389 - Login To Windows VM

Windows Server



Security Best Practices - Disable RDP Port

Windows Server



EXAM + Interview:

<https://docs.microsoft.com/en-us/azure/bastion/bastion-overview>

Azure Bastion is a service you deploy that lets you connect to a virtual machine using your browser and the Azure portal. The Azure Bastion service is a fully platform-managed PaaS service that you provision inside your virtual network. It provides secure and seamless RDP/SSH connectivity to your virtual machines directly from the Azure portal over TLS. When you connect via Azure Bastion, your virtual machines don't need a public IP address

We here only see 4 Ports, HTTP, HTTPS, SSH, RDP, What if we want to connect to SQL Server, Oracle, FTP, SFTP or any other customer, from where we can configure it.

NSG - Network Security Group

I AAS P AAS

Licensing

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

Would you like to use an existing Windows Server license? *

☐

[Review Azure hybrid benefit compliance](#)

[Review + create](#)

[< Previous](#)

[Next : Disks >](#)

Create a virtual machine

Basics **Disks** Networking Management Advanced Tags Review + create

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

Create a virtual machine

Basics **Disks** Networking Management Advanced Tags Review + create

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

Disk options

OS disk type *

Delete with VM

Enable encryption at host

Encryption at host is not registered for

Encryption type *

Premium SSD (locally-redundant storage)

Locally-redundant storage (data is replicated within a single datacenter)

Premium SSD
Best for production and performance sensitive workloads

Standard SSD
Best for web servers, lightly used enterprise applications and dev/test

Standard HDD
Best for backup, non-critical, and infrequent access

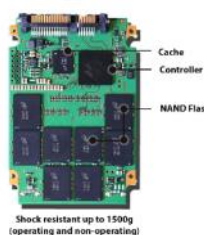
Max IOPS - 6000 STANDARD

Max IOPS - 20000 PREMIUM

8192 GiB	P60	16000
16384 GiB	P70	18000
32767 GiB	P80	20000

Even if you select 20GB, you will use 20GB, but pay for 32GB

SSD
2.5"



FAST
Expensive
PRODUCTION USE
WEB SERVER
DATABASE SERVER

Standard HDD



Cheap
High Latency
Test | Dev | Training
NOT PRODUCTION
VERY VERY SLOW

32767 GiB P80 20000

Custom disk size (GiB) *



20000


Create a virtual machine ...


Basics **Disks** Networking Management Advanced Tags Review + create

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


Disk options

OS disk type  **Standard HDD (locally-redundant storage)** 
The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.

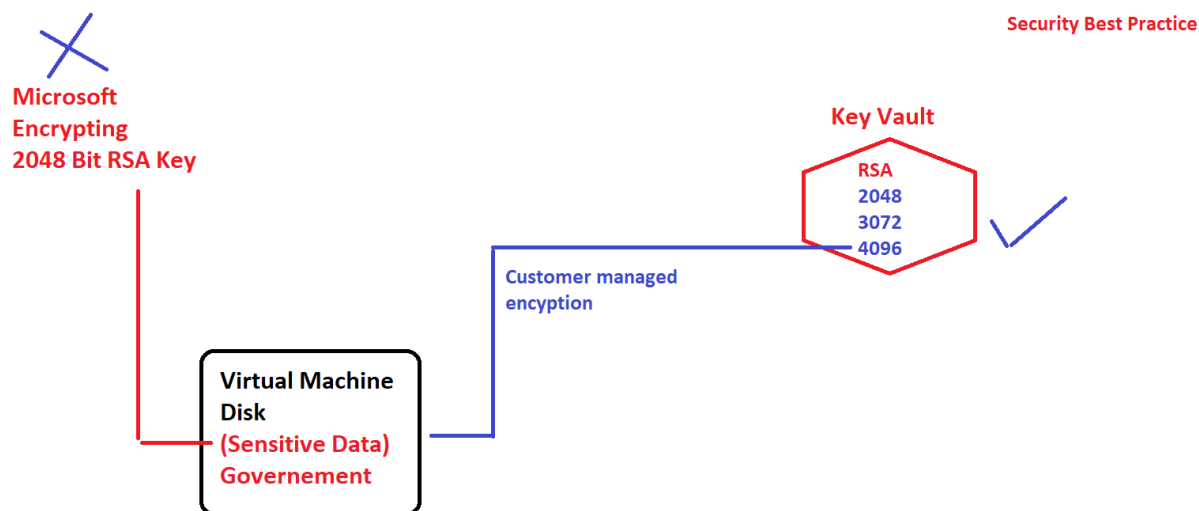
Delete with VM  ☒

Enable encryption at host  ☐




Encryption type * **(Default) Encryption at-rest with a platform-managed key** 

The Hard-Disk is stored In Microsoft Datacenter, in the datacenter the harddisk is "Encrypted" by Microsoft using 2048 Bit RSA Encryption. All the disk are protected at REST by Microsoft



Data disks for vmwebserver01

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](#)


Advanced

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 * **website1data** 

Source type *  **None (empty disk)** 

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

Select a disk size ...

Browse available disk sizes and their features.

Disk SKU ⓘ

Premium SSD (locally-redundant storage) ▼

Locally-redundant storage (data is replicated within a single datacenter)

Premium SSD

Best for production and performance sensitive workloads

Standard SSD

Best for web servers, lightly used enterprise applications and dev/test

Standard HDD

Best for backup, non-critical, and infrequent access

In Real World, choose between Premium vs Standard as Performance is important, for test, dev, training you can choose Standard HDD

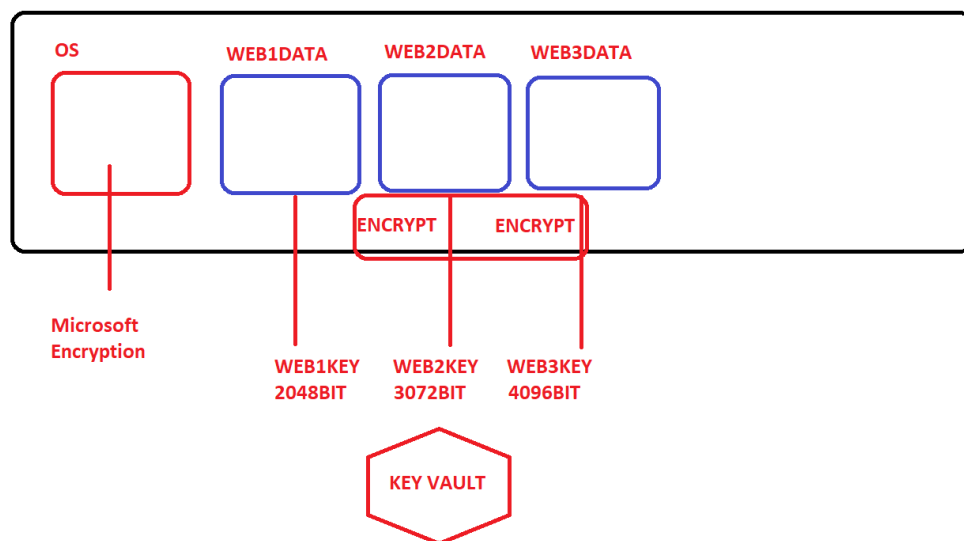
Select a disk size ...

Browse available disk sizes and their features.

Disk SKU ⓘ

Standard HDD (locally-redundant storage) ▼

Size	Performance tier	Provisioned IOPS	Provisioned IOPS per GB
32 GiB	S4	500	60



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 * website1data ✓

Source type * ⓘ None (empty disk) ▼

Size * ⓘ 32 GiB
Standard HDD LRS
[Change size](#)

Encryption type * (Default) Encryption at-rest with a platform-managed key ▼

Enable shared disk ☐ Yes ☒ No
Shared disk not available for the selected size.

Delete disk with VM ☒

Microsoft does not delete the Data disk by Default. You have to check the box, to delete the Disk when VM is deleted.

IN AWS - OS DISK AND DATA AND NOT ENCRYPTED BY DEFAULT, YOU HAVE TO SELECT MANUALLY IF DISK OS OR ADDITIONAL HAVE

TO BE ENCRYPTED AT REST

Data disks for vmwebserver01

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	website1data	32	Standard HDD LRS	None	<input checked="" type="checkbox"/>

Create and attach a new disk

Attach an existing disk

100% EXAM QUESTION

<https://docs.microsoft.com/en-us/azure/virtual-machines/disks-performance>

Virtual machine uncached vs cached limits

Virtual machines that are enabled for both premium storage and premium storage caching have two different storage bandwidth limits. Let's look at the Standard_D8s_v3 virtual machine as an example.

Here is the documentation on the Dsv3-series and the Standard_D8s_v3:

Size	vCPU	Memory: GiB	Temp storage (SSD) GiB	Max data disks	Max cached and temp storage throughput: IOPS/MBps (cache size in GiB)	Max uncached disk throughput: IOPS/MBps	Max NICs/Expected network bandwidth (Mbps)
Standard_D2s_v3	2	8	16	4	4000/32 (50)	3200/48	2/1000
Standard_D4s_v3	4	16	32	8	8000/64 (100)	6400/96	2/2000
Standard_D8s_v3	8	32	64	16	16000/128 (200)	12800/192	4/4000
Standard_D16s_v3	16	64	128	32	32000/256 (400)	25600/384	8/8000
Standard_D32s_v3	32	128	256	32	64000/512 (800)	51200/768	8/16000
Standard_D48s_v3	48	192	384	32	96000/768 (1200)	76800/1152	8/24000
Standard_D64s_v3	64	256	512	32	128000/1024 (1600)	80000/1200	8/30000

VM Size is important for caching to be enabled, once enabled you can use Read/Only or Read/Write for cache, Very Good Improving Performance of Database Server.

Virtual Machine _____ Night 11PM - Shutdown the VM
B4MS - 4 CPU _____ No
OS - Premium SSD _____ No
Additional Disk 1 - HDD - 32GB _____ Yes
Additional Disk 2 - SSD - 128GB _____ Yes Provisioned | Reserved
Public IP _____ Yes

Create a virtual machine ...

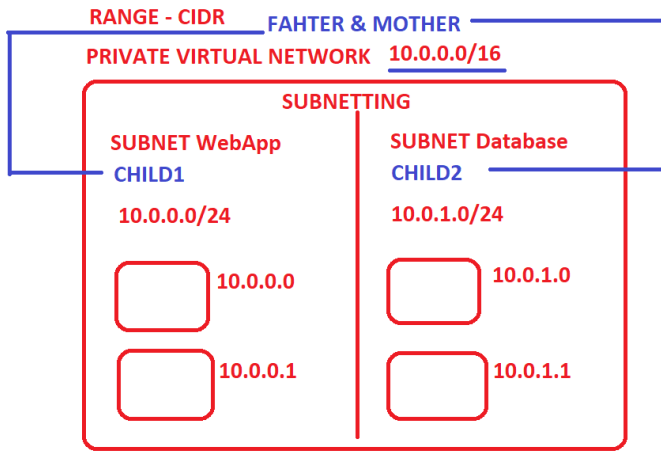
Basics Disks **Networking** Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.

[Learn more](#)

Private Network

https://en.wikipedia.org/wiki/Private_network



VIRTUAL MACHINES ARE PART OF THE NETWORK, BUT THEY ARE CONNECTED TO THE SUBNET

Create a virtual machine

Basics Disks **Networking** Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

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

Virtual network * (new) rg-client-dev-vnet

[Create new](#)

Subnet * (new) default (10.0.0.0/24)

If you do not know, anything on IP and Subnet, you lack knowledge on IP Address, do not worry, Microsoft will create for a Virtual Network, Microsoft Will create for You Submit

Create a virtual machine

Basics Disks **Networking** Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

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

Virtual network * (new) rg-client-dev-vnet

[Create new](#)

Create virtual network

The Microsoft Azure Virtual Network service enables Azure resources to securely communicate with each other in a virtual network which is a logical isolation of the Azure cloud dedicated to your subscription. You can connect virtual networks to other virtual networks, or your on-premises network. [Learn more](#)

Name * vnetmycompany

Address space

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

<input type="checkbox"/> Address range	Addresses	Overlap	
<input type="checkbox"/> 10.0.0.0/16	10.0.0.0 - 10.0.255.255 (65536 addresses)	None	
<input type="text"/>	(0 Addresses)	None	

Subnets

The subnet's address range in CIDR notation. It must be contained by the address space of the virtual network.

<input type="checkbox"/> Subnet name	Address range	Addresses	
<input type="checkbox"/> default	10.0.0.0/24	10.0.0.0 - 10.0.0.255 (256 addresses)	
<input type="text"/>	<input type="text"/>	(0 Addresses)	

Create virtual network

✕

The Microsoft Azure Virtual Network service enables Azure resources to securely communicate with each other in a virtual network which is a logical isolation of the Azure cloud dedicated to your subscription. You can connect virtual networks to other virtual networks, or your on-premises network. [Learn more](#)

Name *

Address space

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<input type="checkbox"/> Address range	Addresses	Overlap
<input type="checkbox"/> 192.168.0.0/16	192.168.0.0 - 192.168.255.255 (65536 address...)	None
<input type="text"/>	(0 Addresses)	None

Subnets

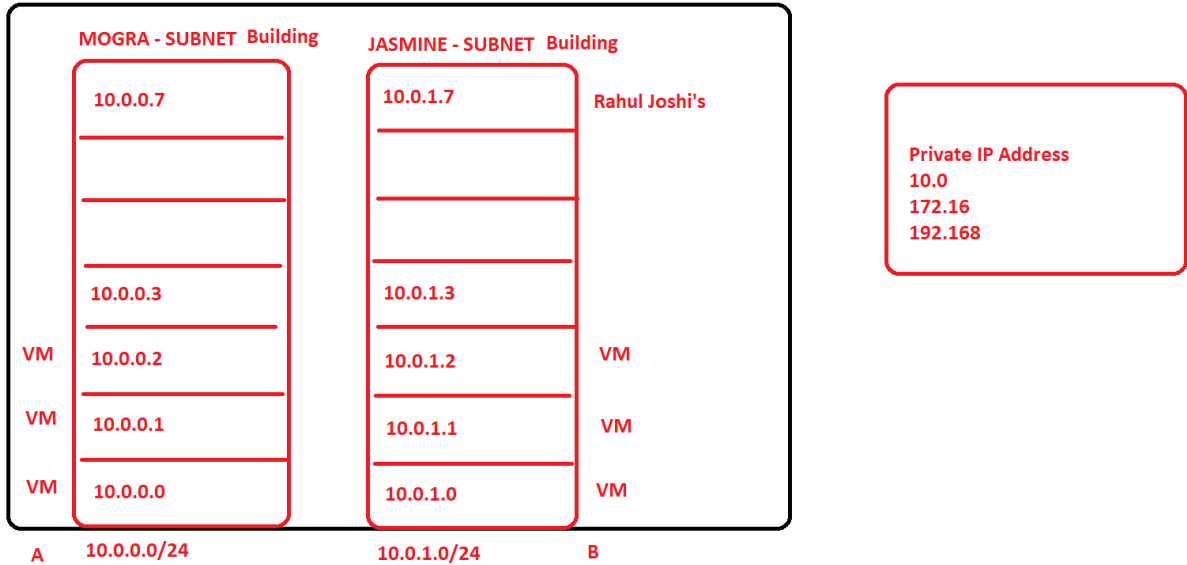
The subnet's address range in CIDR notation. It must be contained by the address space of the virtual network.

<input type="checkbox"/> Subnet name	Address range	Addresses
<input type="checkbox"/> WebSubnet	192.168.0.0/24	192.168.0.0 - 192.168.0.255 (256 addresses)
<input checked="" type="checkbox"/> DBSubnet	192.168.1.0/24	192.168.1.0 - 192.168.1.255 (256 addresses)
<input type="text"/>	<input type="text"/>	(0 Addresses)

OK

Discard

Shanti Nikitan - Complex Building - NETWORK



Resource	Limit
Virtual networks	1,000
Subnets per virtual network	3,000
Virtual network peerings per virtual network	500
Virtual network gateways (VPN gateways) per virtual network	1
Virtual network gateways (ExpressRoute gateways) per virtual network	1
DNS servers per virtual network	20
Private IP addresses per virtual network	65,536
Total Private Addresses for a group of Peered Virtual networks	128,000
Private IP addresses per network interface	256
Private IP addresses per virtual machine	256
Public IP addresses per network interface	256
Public IP addresses per virtual machine	256
Concurrent TCP or UDP flows per NIC of a virtual machine or role instance	500,000
Network interface cards	65,536

What address ranges can I use in my VNets?

We recommend that you use the address ranges enumerated in [RFC 1918](#), which have been set aside by the IETF for private, non-routable address spaces:

- 10.0.0.0 - 10.255.255.255 (10/8 prefix)
- 172.16.0.0 - 172.31.255.255 (172.16/12 prefix)
- 192.168.0.0 - 192.168.255.255 (192.168/16 prefix)

If you get 256 IP Address, can all 256 IP be used as Host IP Address? NO

Microsoft always, reserves 5 IP for its own internal use

In addition, you cannot add the following address ranges:

- 224.0.0.0/4 (Multicast)
- 255.255.255.255/32 (Broadcast)
- 127.0.0.0/8 (Loopback)
- 169.254.0.0/16 (Link-local)
- 168.63.129.16/32 (Internal DNS)

Create a virtual machine

Basics Disks **Networking** Management Advanced Tags Review + create

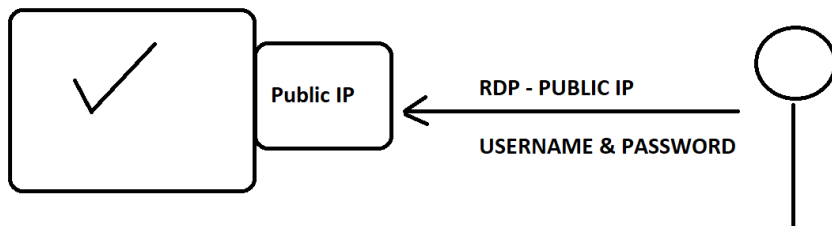
Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

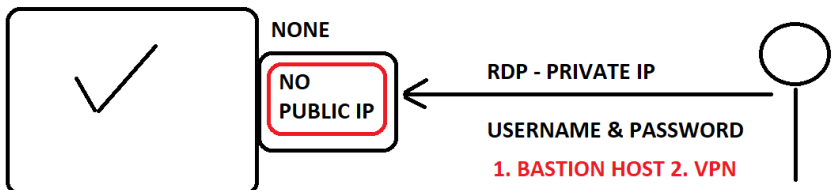
When creating a virtual machine, a network interface will be created for you.

Virtual network *	(new) vnetmycompany Create new
Subnet *	(new) DBSubnet (192.168.1.0/24) Create new
Public IP *	(new) vmwebserver01-ip Create new

Virtual Machine



Virtual Machine



Delete public IP and NIC when VM is deleted ☐

Enable accelerated networking ☐ The selected VM size does not support accelerated networking.

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution? ☐

✓

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

Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Configure monitoring and management options for your VM.

Microsoft Defender for Cloud

Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

✓ Your subscription is protected by Microsoft Defender for Cloud basic plan.

Monitoring

Boot diagnostics ☐ Enable with managed storage account (recommended)
☐ Enable with custom storage account
☒ **Disable**

As these machines are in the datacenter of Microsoft, when the machine Reboots, sometimes the machines can take time to Reboot, so, you want to know or troubleshoot why is the machine taking time to boot, so much, to do this, you can enable Boot Diagnostic, which means, Microsoft will take screenshots of Boot loading screen and keep the screenshots in the storage account, you can see those screenshots and understand why booting is slow. **This option is good for troubleshooting, slow VM start, but is option is optional.**

Auto-shutdown

Enable auto-shutdown ☒

Shutdown time

Time zone

Notification before shutdown ☒

Email

This can help save Cost, good for development and test computers, don't use for production

Backup

Enable backup ☐

Site Recovery

Enable Disaster Recovery ☐

Guest OS updates

Enable hotpatch ☐

Patch orchestration options

Hotpatching is available only with Windows Server 2022 Datacenter: Azure Edition Core.

Some patch orchestration options are not available for this image. [Learn more](#)

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



♥ prod

Guest OS updates

Enable hotpatch 



 Hotpatching is available only with Windows Server 2022 Datacenter: Azure Edition Core.

Patch orchestration options 

Manual updates 

 Some patch orchestration options are not available for this image. [Learn more](#) 

[Review + create](#)

[< Previous](#)

[Next : Advanced >](#)

Create a virtual machine ...

Basics Disks Networking Management **Advanced** Tags Review + create

Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.


Extensions

Extensions provide post-deployment configuration and automation.

Extensions 


Select an extension to install 

VM applications


VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. [Learn more](#) 

[Select a VM application to install](#)


Custom data

Pass a script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMs](#) 

Custom data




Host

Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to choose VMs from your subscription that will be provisioned on the host, and the control of platform maintenance at the level of the host. [Learn more](#) 

Host group 

No host group found 


Capacity reservations

Capacity reservations allow you to reserve capacity for your virtual machine needs. You get the same SLA as normal virtual machines with the security of reserving the capacity ahead of time. [Learn more](#) 

Capacity reservation group 

None 

Proximity placement group

Proximity placement groups allow you to group Azure resources physically closer together in the same region. [Learn more](#) 

Proximity placement group 

No proximity placement groups found 

[Review + create](#)

[< Previous](#)

[Next : Tags >](#)

Create a virtual machine ...

Basics Disks Networking Management Advanced **Tags** Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
Client	Azure Masters	All resources
Training	Azure	All resources
Kind	Exp & Freshers	All resources
Year	2022	12 selected
		12 selected

Billing - you can query Azure and ask questions related to the tag and value of the tag

Create a virtual machine ...

✓ Validation passed

Basics Disks Networking Management Advanced Tags **Review + create**

Cost given below is an estimate and not the final price. Please use [Pricing calculator](#) for all your pricing needs.

PRODUCT DETAILS

1 X Standard B2ms
by Microsoft
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply
\$5,9942 INR/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.

⚠ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go

Create

< Previous

Next >

[Download a template for automation](#)

Rs.53000 = 1 year, but Microsoft will always charge pay per hour, billing is per minute



CreateVm-MicrosoftWindowsServer.WindowsServer-201-20220807110224 | Overview

Deployment

Search (Ctrl+/)

Delete Cancel Redeploy Refresh

Overview

Inputs

Outputs

Template

✓ We'd love your feedback! →

... Deployment is in progress

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 8/7/2022, 3:50:22 PM
Subscription: MSDN Platforms Correlation ID: 538fe2c8-04a5-4771-893e-07b6df525f66
Resource group: rg-client-dev

Deployment details (Download)

Resource	Type	Status	Operation details
✓ vnetmycompany	Microsoft.Network/virtualNetworks	OK	Operation details
✓ vmwebserver01-nsg	Microsoft.Network/networkSecurityGr...	OK	Operation details
✓ vmwebserver01-ip	Microsoft.Network/publicIpAddresses	OK	Operation details
website1data	Microsoft.Compute/disks	OK	Operation details

1 Windows VM - Azure - 1.50 seconds (Agility)

1 Windows VM - AWS - 1.50 seconds (Same Time) (Agility)

1 Windows VM - GCP - 8 seconds (Agility)

CreateVm-MicrosoftWindowsServer.WindowsServer-201-20220807110224

Deployment

Search (Ctrl+ /)

Delete Cancel Redeploy Refresh

Overview

Inputs

Outputs

Template

We'd love your feedback! →

✓ Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 8/7/2021
Subscription: [MSDN Platforms](#) Correlation ID: 5381
Resource group: [rg-client-dev](#)

Deployment details [\(Download\)](#)

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](#)

vmwebserver01

Virtual machine

Search (Ctrl+ /)

Connect Start Restart Stop Capture Delete Refresh Open in mobile CLI

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Networking

Connect

Windows Admin Center
(preview)

Essentials

Resource group [\(move\)](#)

[rg-client-dev](#)

Status

Running

Location

East US

Subscription [\(move\)](#)

[MSDN Platforms](#)

Subscription ID

ee7bab70-0709-4f4f-9829-790225dc5be4

Tags [\(edit\)](#)

Operating system

Windows (Windows Server 2016 Datacenter)

Size

Standard B2ms (2 vcpus, 8 GiB memory)

Public IP address

[20.85.235.192](#)

Virtual network/subnet

[vnetmycompany/DRSubnet](#)

DNS name

[Not configured](#)



vmwebserver01

Virtual machine

Search (Ctrl+ /)

Connect Start Restart

Overview

Activity log

Access control (IAM)

Tags

RDP
SSH
Bastion
Status

vmwebserver01 | Connect

Virtual machine

Search (Ctrl+ /)

To improve security, enable just-in-time access on this VM. →

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Networking

Connect

Windows Admin Center
(preview)

Disks

Size

Microsoft Defender for Cloud

Advisor recommendations

Extensions + applications

RDP SSH Bastion

Connect with RDP

Suggested method for connecting

Azure has checked the status for the most common prerequisites when connecting using

✓ Checking network security group for inbound access from your client's IP address. [Learn more](#)

✓ The VM's network interface has a Public IP address. [Learn more](#)

✓ The VM is running.

To connect to your virtual machine via RDP, select an IP address, optionally change the port in the RDP file.

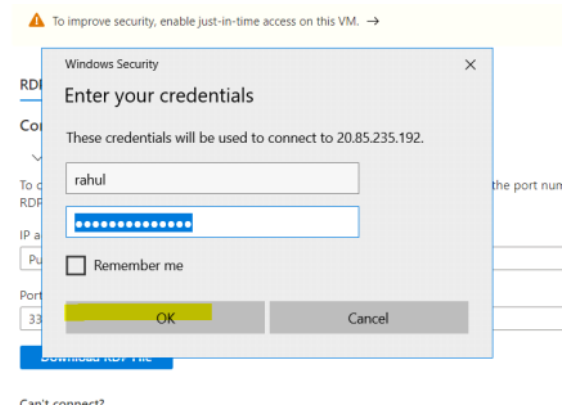
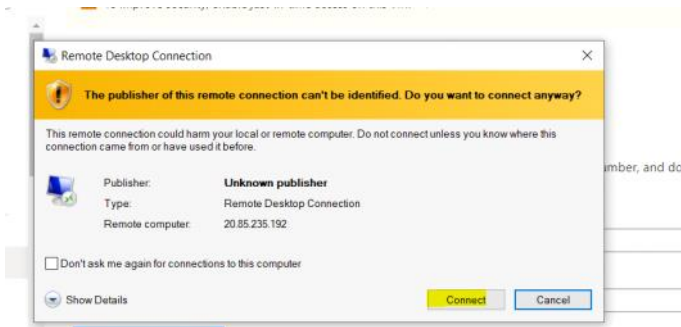
IP address *

Public IP address (20.85.235.192)

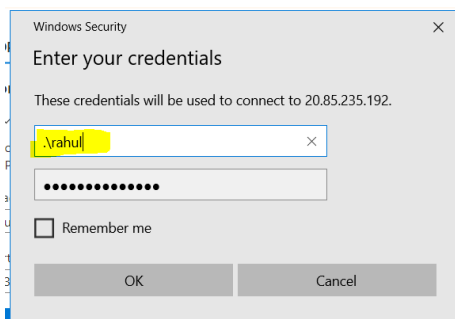
Port number *

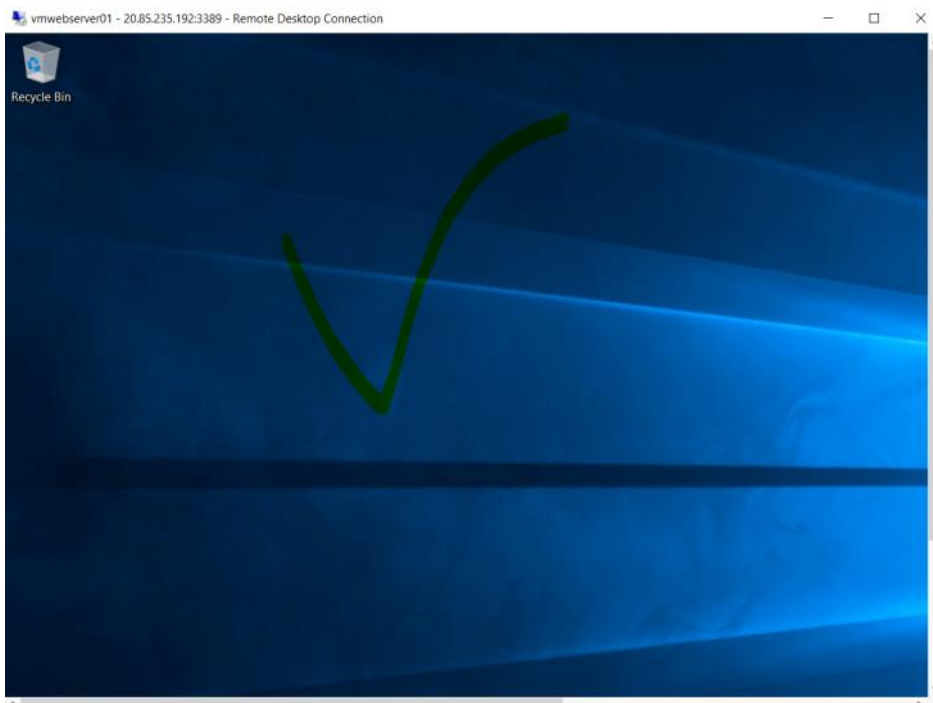
3389

[Download RDP File](#)



If you are using personal laptop, use the above technique. But, if you are using Office Laptop, then make sure VPN is Disconnected, as organizations don't allow RDP - 3389 is blocked by organization and then by default Organization connects to the domain, so to bypass that use .\username and the password





Make Sure you Shut down the VM after use

Home > Virtual machines >

Virtual machines

Default Directory (talktorahuljoshoutlook.onmicro...)

+ Create ▾ Switch to classic ...

Filter for any field...

Name ↑↓	
vmwebserver01	...
web01	...

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Networking

vmwebserver01

Virtual machine

Search (Ctrl+/)

Connect ▾ Start Restart Stop Capture Delete Refresh ...

Essentials

Resource group [\(move\)](#)
[rg-client-dev](#)

Status
Running

Location
East US

Subscription [\(move\)](#)
[MSDN Platforms](#)

Operating system
Windows

Size
Standard B2ms (2 vcpus, 8 GiB memory)

Public IP address
[20.85.235.192](#)

Virtual network/subnet
[vnetmycompany/DBSubnet](#)

[JSON View](#)