

## **Module 9 : Assignment 1**

### **Tasks To Be Performed:**

1. Create a Linux VM and install Apache2 on it
2. Create Recovery Services vault
3. Take backup of the VM deployed

### **Solution:**

1. Create a Linux VM and install Apache2 on it

# Create a resource group ...

Basics   Tags   Review + create

**Resource group** - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

**Project details**

Subscription \* ⓘ

Free Trial

Resource group \* ⓘ

Module9

**Resource details**

Region \* ⓘ

(Asia Pacific) Central India

## Create a virtual machine ...



Help me create a low cost VM

Help me create a VM optimized for high availability

Help me choose the right VM size for my workload

### Basics

Disks

Networking

Management

Monitoring

Advanced

Tags

Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)



This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

### Project details

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

Subscription \* ⓘ

Free Trial

Resource group \* ⓘ

Module9

[Create new](#)

### Instance details

Virtual machine name \* ⓘ

Module9Vm

Region \* ⓘ

(Asia Pacific) Central India

Availability options ⓘ

No infrastructure redundancy required

Security type ⓘ

Trusted launch virtual machines

[Configure security features](#)

Image \* ⓘ

Ubuntu Server 24.04 LTS - x64 Gen2 (free services eligible)

[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ

☐ Arm64

☒ x64

Home > Virtual machines >

## Create a virtual machine ...

[Help me create a low cost VM](#) [Help me create a VM optimized for high availability](#) [Help me choose the right VM size for my workload](#)

Size \* ⓘ

Standard\_B1s - 1 vcpu, 1 GiB memory (₹680.20/month) (free services eligible) ✓  
[See all sizes](#)

Enable Hibernation ⓘ

☐

**i**

Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#) ⓘ

Administrator account

Authentication type ⓘ

☐ SSH public key  
☒ Password

Username \* ⓘ

Jungkook ✓

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), SSH (22) ✓

☒ HTTP (80)  
☐ HTTPS (443)  
☒ SSH (22)

< Previous

Next : Disks >

Review + create

Home >

### Virtual machines

Default Directory (adonfigendo150@gmail.com@microsoft.com)

+ Create Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start Restart Stop Delete Services Maintenance

Filter for any field. Subscription equals all Type equals all Resource group equals all Location equals all Add filter

Showing 1 to 1 of 1 records.

Name ↑	Subscription ↑	Resource group ↑	Location ↑	Status ↑	Operating system ↑	Size ↑	Public IP address ↑	Disks ↑
Module9Vm	Free Trial	Module9	Central India	Running	Linux	Standard_B1s	52.172.214.183	1

```
Jungkook@Module9Vm:~$ sudo apt-get update
```

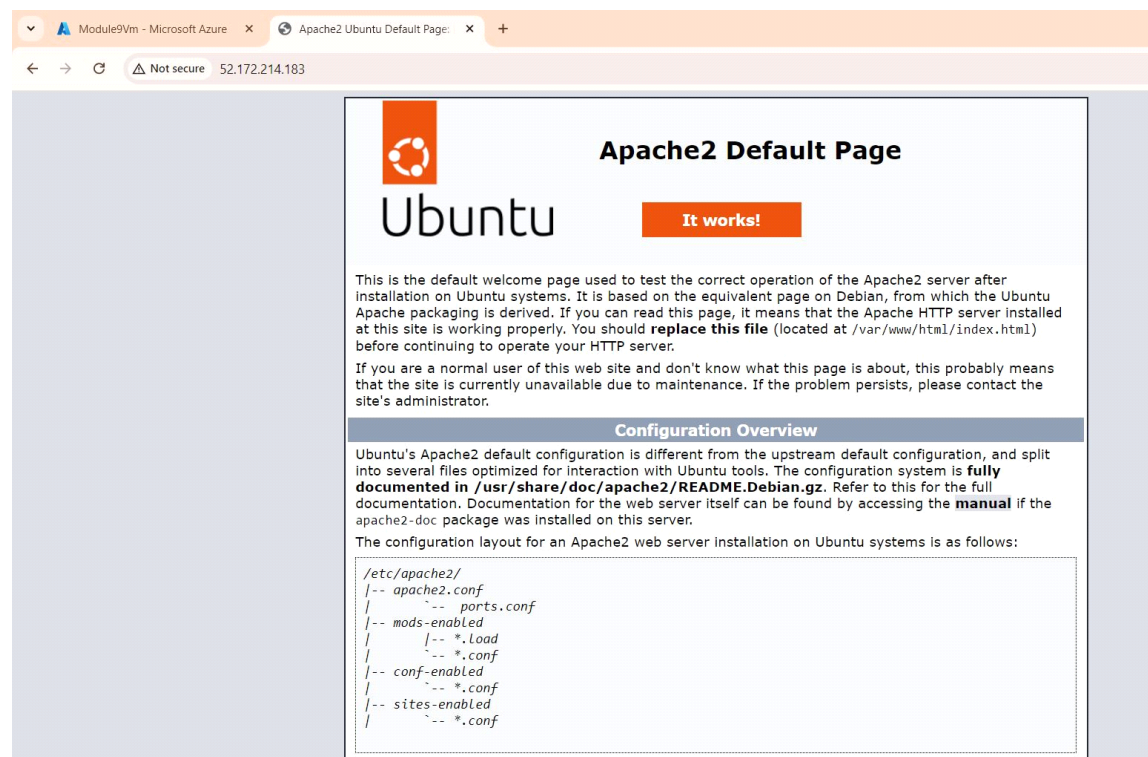
```
Reading package lists... Done
Jungkook@Module9Vm:~$ sudo apt-get install apache2
```

```

Jungkook@Module9Vm:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-09-11 15:11:46 UTC; 2min 19s ago
     Docs: https://httpd.apache.org/docs/2.4/
  Main PID: 2686 (apache2)
    Tasks: 55 (limit: 1004)
   Memory: 5.8M (peak: 6.0M)
      CPU: 45ms
   CGroup: /system.slice/apache2.service
           └─2686 /usr/sbin/apache2 -k start
             └─2689 /usr/sbin/apache2 -k start
               └─2690 /usr/sbin/apache2 -k start

Sep 11 15:11:46 Module9Vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 11 15:11:46 Module9Vm systemd[1]: Started apache2.service - The Apache HTTP Server.
Jungkook@Module9Vm:~$

```



## 2. Create Recovery Services vault

recovery

All

Services (7)

Resources (0)

More (4)

Services

Recovery Services vaults

Home > Recovery Services vaults >

## Create Recovery Services vault

\* Basics Redundancy Encryption Vault properties Networking Tags Review + create

### Project Details

Select the subscription and the resource group in which you want to create the vault.

Subscription \*

Free Trial

Resource group \*

Module9

Create new

### Instance Details

Vault name \*

Module9Vault

Region \*

Central India

**i** Cross Subscription Restore is enabled by default for all vaults. Visit vault 'Properties' to disable the same. [Learn more.](#)

Review + create

Next: Redundancy

Home >
Recovery Services vaults
Default Directory (ad00f1e9e0150@gmail.com@microsoft.com)
+ Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Filter for any field...
Subscription equals all
Resource group equals all
Location equals all
Immutability equals all
Add filter
Showing 1 to 1 of 1 records
No grouping
List view
Name
Type
Immutability
Resource group
Location
Subscription
Module9Vault
Recovery Services vault
Disabled
Module9
Central India
Free Trial

Home > Recovery Services vaults > Module9Vault
Recovery Services vault
+ Create
Manage view
Filter for any field...
Name
Module9Vault
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Identity
Networking
Properties
Locks
Getting started
Backup
Site recovery
Protected items
Backup items
Replicated items
Manage
Monitoring
Alerts
Metrics
Diagnostic settings
Advisor recommendations
Backup jobs
+ Backup
+ Enable Site Recovery
Delete
Refresh
Feedback
Try our new Business Continuity Center for the at scale BCDR management of your resources protected across Azure Backup and Site Recovery.
Essentials
Overview
Backup
Site Recovery
What's new
Azure Site Recovery support for Windows Azure Trusted launch VMs is generally available.
SAP HANA Database Backup with Lower Protected Instance Fees Starting September 1, 2024.
SAP HANA database instance snapshots on Azure VMs is now generally available.
HANA System Replication (HSR) support for SAP HANA DB on Azure VM backup is now generally available.
Cross Subscription Restore for SAP HANA Databases on Azure VM is now generally available.
Cross Subscription Restore for SQL Databases on Azure VM is now generally available.
Cross Subscription Restore for Azure Virtual Machines is now generally available.
Site Recovery replicated items and jobs views across subscriptions, regions and vaults are now available.
Azure Backup Metrics are now in public preview.
Migration for Azure VM backups from standard policy to enhanced policy is now in public preview.
Backup
Getting started
Backup dashboard
Backup items
Site Recovery
Getting started
Site recovery dashboard
Replicated items

### 3. Take backup of the VM deployed

Home > Recovery Services vaults > Module9Vault > Backup Goal
The storage replication is set to Geo-Redundant. This option cannot be changed later. Before proceeding further, click here.
Where is your workload running?
Azure
What do you want to backup?
Virtual machine
Step: Configure Backup
Backup
Give feedback
Help improve this page

Backup Configuration
Having issues, fallback to old experience
Storage replication type
Locally-redundant
Zonally-redundant
Geo-redundant
This option cannot be changed after protecting items. Geo-redundant storage (GRS) provides a higher level of data durability than Locally redundant storage (LRS) and costs more. Review the trade-offs between lower cost and higher data durability that is best for your scenario. Learn more.

Home > Recovery Services vaults > Module9Vault

### Recovery Services vault | Properties

Default Directory (akinfingredo1508@gmail.com)...

+ Create Manage view

Filter for any field...

Name ↑

Module9Vault

Search

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
- Identity
- Networking
- Properties
- Locks
- Getting started
- Backup
- Site Recovery
- Protected items
- Backup items
- Replicated items
- Manage
- Monitoring
- Alerts
- Metrics
- Diagnostic settings
- Advisor recommendations

Multi-User Authorization for Backup is now generally available. Click here to con

Cross Subscription Restore

Update

Monitoring Settings

Update

Recovery Services Agent

Download

Backup Credentials

Download

### Security Settings

Security Level

Poor

Immutable vault

Not enabled

Settings

Multi-User Authorization

Update

Soft Delete and security settings

Update

Encryption Settings

Update

Security PIN

### Security and soft delete settings

Module9Vault

Soft delete can help you recover your data after it has been deleted. [Learn more.](#)

Enable soft delete for cloud workloads

☐

Enable soft delete and security settings for hybrid workloads

☐

Checking this box enables soft delete, MFA and alert notifications for workloads running on premises. Refer to this [link](#) for minimum version requirements.

Soft delete retention period (for cloud and hybrid workloads)

14 days

This is the number of days for which deleted data is retained before being permanently deleted. Retention period till 14 days is free of cost, however, retention beyond 14 days may incur additional charges. [Learn more.](#)

Enable Always-on soft delete

☐

Always on soft delete can be enabled only if soft delete is enabled for both cloud and hybrid workloads

Update Cancel

Home > Recovery Services vaults > Module9Vault

### Recovery Services vault | Backup

Default Directory (akinfingredo1508@gmail.com)...

+ Create Manage view

Filter for any field...

Name ↑

Module9Vault

Search

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
- Getting started
- Backup

The storage replication is set to Locally Redundant. This option cannot be changed later. Before proceeding further, click here. →

Where is your workload running?

Azure

What do you want to backup?

Virtual machine

Step: Configure Backup

Backup

Home > Recovery Services vaults > Module9Vault | Backup >

### Configure backup

Module9Vault

Multiple backups per day

Once-a-day backup

Up to 30 days operational tier retention

Up to 5 days operational tier retention

Support for Trusted Launch Azure VM

Support for VMs with Ultra Disks and Premium SSD v2

Backup policy \*

EnhancedPolicy

Create a new policy

Protecting a VM with enhanced policy can incur additional snapshot charges. Please note that once you enable a VM backup with enhanced policy, changing to standard policy type is not possible. [Learn more.](#)

Policy details

Full backup

Backup frequency

Every 4 hour(s) starting 8:00 AM UTC for 12 hour(s)

Instant restore

Retain instant recovery snapshot(s) for 2 day(s)

Retention of daily backup point

Retain backup taken every day for 30 Day(s)

Consistency type

Application or file-system consistent

Virtual machines

Name

Resource group

No virtual machines selected.

Add

Selective disk backup option allows you to include or exclude specific data disks based on their LUN numbers. OS Disk exclusion is not supported. Know more about Selective Disk Backup Feature, its limitation and pricing. [Learn more](#)

Enable backup

Download a template for automation

### Create policy

Azure Virtual Machine

Recovery points can be automatically moved to the vault-archive tier using backup policy. [Learn more.](#) →

Policy name

mypolicy

Backup schedule

Frequency \*

Daily

Time \*

9:30 PM

Timezone \*

(UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

Instant restore

Retain instant recovery snapshot(s) for 1 Day(s)

Retention range

Retention of daily backup point

All For 9:30 PM 7 Days(s)

Retention of weekly backup point

Not Configured

Retention of monthly backup point

Not Configured

Retention of yearly backup point

Not Configured

Enable tiering

Move to vault-archive tier option is not available based on the retention range selected. Modify the retention setting to use the feature. [Learn more.](#)

Consistency type

Only crash consistent snapshot (Preview)

OK



# Select virtual machines



 Filter items by name

Virtual machine name	Resource Group
<input checked="" type="checkbox"/> Module9Vm	module9

< Previous

Page 1 of 1

Next >

OK

Cancel

 Give feedback

Home > Recovery Services vaults > Module9Vault | Backup >

Configure backup

Module9Vault

Policy sub type \*

Enhanced

Standard

Multiple backups per day

Once-a-day backup

Up to 30 days operational tier retention

Up to 3 days operational tier retention

Support for Trusted Launch Azure VM

Support for VMs with Ultra Disks and Premium SSD v2

Backup policy \*

(new) mypolicy

Edit this policy

Protecting a VM with enhanced policy can incur additional snapshot charges. Please note that once you enable a VM backup with enhanced policy, changing to standard policy type is not possible. [Learn more.](#)

Policy details

Full backup

Backup frequency

Daily at 9:30 PM India Standard Time

Instant restore

Retain instant recovery snapshot(s) for 1 day(s)

Retention of daily backup point

Retain backup taken every day at 9:30 PM for 7 Day(s)

Consistency type

Application or file-system consistent

Virtual machines

Name	Resource group	Disks	Include future disks
Module9Vm	module9	Module9Vm_disk1_76786a57b584f2b593ba01a4d5...	<input checked="" type="checkbox"/>

Add

Selective disk backup option allows you to include or exclude specific data disks based on their LUN numbers. OS Disk exclusion is not supported. Know more about Selective Disk Backup feature, its limitation and pricing. [Learn more](#)

Enable backup

Download a template for automation

Give feedback

Home >

ConfigureProtection-1726069212357 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

Your deployment is complete

Deployment name : ConfigureProtection-1726069212357

Subscription : Free Trial

Resource group : Module9

Start time : 9/11/2024, 9:10:16 PM

Correlation ID : 5624bb19-333c-48de-a51c-ad5214b4fd25

> Deployment details

> Next steps

Go to resource



# Module9Vault | Backup items

Recovery Services vault

Search

Refresh Feedback

- Overview
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- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
- Getting started
  - Backup
  - Site Recovery
- Protected items
  - Backup items**
  - Replicated items
- Manage

Try our new Business Continuity Center for the at scale BCDR management of your resources protected across

Primary Region Secondary Region

BACKUP MANAGEMENT TYPE	BACKUP ITEM COUNT
Azure Virtual Machine	1
Azure Backup Agent	0
Azure Backup Server	0
DPM	0
Azure Storage (Azure Files)	0
SQL Database in Azure VM	0
SAP HANA in Azure VM	0

