



Azure Backup  
Hands-on lab  
-Microsoft Azure



# Azure Backup

## Lab Guide

Wednesday, October 16, 2019

Version 2.0

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## Document Revision

### Change Record

Date	Author	Version	Change Reference
29-10-2018	Gino van Essen	0.1	Create document
30-10-2018	Stephan van de Kruis	0.2	Add Azure Backup content
30-10-2018	Gino van Essen	0.3	Add Site Recovery content
31-10-2018	Gino van Essen	1.0	Review document
4-2-2019	Stephan van de Kruis	1.1	Update document
15-10-2109	Gino van Essen	2.0	Update document

Name	Version Approved	Position	Date
Alex Scheepers	1.0	Product Manager	31-10-2018
Alex Scheepers	2.0	Product Manager	15-10-2019

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## Introduction – Azure Backup

Azure Backup is a simple and reliable cloud integrated backup as a service. In this lab, you will learn how to create an Azure Backup Vault, and then use this vault to backup files and system state from a Windows client device. After the backup is finished, we will restore the backup-up files.

### Estimated time to complete this lab

75 minutes

### Objectives

During this lab, you will learn how to get started on Azure with Azure Backup to;

- Set-up your tenant using your Azure subscription.
- Create and manage Resource Groups and Storage Accounts
- Deploy a Recovery Vault
- Create a files and folders backup job
- Create a VM backup job
- Restore items from your Recovery Vault
- Extra - backup and restore Azure SQL database

### Prerequisites

- Laptop/computer with Internet browser and WiFi connected
- Account with an Azure CSP Subscription

### Student Materials

All student materials are available for download here:

<https://github.com/Copaco/handsonlab/>

## Activity 1: Getting Started

### Objectives

In this activity, you will configure the components necessary to perform this lab:

In this activity, you will validate the necessary access to perform this lab

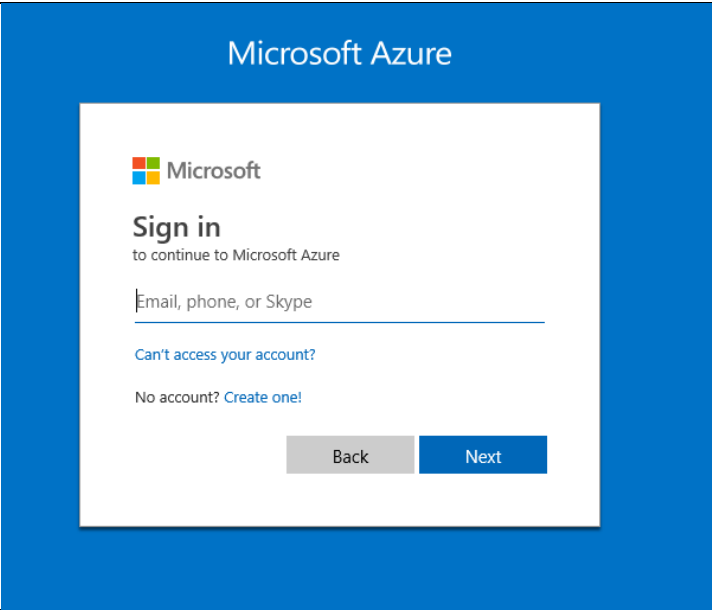
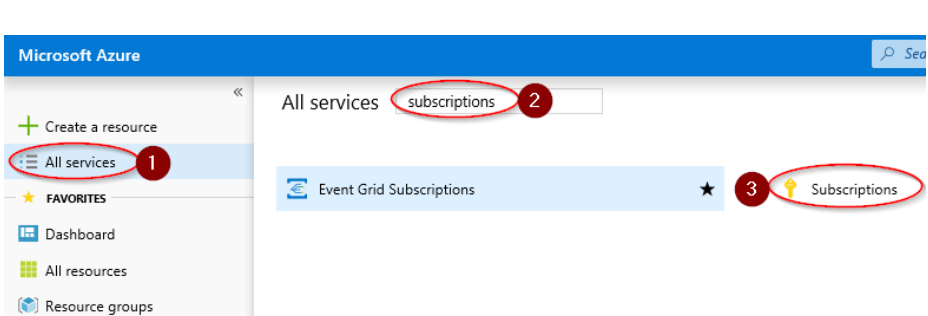
- Login to your Azure CSP tenant
- Create a Resource Group
- Create a Recovery Services vault
- Create a Virtual Machine

After verifying your access, you will use the Azure tenant to create a Recovery Vault you can use to store your backups.

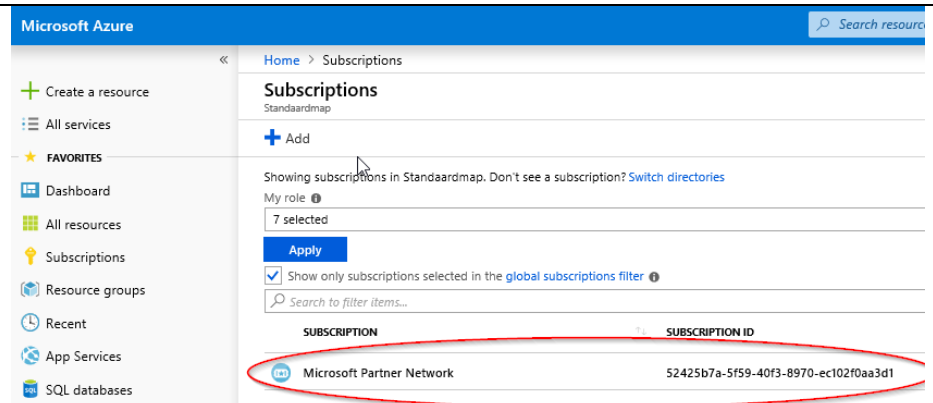
### Estimated time to complete this activity

15 minutes

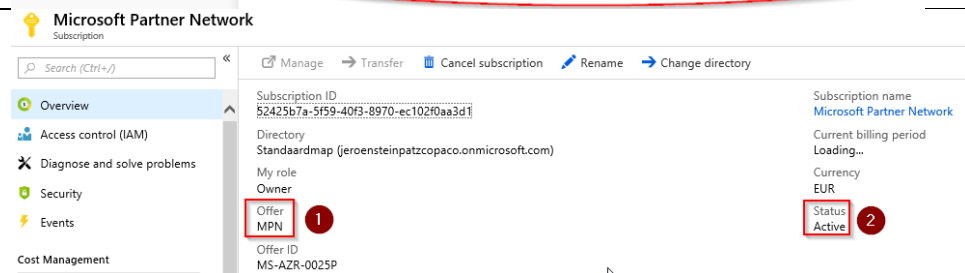
### Exercise 1a: Login to Azure

<p>1. Using your <b>Work Account</b>, you can sign into the <b>Azure Portal</b> at:  <a href="https://portal.azure.com">https://portal.azure.com</a></p>	
<p>2. Using the navigation bar on the left, use the <b>All services</b> menu to browse to the <b>Subscriptions</b> pane. The <b>Search</b> filter on the top will help you to find what you need.</p>	

3. From the **Subscriptions** overview, click the active subscription.

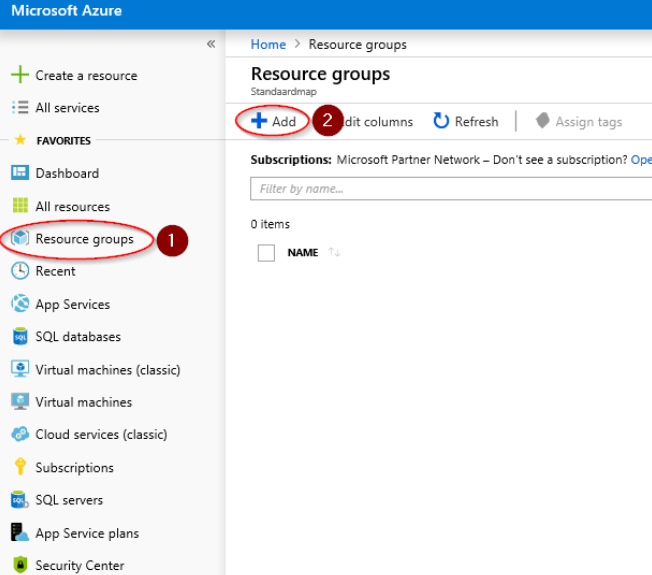
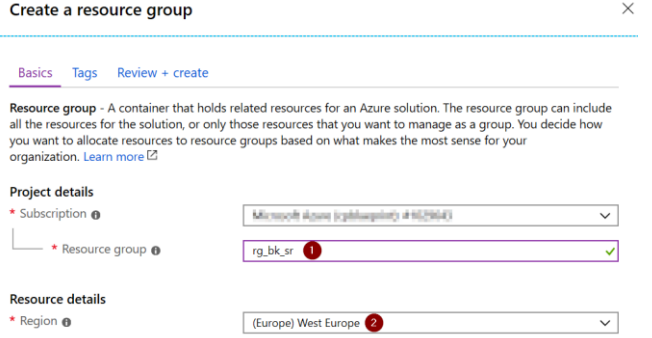
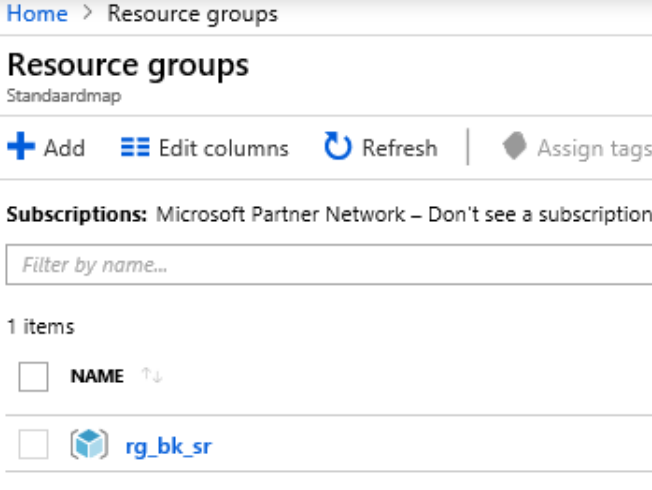


4. In the Overview pane, check the Offer type for being either CSP, MPN, MSDN, OPEN or EA
5. Check the **Status** for being Active.



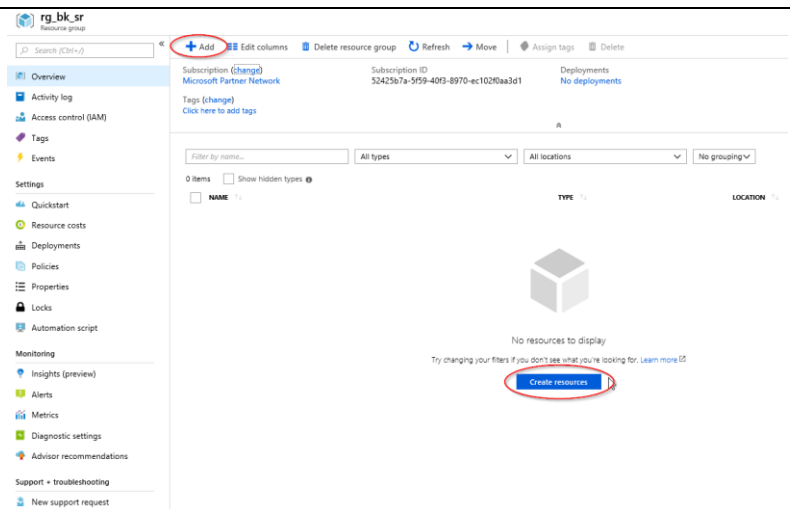
✦ We also strongly recommend that you use InPrivate browsing to ensure that you are not automatically logged on with other credentials during the registration / activation process.

## Exercise 1b: Create a Resource Group

<ol style="list-style-type: none"> <li>1. Click <b>Resource Groups</b></li> <li>2. Click <b>Add</b></li> </ol>	 <p>Microsoft Azure</p> <p>Home &gt; Resource groups</p> <p>Resource groups</p> <p>Standaardmap</p> <p>+ Add 2 Edit columns Refresh Assign tags</p> <p>Subscriptions: Microsoft Partner Network – Don't see a subscription? Open</p> <p>Filter by name...</p> <p>0 items</p> <p>NAME ↑</p>
<ol style="list-style-type: none"> <li>1. Add <b>Resource group name</b> "rg_bk_sr"</li> <li>2. Select <b>Resource Group Location</b> "West Europe"</li> <li>3. Click <b>Review + create</b></li> <li>4. Click <b>Create</b></li> </ol>	 <p>Create a resource group</p> <p>Basics Tags Review + create</p> <p>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. <a href="#">Learn more</a></p> <p>Project details</p> <p>* Subscription Microsoft Azure (subscription) #629643</p> <p>* Resource group rg_bk_sr 1</p> <p>Resource details</p> <p>* Region (Europe) West Europe 2</p>
<ol style="list-style-type: none"> <li>5. After a few moments, the Resource Group "rg_bk_sr" is created</li> </ol>	 <p>Home &gt; Resource groups</p> <p>Resource groups</p> <p>Standaardmap</p> <p>+ Add Edit columns Refresh Assign tags</p> <p>Subscriptions: Microsoft Partner Network – Don't see a subscription? Open</p> <p>Filter by name...</p> <p>1 items</p> <p>NAME ↑</p> <p>rg_bk_sr 1</p>

## Exercise 1c: Create a Recovery Services Vault

- From the navigation pane, click **Add** or **Create Resources** and search for **Backup**



Search: backup 1







Pricing : All

Operating System : All


Publisher : All

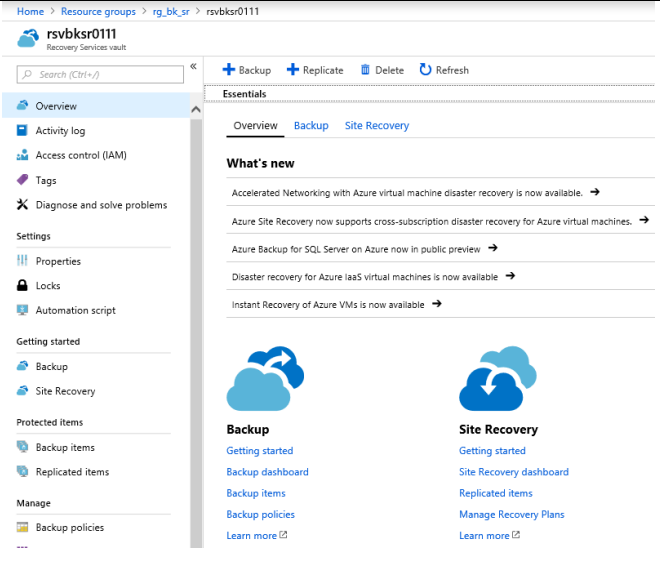
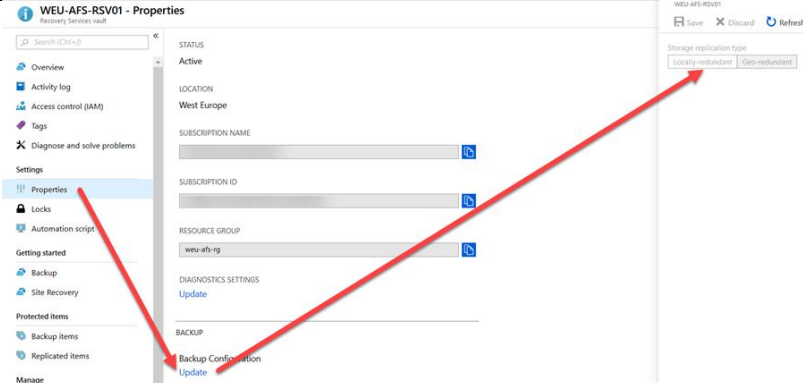
Showing All Results



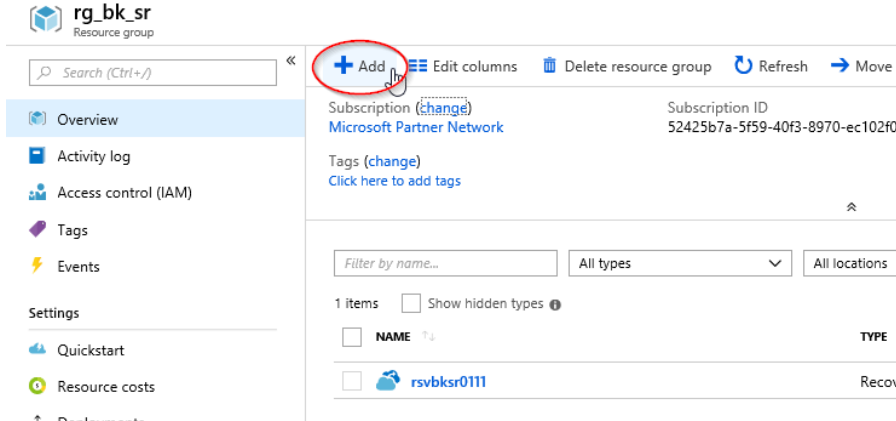
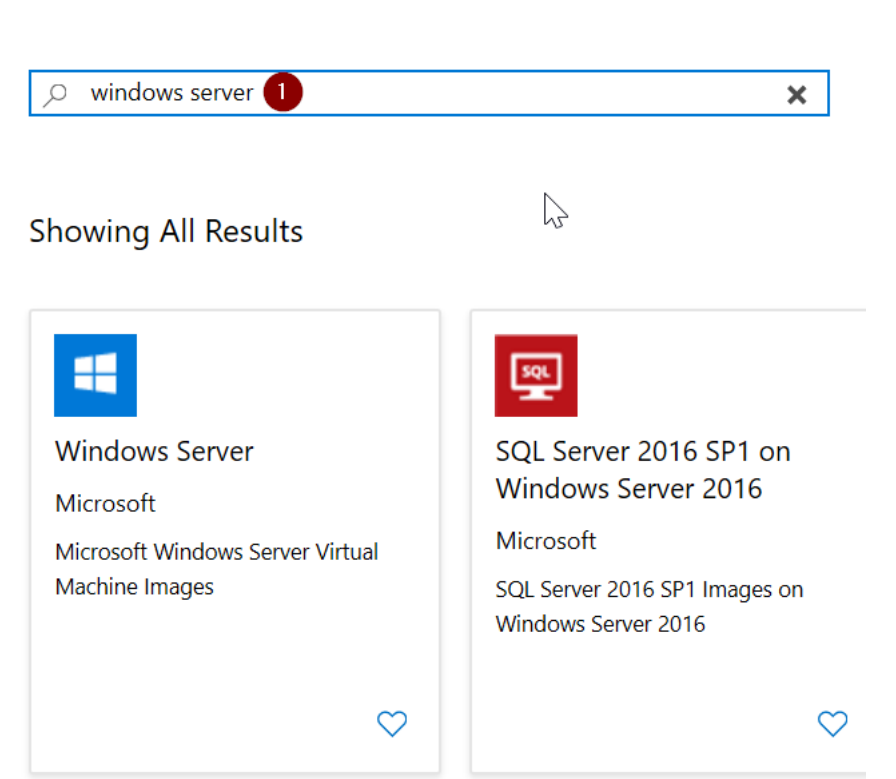
NAME	PUBLISHER	CATEGO...
 Backup and Site Recovery 2	Microsoft	IT & Man...
 Cloud Backup for Office 365	AvePoint Inc.	Security
 Acronis Backup Gateway	Acronis	
 NetApp Cloud Backup Cloud-Based	Free trial NetApp	Compute
 Unitrends Backup Software	Unitrends	Storage
 Veeam Backup & Replication 9.5	Free trial Veeam	



<p>2. Click <b>Create</b></p>	<div> <div>Backup and Site Recovery</div> <div>Microsoft</div> <div>  <div> <div>Backup and Site Recovery</div> <div>Microsoft</div> <div>Create 1</div> </div> </div> <div> <p>A disaster recovery and data protection strategy keeps your business running when unexpected events occur.</p> <p>The Backup service is Microsoft's born in the cloud backup solution to backup data that's located on-premises and in Azure. It replaces your existing on-premises or offsite backup solution with a reliable, secure and cost competitive cloud backup solution. It also provides the flexibility of protecting your assets running in the cloud. You can backup Windows Servers, Windows Clients, Hyper-V VMs, Microsoft workloads, Azure Virtual Machines (Windows and Linux) with its in-built resilience and high SLAs. <a href="#">Learn more.</a></p> <p>The Site Recovery service ensures your servers, virtual machines, and apps are resilient by replicating them so that when disasters and outages occur you can easily fail over to your replicated environment and continue working. When services are resumed you simply failback to your primary location with uninterrupted access. Site Recovery helps protect a wide range of Microsoft and third-party workloads. <a href="#">Learn more.</a></p> <p>Useful Links</p> <p><a href="#">Backup Pricing details</a></p> <p><a href="#">Site Recovery Pricing details</a></p> </div> </div>
<p>3. Fill in the parameters and click <b>Create</b>. Make sure you select the existing Resource Group we just created.</p> <p>*Select CSP subscription</p> <p>*Use unique vault name</p> <p>4. Wait for the Vault to get deployed. You can check the status from the <b>Notifications</b> in the top bar.</p>	<div> <div>Create Recovery Services vault</div> <div>Preview</div> <div> <div>* Basics</div> <div>Tags</div> <div>Review + create</div> </div> <div> <div>Project Details</div> <div>Select the subscription and the resource group in which you want to create the vault.</div> <div> <div>* Subscription ⓘ</div> <div>Microsoft Azure (Subscription) #0123456789</div> </div> <div> <div>* Resource group ⓘ</div> <div>rg_bk_sr</div> <div>Create new</div> </div> </div> <div> <div>Instance Details</div> <div> <div>* Vault name ⓘ</div> <div>rsvbksr1510 1</div> </div> <div> <div>* Region ⓘ</div> <div>West Europe 2</div> </div> </div> </div>
<p>5. Open the <b>Recovery Services Vault</b> "rsvbksr0111" when it's ready, the <b>Overview</b> pane will show a dashboard</p>	<div> <div>rg_bk_sr</div> <div>Resource group</div> <div> <div>Search (Ctrl+/)</div> <div>«</div> <div> <div>+ Add</div> <div>Edit columns</div> <div>Delete resource group</div> <div>Refresh</div> </div> </div> <div> <div>Overview</div> <div>Activity log</div> <div>Access control (IAM)</div> <div>Tags</div> <div>Events</div> </div> <div> <div>Settings</div> <div>Quickstart</div> <div>Resource costs</div> </div> <div> <div>Subscription (change)</div> <div>Microsoft Partner Network</div> <div>Subscription ID</div> <div>5242567a-5f59-40f3-897</div> <div>Tags (change)</div> <div>Click here to add tags</div> <div>Filter by name...</div> <div>All types</div> <div>All</div> <div>1 items</div> <div>Show hidden types ⓘ</div> <div>NAME ⓘ</div> <div>rsvbksr0111</div> </div> </div>

	
<p>6. Using the navigation pane, browse to <b>Backup Infrastructure</b> and then <b>Backup Configuration</b>.</p> <p>7. Make sure <b>Local Redundant Storage (LRS)</b> is selected. Click <b>Save</b>.</p>	
<p>8. You're done, we have created a Recovery Services Vault we can use to store the backups.</p>	

## Exercise 1d: Create a Azure Virtual Machine

<p>1. Click <b>Add</b> to create a Virtual Machine Resource</p>	
<p>2. From the search box, search for <b>Windows Server</b> and select <b>Windows Server 2016 Datacenter</b>.</p>	

3. Click **Create**

Windows Server

Microsoft



Windows Server

Microsoft

Select a software plan

Windows Server 2016 Datacenter

1

▼

Create

2

Deploy with Resource Manager

[\(change to Classic\)](#)

Page | 12

4. Add the parameters

**VM Name:** vm-host-bk-asr

**VM Size:** D4s V3

**Username:** labadminuser

**Password:**  
lab@Eindhoven0702

[Home](#) > [Windows Server 2016 Datacenter](#) > Create a virtual machine

## Create a virtual machine

[Basics](#) [Disks](#) [Networking](#) [Management](#) [Guest config](#) [Tags](#) [Review](#)

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or Complete the Basics tab then Review + create to provision a virtual machine with default parameter customization.

Looking for classic VMs? [Create VM from Azure Marketplace](#)

### PROJECT DETAILS

Select the subscription to manage deployed resources and costs. Use resource groups like folder resources.

\* Subscription ⓘ

Microsoft Partner Network

\* Resource group ⓘ

rg\_bk\_sr

[Create new](#)

### INSTANCE DETAILS

\* Virtual machine name ⓘ

vm-host-bk-asr

1

\* Region ⓘ

West Europe

Availability options ⓘ

No infrastructure redundancy required

\* Image ⓘ

Windows Server 2016 Datacenter

[Browse all images and disks](#)

\* Size ⓘ

Standard D4s v3

4 vcpus, 16 GB memory

[Change size](#)

2

### ADMINISTRATOR ACCOUNT

\* Username ⓘ

labadminuser

3

\* Password ⓘ

.....

4

\* Confirm password ⓘ

.....

5

**\* Extra info VM Size**

D4s\_v3

### Select a VM size

Browse available virtual machine sizes and their features

1
Clear all filters

Size : Small
Generation : Current
Family : General purpose
Premium disk : Supported

Showing 1 of 212 VM sizes. | Subscription: Microsoft Partner Network | Region: West Europe

VM SIZE	OFFERING	FAMILY	VCPUS	RAM (GB)	DATA DISKS	MAX IOPS	TEMP
D4s_v3	2	Standard	General purpose	4	16	8	6400 32 G

Select

Prices presented are estimates in your local currency that include only Azure infrastructure costs and any disc applicable software costs. [View Azure pricing calculator.](#)

**Inbound Port Rules:**

HTTP

HTTPS

RDP

**Save Money:**

Yes

Check box - Confirmation

### INBOUND PORT RULES

Select which virtual machine network ports are accessible from the public internet. You can access on the Networking tab.

\* Public inbound ports

☐ None
 ☒ Allow selected ports

\* Select inbound ports

RDP, HTTPS, HTTP

☒ HTTP (80)
 ☒ HTTPS (443)
 ☐ SSH (22)
 ☒ RDP (3389)

2

### SAVE MONEY

Save up to 49% with a license you already own using Azure Hybrid Benefit for Windows S

\* Already have a Windows license?

☒ Yes
 ☐ No

3

\* License type

Windows Server

\* Confirmation

☒
4

I confirm I have an eligible Windows license with Softw to apply this Azure Hybrid Benefit.

[Review Azure hybrid benefit compliance](#)

Review + create
Previous
Next : Disks >

5. Select **Standard SSD**
6. Add **new Data Disk**

Home > Windows Server 2016 Datacenter > Create a virtual machine

### Create a virtual machine

Basics | **Disks** | Networking | Management | Guest config | Tags | Review + create

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

**DISK OPTIONS**

\* OS disk type ⓘ Standard SSD

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.

Use unmanaged disks ⓘ ☐ Yes ☒ No

**DATA DISKS**

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

LUN	NAME	SIZE (GiB)	DISK TYPE	HOST CACHING
0	vm-host-bk-asr_DataDisk_1	255	Standard SSD	None

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

\*Extra info new disk

**Disk type: Standard SSD**  
**Name:**  
 vm-host-bk-asr\_DataDisk\_1  
**Size: 255**

Click **OK**

### 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 about Azure Managed Disks](#)

\* Disk type ⓘ Standard SSD

\* Name ⓘ vm-host-bk-asr\_DataDisk\_1

\* Size (GiB) ⓘ 255

\* Source type ⓘ None (empty disk)

**ESTIMATED PERFORMANCE ⓘ**

IOPS limit	500
Throughput limit (MB/s)	60

OK

7. Click **Next : Networking >**

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

8. Click **next : Management >**

Home > Windows Server 2016 Datacenter > Create a virtual machine

## Create a virtual machine

Basics Disks **Networking** Management Guest config Tags Review + create

Configure a new or existing virtual network for your VM as well as how your VM will be accessed on the virtual network. [Learn more](#)

### NETWORK INTERFACE

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

\* Virtual network ⓘ (new) rg\_bk\_sr-vnet [Create new](#)


\* Subnet ⓘ default

Public IP ⓘ (new) vm-host-bk-asr-ip [Create new](#)

Network security group ☒ Basic ☐ Advanced

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

\* Select inbound ports RDP, HTTPS, HTTP

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

Accelerated networking ⓘ ☒ On ☐ Off

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



9. Select **OS guest diagnostics** : ON

Select **Enable auto-shutdown** : On

Set **Shutdown time** : 5PM

Set **Time Zone** : Amsterdam

10. Click **Review + Create**

Home > Windows Server 2016 Datacenter > Create a virtual machine

### Create a virtual machine

Basics Disks Networking Management Guest config Tags Review + create

Configure monitoring and management options for your VM.

**MONITORING**

Boot diagnostics ☒ On ☐ Off

OS guest diagnostics ☒ On ☐ Off **1**

\* Diagnostics storage account (new) rgbkrsdiag   
 [Create new](#)

**IDENTITY**

Managed service identity ☐ On ☒ Off

**AUTO-SHUTDOWN**

Enable auto-shutdown ☒ On ☐ Off **2**

Shutdown time 5:00:00 PM **3**

Time zone (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna **4**

Notification before shutdown ☐ On ☒ Off

**BACKUP**

Enable backup ☐ On ☒ Off

**Review + create** **5** Previous Next : Guest config >

11. Review details and click **Create**

Home > Windows Server 2016 Datacenter > Create a virtual machine

## Create a virtual machine

✓ Validation passed

Basics Disks Networking Management Guest config Tags Review + create

**PRODUCT DETAILS**

Standard D4s v3  
by Microsoft  
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ  
**0.2024 EUR/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	Microsoft Partner Network
Resource group	rg_bk_sr
Virtual machine name	vm-host-bk-asr
Region	West Europe
Availability options	No infrastructure redundancy required
Username	labadminuser
Public inbound ports	RDP, HTTPS, HTTP

**DISKS**

OS disk type	Standard SSD
Use unmanaged disks	No
Data disks	1

**NETWORKING**

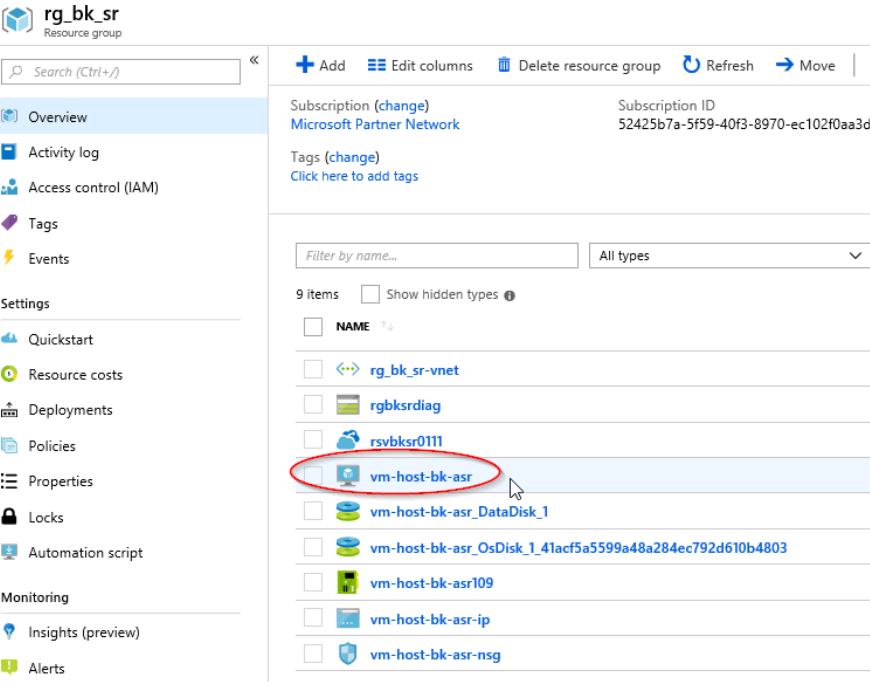
Virtual network	(new) rg_bk_sr-vnet
Subnet	default
Public IP	(new) vm-host-bk-asr-ip
Accelerated networking	On

**Create** Previous Next [Download a template for automation](#)

12. Wait for the VM to get deployed. You can check the status from the **Notifications** in the top bar.

13. You're done, we have created a Virtual Machine.

## Exercise 1e: Configure Datadisk on HOST VM

<ol style="list-style-type: none"> <li>From the navigation pane, go to <b>Resource Group</b> "rk_bk_sr"</li> <li>Select <b>Virtual Machine</b> "vm-host-bk-asr"</li> </ol>	 <p>The screenshot displays the Azure portal interface for the resource group 'rg_bk_sr'. The left-hand navigation pane is expanded, showing various management options. Under the 'Settings' section, 'Overview' is selected. The main area shows a list of resources within the group. The 'vm-host-bk-asr' Virtual Machine is highlighted with a red circle. Other resources listed include 'rg_bk_sr-vnet', 'rgbksrdiag', 'rsvbksr0111', 'vm-host-bk-asr_DataDisk_1', 'vm-host-bk-asr_OsDisk_1_41acf5a5599a48a284ec792d610b4803', 'vm-host-bk-asr109', 'vm-host-bk-asr-ip', and 'vm-host-bk-asr-nsg'. The right-hand pane provides details for the selected VM, including its subscription and tags.</p>
<ol style="list-style-type: none"> <li>Click <b>Connect</b> and download RDP file.</li> <li>Open RDP File from browser downloads</li> </ol>	
<ol style="list-style-type: none"> <li>Login to the VM with provided login credentials</li> </ol>	

6. Go to **Disk Management**

Programs and Features

Power Options

Event Viewer

System

Device Manager

Network Connections

**Disk Management**

Computer Management

Command Prompt

Command Prompt (Admin)

Task Manager

Control Panel

File Explorer

Search

Run

Shut down or sign out

Desktop

7. Select **GPT**

8. Click **OK**

Disk Management

File Action View Help

Volume	Layout	Type	File System	Status	Capacity	Free Spa...	% Free
System	Simple	Basic	NTFS	Healthy (S...	350 MB	291 MB	83 %
Temporary Storag...	Simple	Basic	NTFS	Healthy (P...	32.00 GB	29.05 GB	91 %
Windows (C:)	Simple	Basic	NTFS	Healthy (P...	125.66 GB	110.31 GB	87 %

Disk 0

Basic

127.00 GB

Online

System

350 MB NTFS

Healthy (Sys...

Disk 1

Basic

32.00 GB

Online

Temporary Storage (D:)

32.00 GB NTFS

Healthy (Page File, Primary Partition)

Initialize Disk

You must initialize a disk before Logical Disk Manager can access it.

Select disks:

☒ Disk 2

Use the following partition style for the selected disks:

☐ MBR (Master Boot Record)

**☒ GPT (GUID Partition Table)**

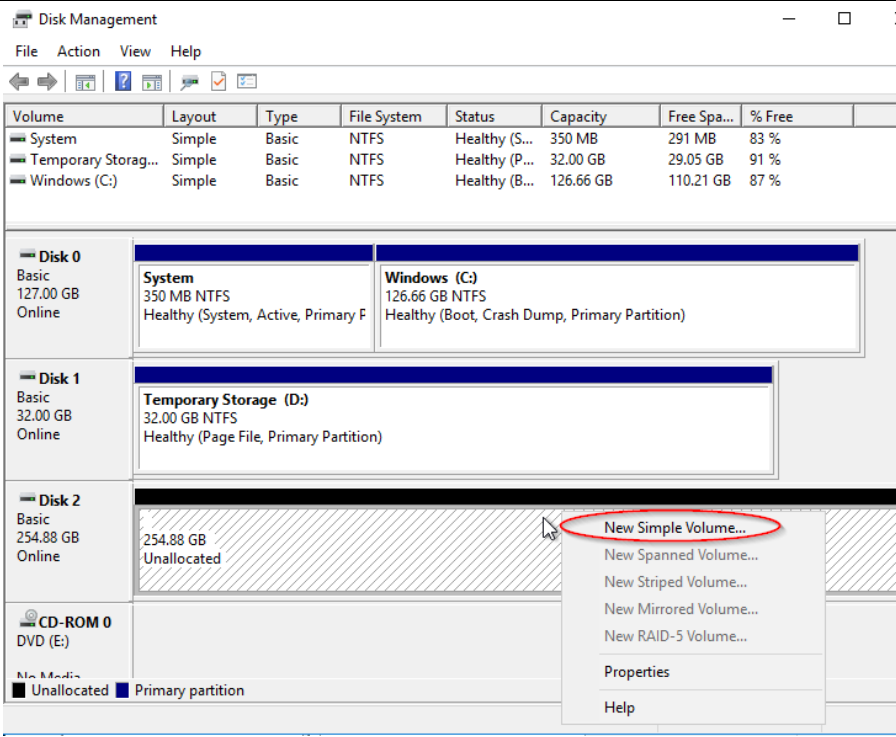
Note: The GPT partition style is not recognized by all previous versions of Windows.

OK

Cancel

Page | 20

- 9. Right-click on the unallocated volume
- 10. Click **New Simple Volume**



11. Click Next
12. Assign the drive letter **F**, and click **Next**

New Simple Volume Wizard

**Specify Volume Size**

Choose a volume size that is between the maximum and minimum sizes.

Maximum disk space in MB: 260990

Minimum disk space in MB: 8

Simple volume size in MB: 260990

< Back

Next >

Cancel

New Simple Volume Wizard

**Assign Drive Letter or Path**

For easier access, you can assign a drive letter or drive path to your partition.

☒ Assign the following drive letter:

F

☐ Mount in the following empty NTFS folder:

Browse...

☐ Do not assign a drive letter or drive path

< Back

Next >

Cancel

<p>13. Set <b>Volume Label:</b> DATA</p> <p>14. Click <b>Next</b></p> <p>15. <b>Finish</b></p>	<div data-bbox="547 286 1430 965"> <p>New Simple Volume Wizard <span>✕</span></p> <p><b>Format Partition</b> To store data on this partition, you must format it first.</p> <p>Choose whether you want to format this volume, and if so, what settings you want to use.</p> <p><input type="radio"/> Do not format this volume</p> <p><input checked="" type="radio"/> Format this volume with the following settings:</p> <p>File system: NTFS <span>▼</span></p> <p>Allocation unit size: Default <span>▼</span></p> <p>Volume label: DATA</p> <p><input checked="" type="checkbox"/> Perform a quick format</p> <p><input type="checkbox"/> Enable file and folder compression</p> <p>&lt; Back   Next &gt;   Cancel</p> </div>
<p>16.</p>	<p>You're done, we have created a datadisk</p>

## Activity 2: Backup & Recovery

### Estimated time to complete this activity

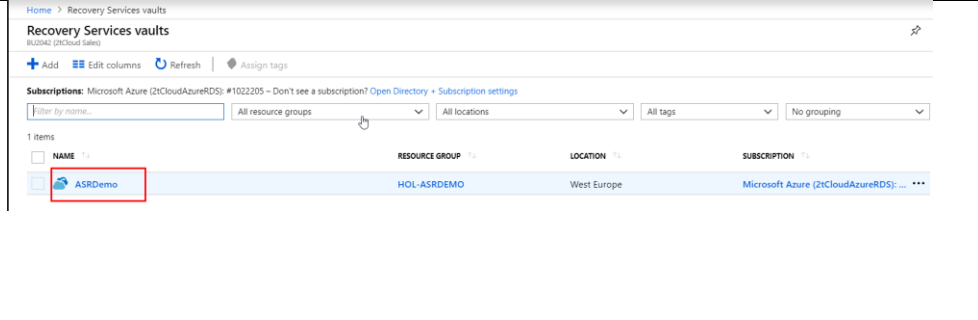
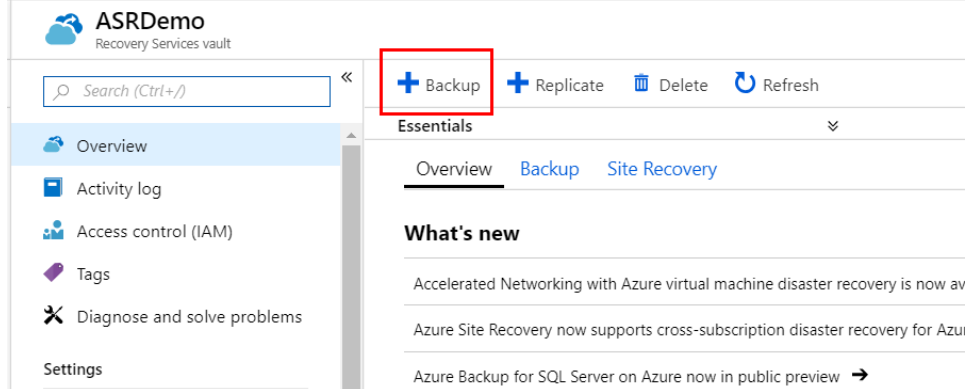
60 minutes

### Objectives

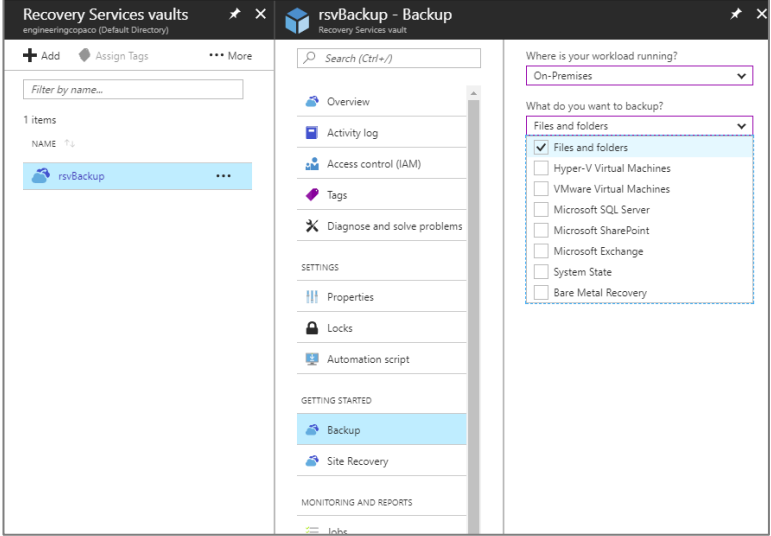
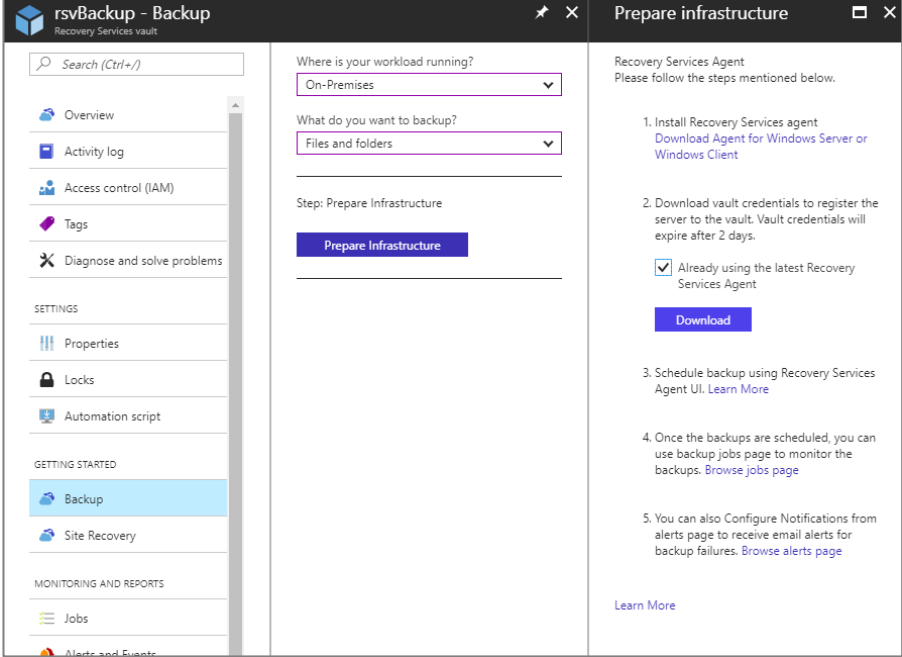
In this activity, you will;

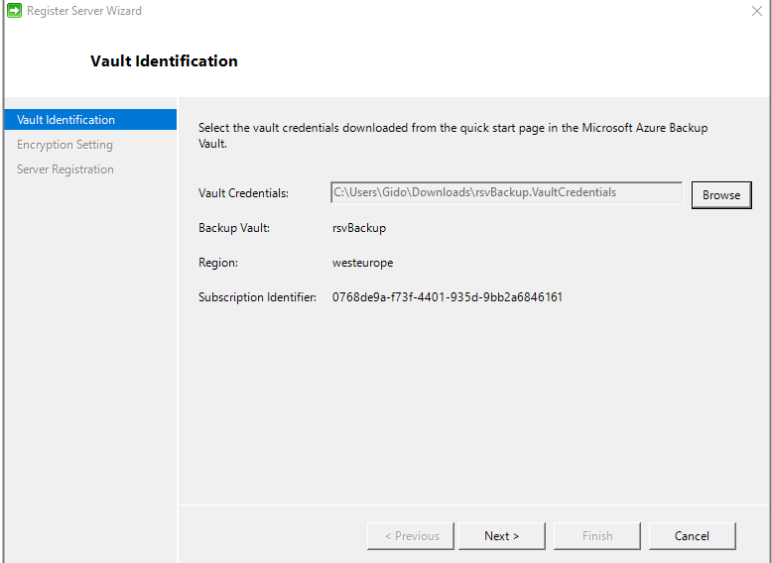
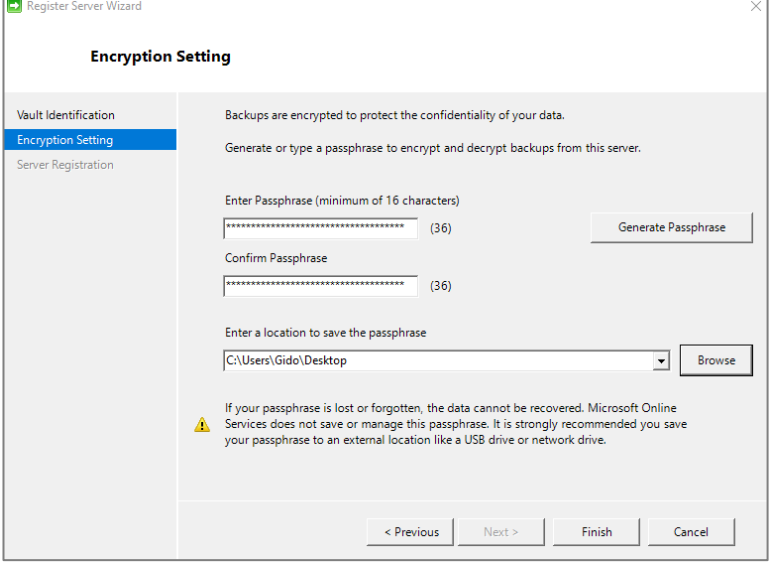
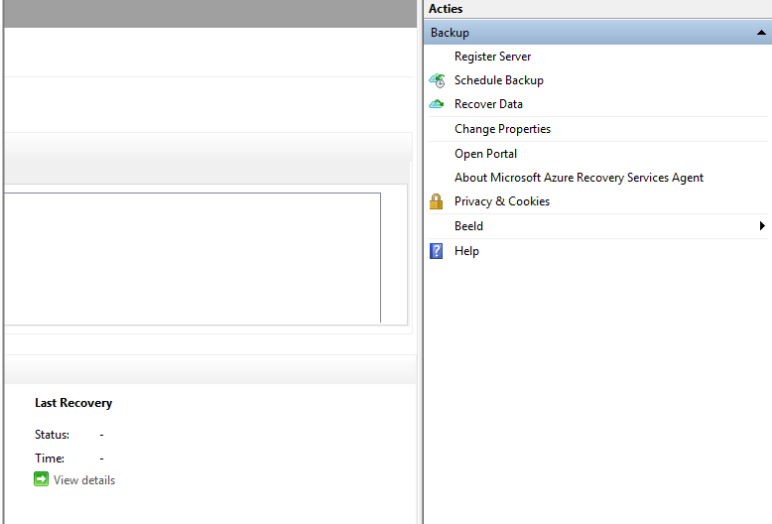
- Create a backup of your files using the Azure Recovery Agent
- Create a backup of your Azure Virtual Machine
- Perform a recovery of your files and folders using the Azure Recovery Agent
- Perform a recovery of your files and folders from your Azure Virtual Machine

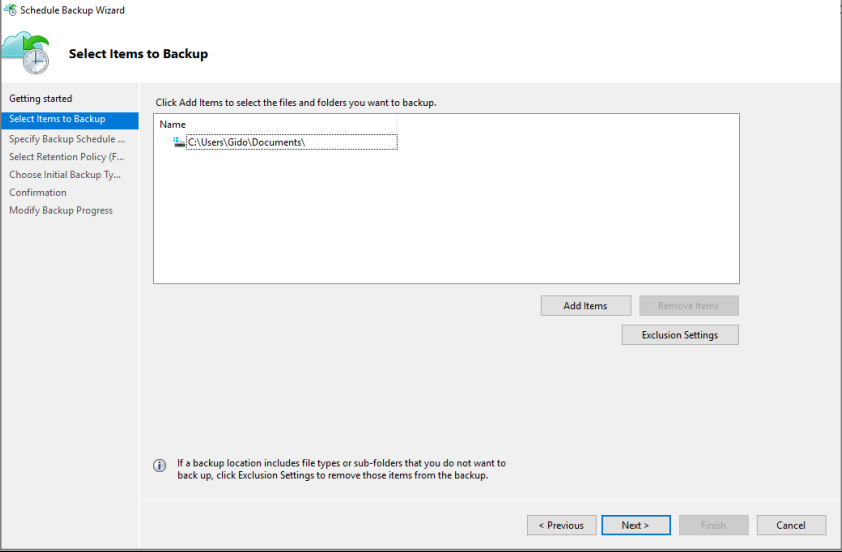
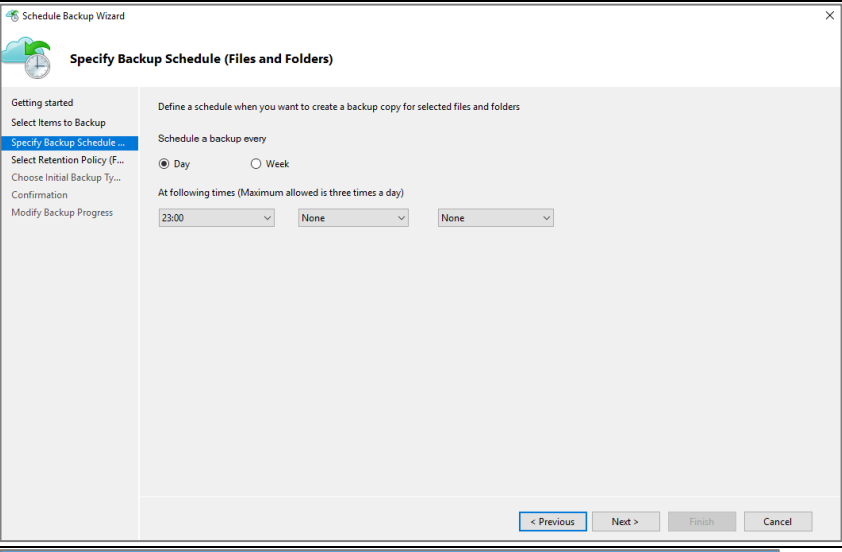
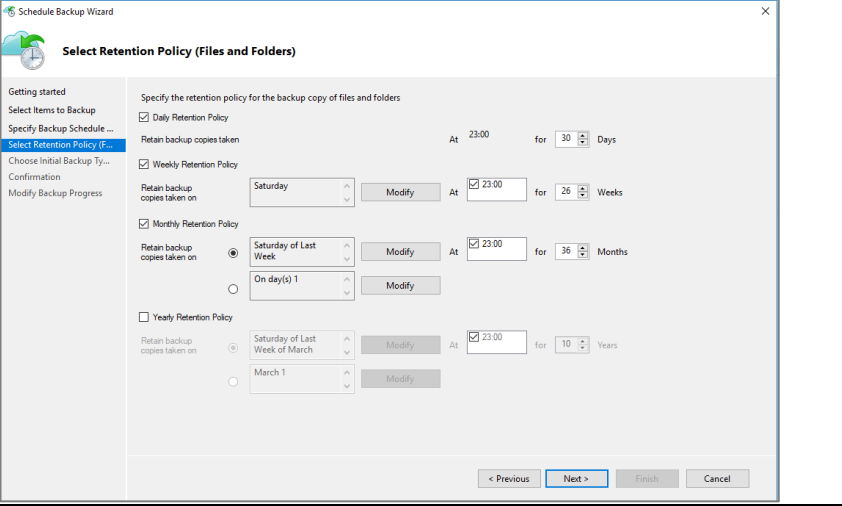
### Exercise 1: Create a backup of your files

<ol style="list-style-type: none"> <li>1. Login on the BK-SVR01, go to portal.azure.com and sign in.</li> <li>2. From the <b>Azure Portal</b>, browse to your <b>Recovery Services Vault</b> from the Navigation pane</li> <li>3. Select the created recovery vault</li> </ol>	 <p>The screenshot shows the 'Recovery Services vaults' page in the Azure portal. A table lists the vaults with columns for NAME, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. The vault 'ASRDemo' is highlighted with a red box.</p>
<ol style="list-style-type: none"> <li>4. Choose Backup</li> </ol>	 <p>The screenshot shows the 'ASRDemo' Recovery Services vault page. The 'Backup' button is highlighted with a red box. The page includes a navigation pane on the left with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and Settings. The main content area shows the 'Essentials' section with tabs for Overview, Backup, and Site Recovery.</p>



<p>5. Choose <b>On Premises</b> as the source of your backup and choose <b>Files and Folders</b> as the backup type</p>	
<p>6. Download the <b>Recovery Services Agent</b> with the link provided and <b>enable the checkbox</b> to confirm you have downloaded the agent.</p>	
<p>7. The <b>Download</b> button will become available, <b>save the Vault Credentials</b> to your local computer.</p>	

<p>8. When the downloads are ready, <b>run the installer</b>. Use the defaults, until you are asked for identification of the Vault. Select the <b>Vault Credentials</b> file you downloaded.</p>	
<p>9. <b>Generate a Passphrase</b> (or choose one yourself). Save it to your computer.</p>	
<p>10. Start <b>Microsoft Azure Backup</b> from the shortcut on your desktop 11. Schedule a backup from the action pane on the right.</p>	

<p>12. <b>Select</b> the items you want to backup. Make sure the selection only has a small amount of data, so you don't have to wait.</p>	
<p>13. Select how often and when the backup can take place. For instance, at <b>23.00</b>.</p>	
<p>14. Select the desired Retention Policy, for instance</p> <ul style="list-style-type: none"> <li>a. <b>Daily for 14 days</b></li> <li>b. <b>Weekly for 4 weeks</b></li> <li>c. <b>Monthly for 6 months</b></li> <li>d. <b>No yearly backups</b></li> </ul>	
<p>15. On the next screen, you can choose to make adjustments for an offline</p>	

<p>backup scenario. Accept the defaults for automatic configuration and proceed.</p> <p>16. <b>Finish</b> the wizard and click Backup Now to do an instant backup.</p> <p>17. As the backup is running, proceed with the next exercise. We will return to the results of this exercise when the job is finished.</p>	
--	--

## Exercise 2: Create a backup of your Azure Virtual Machine

In this exercise we are going to back up the host VM

1. Go to the **Azure Portal** and browse to your **Recovery Services Vault**.

2. Open **Backup Policies** from the navigation pane. Add a new **Backup Policy**

Recovery Services vaults  
engineeringospace (Default Directory)

+ Add

Assign Tags

More

Filter by name...

1 items

NAME

↑

rsvBackup

...

SETTINGS

Properties

Locks

Automation script

GETTING STARTED

Backup

Site Recovery

MONITORING AND REPORTS

Jobs

Alerts and Events

Backup Reports

POLICIES

Backup policies

PROTECTED ITEMS

Backup items

rsvBackup - Backup policies  
Recovery Services vault

+ Add

Search (Ctrl+V)

Filter items ...

NAME

↑

POLICY TYPE

↑

DefaultPolicy

Azure Virtual Machine

...

3. Choose Azure Virtual Machine
4. Use the following parameters;
  - a. Name **CustomBackupPolicy**
  - b. Frequency **Daily at 23:00**
  - c. Instant Restore **2** days
  - d. Daily retention **30** days
  - e. Weekly retention **26** weeks
  - f. Monthly retention **36** months
  - g. Yearly retention **None**
5. **Create** the policy

### Create policy

---

**\* Policy name** ⓘ  
 1 ✓

**The changes will apply to all the existing and new recovery points. Existing recovery points will be modified retention range.**

**Backup schedule**

**\* Frequency**  ✓ **\* Time**  ✓ **\* Timezone**  2

**Instant Restore** ⓘ

Retain instant recovery snapshot(s) for  
 ✓ Day(s) 3

**Retention range**

☒ Retention of daily backup point.

**\* At**  ✓ **For**  ✓ Day(s) 4

☒ Retention of weekly backup point.

**\* On**  ✓ **\* At**  ✓ **For**  ✓ Week(s) 5

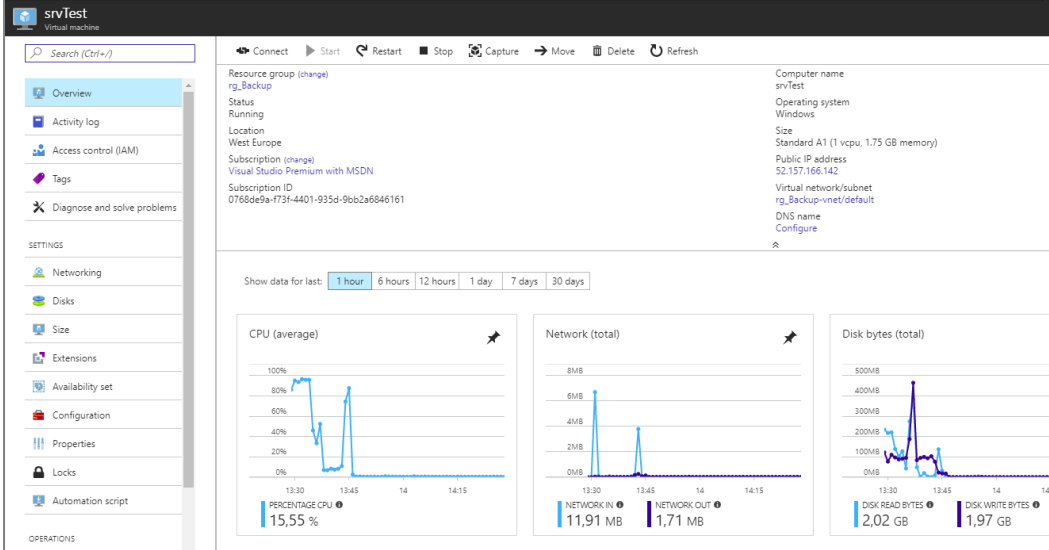
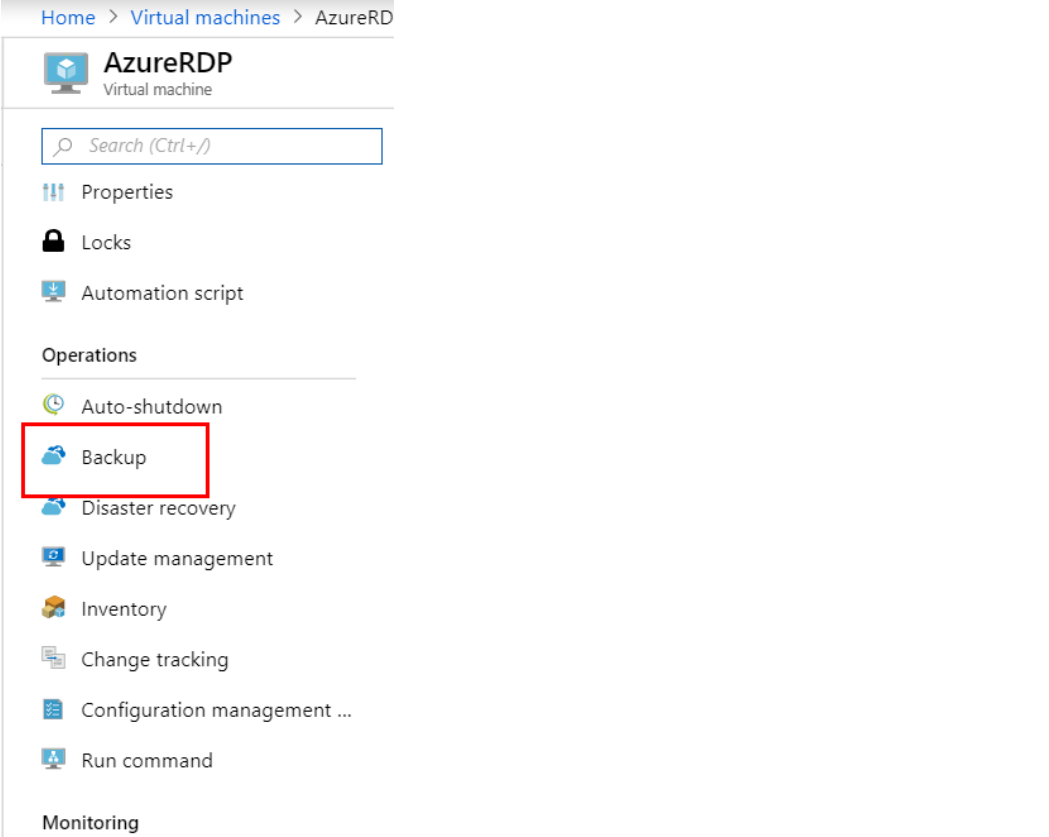
☒ Retention of monthly backup point.




**Week Based** **Day Based**

**\* On**  ✓ **\* Day**  ✓ **\* At**  ✓ **For**  ✓ Month(s) 6

☐ Retention of yearly backup point.

Not Configured

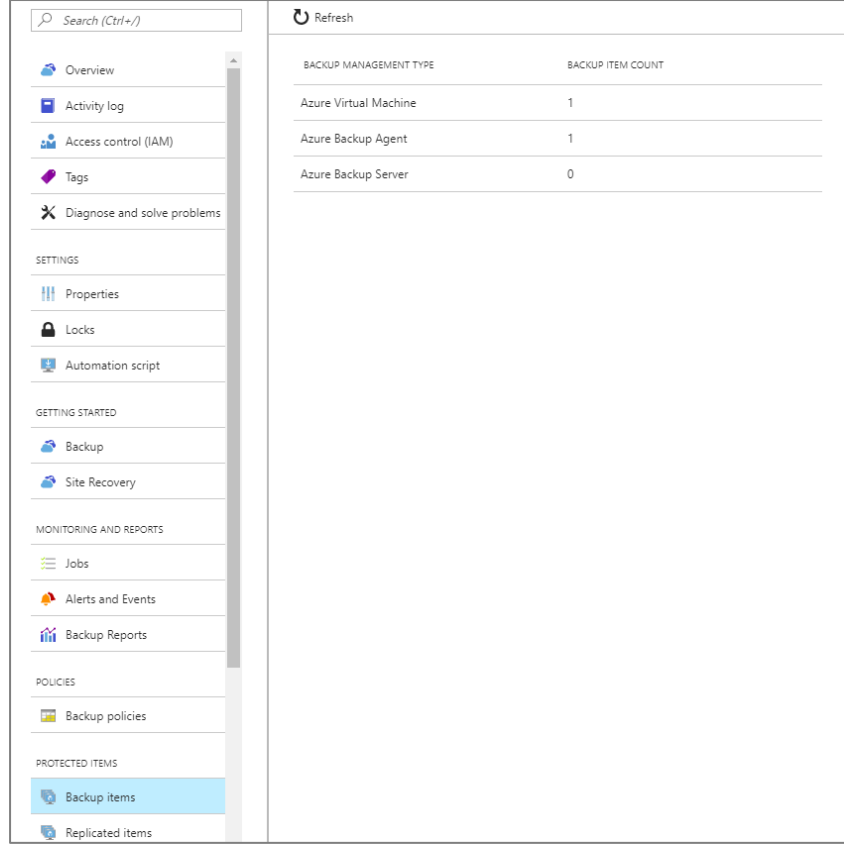
<p>6. Browse to the <b>Resource Group</b> created before</p> <p>7. Identify the <b>Virtual Machine</b> that was created in the previous exercise and select it to open the details. As you can see, it is running and the overview pane shows you basic insights on the VM.</p>	
<p>8. Select Backup</p>	

<p>9. Select:</p> <ol style="list-style-type: none"> <li>Select Existing and choose the recovery vault you created</li> <li>Choose the backup policy you created</li> <li>And choose Enable Backup</li> </ol> <p>10. Wait for the configuration to finish</p>	<div> <h2>Enable backup</h2> <p>workspace365dem</p> <div>  <p><b>Welcome to Azure Backup</b> Simple and reliable server backup to the cloud. <a href="#">Learn more</a>. Charges are based on the number and size of VMs being backed up.</p> <p>Review the following information and click on 'Enable backup' to start protecting your VM.</p> </div> <div> <p>Recovery Services vault </p> <p><input type="radio"/> Create new <input checked="" type="radio"/> Select existing <span>1</span></p> <p>ASRDemo <span>2</span></p> </div> <div> <p>Choose backup policy </p> <p>onedaybackup <span>3</span></p> </div> <div> <p><b>BACKUP FREQUENCY</b></p> <p>Daily at 12:00 PM W. Europe Standard Time</p> <p><b>RETENTION RANGE</b></p> <p><b>Retention of daily backup point</b></p> <p>Retain backup taken every day at 12:00 PM for 180 Day(s)</p> <p>Or</p> <p><a href="#">Create (or edit) a new policy</a></p> </div> <div> <p><b>Enable Backup</b></p> </div> </div>
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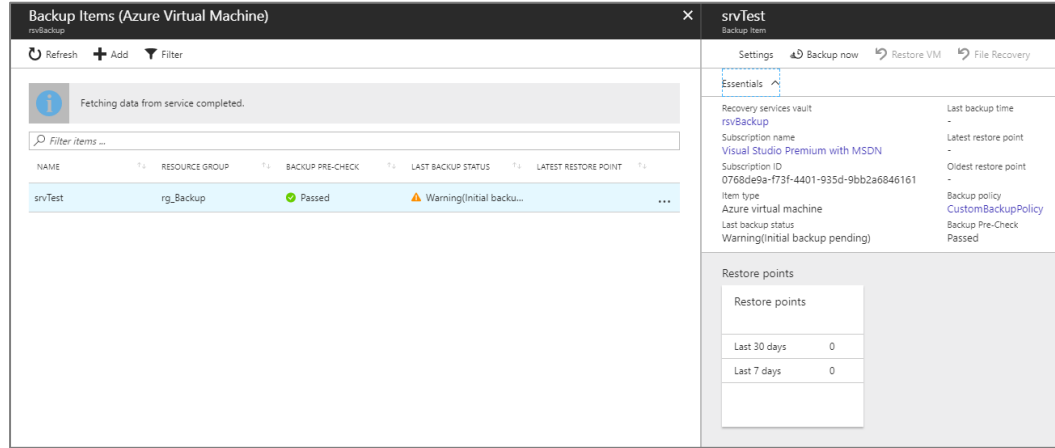
You can verify the job is running from the **Notification** button in the top right of the **Azure Portal**. For detailed information;

1. Open your **Recovery Services Vault**
2. Open **Backup Items** under **Protected Items**. Please note the **Azure Virtual Machine** Count has gone up.




BACKUP MANAGEMENT TYPE	BACKUP ITEM COUNT
Azure Virtual Machine	1
Azure Backup Agent	1
Azure Backup Server	0

3. Click on it to get detailed information

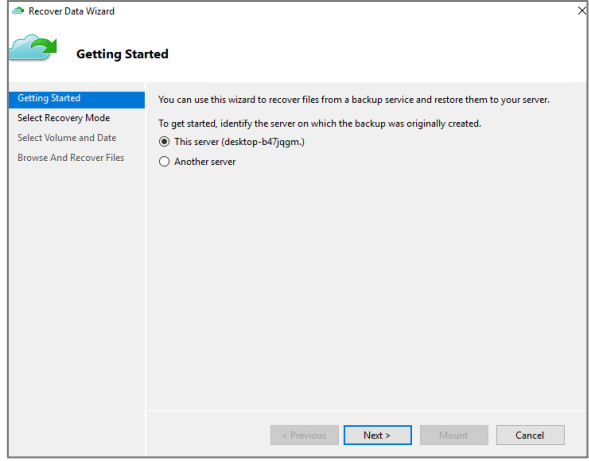
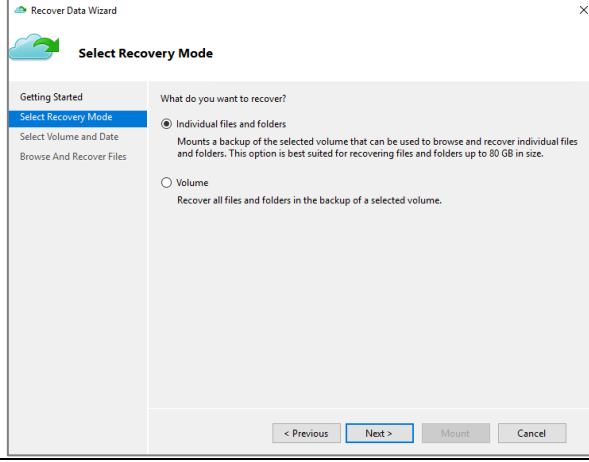
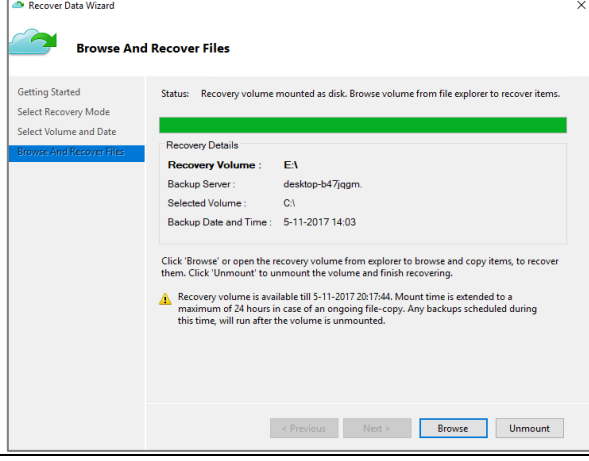


NAME	RESOURCE GROUP	BACKUP PRE-CHECK	LAST BACKUP STATUS	LATEST RESTORE POINT
srvTest	rg_Backup	Passed	Warning(initial backu...	...

4. Proceed to the next exercise. While the backup of your Virtual Machine is running, we'll check on the backup of your Files and Folders that we started before.

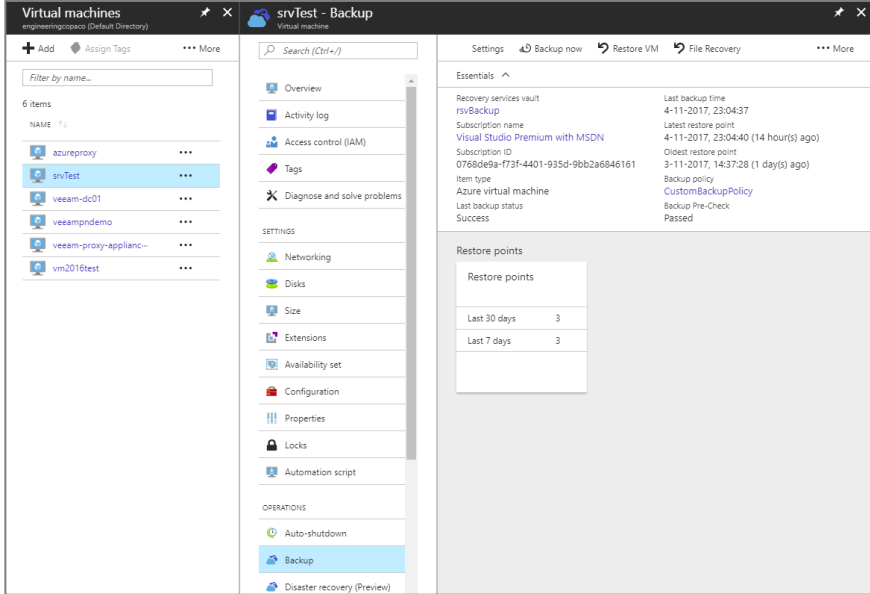
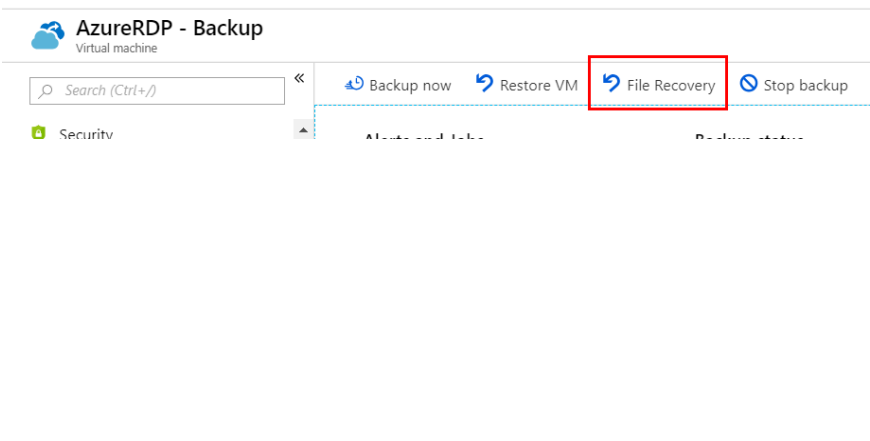


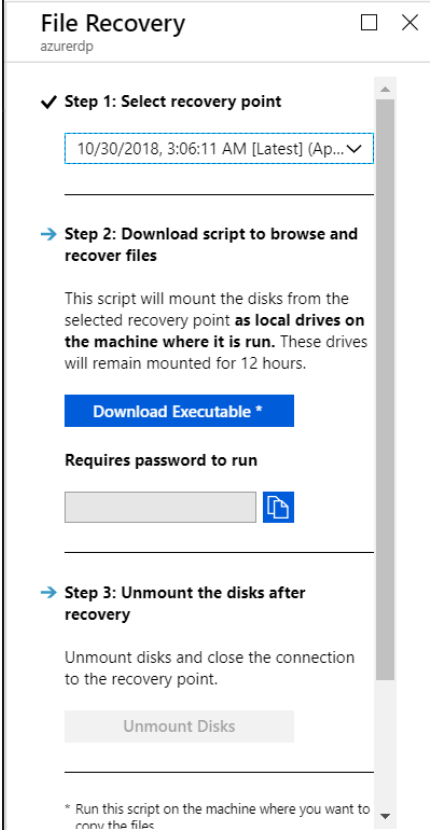
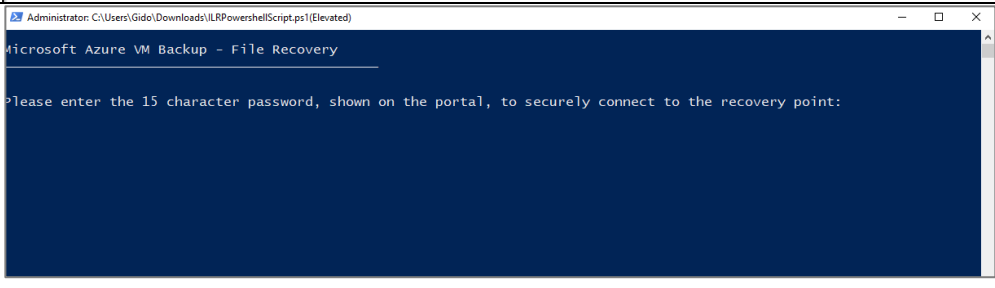
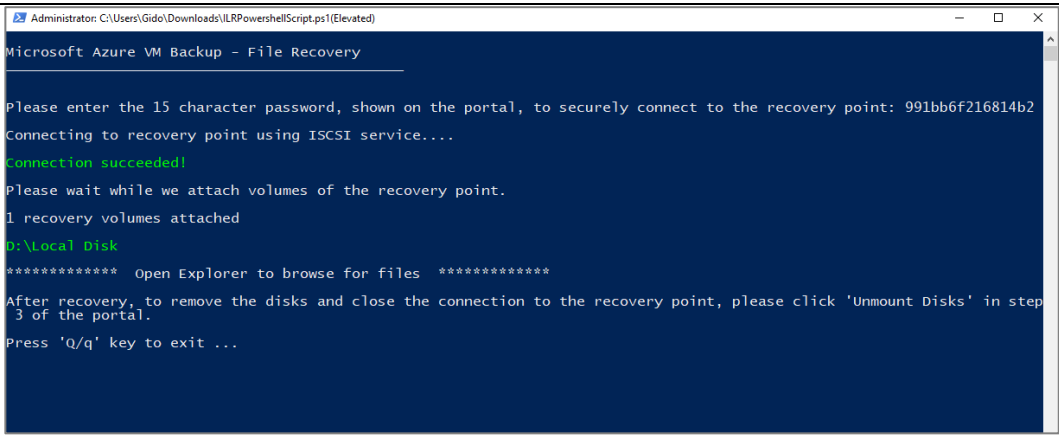
### Exercise 3: Perform a recovery of your Files and Folders

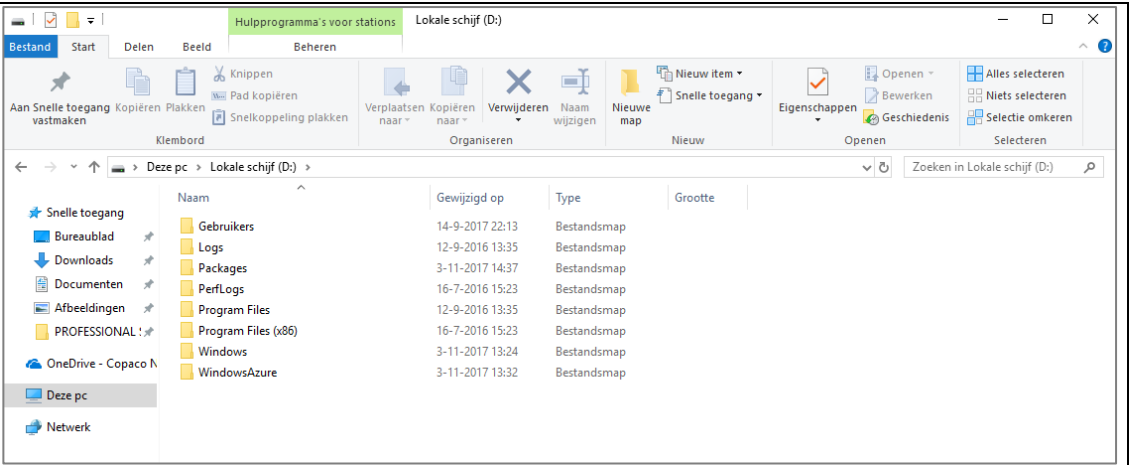
<ol style="list-style-type: none"> <li>1. Start the <b>Microsoft Azure Backup</b> shortcut on your desktop of the BK-SVR01</li> <li>2. Start the <b>Microsoft Azure Backup</b> shortcut on your desktop.</li> <li>3. The <b>Jobs overview</b> will show you if your backup job was successful. From the <b>Action pane</b> on the right, choose to <b>Recover Data</b>. From the <b>Getting Started wizard</b>, choose to <b>Recover from this server</b></li> </ol>	
<ol style="list-style-type: none"> <li>4. Choose to restore individual <b>Files and Folders</b> and select <b>C:\</b> as the volume</li> </ol>	
<ol style="list-style-type: none"> <li>5. From the calendar, <b>select the restore point</b> just created. Click <b>Mount</b></li> </ol>	
<ol style="list-style-type: none"> <li>6. When the volume is mounted, you can click <b>Browse</b> to recover file by using the copy and paste options from <b>Windows Explorer</b>. Try to recover your files.</li> </ol>	

7. When finished, click <b>Unmount</b> from the Recover Data Wizard.	
--	--

## Exercise 4: Perform a recovery of your VM files

<p>1. From the <b>Resource Group</b>, open your Virtual Machine. From there, select <b>Backup</b> to see the backup state of this machine. Check the <b>Last Backup State</b>, it should now show successful.</p>	 <p>The screenshot shows the 'Virtual machines' page in the Azure portal. On the left, a list of virtual machines is shown, with 'srvTest' selected. The main pane displays the 'Backup' page for 'srvTest'. The 'Essentials' section shows backup details: Recovery services vault (rsv8Backup), Subscription name (Visual Studio Premium with MSDN), Subscription ID (0768de9a-f73f-4401-935d-9bb2a6846161), Item type (Azure virtual machine), and Last backup status (Success). The 'Restore points' section shows a table with columns for 'Restore points', 'Last 30 days', and 'Last 7 days', both showing a count of 3.</p>
<p>2. Please note it is possible to restore the full VM from here. However, this activity is not included in this lab. Instead, for this exercise, open <b>File Recovery</b>.</p>	 <p>The screenshot shows the 'AzureRDP - Backup' page in the Azure portal. The 'Backup now', 'Restore VM', 'File Recovery', and 'Stop backup' buttons are visible at the top. The 'File Recovery' button is highlighted with a red rectangle.</p>

<p>3. Select <b>Recovery Point</b> and click <b>Download Executable</b></p> <p>4. <b>Copy</b> the password to clipboard</p>	
<p>5. Browse the executable on your local computer. Right click to <b>Run as Administrator</b></p>	
<p>6. <b>Paste</b> (or type) the password from clipboard when asked. Please wait while the Recovery Point is mounted.</p>	

7. From the <b>Windows Explorer</b> , the Recovery Point is mounted as a drive letter (D:)	
8. Try to browse the Recovery Point and <b>copy</b> some files to your local drive.	
9. When done, click <b>Unmount Disks</b> from the Azure Portal. After some time, the drive mapping on your local machine will disappear.	
	You're done, we have created the backups and restored files and folders.

# This is the end of the lab.

## Activity 3: Clean-up

### Objectives

In this activity, you will;

- Remove the Azure resources created in this lab

The resources we deployed will consume CSP resources and credits. As they are only there for testing purposes, you can safely remove them.

1. From the **Azure Portal**, navigate to your **Resource Group**
2. Open the **Recovery Services vault** and delete the **backup items** and **Replicated Items**
3. Delete the **Recovery Services vault**
4. From the **Azure Portal**, navigate to your **Resource Group**
5. From the **Overview** pane, click **Delete Resource Group**
6. Make sure you selected the correct Resource Group and confirm this by typing the name when asked.
7. Click to **Delete** to confirm. Check the status from the **Notifications** in the top right of the Azure Portal.

## (Extra) Activity 4: Backup and restore Azure SQL Database

### Estimated time to complete this activity

45 minutes

### Objectives

In this activity, you will;

- Create a backup of your Azure SQL database
- Perform a recovery of your Azure SQL database

<p>1. Open url : <a href="https://docs.microsoft.com/nl-nl/learn/modules/backup-restore-azure-sql/">https://docs.microsoft.com/nl-nl/learn/modules/backup-restore-azure-sql/</a></p> <p>2. Click <b>Start</b></p>	
<p>3. Finish module</p>	



Extra resources / links:

### **Pricing**

<https://azure.microsoft.com/en-us/pricing/calculator/>

<https://azure.microsoft.com/pricing/details/backup>

Op deze website kunt u eenvoudig Backup-pricing berekenen.

### **Design & Implementation**

<https://docs.microsoft.com/azure/backup/>

Dit document bevat algemene informatie omtrent Azure Backup

<https://docs.microsoft.com/azure/backup/backup-mabs-protection-matrix>

Support matrix voor Azure Backup Server

<https://docs.microsoft.com/azure/backup/backup-mabs-protection-matrix>

Recovery Services Vault overview

<https://docs.microsoft.com/azure/backup/backup-azure-recovery-services-vault-overview>

## Extra screenshots: troubleshooting

