

Azure Hybrid Scenario's

Azure Hands On Lab December 7th 2018

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2tCloud



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Introduction

Azure is more than just another IaaS platform on which you host virtual machines. It strongly integrates with existing infrastructures, on different levels. For instance, it's easy to create a backup of your on-premises machines to Azure or manage your on-premises system updates from Azure. With the recent release of Windows Admin Center and Windows Server 2019, the hybrid scenario's are becoming even easier to implement. This lab introduces some hybrid functionality between on-premises machines and Azure services.

During the exercises you will be guided to deploy a couple of virtual machines, both on-premises and in Microsoft Azure. You will be deploying Windows Admin Center with several Azure integrations to show how easy this actually is. You'll find you hardly need any experience in the Azure Portal. To end the lab, you will create a cloud tiered storage solution. By leveraging Azure File Sync, you can reach almost unlimited growth to existing on-premises fileserver and makes migration to another fileserver really easy.

Estimated time to complete this lab

120 minutes

Objectives

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

- Make your way through the Azure Portal
- Deploy a Virtual Machine both on Azure and Hyper-V
- Install Windows Admin Center on a local server
- Integrated Windows Admin Center with several Azure services
- Deploy a cloud-tiered storage solution

Prerequisites

To complete this course, you will be needing;

- Laptop/computer with Windows 10, Hyper-V Manager role and WiFi connected
- Account with an Azure CSP Subscription

Materials

All student materials are available for download here:

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

Activity 1 : Getting Started

Estimated time to complete this activity

45 minutes

Objectives

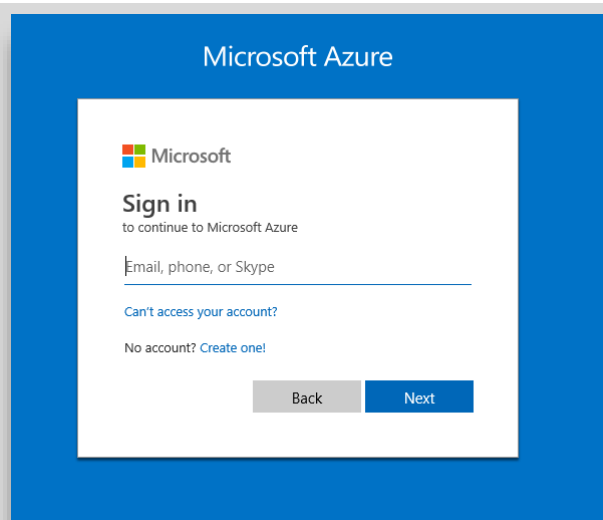
In this activity, you will configure the components necessary to perform this lab;

- Login to your Azure tenant
- Create a Resource Group
- Deploy Azure Active Directory Domain Services

Exercise 1a : Login to the Azure Portal

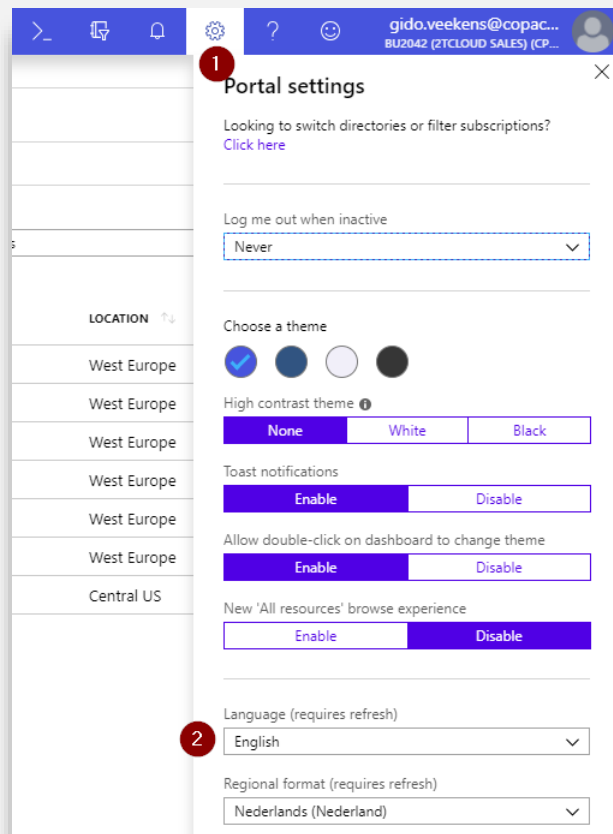
- 1) Using your *Work Account*, you can sign in to the Azure Portal at:

<https://portal.azure.com>

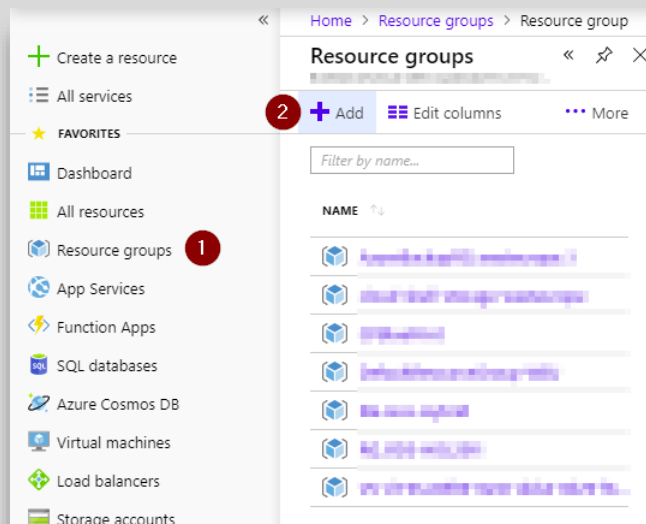




- 2) From the *Azure Portal*, select the *Gear* icon in the top right and select **English**. *Apply* the changes, so you follow the instructions below.



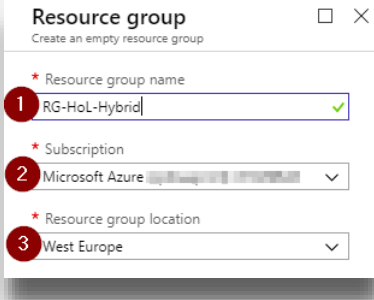
- 3) From the navigation pane, select *Resource Groups* and then *Add*.



- 4) Name the group:
RG-HoL-Hybrid

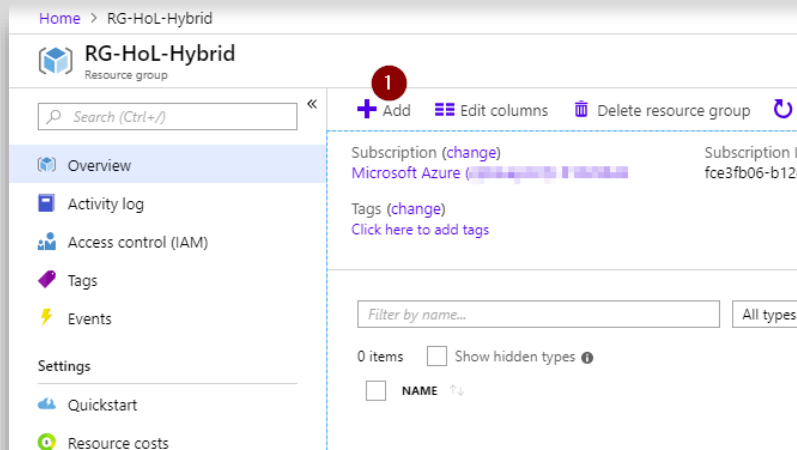
Select the right
subscription and *region*.

Create the Resource
Group

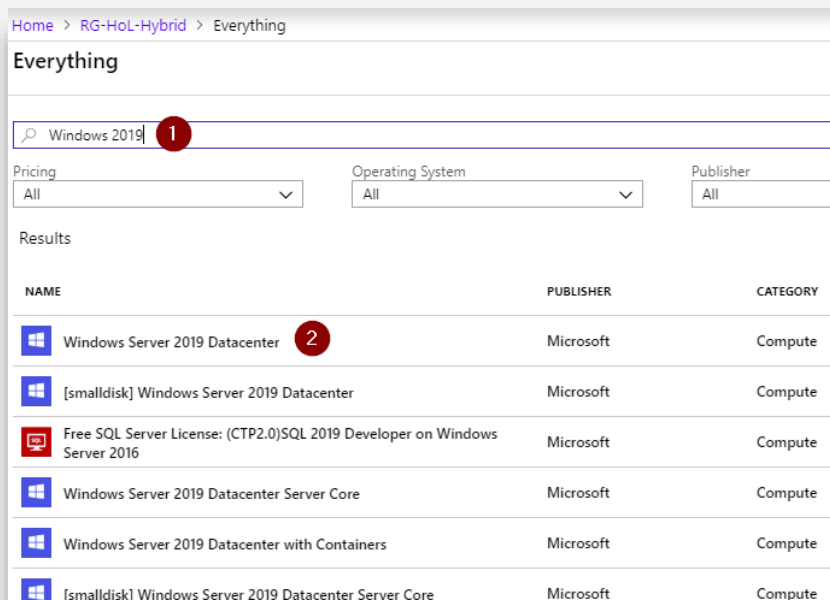


Exercise 1b : Deploy a Azure Virtual Machine

- 5) From the Resource
Group just created,
select **Add** to create a
new resource.



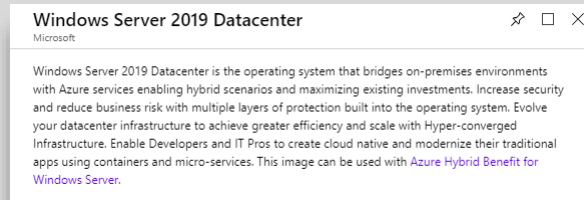
- 1) Search for **Windows
2019** to create a new
Virtual Machine based
on *Windows Server
2019 Datacenter*



NAME	PUBLISHER	CATEGORY
Windows Server 2019 Datacenter	Microsoft	Compute
[smalldisk] Windows Server 2019 Datacenter	Microsoft	Compute
Free SQL Server License: (CTP2.0)SQL 2019 Developer on Windows Server 2016	Microsoft	Compute
Windows Server 2019 Datacenter Server Core	Microsoft	Compute
Windows Server 2019 Datacenter with Containers	Microsoft	Compute
[smalldisk] Windows Server 2019 Datacenter Server Core	Microsoft	Compute

- 2) You'll be presented with a summary.

Create the Virtual Machine



Create

- 3) To create the machines, you need to specify some parameters.

Choose the *Resource Group* we create earlier

Name the *VM* **VM-FS-01**

For this lab, we'll use a *VM size* of **B2s**

Specify an *admin username* and a valid *password*.

Also, make sure the **RDP** protocol is allowed for *inbound* access.



Home > RG-HoL-Hybrid > Everything > Windows Server 2019 Datacenter > Create a virtual machine


Create a virtual machine

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


Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own custom image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each 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 folders to organize and manage resources.


* Subscription  Microsoft Azure 


* Resource group  RG-HoL-Hybrid **1**
[Create new](#)


INSTANCE DETAILS

* Virtual machine name  VM-FS-01 **2**


* Region  West Europe


Availability options  No infrastructure redundancy required


* Image  Windows Server 2019 Datacenter
[Browse all images and disks](#)

* Size  **Standard B2s** **3**
2 vcpus, 4 GB memory
[Change size](#)


ADMINISTRATOR ACCOUNT

* Username  vmadmin **4**


* Password  **5**

* Confirm password  **6**

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 **7**

 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.

- 4) From the [Disks](#) pane, select an OS disk with disk type: **Premium SSD**
- Now [Create and attach a new disk](#)

Home > RG-Hol-Hybrid > Everything > Windows Server 2019 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 ⓘ Premium SSD **2**

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
Create and attach a new disk Attach an existing disk 3				

▼ ADVANCED

- 5) To create the data disk, again select **Premium SSD**
- For this lab, we'll be fine with just **64GB**

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 ⓘ Premium SSD **1**

* Name VM-FS-01_DataDisk_0

* Size (GiB) ⓘ 64 **2**

* Source type ⓘ None (empty disk)

ESTIMATED PERFORMANCE ⓘ

IOPS limit	240
Throughput limit (MB/s)	50

- 6) From the [Networking](#) pane, create a new [Virtual Network](#)

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-Hol-Hybrid **2**

* Subnet ⓘ (new) holsubnet (10.1.1.0/24)

7) Name the Virtual Network:
rg-HoL-Hybrid

Adjust the address range:
10.1.0.0/23

Define a *subnet* named **holsubnet** within the address range, for instance:
10.1.1.0/24

The Microsoft Azure Virtual Network service enables Azure resources to securely communicate with each other in a virtual network 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: 1

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"/>	10.1.0.0/23 2	10.1.0.0 - 10.1.1.255 (512 addresses)	RG-HoL-Hybrid-vnet (10.1.0.0/23)
<input type="checkbox"/>	<input type="text" value=""/>	(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"/>	holsubnet 3	10.1.1.0/24 4	10.1.1.0 - 10.1.1.255 (256 addresses)
<input type="checkbox"/>	<input type="text" value=""/>	<input type="text" value=""/>	(0 Addresses)

8) To prevent unnecessary costs from this lab, *enable auto-shutdown* on this VM.

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

* Diagnostics storage account
 [Create new](#)

IDENTITY

System assigned managed identity ☐ On ☒ Off

AUTO-SHUTDOWN

Enable auto-shutdown 1 ☒ On ☐ Off

Shutdown time 2

Time zone 3

Notification before shutdown ☐ On ☒ Off

- 9) Review the parameters and [Create](#) the VM

Create a virtual machine

✓ Validation passed

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

PRODUCT DETAILS

Standard B2s
by Microsoft
[Terms of use](#) | [Privacy policy](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; and (b) 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 Azure
Resource group	RG-HoL-Hybrid
Virtual machine name	VM-FS-01
Region	West Europe
Availability options	No infrastructure redundancy required
Username	vmadmin
Public inbound ports	RDP

DISKS

OS disk type	Premium SSD
Use managed disks	Yes
Data disks	1

NETWORKING

Virtual network	(new) RG-HoL-Hybrid-vnet
-----------------	--------------------------

Create

- 10) The deployment of the VM, Virtual Network and related resources will take place. You can watch the status from the Deployment Overview.

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20181127144042 - Overview

CreateVm-MicrosoftWindowsServer.WindowsServer-201-20181127144042 - Overview

Deployment

Search (Ctrl+F)

Delete Cancel Redeploy Refresh

Your deployment is complete

[Go to resource](#)

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsServer-201-20181127144042
Subscription: Microsoft Azure (cpblueprint): #1029643
Resource group: RG-HoL-Hybrid

DEPLOYMENT DETAILS (Download)

Start time: 27-11-2018 14:55:18
Duration: 6 minutes
Correlation ID: 4322de64-b59f-49a8-b31b-7e7b7beb5fb92

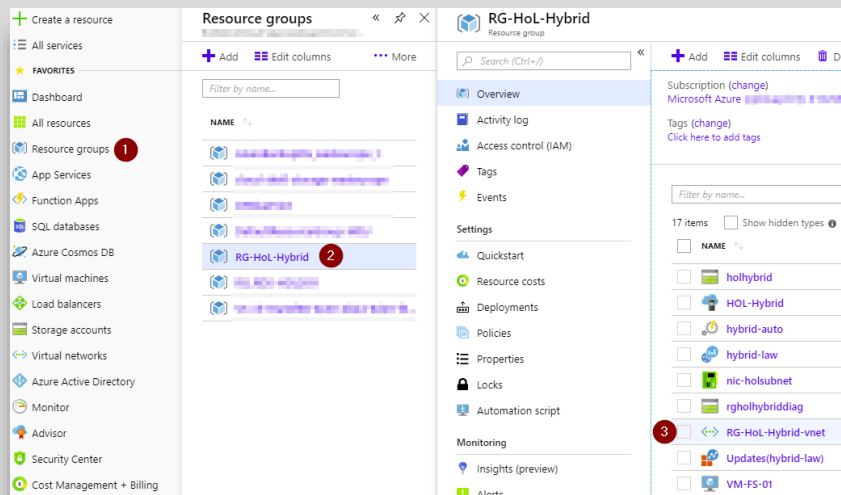
RESOURCE	TYPE	STATUS
shutdow-compute-vm-VM-FS-01	Microsoft.DevTestLab/schedules	Created
VM-FS-01	Microsoft.Compute/virtualMachines	OK
vm-fs-01782	Microsoft.Network/networkInterfaces	Created

★ Wait for at least the Virtual Network to finish deployment.
Continue with the next exercise when it's done.

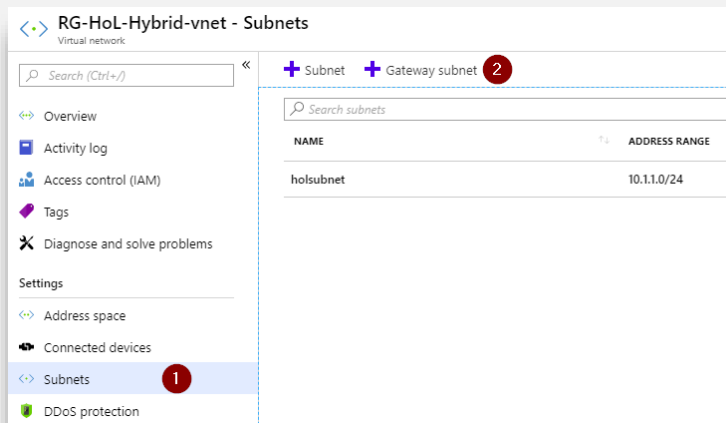
Exercise 1c ; Deploy a VPN Gateway Subnet



- 1) From the *navigation pane*, browse the *Resource Group* and then the *Virtual Network* we've created.



- 2) Browse to *Subnets* and *Add a new Gateway Subnet*



- 3) Choose an *unused* address range within the virtual network range to create the *gateway subnet*.

- 4) Wait for the subnet to be created and show up in the virtual network subnets.

RG-HoL-Hybrid-vnet - Subnets

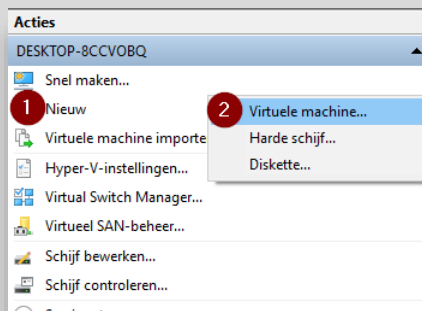
Subnet + Gateway subnet

Search subnets

NAME	ADDRESS RANGE	AVAILABLE ADDRESSES
holsubnet	10.1.1.0/24	250
GatewaySubnet	10.1.0.0/24	251

Exercise 1d : Create a Hyper-V Virtual Machine

- 1) Open Hyper-V manager from your local Windows installation. Create a new Virtual Machine.

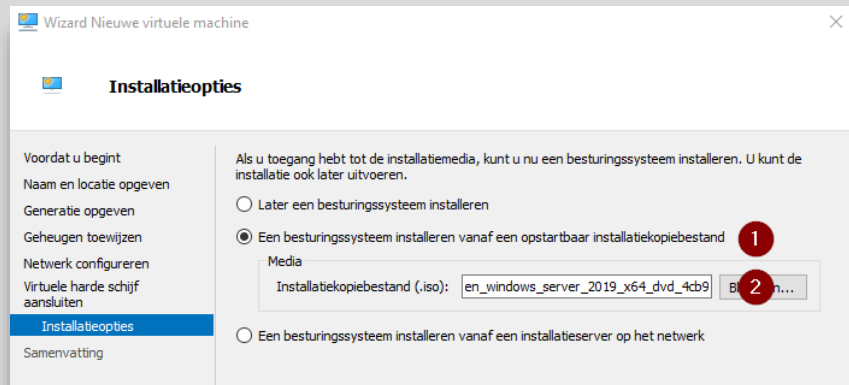


- 2) Name the machine **VM-FS-02**



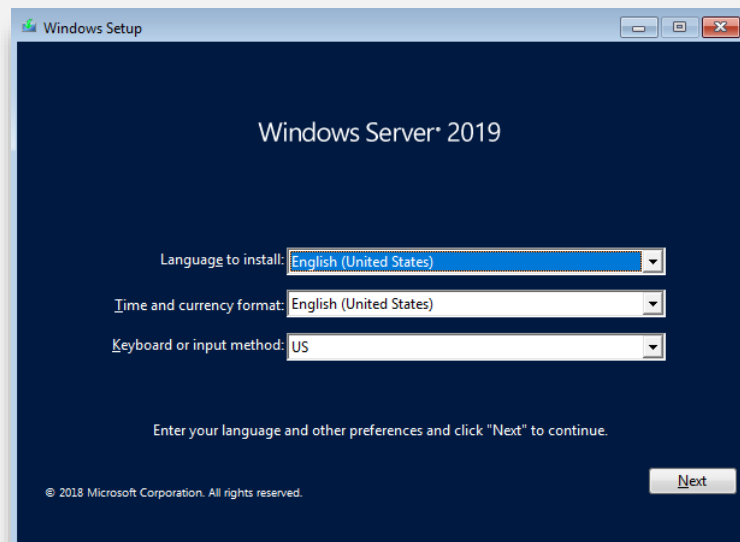
- 3) Select the *Windows Server 2019 ISO* as the installation medium.

Windows Server 2012R2 or 2016 can also be used.

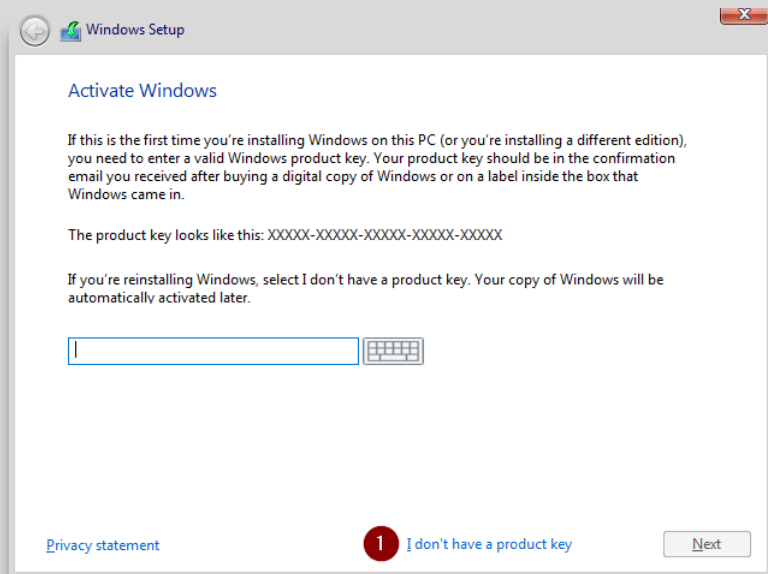


Voltooien

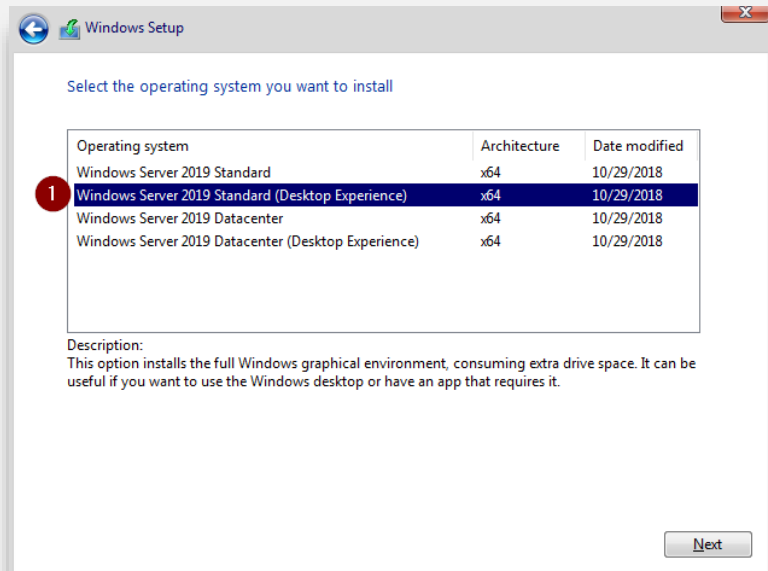
- 4) Follow the installation wizard.



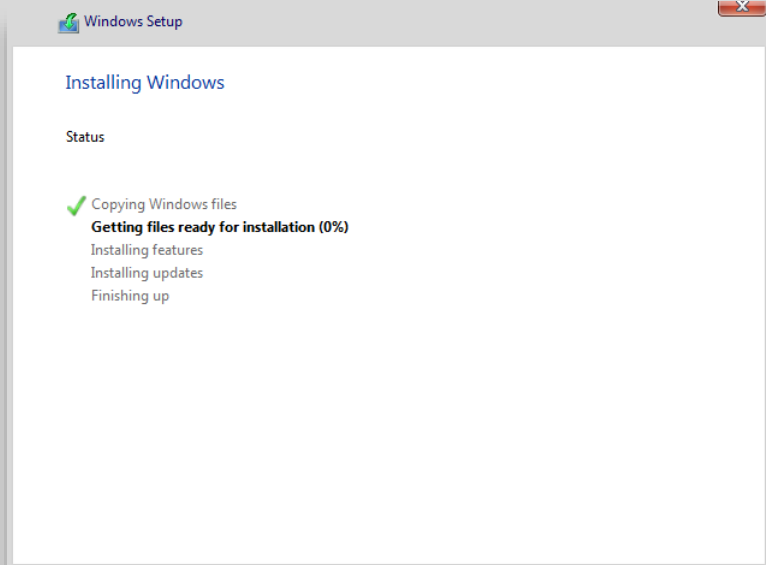
- 5) For this lab, we'll be using a trial version. Skip the license key.



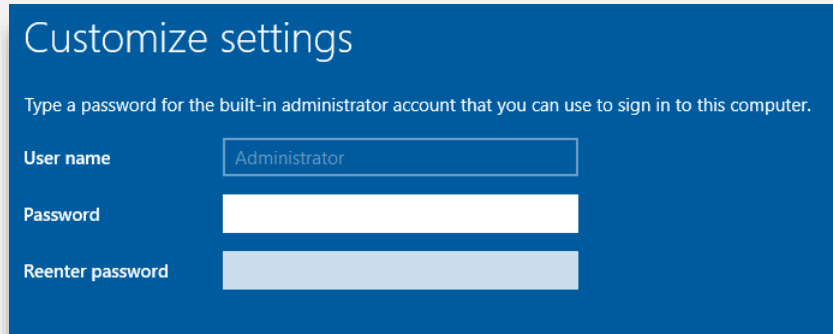
- 6) Make sure you select an OS with *Desktop Experience* enabled for this lab.



- 7) Wait for the installation to finish.



- 8) Define a password for the default admin account. For ease of use during this lab, you can choose the same password as provided with the creation of VM-FS-01.



Activity 2 : Configure Windows Admin Center

Estimated time to complete this activity

60 minutes

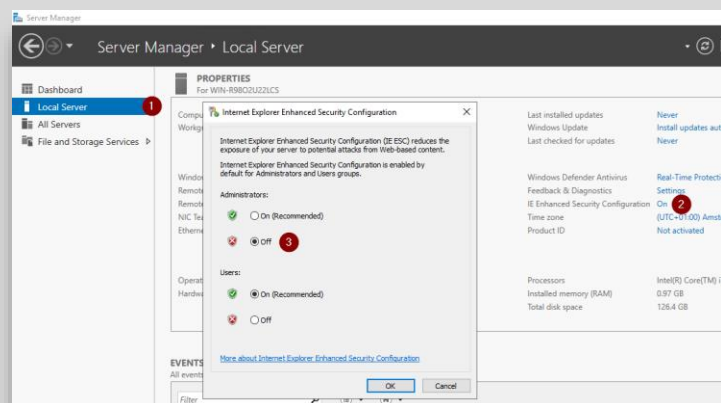
Objectives

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

- Install Windows Admin Center
- Deploy a point-to-site VPN to Azure from the Windows Admin Center
- Enable Azure Backup
- Configure Update Management from Azure Automation

Exercise 2a : Deploy Windows Admin Center

- 1) From *VM-FS-02*, make sure you **disable IE Enhanced Security** from the Server Manager to allow downloads.



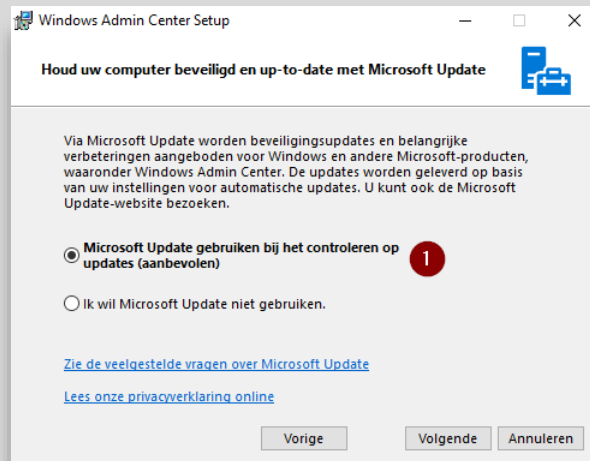
- 2) Using Internet Explorer, browse to:

<http://aka.ms/WACDownload>

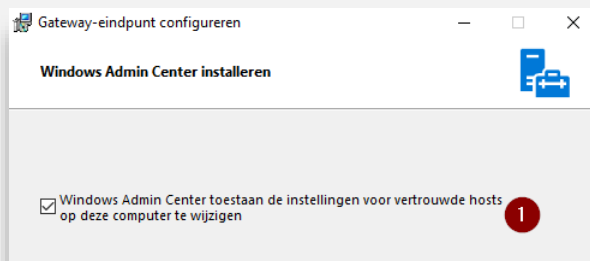
And **download** the Windows Admin Center setup.



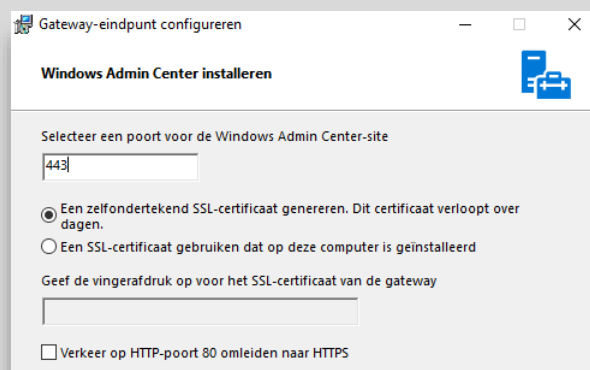
- 3) When downloading is finished, *run the installer* and follow the wizard.



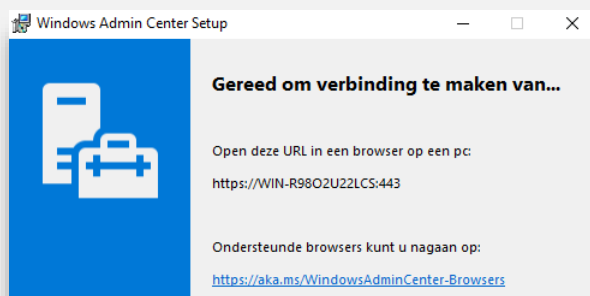
- 4) Make sure you *allow* Windows Admin Center to make changes to the trusted host settings.



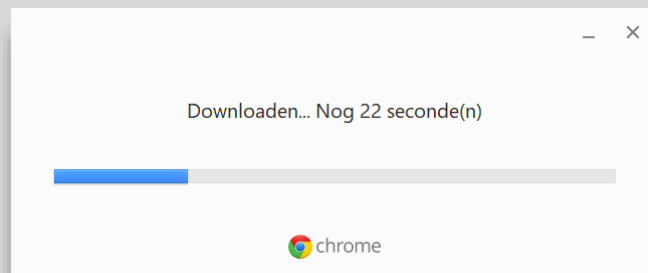
- 5) Leave the port settings *default*.



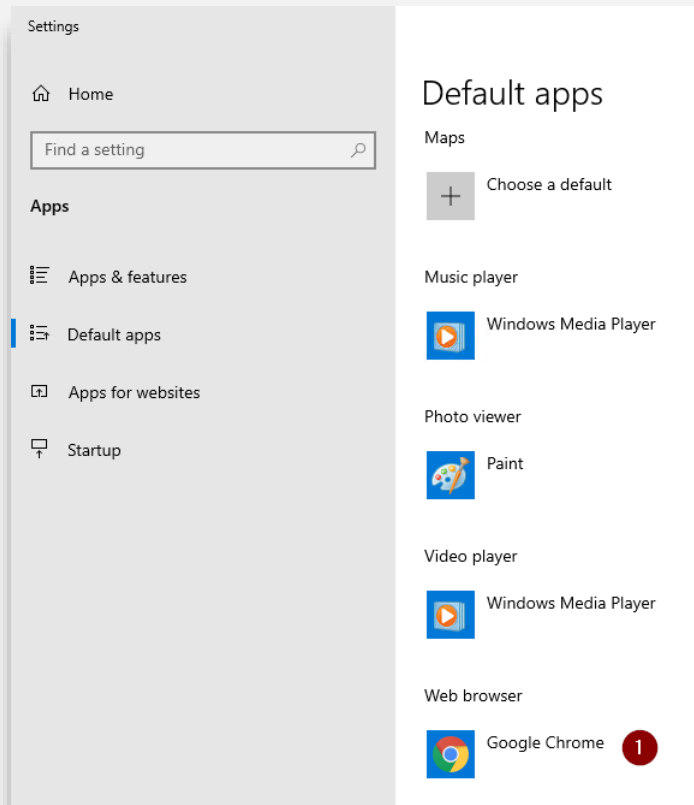
- 6) Wait for the installation to finish. Open the *URL* provided from the VM itself. You'll probably find out that IE is incompatible.



- 7) Please [download](#) and [install Google Chrome](#)

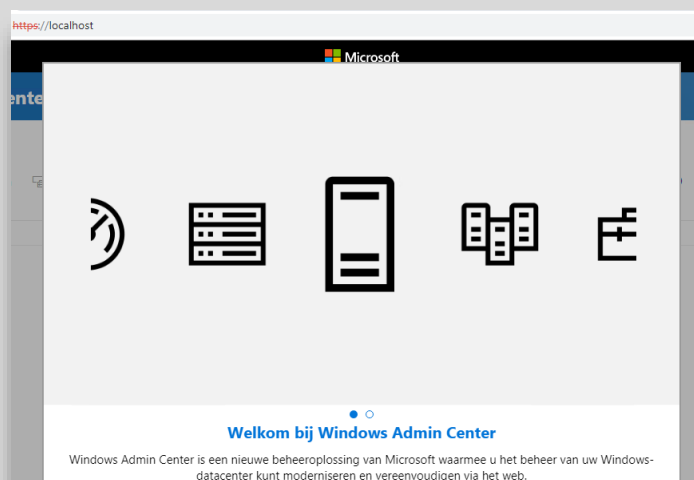


- 8) From [Start Menu](#), browse to [Setting](#) > [Apps](#) > [Default Apps](#) and make sure **Google Chrome** is your [Default Web Browser](#).



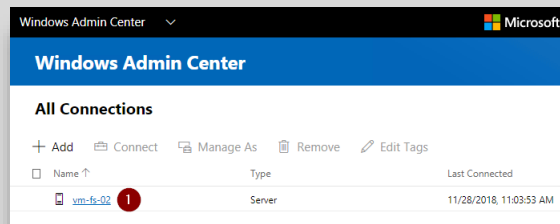
- 9) Try opening the [Windows Admin Center URL](#) from Google Chrome. You can safely [ignore the certificate warning](#) for this lab.

You'll be presented a small welcome wizard.



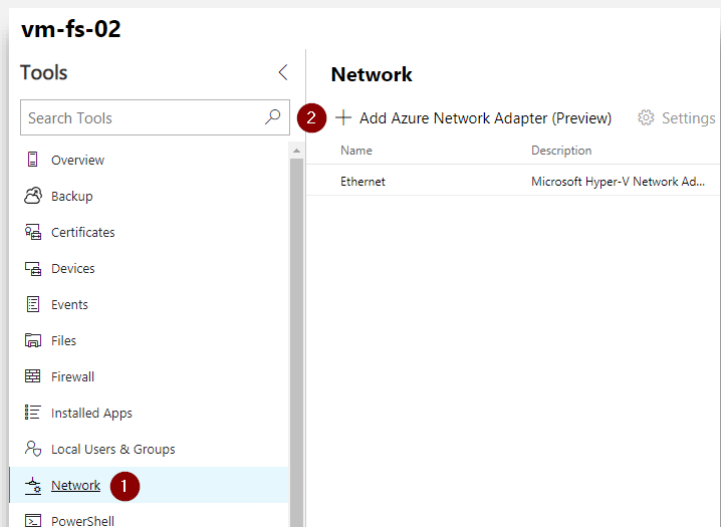
Exercise 2b : Connect to Azure Virtual Network

- 1) From the [All Connections](#) overview, select **VM-FS-02**



- 2) From the navigation pane, browse to [Network](#) and select [Add Azure Network Adapter](#).

Please note that this was a Preview feature when this lab was created.



- 3) Windows Admin Center needs to be registered within the Azure tenant to continue.

Go ahead and [Register](#).

Add Azure Network Adapter

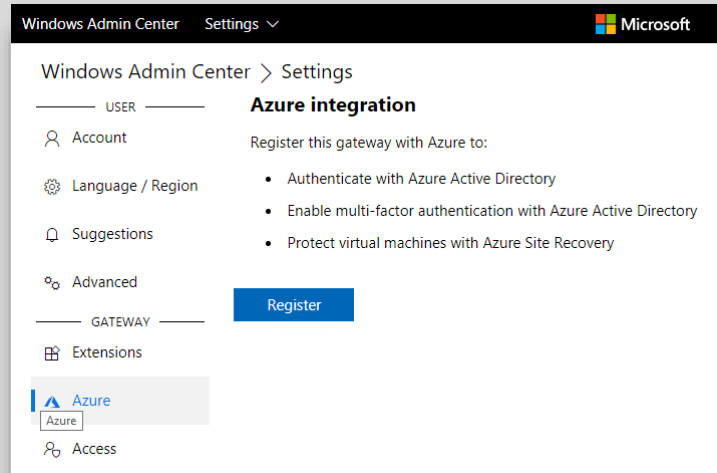
You need to register your Windows Admin Center to Azure before you can create an Azure Network Adapter. You will only need to finish it once. After Windows Admin Center has been registered to Azure, please click the '+ Add Azure Network Adapter' button again.

The Azure Network Adapter allows you to easily setup a Point-to-Site VPN connection to Azure. It automates the configuration for the Microsoft Azure Virtual Network gateway as well as the on-premises VPN client.

[Register Windows Admin Center to Azure](#)

Close

- 4) To register the device, you'll receive a code from Windows Admin Center. Please copy and paste the code when asked for.



Device Login

Enter the code that you received from the application on your device

00000000

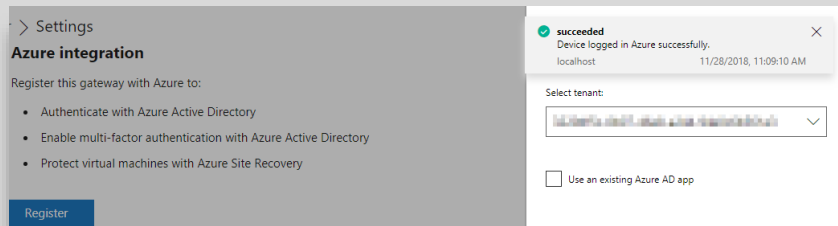
Microsoft Azure PowerShell

Click Cancel if this isn't the application you were trying to sign in to on your device.

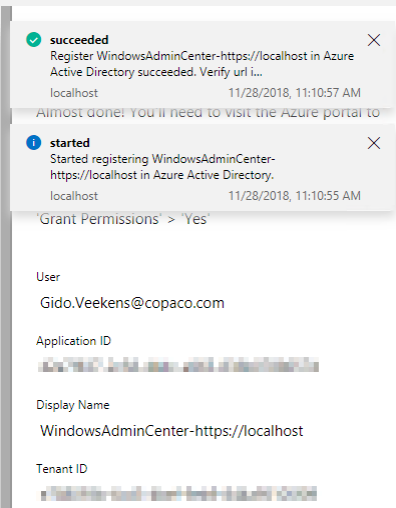
Continue

Cancel

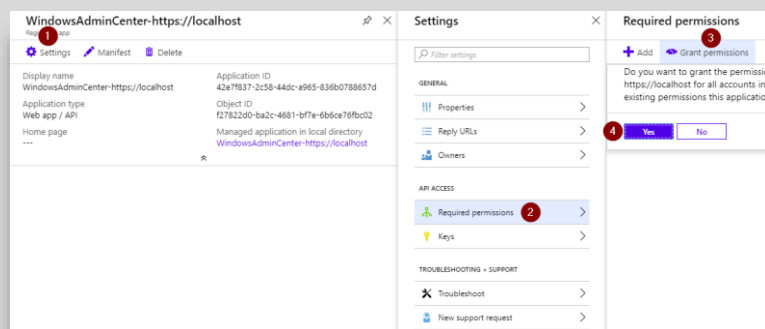
- 5) The device will be registered in Azure, wait for the notification to show.



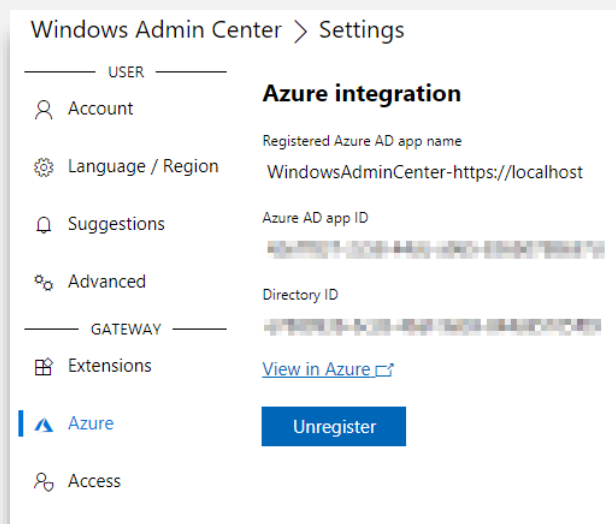
- 6) Open the link, this will open a new browser tab to the Enterprise Applications in Azure Active Directory.



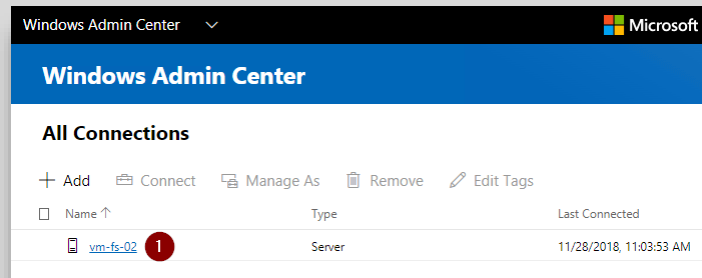
- 7) [Grant Permissions](#) for the Windows Admin Center application in Azure Active Directory.



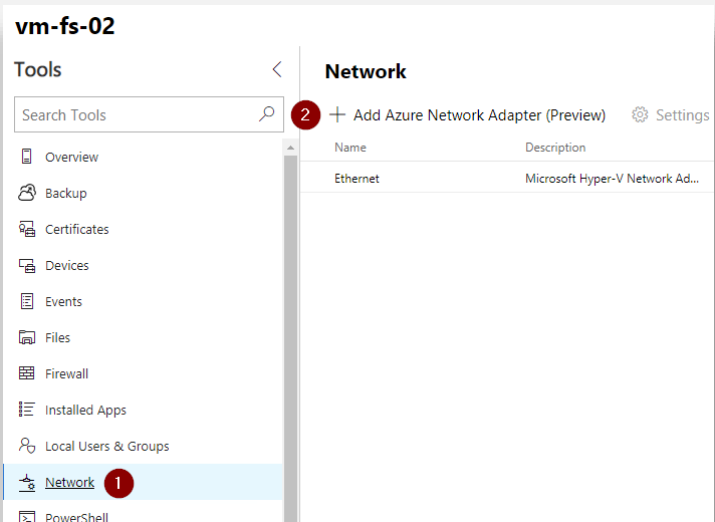
- 8) After granting permission, the Azure Integration is completed. The Directory ID and Application ID are displayed.



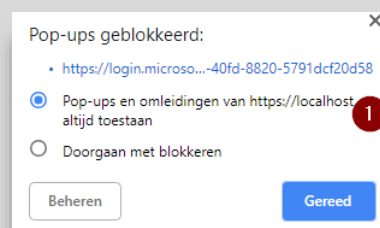
- 9) Go back to the [Windows Admin Center](#) dashboard. Open [VM-FS-02](#) from there.



- 10) Again, browse to [Network](#) and [Add Azure Network Adapter](#).



- 11) If the link doesn't work, make sure the pop-up is allowed for this site.



- 12) Select the correct regio and choose the **RG-HoL-Hybrid** Virtual Network.



The gateway subnet should be prefilled with the subnet created before.


For this lab, select the **VpnGw1** as Gateway SKU.


Add Azure Network Adapter

Microsoft Azure Virtual Network Settings

User
gido.veekens@copaco.com

Subscription * Required
Microsoft Azure  


Location * Required
Europa - west  **1**

Virtual Network * Required
RG-HoL-Hybrid-vnet  **2**

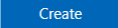
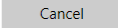
[View selected Virtual Network in Azure Portal](#)

Microsoft Azure Virtual Network Gateway Settings



Gateway Subnet * Required
10.1.0.0/24

Gateway SKU ⓘ * Required
VpnGw1  **3**

VPN Settings




- 13) The Virtual Network Gateway will be deployed in the Azure tenant. This will take approximately 30 minutes.


Virtual Network Gateway Creation submission succeeded


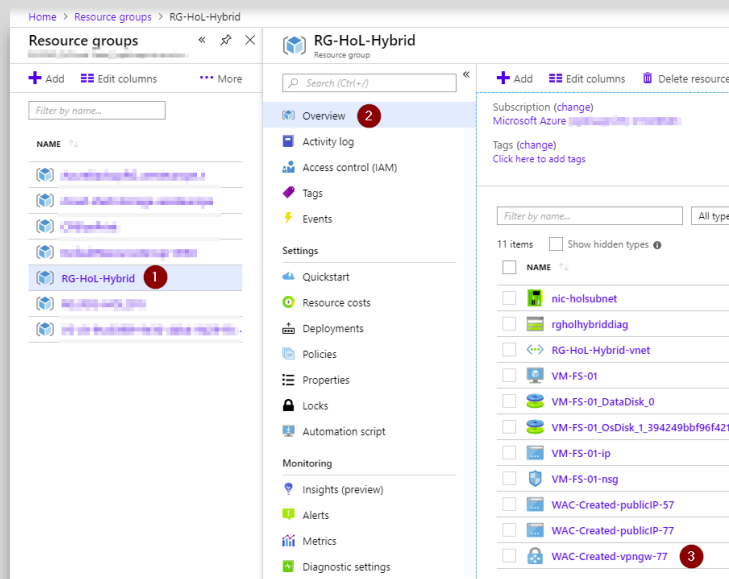
Microsoft Azure Virtual Network Gateway WAC-Created-vpngw-77 Create Request submitted successfully: It coul...

Virtual Network Gateway Creat... 11/28/2018, 12:02:41 PM

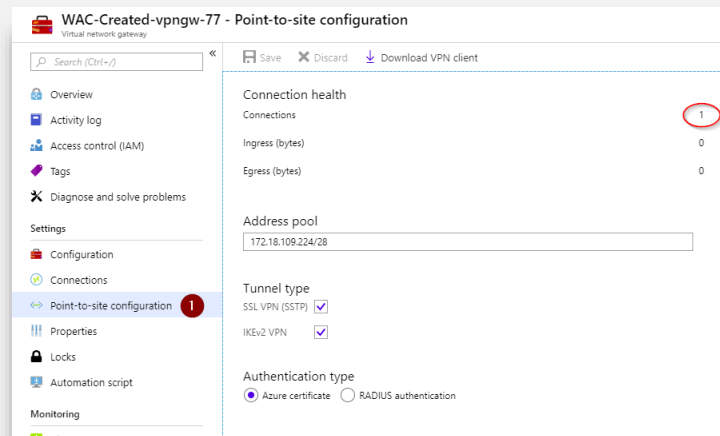
- 14) When the deployment is successful, the connection shows up in the Network overview in Windows Admin Center. You now have a working P2S VPN from your on-premises VM to the Azure Virtual Network.

Network			
 Add Azure Network Adapter (Preview)  Settings  More 3 items			
Name	Description	Status	IPv4 Address
Ethernet	Microsoft Hyper-V Network Ad...	Up	172.18.109.234
WACVPN-62146	Point to Site VPN to Azure Virt...	Connected	

- 15) To validate, browse to the *Resource Group* and open the *Virtual Network Gateway* that was deployed in Azure.

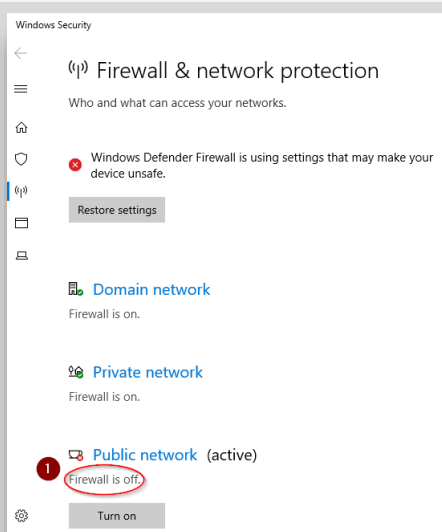


- 16) From the *Point-to-Site Configuration*, the number of *Connections* should display **1** active connection.



- 17) From both *VM-FS-01* and *VM-FS-02*, make sure you **disable** the *Windows Defender Firewall*

This is only needed in this lab to validate the connection by using ping. In a production environment you should keep the firewall enabled.



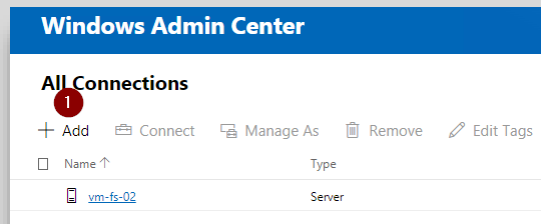
- 18) From *VM-FS-02*, run a *Command Prompt* or *PowerShell*. Try to ping the IP of *VM-FS-01*.

As there's no shared DNS server in this lab, pinging the hostname won't be possible.

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> ping -a 10.1.1.4

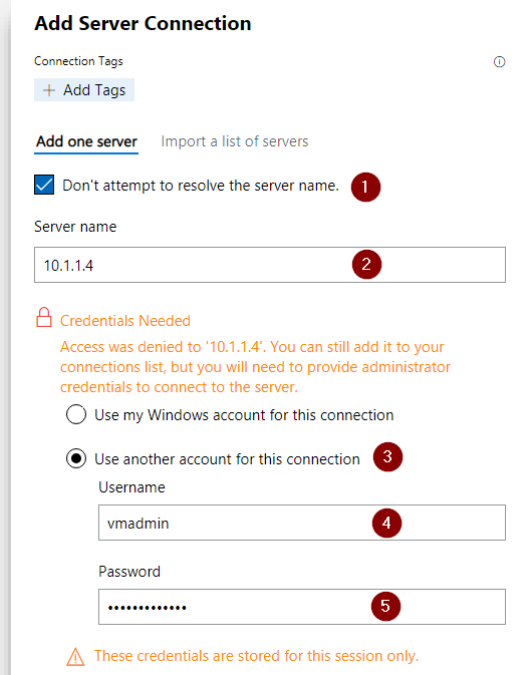
Pinging 10.1.1.4 with 32 bytes of data:
Reply from 10.1.1.4: bytes=32 time=27ms TTL=128
Reply from 10.1.1.4: bytes=32 time=23ms TTL=128
Reply from 10.1.1.4: bytes=32 time=20ms TTL=128
```

- 19) From the *Windows Admin Center* dashboard, *Add* another server.

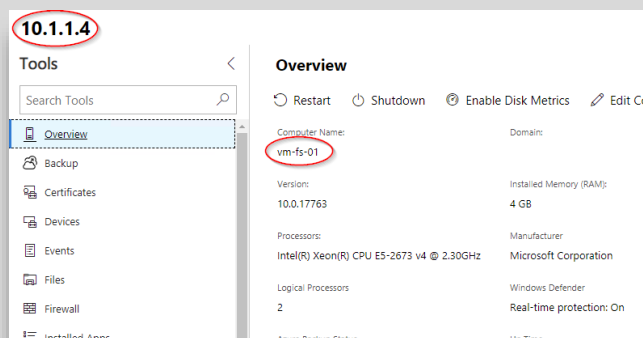


- 20) Fill in the **IP of VM-FS-01** as the *Server Name* and *credentials* of the local admin account you specified before. *Submit with Credentials*.

Again, resolving the hostname won't be possible in this lab. Please check the mark, so you can connect using the IP instead.

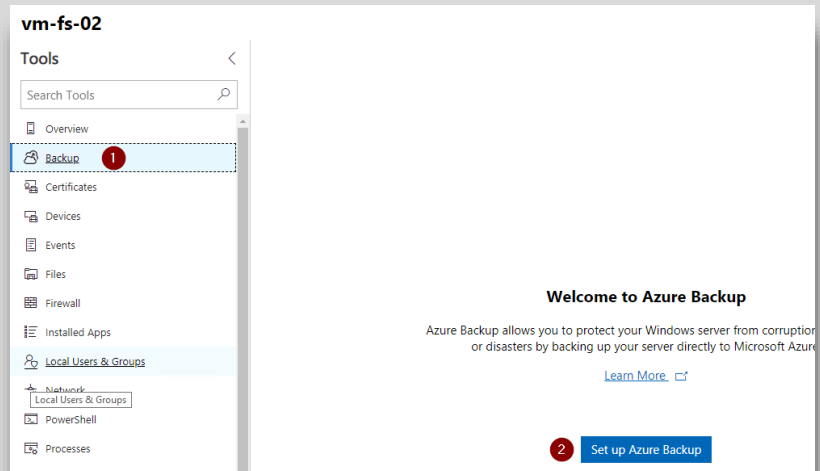


- 21) After the agent installation has finished, the Azure VM will show up in the on-premises Windows Admin Center.

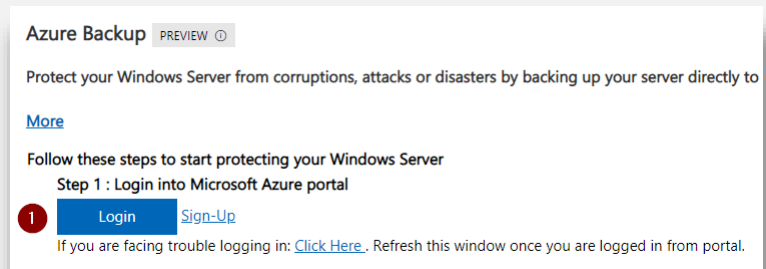


Exercise 2c : Backup the local VM to Azure

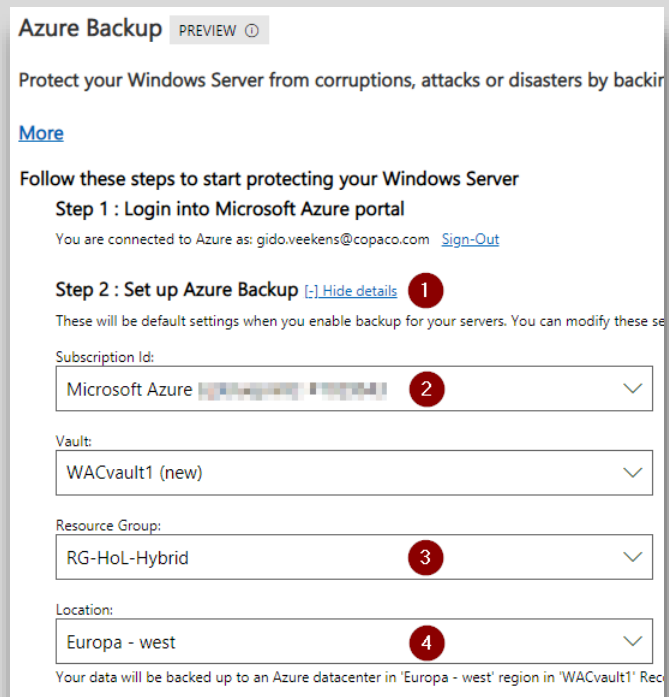
- 1) Open **VM-FS-02** from the [Windows Admin Center](#) and browse for [Backup](#). Choose to [Setup Azure Backup](#).



- 2) Select [Login](#)



- 3) Specify the correct [Subscription](#), [Resource Group](#) and [Location](#). We will create a **new Vault**, as this is our first backup.



- 4) We will create a full backup, so include both the **System State** and **drives**.

For the schedule of *Files and Folders*, choose **Daily with 1 year retention**.

For *System State*, select **Daily with a retention of 14 days**.

Please note that in this lab we won't perform an actual backup. Feel free to select any schedule you like.

Step 3 : Select Backup Items and Schedule

This selection is applied by default when you enable backup for your servers. You can modify the selection later.

What do you want to protect? Select all that apply

- ☒ System State
- ☒ C:\

Total back up size
Your Selections roughly calculate to the size below. [Learn more about how much this will cost](#)
26.42 GB

Backup Schedule [-] [Hide details](#)

Files and Folder schedule:
Daily, retain 1 year

System State schedule:
Daily, retain 14 days

Files and Folder schedule:
Backup daily, retain for 30 days, weekly backups (Monday) for 4 weeks, monthly backups for 12 months

System State schedule:
Backup System State daily, retain daily backups for 14 days, local time: 11:00

- 5) Specify an *Encryption passphrase*, so your data will be encrypted.

Step 4: Enter Encryption Passphrase

Encryption passphrase is used to encrypt backups and is required to recover data.

* Encryption passphrase (minimum 16 characters)

.....

* Confirm passphrase

.....

Save this passphrase to a secure location. Microsoft cannot recover data if the passphrase is lost.

Apply Cancel

- 6) Explore the *Azure Backup* dashboard in *Windows Admin Center*. As no actual job has been ran, only few statistics are shown.

Azure Backup

PREVIEW ⓘ

Protect your Windows Server from corruptions, attacks or disasters by backing up your data.

Overview Recovery Points Jobs

Recovery Services Vault WACVault1	Backup and Retention schedule Backup Policy
Subscription Id fce3fb06-b12d-4bda-9486-5d0e11fa532d	Latest Recovery Point -
Last Backup Status Success	Next Scheduled Backup 29-11-2018 03:00:00
Oldest Recovery Point -	Update Information Up To Date

Jobs

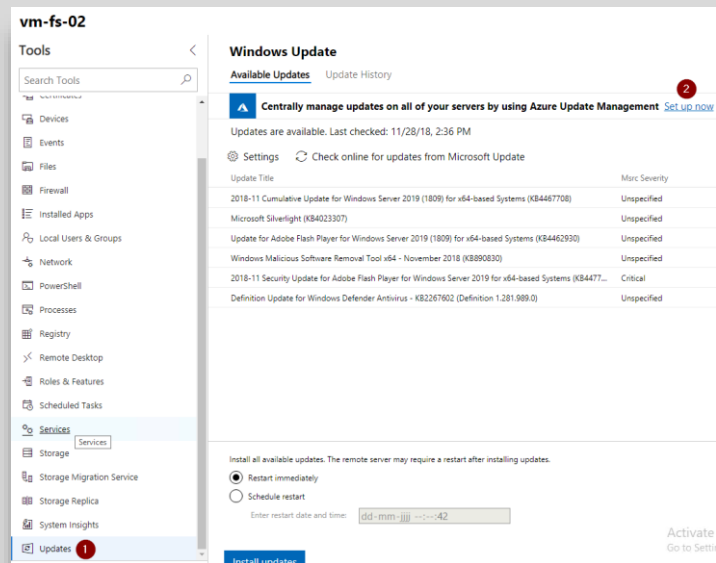
- Success :- 0
- Failed :- 0
- Warning :- 0
- In Progress :- 0

Recovery Points

- Files and Folders :- 0
- System State :- 0

Exercise 2d : Update Management

- 1) Browse to the **Update** pane of **VM-FS-02** in Windows Admin Center . Choose **Set up now** to get started with Update Management.



- 2) Select the correct **Subscription** and **Resource Group**.

Set up Azure Update Management

[Get an overview of Azure Update Management](#)

✓ Signed in as gido.veekens@copaco.com

Azure subscription * Required

Microsoft Azure 1

Resource group * Required

☐ Create new

☒ Use existing

RG-HoL-Hybrid 2

Azure region

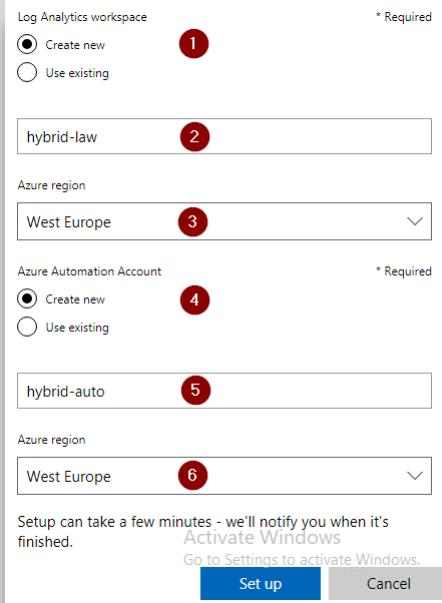
West Europe 3

- 3) As we don't have Update Management running yet, create a new [Log Analytics workspace](#) and [Automation Account](#).

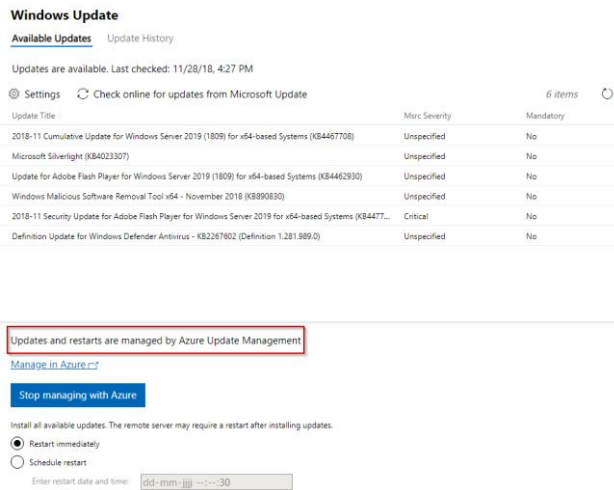
Name the workspace
hybrid-law

Name the Automation Account
hybrid-auto

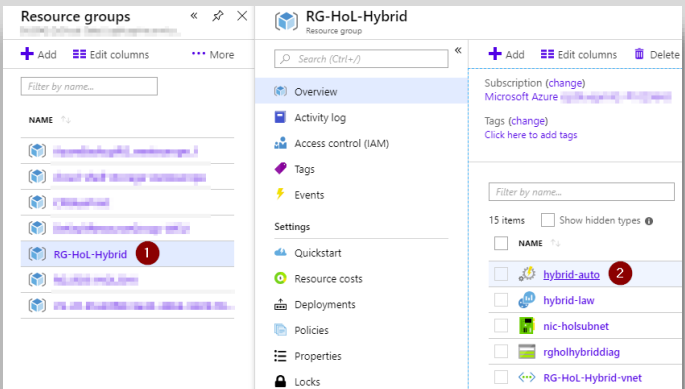
Deployment will take approximately 15 minutes.



- 4) When finished, the Windows Update pane for [VM-FS-02](#) in Windows Admin Center shows it's [managed by Azure Update Management](#).

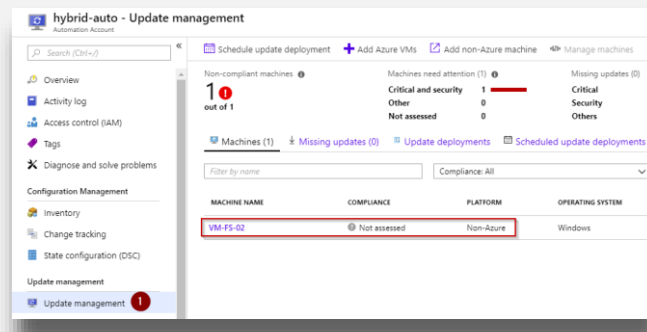


- 5) From the [Azure Portal](#), browse to the [hybrid-auto](#) Automation Account you just created.



- 6) From *Update Management* in the navigation pane, notice that *VM-FS-02* is being shown.

Please note that the final results of the assessment can take up to 24 hours to show.



Activity 3 : Deploy Azure Files Sync

Estimated time to complete this activity

30 minutes

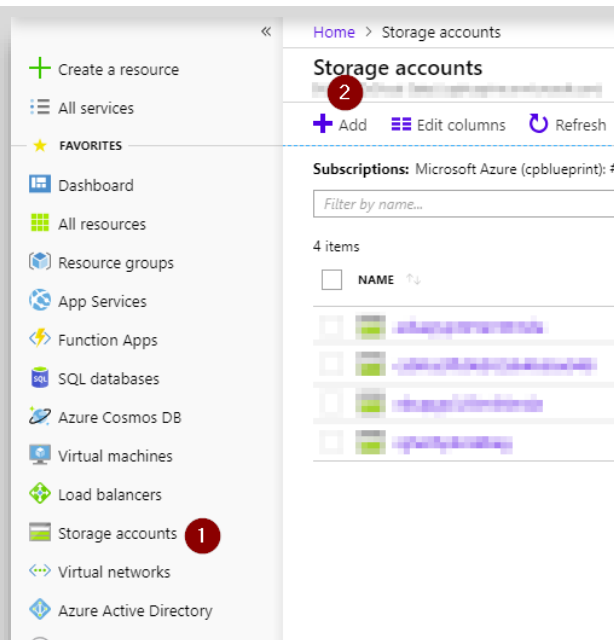
Objectives

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

- Create an Azure File share
- Deploy the Azure Files Sync agent
- Configure the sync by leveraging the cloud tiering option

Exercise 3a : Deploy a Storage Account with Azure Files

- 1) From the [Azure Portal](#), browse to [Storage Account](#) and [Add](#)



- 2) Select the correct **Resource Group** and name the Storage Account **holhybrid**

Make sure to create a **v2 Storage Account** with only **Local Redundant Storage** as this is a lab.

Create storage account

Basics Advanced Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more](#)

PROJECT DETAILS

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

* Subscription: Microsoft Azure (cpblueprint: #1029643)

* Resource group: RG-HoL-Hybrid **1**

INSTANCE DETAILS

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

* Storage account name **2**: holhybrid

* Location: West Europe

Performance **3**: ☒ Standard ☐ Premium

Account kind **4**: StorageV2 (general purpose v2)

Replication: Locally-redundant storage (LRS)

Access tier (default): ☐ Cool ☒ Hot

- 3) Review the parameters and create the Storage Account.

Create storage account

✓ Validation passed

Basics Advanced Tags Review + create

BASICS

Subscription	Microsoft Azure (cpblueprint): #1029643
Resource group	RG-HoL-Hybrid
Location	West Europe
Storage account name	holhybrid
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Locally-redundant storage (LRS)
Performance	Standard
Access tier (default)	Hot

ADVANCED

Secure transfer required	Enabled
Allow access from	All networks
Hierarchical namespace	Disabled

- 4) Wait for the Storage Account to finish deploying and [Go to the resource](#).

Notifications

More events in the activity log → Dismiss all ...

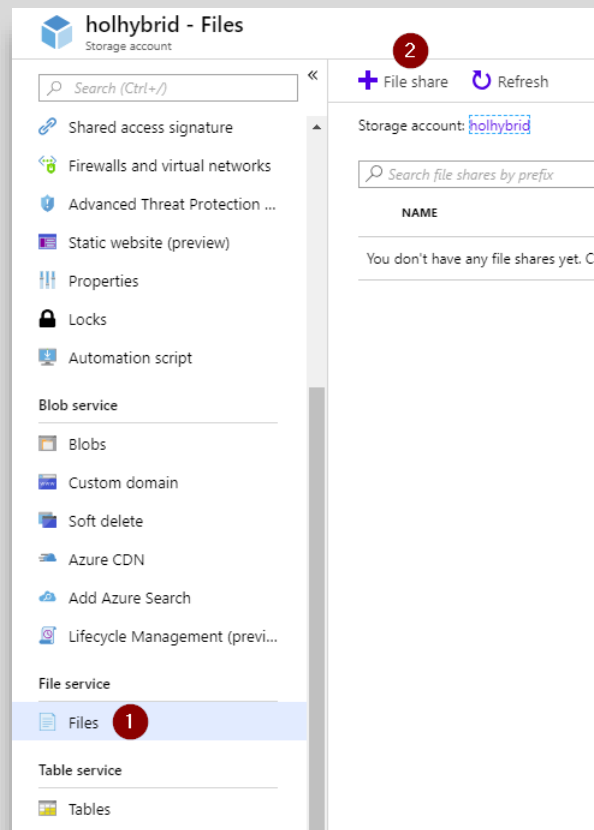
✓ **Deployment succeeded**

Deployment 'Microsoft.StorageAccount-20181206125908' to resource group 'RG-HoL-Hybrid' was successful.

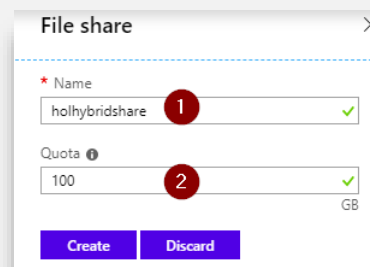
1 [Go to resource](#) [Pin to dashboard](#)

by me a few seconds ago

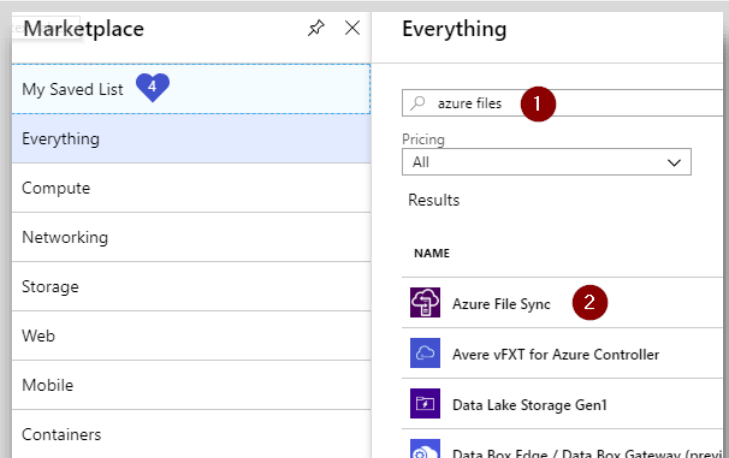
- 5) From the [Storage Account](#), browse to [Files](#) and create a new [File Share](#).



- 6) Name the new share holhybridshare
- Select a quota of **100 GB**

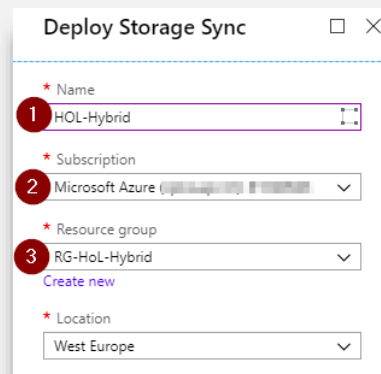


- 7) From the [Azure Marketplace](#), search for **Azure Files** and create the [Azure File Sync](#) resource



8) Name the Storage Sync
HOL-Hybrid

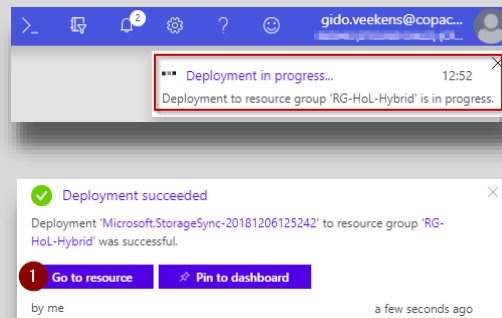
Select the correct
subscription and *resource group*.



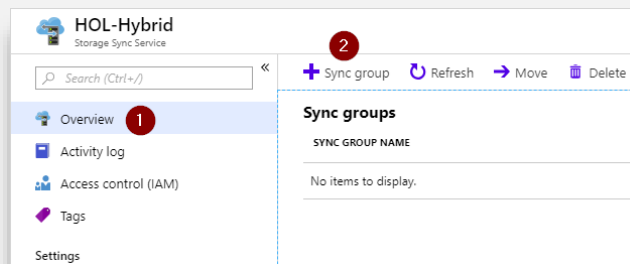
Deploy Storage Sync

- * Name: 1 HOL-Hybrid
- * Subscription: 2 Microsoft Azure (cpblueprint: #1029643)
- * Resource group: 3 RG-HoL-Hybrid
- * Location: West Europe

9) Wait for the deployment to finish and *Go to the Storage Sync resource*

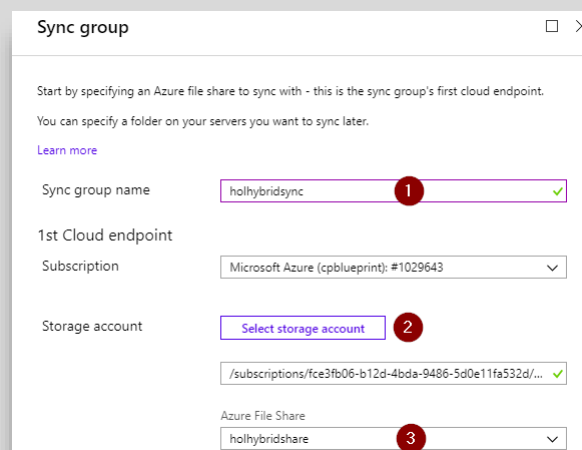


10) Create a new *Sync Group*



11) Name the Sync Group
holhybridsync

Select the *Storage Account*
and *Azure File Share* you
create earlier.



Sync group

Start by specifying an Azure file share to sync with - this is the sync group's first cloud endpoint.
You can specify a folder on your servers you want to sync later.

Learn more

Sync group name: 1 holhybridsync

1st Cloud endpoint

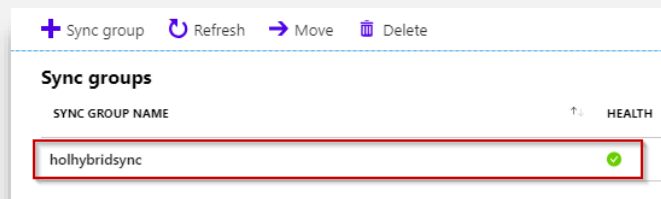
Subscription: Microsoft Azure (cpblueprint: #1029643)

Storage account: 2 Select storage account

/subscriptions/fce3fb06-b12d-4bda-9486-5d0e11fa532d/... 3

Azure File Share: holhybridshare

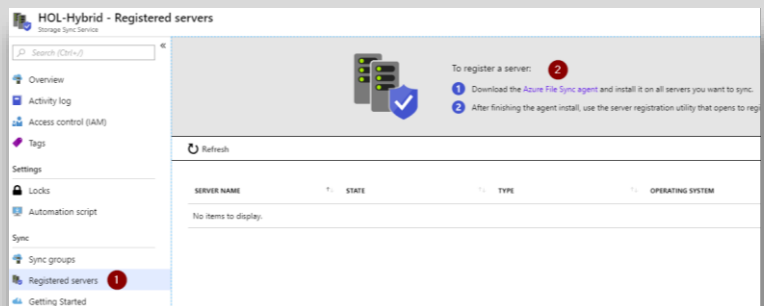
- 12) Wait for the new *Sync Group* to give a *healthy* status.



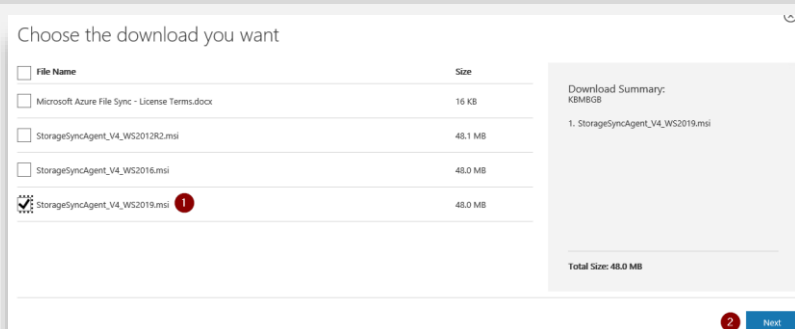
Exercise 3b : Deploy Azure Files Sync Agent

- 13) From the *Storage Sync Service*, browse to *Registered Servers*.

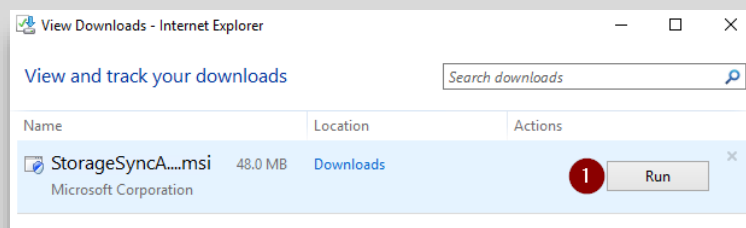
Notice there are no servers present. Get the *URL* from the *Azure File Sync Agent*



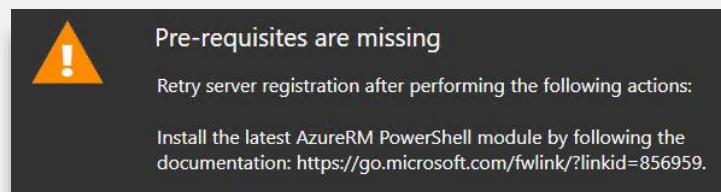
- 14) From *VM-FS-01*, open the URL and *download* the correct **Azure File Sync agent version**.



- 15) Wait for the download to complete and *run* the installer.



- 16) *Install* using default settings. The agent will be updated if needed during installation.



- 17) *Install* the necessary prerequisites by following the instructions provided.

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\vmadmin> Install-Module -Name AzureRM -AllowClobber

NuGet provider is required to continue
PowerShellGet requires NuGet provider version '2.8.5.201' or newer to interact with NuGet-based repositories. The NuGet
provider must be available in 'C:\Program Files\PackageManagement\ProviderAssemblies' or
'C:\Users\vmadmin\AppData\Local\PackageManagement\ProviderAssemblies'. You can also install the NuGet provider by
running 'Install-PackageProvider -Name NuGet -MinimumVersion 2.8.5.201 -Force'. Do you want PowerShellGet to install
and import the NuGet provider now?
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y

Untrusted repository
You are installing the modules from an untrusted repository. If you trust this repository, change its
InstallationPolicy value by running the Set-PSRepository cmdlet. Are you sure you want to install the modules from
'PSGallery'?
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "N"): a
```

- 18) Select the correct *Subscription*, *Resource Group* and *Storage Sync Service*.

Choose a Storage Sync Service

Azure Subscription
 Microsoft Azure 1

Subscription ID: fce3fb06-b12d-4bda-9486-5d0e11fa532d

Resource Group
 RG-HoL-Hybrid 2

Storage Sync Service
 HOL-Hybrid 3

4 [Register](#)

- 19) Authenticate using you tenant credentials and wait for the registration to complete.

Registration successful!

You have now established a trust relationship between your server and the selected Storage Sync Service.

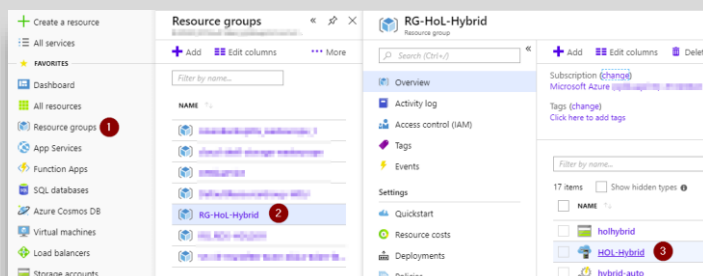
To manage this server and setup sync, use the Azure portal or PowerShell.

[Copy Azure portal resource link](#)

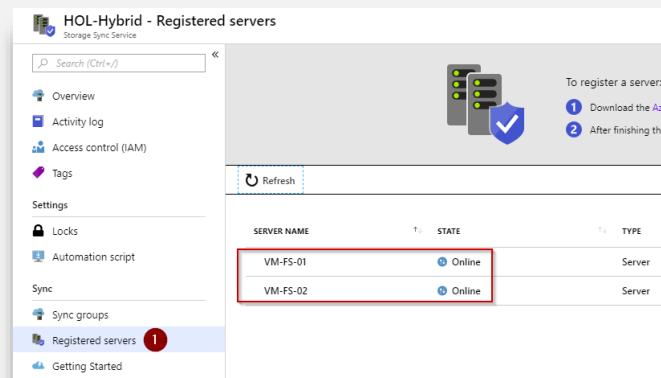
[OK](#)

- 20) Repeat steps 13 to 19 on server [VM-FS-02](#)

- 21) From the *Resource Group*, open the *Storage Sync Service*.

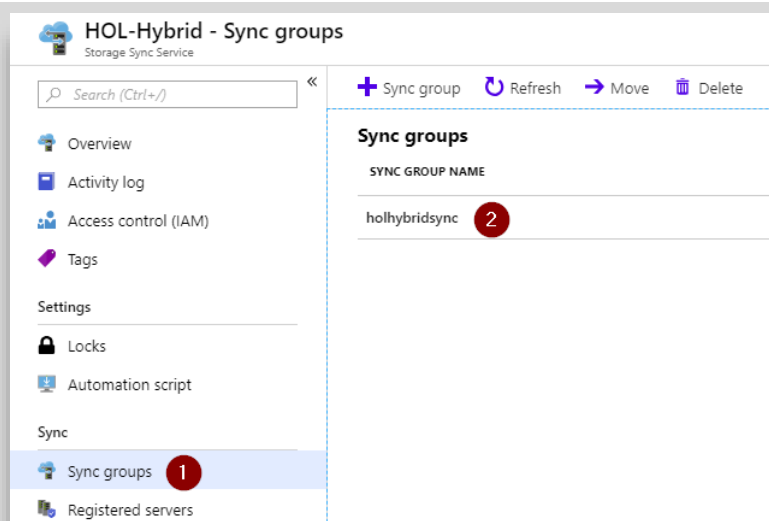


22) Verify that both agents are
Online

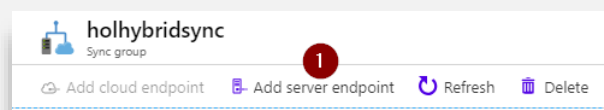


Exercise 3c : Configure sync using cloud tiering

1) Open the *Sync Group* you
created before.



2) *Add server endpoint*



- 3) Select **VM-FS-01** from the dropdown list. Type in the **path** on the local server to use.

Enable Cloud Tiering with a reservation of **20%** of free space.

Please note you need a separate data disk on the VM to use the Cloud Tiering feature. Add the disk if needed.

Add server endpoint

A server endpoint integrates an entire volume or a subfolder of a volume from a registered server as a location to sync. The following considerations apply:

- Servers must be registered to the storage sync service that contains this sync group before you can add a location on them here.
- A specific location on the server can only sync with one sync group. Syncing the same location or even a part of it – with a different sync group doesn't work.
- Make sure that the path you specify for this server is correct.

[Learn more](#)

Registered Server **1** VM-FS-01

Path **2** E:\holhybridshare\

Cloud Tiering **3** **Enabled** Disabled

Cloud Tiering transforms your server endpoint into a cache for your files in the Azure file share. Different policies help you to fine tune your cache behavior.

[Learn more](#)

Always preserve the specified percentage of free space on the volume:

4 20

☐ Cache files that were accessed within the specified number of days: 1

180

- 4) Repeat steps 1-3 for **VM-FS-02**

- 5) Wait for the sync to complete, this can take up to 15 minutes even on a empty share.

2 server endpoints

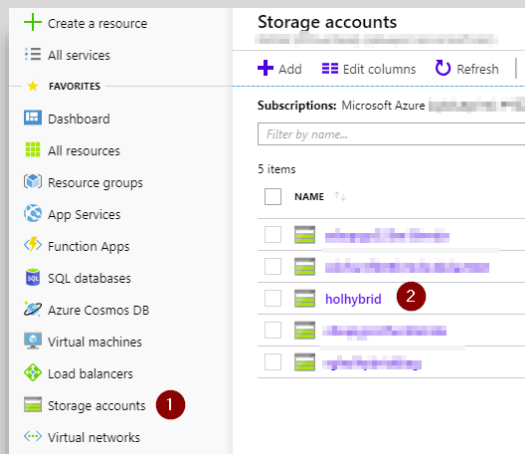
SERVER	HEALTH	FILES NOT SYNCING
VM-FS-01	✓	0
VM-FS-02	✓	0

- 6) Validate the sync by copying some random files in one of the server shares.

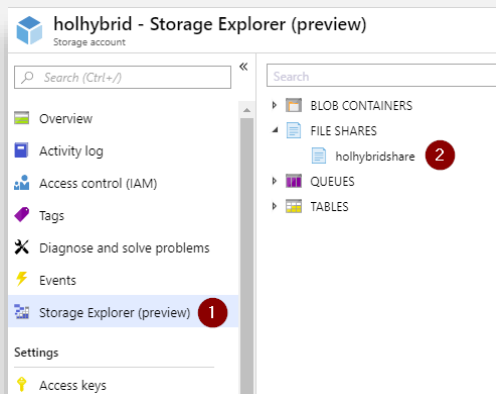
This PC > DATA (E:) > holhybridshare

Name	Date modified	Type	Size
Huddle-master	12/6/2018 1:49 PM	File folder	
EnricoC	6/14/2018 10:25 AM	JPG File	61 KB
JordanM	6/14/2018 10:25 AM	JPG File	24 KB
LynneR	6/14/2018 10:25 AM	JPG File	28 KB
MetricInput_20180501212856	6/14/2018 10:25 AM	Compressed (zipp...	160 KB
MS Teams in Healthcare (FINAL).srt	6/14/2018 10:19 AM	SRT File	12 KB
NestorW	6/14/2018 10:25 AM	JPG File	692 KB
Pattif	6/14/2018 10:25 AM	JPG File	39 KB
PBI Demo - Opioid Crisis As of Februa...	6/14/2018 10:25 AM	PBIX File	5,789 KB

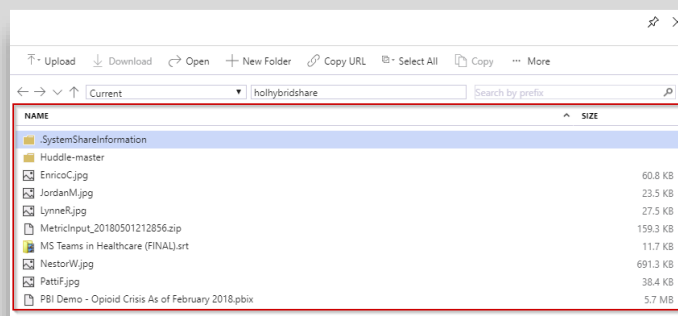
- 7) From the [Azure Portal](#), open to the [Storage Account](#)



- 8) Use the [Storage Explorer](#) to browse [the Azure File Share](#)



- 9) Notice the files you copied are now also present in the Azure File Share.



- 10) From [VM-FS-02](#), validate that the folder is also being replicated.

Please note that for the Hyper-V Virtual Machines, the sync speed depends largely on the connection bandwidth available.

Name	Date modified	Type	Size
Huddle-master	6-12-2018 14:50	File folder	
EnricoC	14-6-2018 12:25	JPG File	61 KB
JordanM	14-6-2018 12:25	JPG File	24 KB
LynneR	14-6-2018 12:25	JPG File	28 KB
MetricInput_20180501212856	14-6-2018 12:25	Compressed (zipp...	160 KB
MS Teams in Healthcare (FINAL).srt	14-6-2018 12:19	SRT File	12 KB
NestorW	14-6-2018 12:25	JPG File	692 KB
PattiF	14-6-2018 12:25	JPG File	39 KB
PBI Demo - Opioid Crisis As of Februa...	14-6-2018 12:25	PBIX File	5.789 KB

You've reached the end of this lab! Feel free to explore even further or remove all the resources created during this lab.

Remove resources in Azure tenant

Please make sure you shut down any Virtual Machines in Azure. If you don't need them, so they won't be charged for their compute resources. Also, if you finished the lab, you can safely delete all resources created in this lab. This way no more consumption will take place.

To do so, open the Resource Group you created during this lab. Select the [Delete Resource Group](#) button in the top bar and [confirm](#) the deletion. Wait for some time and all resource will be deleted.

Additional resources

Windows Admin Center

Windows Admin Center Documentation

<https://docs.microsoft.com/en-us/windows-server/manage/windows-admin-center/understand/windows-admin-center>

Extensions

<https://docs.microsoft.com/en-us/windows-server/manage/windows-admin-center/extend/extensibility-overview>

Azure Files

Azure Files Documentation

<https://docs.microsoft.com/en-us/azure/storage/files/storage-files-introduction>

Azure File Sync Release Notes

<https://docs.microsoft.com/en-us/azure/storage/files/storage-files-release-notes>

Azure File Sync Agent download

<https://www.microsoft.com/en-us/download/details.aspx?id=57159>

Microsoft Ignite Sessions

Ignite - Windows Server management reimaged with Windows Admin Center

<https://www.youtube.com/watch?v=ZQeXhFD5WrY>

Ignite – Establishing hybrid connectivity with Windows Server 2019 and Microsoft Azure

<https://www.youtube.com/watch?v=BMSD3o3huiU>

Ignite - From Hyper-V to hyper-converged infrastructure with Windows Admin Center

<https://www.youtube.com/watch?v=dCDX142KgVc>