

## Create a Linux virtual machine in the Azure portal

### Objectives:

- Create virtual machine (ubuntu)
- Connect to the virtual machine
- Install web server
- Browse the web server
- Clean up resources

### Sign in to Azure

Sign in to the Azure portal

### Create virtual machine

Simple Virtual Machine deployment. There are dozens of settings when creating a vm, in this session we will change the bare minimum.

1. Type **virtual machine** in the **search bar**.
2. Under **Services**, select **Virtual machines**.
3. On the Virtual machines blade, select **Add** and **Virtual machine**.
4. Under **Basics** -> **Project details** make sure the correct Subscription is selected and choose to **Create new** resources group. Name it myVmGroup.


#### Project details

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

Subscription * ⓘ	<div>Azure för studenter</div>
Resource group * ⓘ	<div>(New) myVmGroup</div> <div><a href="#">Create new</a></div>

5. Under **Basics** -> **Instance details** name the machine LinuxWebVm, choose the “best” region for your purpose and choose the Ubuntu image to use. Leave the other defaults.

#### Instance details

Virtual machine name * ⓘ	<div>LinuxWebVm</div>
Region * ⓘ	<div>(Europe) West Europe</div>
Availability options ⓘ	<div>No infrastructure redundancy required</div>
Image * ⓘ	<div> Ubuntu Server 18.04 LTS - Gen1</div> <div><a href="#">See all images</a></div>
Azure Spot instance ⓘ	<div><input type="checkbox"/></div>
Size * ⓘ	<div>Standard_D2s_v3 - 2 vcpus, 8 GiB memory (765,36 kr/month)</div> <div><a href="#">See all sizes</a></div>

- Under **Basics** -> **Administrator account**, select **SSH public key**.
- In **Username** type admusr
- For **SSH public key source**, leave default to **Generate new key pair** and name the key VmKey.

**Administrator account**

Authentication type ⓘ

☒ SSH public key

☐ Password

**i** Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username \* ⓘ

admusr ✓

SSH public key source

Generate new key pair ✓

Key pair name \*

VmKey ✓

- Basics Inbound port rules** -> **Public inbound ports**, choose **Allow selected ports** and then select **SSH (22)** and **HTTP (80)** from the drop down.

**Inbound port rules**

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

Public inbound ports \* ⓘ

☐ None

☒ Allow selected ports

Select inbound ports \*

HTTP (80), SSH (22) ✓

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

- Leave the remaining defaults and then select **Review + create** at the bottom of the page.
- On the **Create a virtual machine** blade you can now see the details of the vm you are about to create, when ready select **Create**.
- When the **Generate new key pair** window appears select **Download private key and create resource**. You will need this key later.
- When the deployment is finished, select **Go to resources**.
- On the page for your new VM, select the **public IP Address** and copy it to your clipboard.

^ Essentials			
Resource group (change)	: myVmGroup	Operating system	: Linux (ubuntu 18.04)
Status	: Running	Size	: Standard Copy to clipboard } 8 GiB memory)
Location	: West Europe	Public IP address	: 20.101.142.167
Subscription (change)	: Azure for student	Virtual network/subnet	: myVmGroup-vnet/default
Subscription ID	: f20ab74f-00a3-4736-baee-2d4a77fa591f	DNS name	: Not configured
Tags (change)	: Click here to add tags		

## Connect to the virtual machine

Depending on your system (OS), there are different ways to connect to your virtual machine. Preferable choose one you are comfortable with to create an SSH connection to the VM.

1. In Windows you can use the PowerShell prompt or a Bash (windows subsystem for linux). If you're on a MAC or on a Linux machine open a Bash prompt.
2. At your prompt open a SSH connection. Replace path to .pem file with path to where the key file is located and replace the IP address with the address to your VM.

Console
<code>ssh -i .\Downloads\VmKey.pem admusr@20.101.128.140</code>

## Install web server

To see your VM in action, install NGINX web server. From your SSH session, update your package sources and install NGINX.

Console
<code>sudo apt-get -y update</code> <code>sudo apt-get -y install nginx</code>

When done type **exit** to leave the SSH session.

## View the web server in action

Use a browser to view the default NGINX welcome page. Type the public IP address of the VM as the web address.



## Clean up resources

When no longer needed, you can delete the resource group, the virtual machine and all related resources. To do so select the resource group for the vm and select **Delete resource group**, then confirm with the name of the resource group to delete.

The screenshot shows the Azure portal interface for the 'myVmGroup' resource group. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Events, Settings, Deployments, Security, Policies, Properties, Locks, Cost Management, Cost analysis, Cost alerts (preview), Budgets, and Advisor recommendations. The main area displays the 'Essentials' section with subscription information and a list of resources. A confirmation dialog is open on the right, asking 'Are you sure you want to delete "myVm..."'. The dialog includes a warning message and a table of affected resources.

**Are you sure you want to delete "myVm..."**

Warning! Deleting the "myVmGroup" resource group is irreversible. The action you're about to take can't be undone. Going further will delete this resource group and all the resources in it permanently.

TYPE THE RESOURCE GROUP NAME:

AFFECTED RESOURCES

There are 7 resources in this resource group that will be deleted.

Name	Type	Location
LinuxWebVm	Virtual machine	West Europe
LinuxWebVm_disk1_de25e156ef...	Disk	West Europe
linuxwebvm458	Network interface	West Europe
LinuxWebVm-ip	Public IP address	West Europe
LinuxWebVm-nsg	Network security gr...	West Europe
myVmGroup-vnet	Virtual network	West Europe
VmKey	SSH key	West Europe

#### Further reading, tips and useful links:

- Linux (Ubuntu) subsystem for windows: <https://ubuntu.com/wsl>
- Unprotected private key file error: <https://99robots.com/how-to-fix-permission-error-ssh-amazon-ec2-instance/>
- Create and manage SSH keys for authentication to a Linux VM in Azure: <https://docs.microsoft.com/en-us/azure/virtual-machines/linux/create-ssh-keys-detailed>
- Secure web server with TLS\SSL: <https://docs.microsoft.com/en-us/azure/virtual-machines/linux/tutorial-secure-web-server>