**Create a fully configured virtual machine with PowerShell**

This script creates an Azure Virtual Machine with an Ubuntu operating system. After running the script, you can access the virtual machine over SSH.

If needed, install the Azure PowerShell module using the instructions found in the [Azure PowerShell guide](https://docs.microsoft.com/en-us/powershell/azure/), and then run Connect-AzAccount to create a connection with Azure. Also, you need to have an SSH public key named id\_rsa.pub in the .ssh directory of your user profile.

If you don't have an [Azure subscription](https://docs.microsoft.com/en-us/azure/guides/developer/azure-developer-guide#understanding-accounts-subscriptions-and-billing), create a [free account](https://azure.microsoft.com/free/?ref=microsoft.com&utm_source=microsoft.com&utm_medium=docs&utm_campaign=visualstudio) before you begin.

# Variables for common values

$resourceGroup = "myResourceGroup"

$location = "westeurope"

$vmName = "myVM"

# Define user name and blank password

$securePassword = ConvertTo-SecureString ' ' -AsPlainText -Force

$cred = New-Object System.Management.Automation.PSCredential ("azureuser", $securePassword)

# Create a resource group

New-AzResourceGroup -Name $resourceGroup -Location $location

# Create a subnet configuration

$subnetConfig = New-AzVirtualNetworkSubnetConfig -Name mySubnet -AddressPrefix 192.168.1.0/24

# Create a virtual network

$vnet = New-AzVirtualNetwork -ResourceGroupName $resourceGroup -Location $location `

-Name MYvNET -AddressPrefix 192.168.0.0/16 -Subnet $subnetConfig

# Create a public IP address and specify a DNS name

$pip = New-AzPublicIpAddress -ResourceGroupName $resourceGroup -Location $location `

-Name "mypublicdns$(Get-Random)" -AllocationMethod Static -IdleTimeoutInMinutes 4

# Create an inbound network security group rule for port 22

$nsgRuleSSH = New-AzNetworkSecurityRuleConfig -Name myNetworkSecurityGroupRuleSSH -Protocol Tcp `

-Direction Inbound -Priority 1000 -SourceAddressPrefix \* -SourcePortRange \* -DestinationAddressPrefix \* `

-DestinationPortRange 22 -Access Allow

# Create a network security group

$nsg = New-AzNetworkSecurityGroup -ResourceGroupName $resourceGroup -Location $location `

-Name myNetworkSecurityGroup -SecurityRules $nsgRuleSSH

# Create a virtual network card and associate with public IP address and NSG

$nic = New-AzNetworkInterface -Name myNic -ResourceGroupName $resourceGroup -Location $location `

-SubnetId $vnet.Subnets[0].Id -PublicIpAddressId $pip.Id -NetworkSecurityGroupId $nsg.Id

# Create a virtual machine configuration

$vmConfig = New-AzVMConfig -VMName $vmName -VMSize Standard\_D1 |

Set-AzVMOperatingSystem -Linux -ComputerName $vmName -Credential $cred -DisablePasswordAuthentication |

Set-AzVMSourceImage -PublisherName Canonical -Offer UbuntuServer -Skus 14.04.2-LTS -Version latest |

Add-AzVMNetworkInterface -Id $nic.Id

# Configure SSH Keys

$sshPublicKey = Get-Content "$env:USERPROFILE\.ssh\id\_rsa.pub"

Add-AzVMSshPublicKey -VM $vmconfig -KeyData $sshPublicKey -Path "/home/azureuser/.ssh/authorized\_keys"

# Create a virtual machine

New-AzVM -ResourceGroupName $resourceGroup -Location $location -VM $vmConfig

## **Clean up deployment**

Run the following command to remove the resource group, VM, and all related resources.

Remove-AzResourceGroup -Name myResourceGroup

## **Script explanation**

This script uses the following commands to create the deployment. Each item in the table links to command specific documentation.

| **Command** | **Notes** |
| --- | --- |
| [New-AzResourceGroup](https://docs.microsoft.com/powershell/module/az.resources/new-azresourcegroup) | Creates a resource group in which all resources are stored. |
| [New-AzVirtualNetworkSubnetConfig](https://docs.microsoft.com/powershell/module/az.network/new-azvirtualnetworksubnetconfig) | Creates a subnet configuration. This configuration is used with the virtual network creation process. |
| [New-AzVirtualNetwork](https://docs.microsoft.com/powershell/module/az.network/new-azvirtualnetwork) | Creates a virtual network. |
| [New-AzPublicIpAddress](https://docs.microsoft.com/powershell/module/az.network/new-azpublicipaddress) | Creates a public IP address. |
| [New-AzNetworkSecurityRuleConfig](https://docs.microsoft.com/powershell/module/az.network/new-aznetworksecurityruleconfig) | Creates a network security group rule configuration. This configuration is used to create an NSG rule when the NSG is created. |
| [New-AzNetworkSecurityGroup](https://docs.microsoft.com/powershell/module/az.network/new-aznetworksecuritygroup) | Creates a network security group. |
| [Get-AzVirtualNetworkSubnetConfig](https://docs.microsoft.com/powershell/module/az.network/get-azvirtualnetworksubnetconfig) | Gets subnet information. This information is used when creating a network interface. |
| [New-AzNetworkInterface](https://docs.microsoft.com/powershell/module/az.network/new-aznetworkinterface) | Creates a network interface. |
| [New-AzVMConfig](https://docs.microsoft.com/powershell/module/az.compute/new-azvmconfig) | Creates a VM configuration. This configuration includes information such as VM name, operating system, and administrative credentials. The configuration is used during VM creation. |
| [Set-AzVMOperatingSystem](https://docs.microsoft.com/powershell/module/az.compute/set-azvmoperatingsystem) | Sets operating system properties for a virtual machine. |
| [Set-AzVMSourceImage](https://docs.microsoft.com/powershell/module/az.compute/set-azvmsourceimage) | Specifies the image for a virtual machine. |
| [Add-AzVMNetworkInterface](https://docs.microsoft.com/powershell/module/az.compute/add-azvmnetworkinterface) | Adds a network interface to a virtual machine. |
| [New-AzVM](https://docs.microsoft.com/powershell/module/az.compute/new-azvm) | Create a virtual machine. |
| [Remove-AzResourceGroup](https://docs.microsoft.com/powershell/module/az.resources/remove-azresourcegroup) | Removes a resource group and all resources contained within. |