Essentially the objective of this exercise is to:

* Be able to create a number of networked virtual machines in the Azure cloud.
* Be able to specify the type of machine (cpu; memory etc.) and its o/s.
* Install specified software onto the VMs.
* Be able to return the VMs to a specified state after use.
* Be able to Start; Stop or Delete the VMs.
* Be able to do all the above in an automated fashion using PowerShell.

This is a good place to start

<https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/>

This article goes through:-

* [Step 1: Install Azure PowerShell](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#step-1-install-azure-powershell)
* [Step 2: Set your subscription and storage account](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#step-2-set-your-subscription-and-storage-account)
* [Step 3: Determine the ImageFamily](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#step-3-determine-the-imagefamily)
* [Step 4: Build your command set](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#step-4-build-your-command-set)
* [Step 5: Run your command set](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#step-5-run-your-command-set)
* [Examples](https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/#examples)

**Network**

For the VMs to communicate to each other we will need a Cloud-only virtual network configuration.

Create this network BEFORE creating the vms.

You cannot add a vm to a network after you create the vm.

If using the Portal select the image from the Gallery so that it can be added to an existing network.

If you want to automate creating new networks it is best to create one through the Portal initially, and export that to a local netcfg file which can then be edited for use in an automation script.

## Creating your virtual network

1. Log in to the **Management Portal**.
2. In the lower left-hand corner of the screen, click **New**. In the navigation pane, click **Network Services**, and then click **Virtual Network**. Click **Custom Create** to begin the configuration wizard.
3. On the **Virtual Network Details** page, enter the following information, and then click the next arrow on the lower right. For more information about the settings on the details page, see the **Virtual Network Details** section in [How to manage VNet Properties](https://azure.microsoft.com/en-gb/documentation/articles/virtual-networks-settings).
   * **Name:** Name your virtual network. You’ll use this virtual network name when you deploy your VMs and services, so it’s best not to make the name too complicated.
   * **Location:** From the drop-down list, select the desired region. Your virtual network will be created at the Azure datacenter located in the specified region.
4. On the **DNS Servers and VPN Connectivity** page, don’t make any changes. Just move forward to the next page by clicking the arrow. By default, Azure provides basic name resolution for your virtual network. It’s possible that your name resolution requirements are more complex than can be handled by the basic Azure name resolution. In that case, you may later want to add a virtual machine running DNS to your virtual network. For more information about Azure name resolution and DNS, see [Name Resolution](https://msdn.microsoft.com/library/azure/jj156088.aspx).
5. The **Virtual Network Address Spaces** page is where you enter the address space that you want to use for this VNet. Unless you require a certain internal IP address range for your VMs or you want to create a specific subnet for VMs that will receive a static DIP, you don’t need to make any changes on this page. If you do want to create multiple subnets, you can do so on this page by clicking **add subnet**. For more information about the settings on the details page, see the **Virtual Network Details** section in [How to manage VNet Properties](https://azure.microsoft.com/en-gb/documentation/articles/virtual-networks-settings).
   * For more information about the settings on the details page, see the **Virtual Network Details** section in [How to manage VNet Properties](https://azure.microsoft.com/en-gb/documentation/articles/virtual-networks-settings).
   * Because you aren’t going to connect this private virtual network to your on-premises network by using a cross-premises VPN configuration, you won’t need to coordinate these settings with your existing on-premises network IP address ranges. If you think you may want to create a cross-premises configuration later, you’ll need to coordinate the address spaces now with the ranges that already exist on your local site to avoid routing issues. Changing the ranges later can be somewhat complicated and will often result in having to re-deploy your
6. Click the checkmark on the lower right of the Virtual Network Address Spaces page and your virtual network will begin to create. When your virtual network has been created, you will see Created listed under Status on the networks page in the Management Portal.
7. Once your virtual network has been created, you can deploy to your VNet. For example, if you want to deploy a VM to your VNet, see [How to Create a Custom VM](https://azure.microsoft.com/en-gb/documentation/articles/virtual-machines-create-custom/). Be sure to select **From Gallery** when creating a new VM in order to have the option of selecting your virtual network. Note that if you have already existing VMs and PaaS instances deployed, they cannot simply be moved to your new VNet. This is because the network configuration settings are configured for them during deployment. You'll have to re-deploy them to the new VNet.

**HPC Cluster**

Overview and prerequisites documented here:  
<https://msdn.microsoft.com/en-us/library/azure/dn864734.aspx>

Uses the Azure PowerShell or the Windows PowerShell.

**Automate creating new VMs.**

The cloud service and vnetwork MUST already exist.

This script run from your pc, associated to your Azure account, will create a VM within the Cloud Service and VNetwork that you have already created through the online Portal.

**Remoting to the new VMs**

Server 2012 Powershell Remoting is already enabled.

From 1 vm to another vm both in local network

1st

PS C:\Windows\system32> Set-Item wsman:\localhost\Client\TrustedHosts -Value 10.4.0.1

10.4.0.1 is the local IP of the target vm

Could this be the answer to setting up a network and adding VMs to it?

<https://azure.microsoft.com/en-us/documentation/articles/active-directory-new-forest-virtual-machine/>

**How to install a new Active Directory forest on an Azure virtual network**

<https://channel9.msdn.com/Series/Microsoft-Azure-Tutorials/How-to-install-a-new-Active-Directory-forest-on-an-Azure-virtual-network>

**Create VMs to run the domain controller and DNS server roles**

https://azure.microsoft.com/en-us/documentation/articles/active-directory-new-forest-virtual-machine/#create-an-azure-virtual-network

# **Azure Resource Manager QuickStart Templates**

<https://github.com/Azure/azure-quickstart-templates>

list of templates <http://azure.microsoft.com/en-us/documentation/templates/>

A searchable template index is maintained at <https://azure.microsoft.com/en-us/documentation/templates/>

Video to watch

<https://azure.microsoft.com/en-gb/documentation/services/virtual-machines/>

<http://azure.microsoft.com/en-us/documentation/templates/>

**Video of PS script to create VM with Puppet server/extensions etc**

<https://azure.microsoft.com/en-gb/documentation/videos/azure-powershell-101-managing-virtual-machines-with-guang-yang/>

**Custom Domain**

https://azure.microsoft.com/en-us/documentation/articles/storage-custom-domain-name/

https://azure.microsoft.com/en-gb/documentation/articles/cloud-services-custom-domain-name/

https://azure.microsoft.com/en-us/documentation/articles/active-directory-add-domain/#verify-a-domain-at-any-domain-name-registrar