Getting Started with VMWare vCentre on the IBM Cloud

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Introduction

This guide is intended to help you get started with the VMWare vCentre service on IBM Cloud.

Running VMWare services on IBM has a number of benefits. These benefits include the management of the physical server environment by IBM and of course the ability to use a familiar toolset in the cloud to create and run a virtual machine environment.

However, there are some steps needed to get started and this guide attempts to capture them. Note there is nothing here that cannot be found in the official documentation at https://cloud.ibm.com/docs/services/vmwaresolutions, but perhaps it is presented in a more linear way.

This short guide will get you to the point where you have created your vCentre installation, able to connect to it and able to create a vitual machine with an operating system.

Creating the Service

Creating the VMWare vSphere service is simple. Just log into your IBM Cloud account, click Catalog, and then click the VMWare vCentre Server on IBM Cloud panel.

Decide whether or not you need the Hybridity Bundle (you can add it in later too), which allows integration with a VMWare system you already have on-premises and then click Continue.

On the next page, you will need to complete some details. These include things like host and domain names but also covered are items such a licensing (you can buy or bring your own), where in the world you would like your server cluster to be build and hosted, how many nodes you would like and so on.

Complete the checklist of answers and you will then see a price calculated and the Provision button on the right hand side of the screen will be enabled for your to press.

I'm not going to suggest how this form should be completed – that is down to your requirements - but for the simple test rig that I have created, I provisioned a simple 2-node cluster (note a minimum of three is recommended for production workloads), with base edition licenses, 1TB of 2 IOPS/GB NFS storage on a couple of new VLANs in Amsterdam.

One the 'Provision' button is pressed, a few quick checks are made and then the process starts. And that process takes a while and generates quite a lot of emails as you are notified about each stage in the process completing. I found that the provisioning process took about 2-3 hours in total but compared to building your own VMWare installation from scratch, that's nothing.

I had a couple of issues along the way:

1. When provisioning through a Firefox browser, when I pressed the Provision button, I got a 'checking order' message but nothing more happened. When I used Safari (I am a Mac user) the order went through. Not sure where the problem lies but for me, Firefox didn't work
2. You need to make sure that you have an IaaS account and that it's properly linked for VMWare. The screens will tell you if there's an issue here and they walk you through automatically importing / setting up the API Key you need.

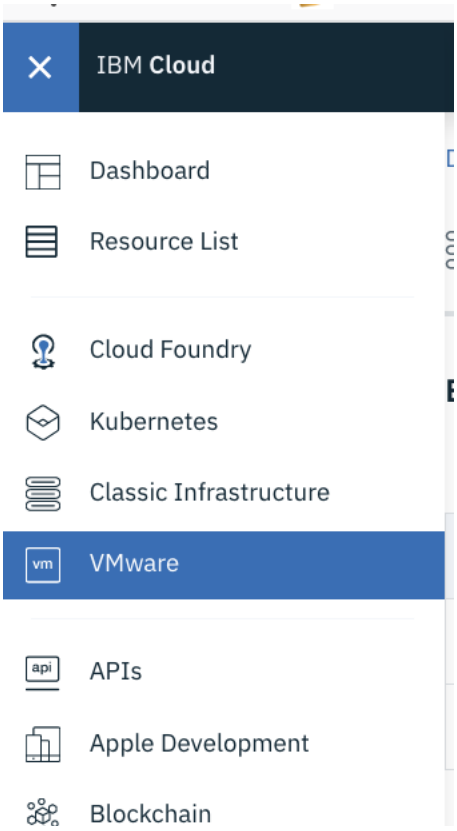
Anyhow, in around three hours, I had a working VMWare vCenter environment up and running in my DC of choice.

Setting up your own Computer / Laptop / Mac

Once you have your environment, you will need to connect to it to do anything useful. Again, this is all documented but not wonderfully so, in my opinion.

First thing to note is that the hardware and VMWare servers are all on IBM Cloud's Private LAN (i.e. a 10.x.x.x address). Second thing to note is that you will need command line tools such as 'ssh' and 'scp' and a smattering of UNIX / Linux command line knowledge.

So, where do you go to connect and use your VMWare environment? Well, log into the IBM Cloud, click the three horizontal lines in the top left corner and select VMWare from the menu:



Then click Deployed Instances and rather than a bunch of services in the catalog, you'll then see the services that you have deployed. In the Status, you should see 'ready to use' if everything is ready and 'deploying' if you are a bit early and it's not done yet!

Click the name of your instance and you'll see a screen that shows a couple of lists as well as a blue button that says vCentre Console in the top right corner. You can press this but if you haven't set up your local environment, you'll likely just see a 'server is not responding' screen in your browser, once it times out. The eagle-eyed will see this message before the button is pressed, though:

> Do the following steps before browsing to the vCenter console:
> 1. Install the Adobe Flash Player plug-in for your browser.

2. Create a VPN password from the IBM Cloud infrastructure Customer Portal.
3. Log in to the data center VPN portal using the IBM Cloud infrastructure VPN credentials.
4. Add the IP address and the host name mapping of PSC (Platform Services Controller) into the hosts file using the following format: hostname.vmonic.local

So what does that mean?

Install the Adobe Flash Player plug-in for your browser

Well, this is pretty straight forward. Basically, the vCentre console uses Adobe Flash, so you need to have it installed in your browser. If you don't have it, then you can open your browser and go to https://get.adobe.com/flashplayer/ and you will then be presented with a 'Download Now' button for your browser and OS. Note that in some web browsers, you may need to confirm that you want Flash Player to run and you may need to enable it in the browser settings before it will run.

Create a VPN Password from the IBM Cloud Infrastructure Customer Portal

You will need to log into the IBM Cloud VPN and to do this, you need a VPN username and password. Note these are not the same username and password that you use to log into the IBM Cloud with (your IBMId) – they are different credentials. Here's how to set / reset this.

If you are using cloud.ibm.com

I recommend that you use the cloud.ibm.com version of the IBM Cloud portal. This is the 'unified' version of the IBM Cloud console (it brings together 'console.bluemix.net' and 'control.bluemix.net') and it's this that will continue to be developed.

To set your VPN password:

1. Click Manage -> Access (IAM)
2. Click Users in the left hand menu
3. Click the name of the user / your user in the list displayed. If you're an account administrator where there are multiple account users, more than one name will be displayed and you'll be able to set passwords for other users too.
4. Scroll downwards to the 'VPN password' panel. You'll see here your VPN username and your password, if set. You can change the password (if it's not set or you have just forgotten it) by clicking the pencil icon.
5. Make a note of this username and password as you'll need them to log into the VPN.

If you are using console.bluemix.net / control.bluemix.net

Firstly, if you are using these addresses, then I strongly recommend you stop and start to use cloud.ibm.com! But if you are continuing to use these old versions of the console, then:

1. From console.bluemix.net, click the three horizontal lines in the top left hand corner and click Infrastructure from the menu (this takes you to control.bluemix.net)
2. Click Account -> Users -> User List

3. Click on the IBM ID or Username of the user who's VPN you want to set / update. Again if you are an administrator, you may see a number of names here.
4. The Edit User Profile page loads. Scroll downwards to Log In Setting and you will see a VPN username and password fields. To set or change the VPN password, just type one into the first box, confirm it in the second, scroll to the bottom of the screen and click 'Save Changes'.
5. Again, make a note of the Username and Password as you need them to log into the VPN

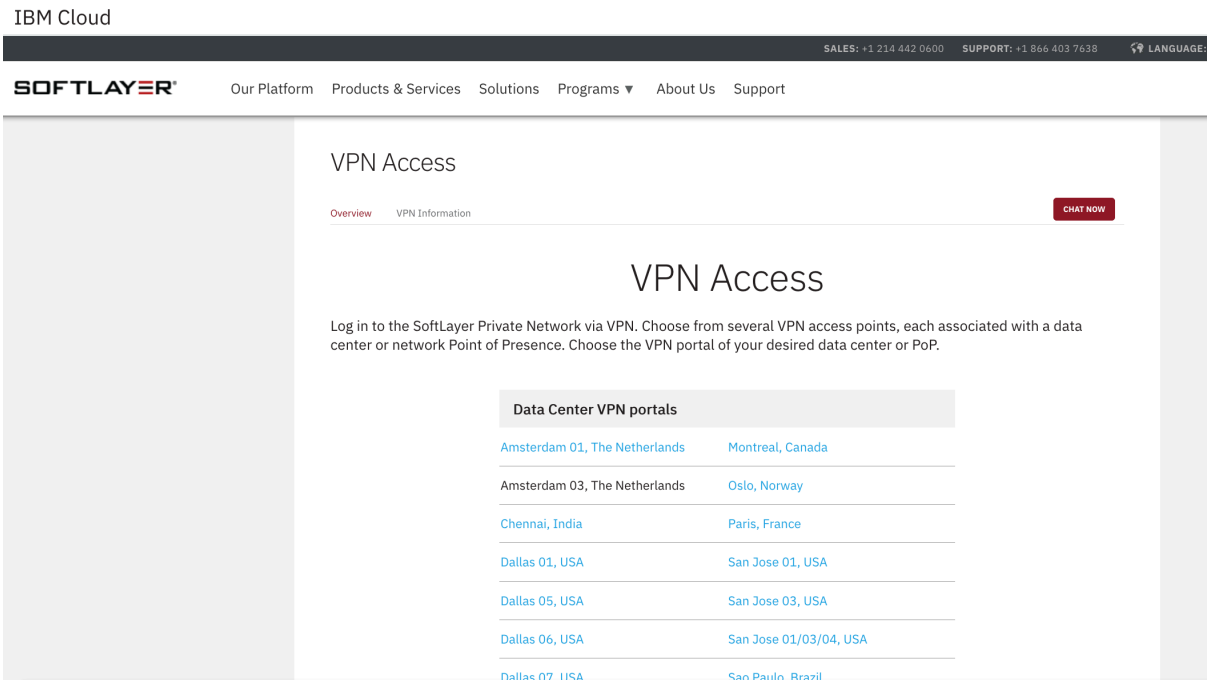
Log in to the data center VPN portal using the IBM Cloud infrastructure VPN credentials

You have your VPN credentials, now it's time to log into the VPN and to do this, you need to use a VPN Client.

There are a couple of ways to do this.

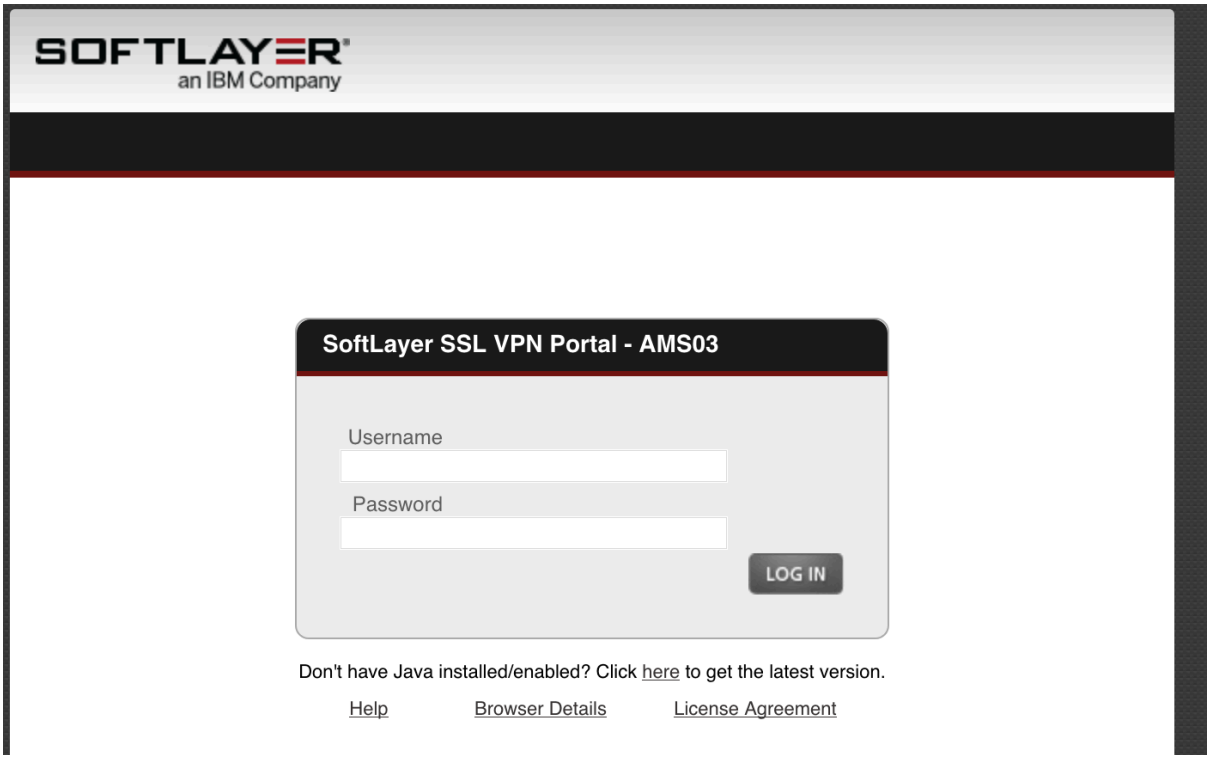
Use softlayer.com/vpn-access

First, you can use the website https://www.softlayer.com/vpn-access, though this does not work for everyone, particularly if you are using a Mac. However, if you are using a Mac, you should still navigate to this page because you'll need it to find out the VPN address for the DC you need to connect to.



However, if you can use it, it's pretty simple:

1. Make sure that you're not logged into another VPN (e.g. a corporate VPN that you might use for remote working)
2. Browse to https://www.softlayer.com/vpn-access and then click the link that corresponds to the datacenter where your VMWare instance is hosted. Mine is in Amsterdam 03 (AMS03), so that's the link I would click.
3. You then see a login page:

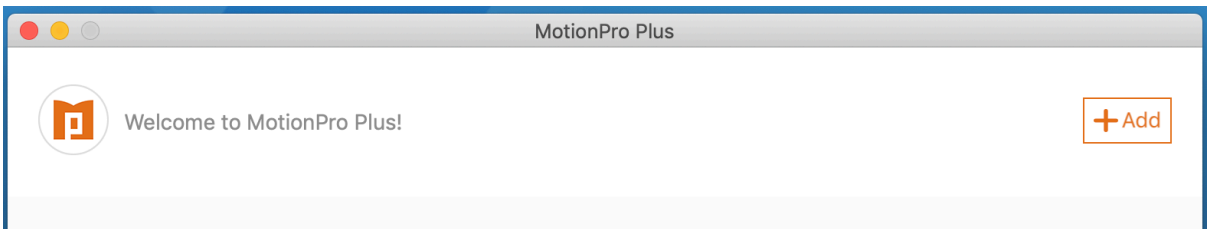


4. If you can (and this is where I struggled on a Mac with Firefox as it doesn't support Java), enter the VPN credentials that you made a note of in the last section.
5. In the next step, the browser may try to download and run the Array Networks VPN Client. This should work on Windows but it is not supported on a Mac.
6. If the plugin downloads and installs successfully, the connection should be made and you are now logged into the VPN.

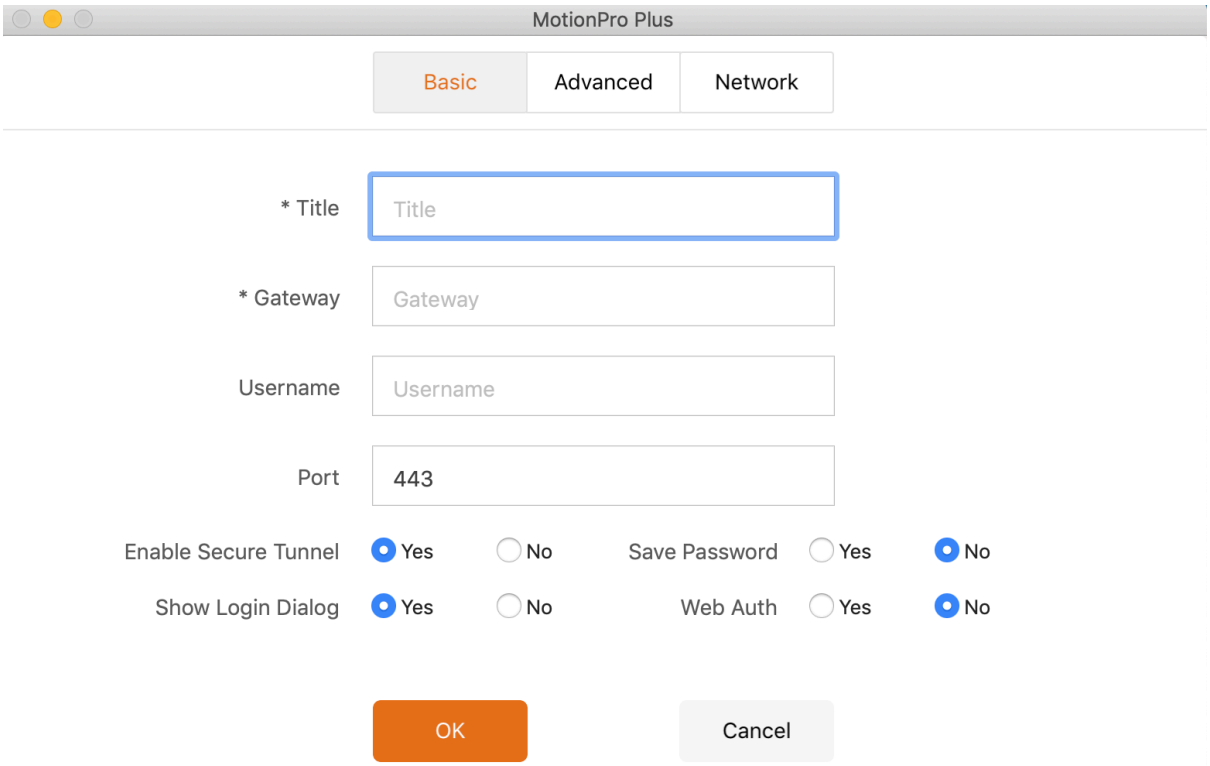
Using the MotionPro Plus VPN Client

Using the softlayer.com/vpn-access route didn't work for me as a Mac user for a number of reasons and a quick chat with support revealed that as a Mac user, I instead needed to download and use the MotionPro Plus VPN client. I assume this might work for Windows users too, as well as other Linux clients.

1. Download and install Motion Pro Plus. On the Mac, simply open the App Store and enter 'MotionPro' (no spaces) into the search bar and install – it's free.
2. Open MotionPro plus and click the '+Add' button



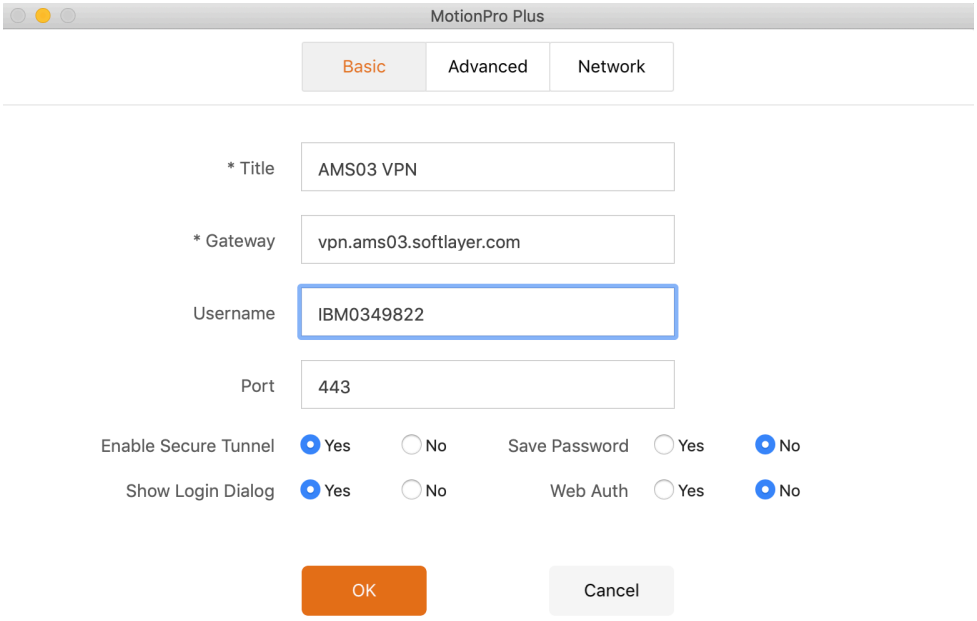
3. In the next screen, enter the details of the connection you need to make. The Title is the name that you want to give the connection. For me, since the connection is to the AMS03 data centre VPN, I just called it AMS03 VPN.



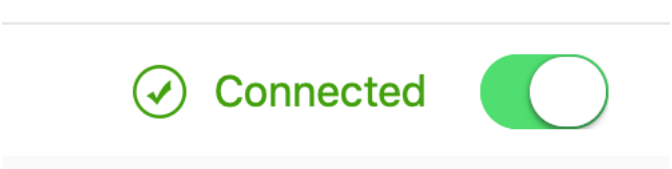
The Gateway field is where you need to enter then VPN address and you can get this most easily from the https://www.softlayer.com/vpn-access website. If you hover over the name of the data center where your VMWare installation is located, you will see a web address as in the screenshot below – see the bottom left hand corner where it says https://vpn.ams03.softlayer.com/prx/000/http/localhost/login. You only need to ender the 'vpn.ams03.softlayer.com' part of this address – though of course you should enter the appropriate entry, based on the data centre you are trying to connect to.

Then, in the username field you need to enter your VPN username, as obtained in the steps above.

So, the entry should end up looking something like this:



4. Click OK. Now click on 'Login' on the panel for the connection you have just set up and enter your VPN password when prompted. Click OK and you should see 'Connected' as follows:



You are now connected to the datacenter VPN.

Add the IP address and the host name mapping of PSC (Platform Services Controller) into the hosts file

The last thing that you need to now do is to add in some information to the hosts file on your local computer. This is because the vCenter console will attempt to open pages using hostnames that are private and so your local computer will need to resolve these to an IP address since they will be unknown on the internet.

This is pretty simple to do.

First, what addresses do you need to add? Well, if you are somewhere else, head back to https://cloud.ibm.com/infrastructure/vmware-solutions/console or click the three horizontal line in the top right hand corner of the IBM Cloud console and select VMWare from the menu. Then click Deployed Instances and then click on the name of your VMWare vCentre instance.

You should see a screen that has two columns of information, one Properties, the other Access Information.

Under Access Information, there will be at least three sections, each with an IP address (10.x.x.x) and a hostname – it's these that you're adding to the hosts file.

On a Mac

1. On a Mac or other Linux-based host, open a terminal window
2. Using you editor of choice (I use vi), open the file /etc/hosts (if this file is blank or does not already exist, check your OS documentation for the location of this file)
3. At the bottom of the file, enter lines for each of the entries, they should all look something like:

```
10.x.x.x  vcenter-JBCustDemo.JBCustDemo.belton.local
10.x.x.x  NSXManager.JBCustDemo.belton.local
10.x.x.x  ADNSJBCustDemo.belton.local
```

4. Save the file and exit

On Windows

1. Using the file explorer, open the file c:\Windows\System32\Drivers\etc\hosts
2. At the bottom of the file, enter the lines for each of the entries, they should all look something like:

```
10.x.x.x  vcenter-JBCustDemo.JBCustDemo.belton.local
10.x.x.x  NSXManager.JBCustDemo.belton.local
10.x.x.x  ADNSJBCustDemo.belton.local
```

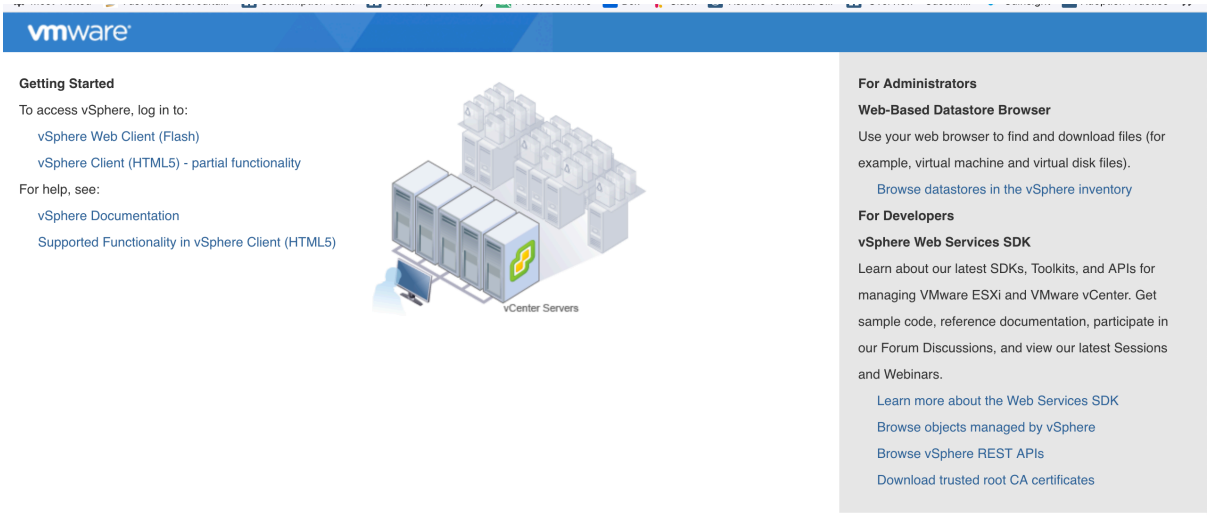
3. Save the file and exit

Click the vCentre Console button

You're now ready to click the button, so go ahead.

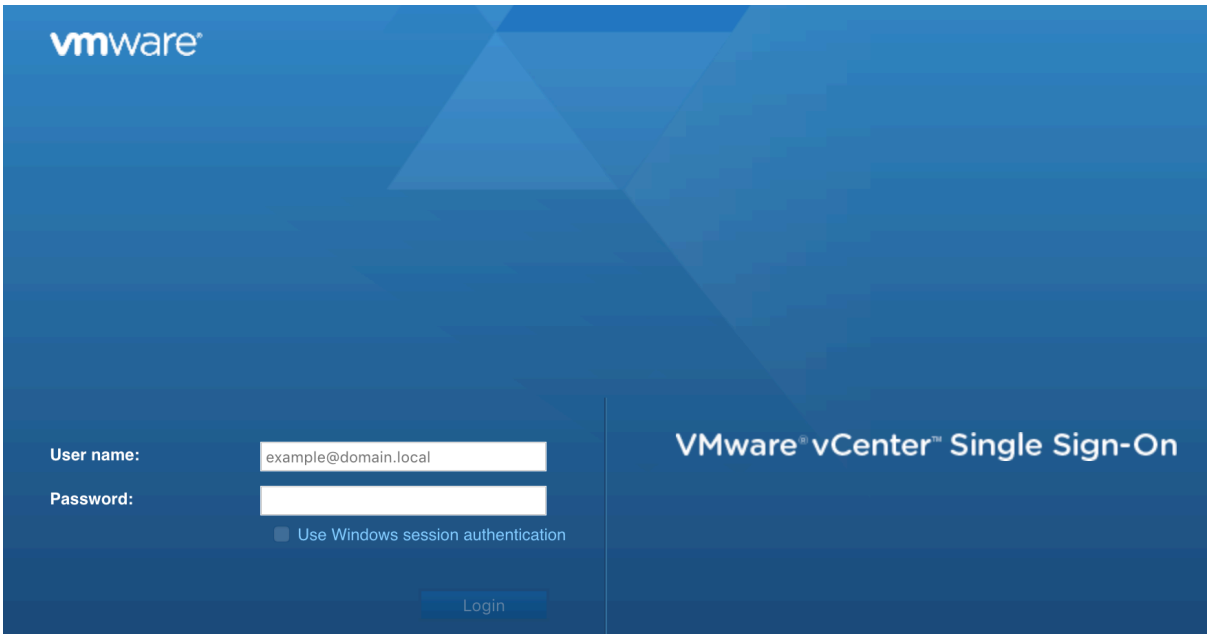
You may see some warnings in your browser about the connection not being secure. This is because you are connecting to an https website and there are no certificates set up. Assuming you are happy to do so, add the exceptions to your browser (on Firefox, this is simply a case of clicking the 'advanced' button and then clicking the 'Add Exception' button) – the risks are very low to zero.

You will then see a screen like this:



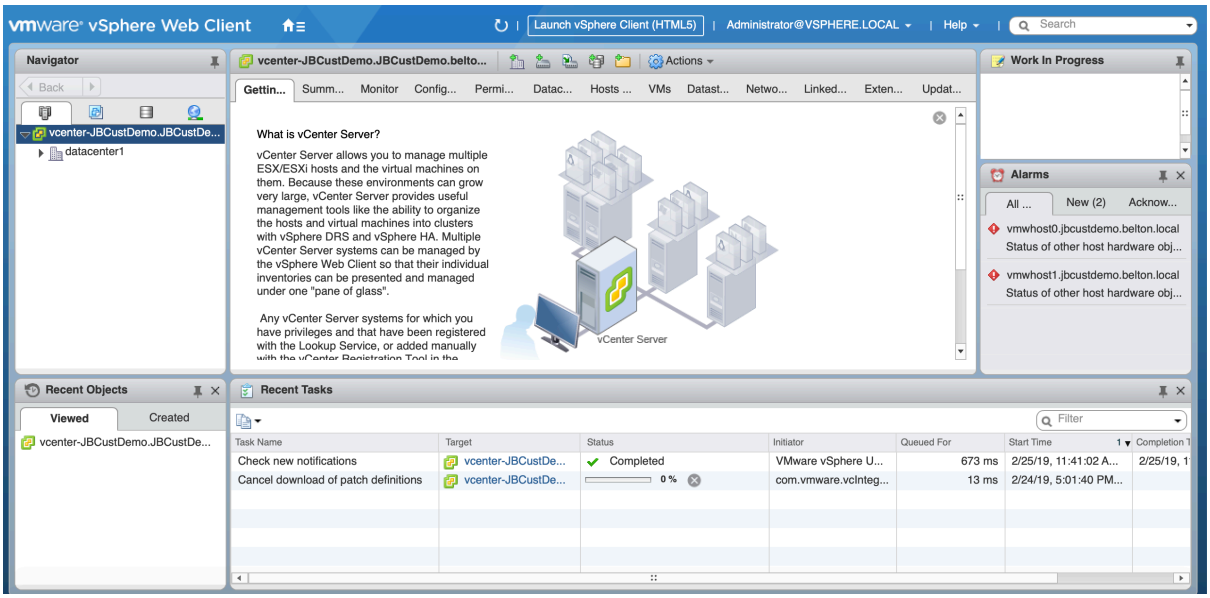
Click the vSphere Web Client (flash) link – you may see warnings again about the connection not being secure) .

You will then see this screen:



Enter your ‘Administrator@vsphere.local’ credentials, which you can get from the same screen where you obtained the IP Adresses and hostnames from in the step above.

You will then be logged in and see the screen below (note on some browsers you may be prompted to ‘allow Flash’ to run or you may need to click in the screen to see a prompt to allow Flash).



You are now connected to the vSphere web client.

Uploading ISOs

You can now create Virtual Machines but for them to be any real use, you will need to install an operating system on them (e.g. Windows Server or some Linux variant) and to do that, you need to provide some installation media. You can attach local CD / DVD drives, though this may be slow if running via VPN to a datacentre some distance away, so it's probably worthwhile uploading the installation media in the form of an ISO file. This is pretty easy and once done, you can attach the ISO file like a CD to the VM to boot from and install the operating system.

To do this, first obtain the ISO of the operating system that you want to upload. For Linux, this is normally simple – just visit the distro of choice website and download the file / version you need. For example, for Centos, visit the Centos website and download the ISO file of the version you want to use.

Next, you need to upload that file to your host server cluster, to see what those servers are and what you need to connect to them, from cloud.ibm.com, click the three horizontal lines in the top left corner and select VMWare from the menu.Click Deployed Instances and then the name of your instance. Then, from the left hand menu, click 'Infrastructure', then click on the name of your cluster (which will be something like 'Cluster 1').

This will show your ESXi servers and you'll see an IP Address for each as well as a username and password under the credentials column (click on the little 'eye' to view the password).

Open a terminal on your computer and in the terminal window, connect to one of the hosts (it doesn't really matter which). To do this, type:

```
ssh root@<<ip_adddress>>
```

substituting in the IP address of your server. Enter the password when prompted. Note, if you are running Windows, you may not have ssh installed on your computer by default. If it's not installed, follow the instructions at https://docs.microsoft.com/en-us/windows-server/administration/openssh/openssh_install_firstuse

Next, create a folder on the shared management drive called 'ISO'. Type:

```
cd /vmfs/volumes/management-share/
mkdir ISO
ls -l
```

You should see 'ISO' listed on the screen.

Type 'exit' and you will log off and return to your own computer.

Next upload the iso file using scp (secure copy). In the terminal console, enter:

```
scp <<file to upload>> \
root@<<ip address of server>>:/vmfs/volumes/management-share/ISO
```

For example, the full command to upload a Centos ISO file might look like:

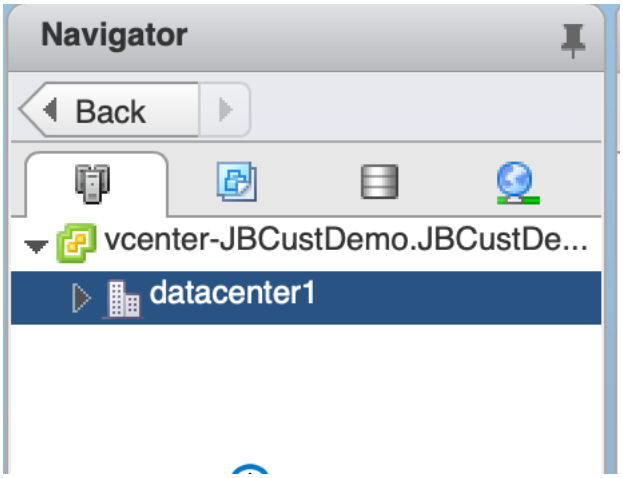
```
scp CentOS-7-x86_64-DVD-1810.iso \
root@10.175.200.93:/vmfs/volumes/management-share/ISO
```

Depending on the speed of your connection, the file may take some time to upload. When complete, the file will be available on the cluster and can be used to create a virtual machine in your VMWare vCentre installation.

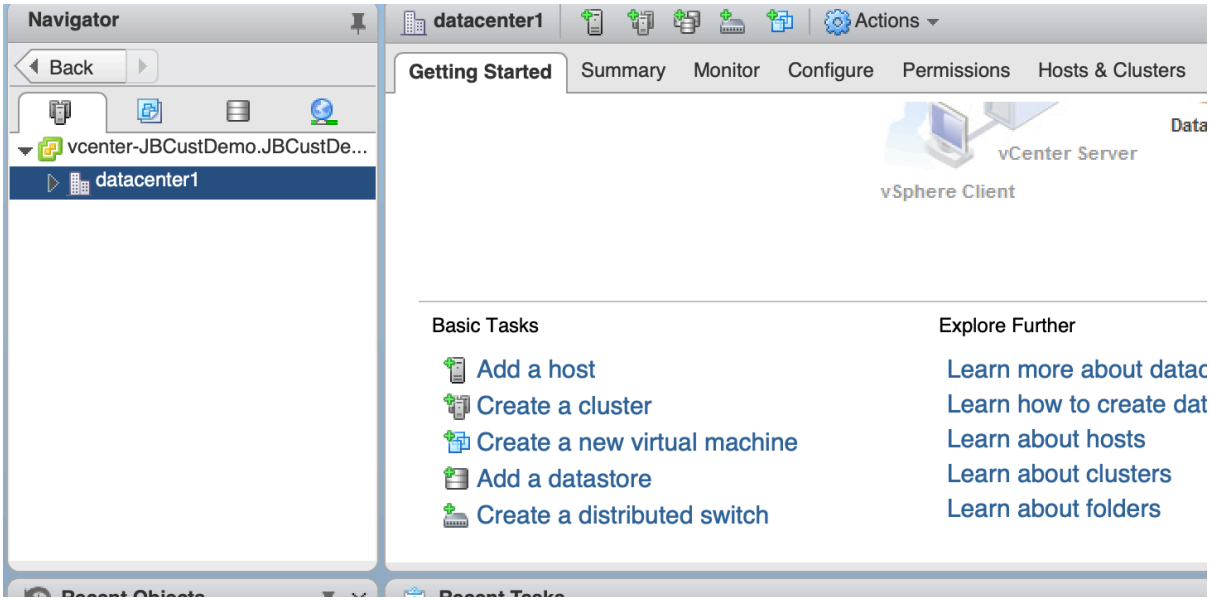
Creating your first VM, using the uploaded ISO file

The last step in this getting started guide is creating a VM from the ISO file. Again, this is pretty simple.

1. Open the VMWare vCentre Console and log in
2. In the Navigator Pane, highlight 'datacentre1'

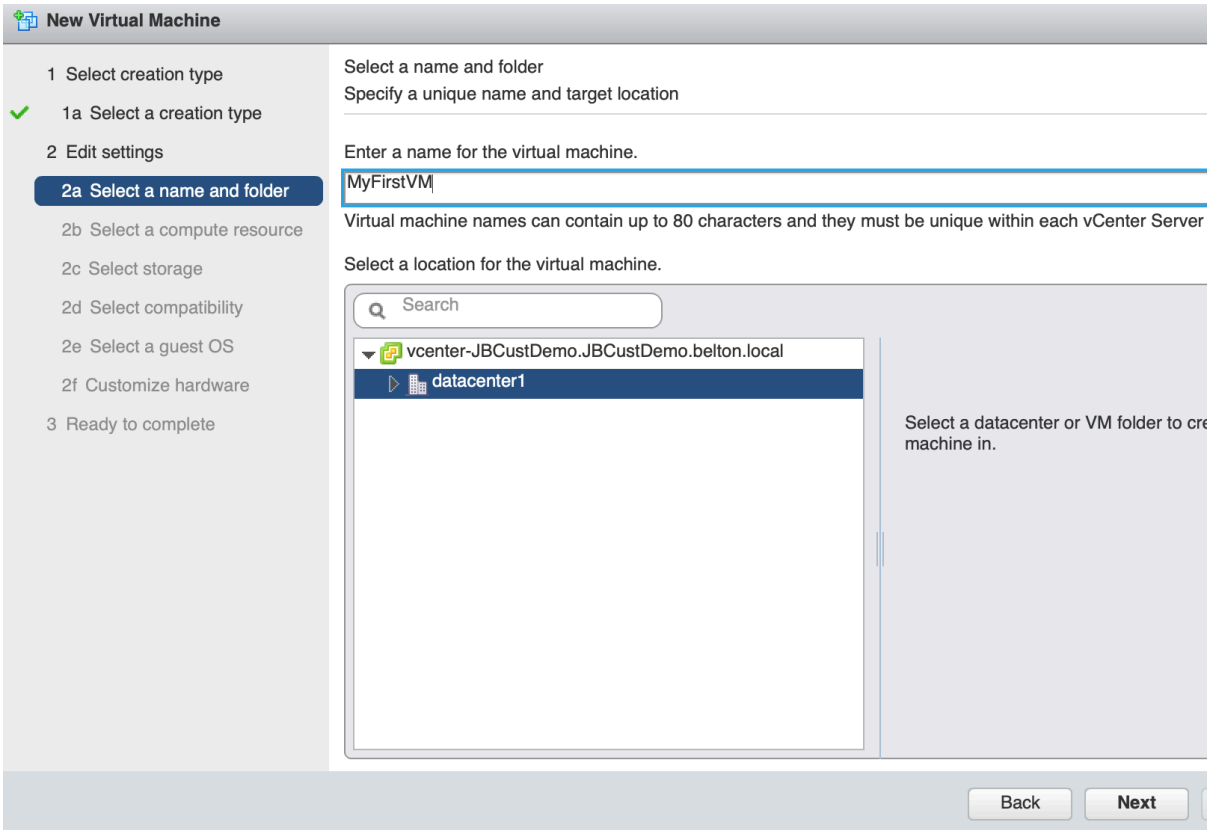


3. Scroll down in the main panel (the getting started tab) and then click 'Create a New Virtual Machine'

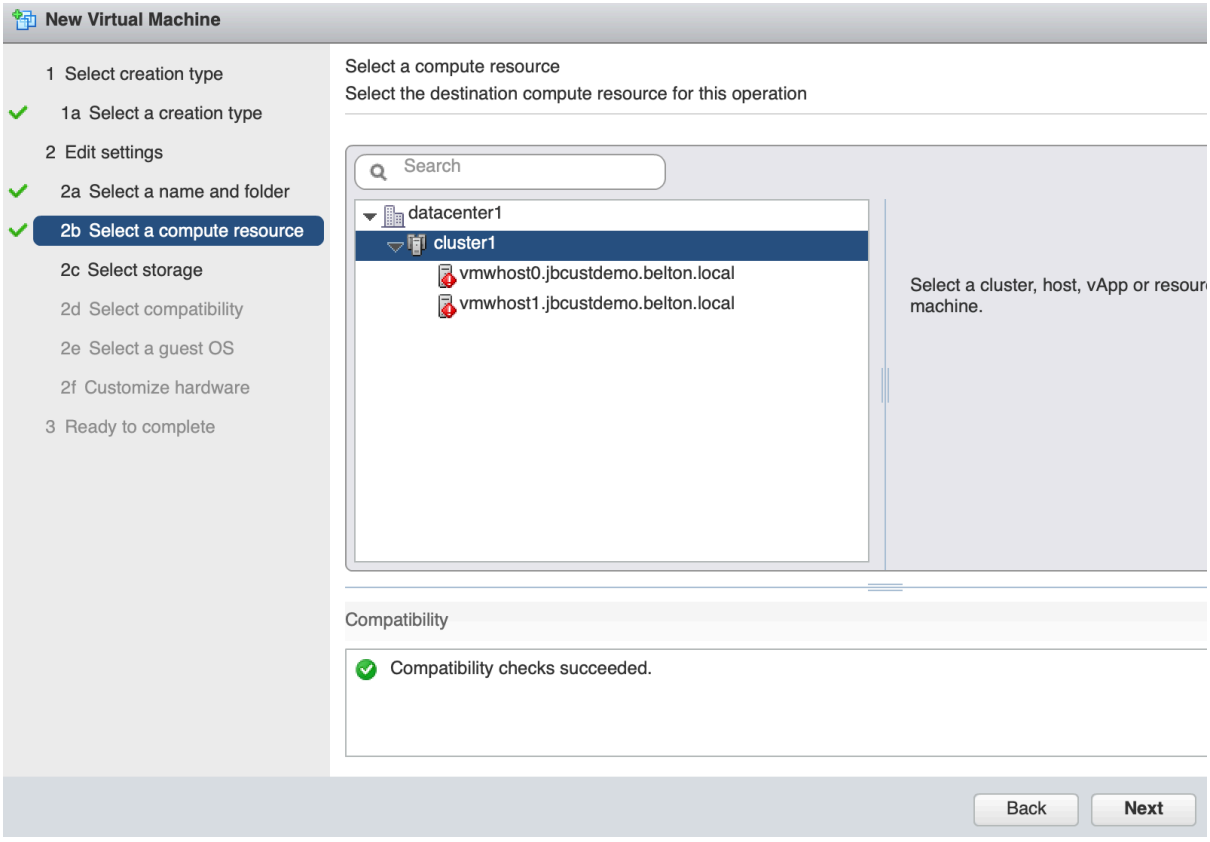


4. A Wizard will appear.

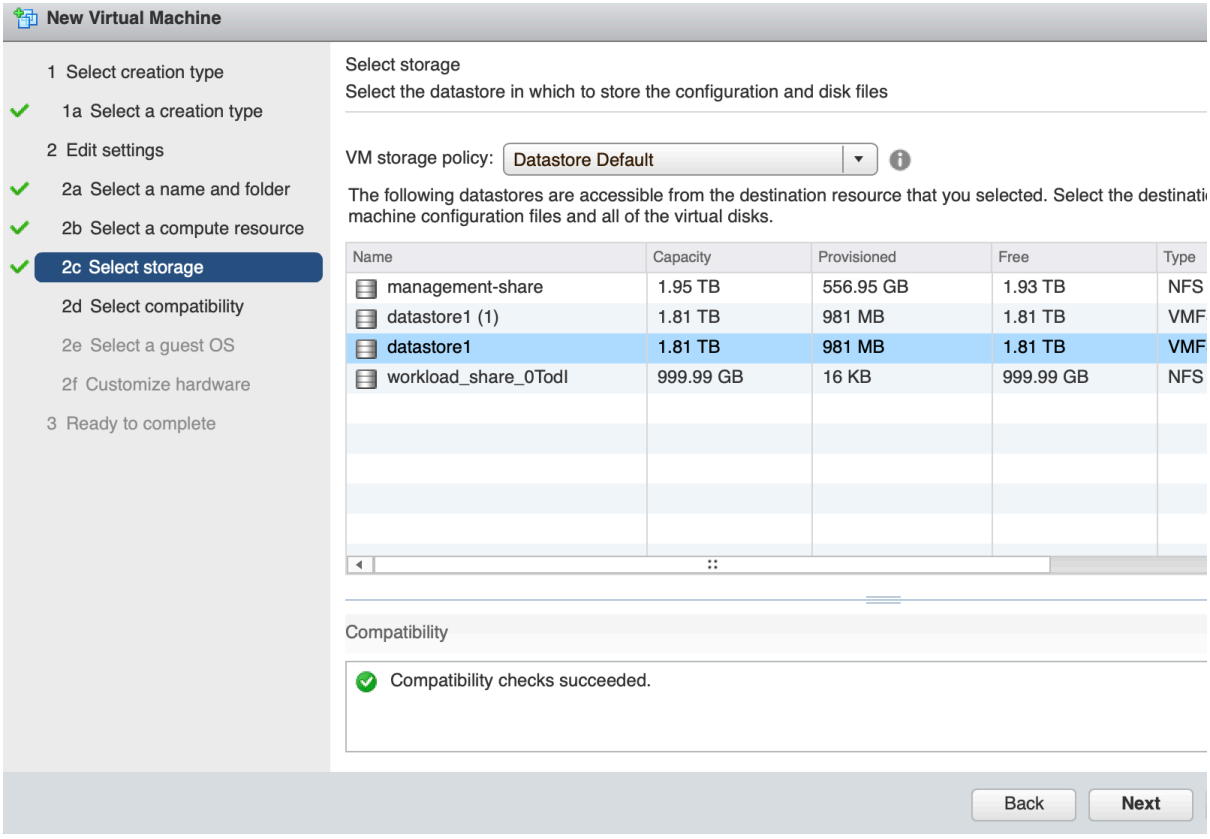
5. On the Select a Creation Type screen, select Create a New Virtual Machine and click Next
6. On the Select a Name and Folder screen, enter a name for the VM, for example ‘MyFirstVM’. Then click Next



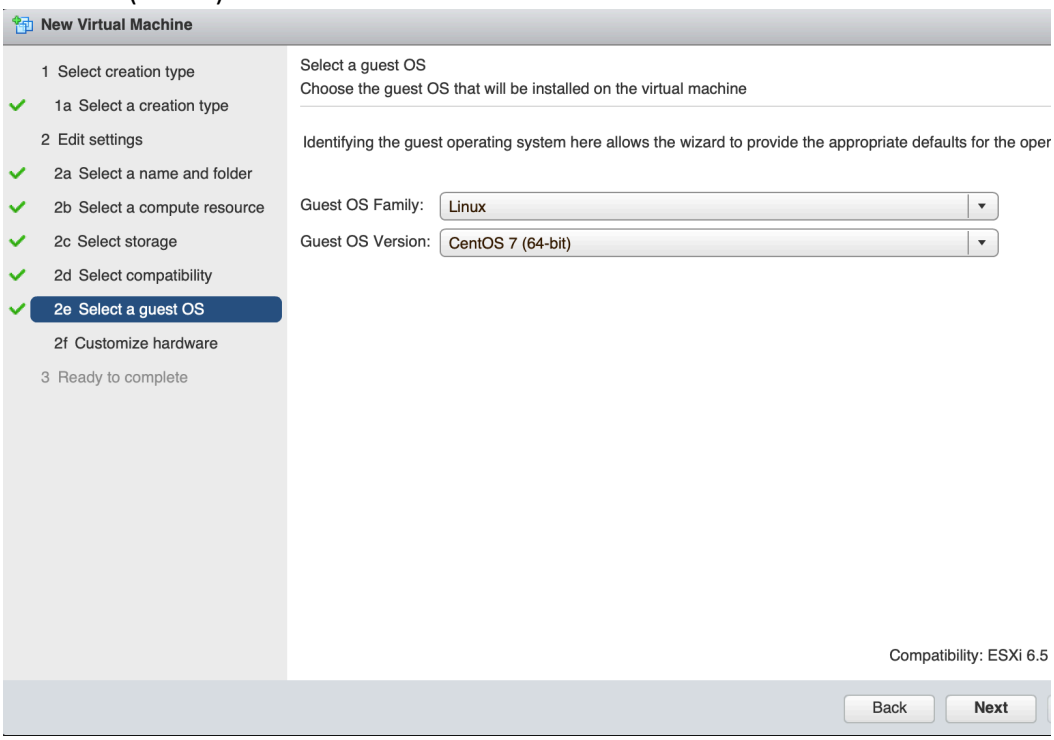
7. On the Select a compute resource page, highlight the cluster name and click Next



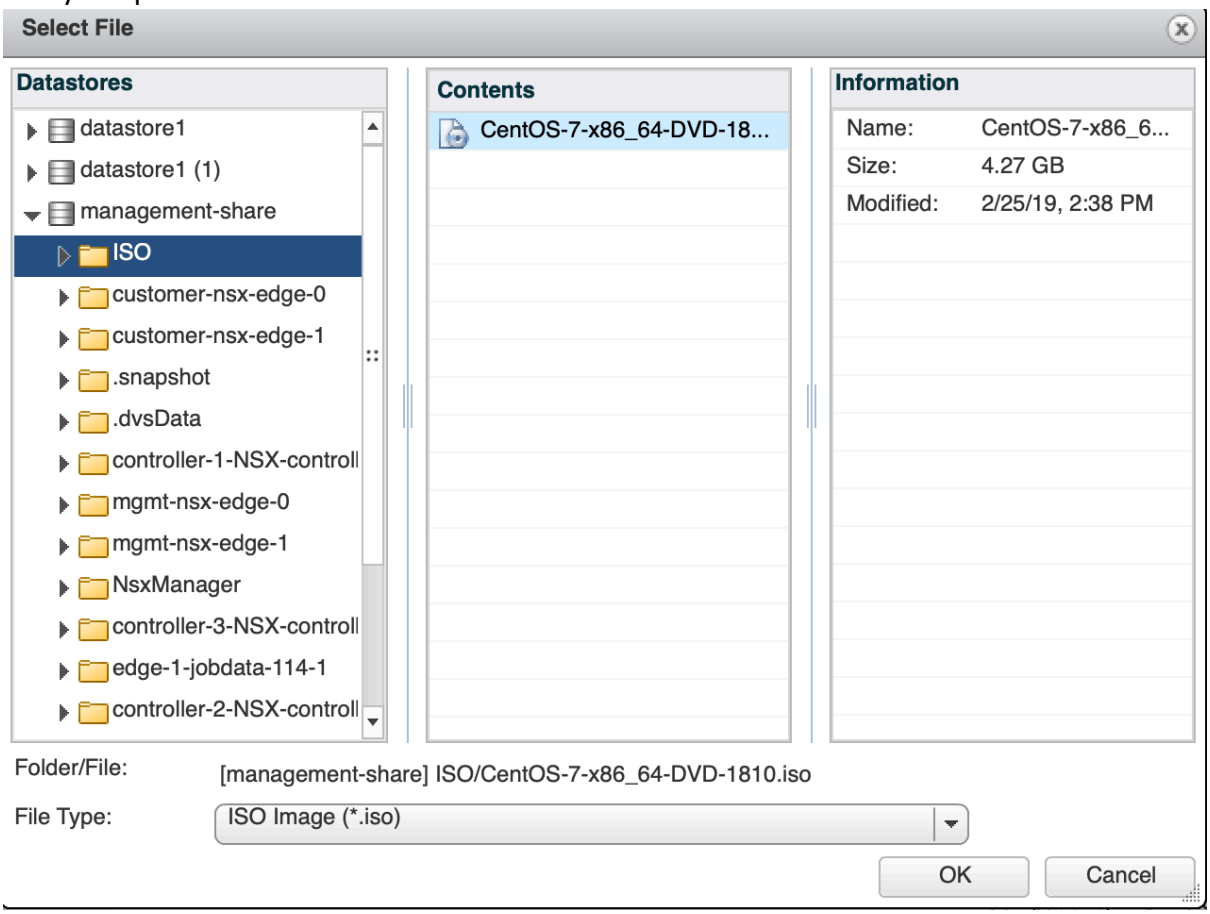
8. On the Select Storage page, decide where you want the VM file to be located. In this example, select datastore1 and then click Next



9. On the Select Compatibility screen, stick with the default and click Next
10. Now select a Guest OS. Select the appropriate values from the drop-downs, based on the ISO that you have uploaded. For example, for CentOS, select Linux and CentOS 7 (64-Bit)

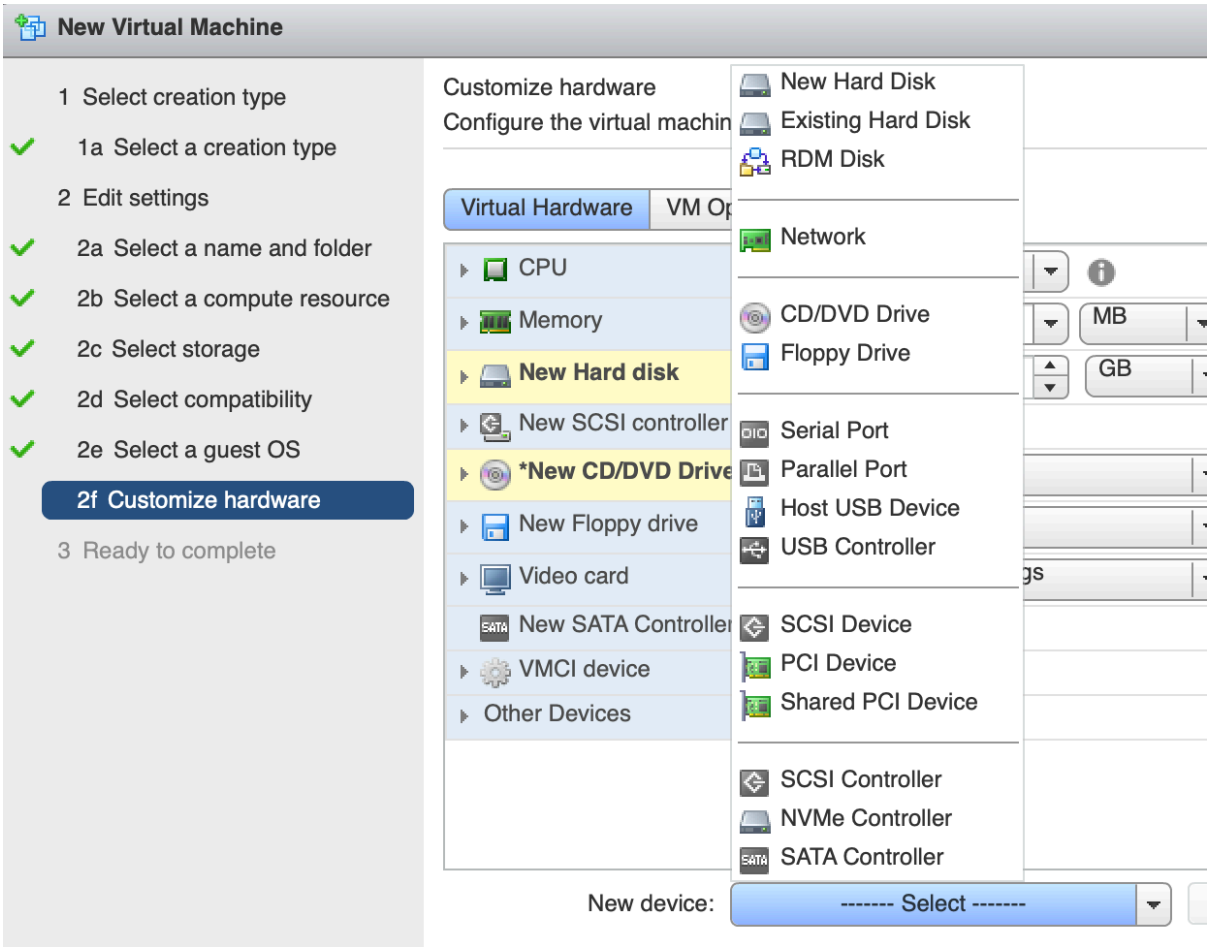


11. On Customise Hardware, decide how many vCPUs and how much memory you want. For this example, stick with the defaults, along with the size of the hard disk. To attach the ISO, on the CD/DVD Drive drop-down, select 'Data store ISO file' and on the next screen, open management-share -> ISO and click the name of the ISO file that you uploaded

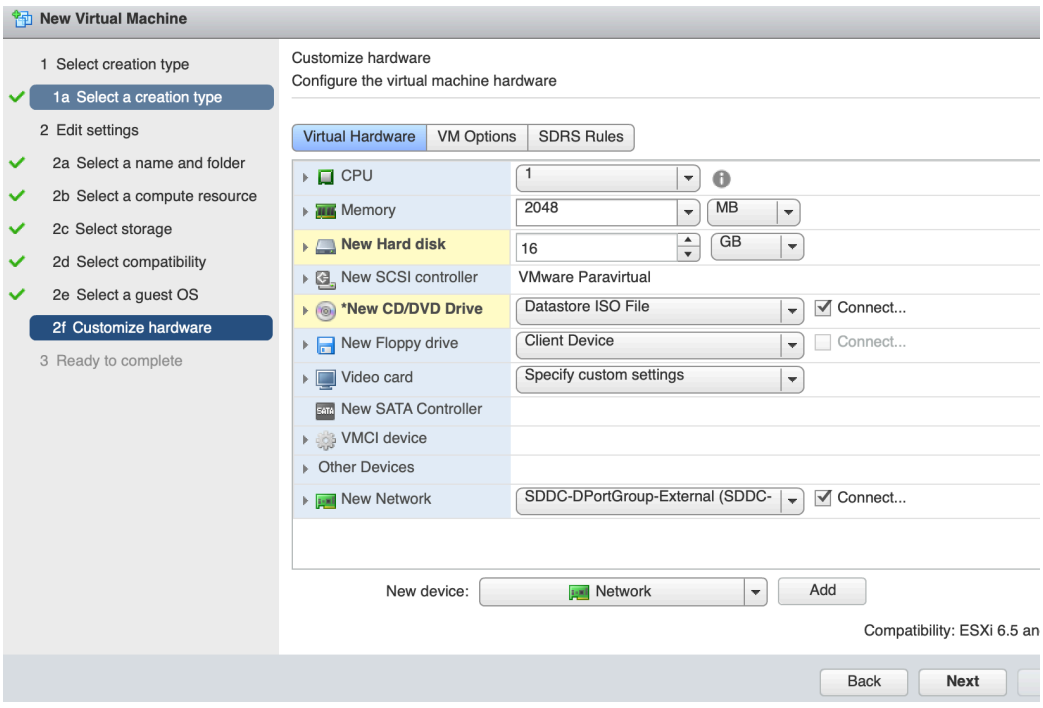


Then click OK. Make sure that the 'Connect' check-box is ticked.

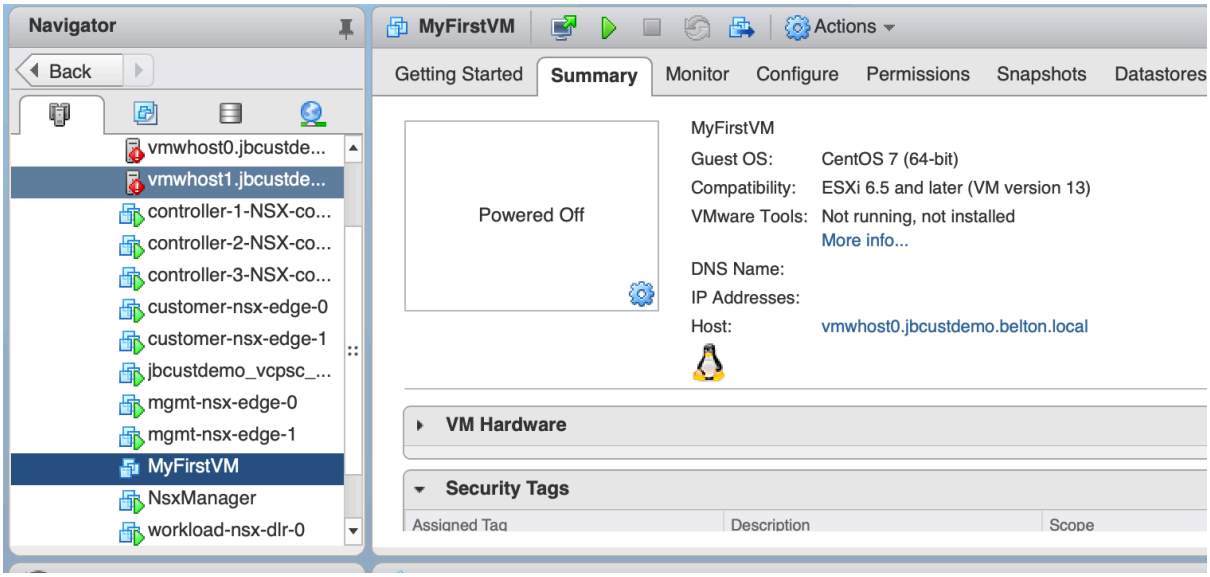
Then click the New Device drop down and select Network from the list and click ‘Add’. Again, make sure the ‘Connect’ box is checked.



Click Next



12. The next screen shows a summary, click Finish.
13. Expand the nodes in the Navigator window and click on the Summary tab in the main window



14. Click the Green arrow above the Summary tab to turn on the VM. The click on the console screen (where it says 'Powered Off' in the screenshot above – this should turn black when the VM starts).
15. This will open the console of the VM and if the ISO is properly attached, the installation of the OS will have started. Install the OS as normal.

You can assign network addresses to you VMs, in the range 192.168.10.2 to 192.168.10.254, with a subnet mask of 255.255.255.0. The Gateway is 192.168.10.1.

You now have a running Virtual Machine in your VMWare installation.