vHMC running on Apple hardware.

As a Lab Services Consultant for IBM System, I'm often engaged to perform Firmware updates on various IBM Power Systems. Some of these systems have been purchased as a self-managed server, without any HMC attached.

This always ended up being a tedious task which can take a lot longer than it should. I always wished I could carry around a portable HMC in my back pocket to make things a lot simpler.

Then along came the Virtual HMC or vHMC as it's more commonly known.

The Portable HMC

I'm not going to go into great detail on the vHMC, where you can obtain it and what it can or cannot do (all this information is available on the IBM website :

http://www-01.ibm.com/support/docview.wss?uid=nas8N1020969

Essentially the vHMC is the HMC OS designed to be run from within a Virtualised Environment (e.g. VMWARE, KVM and XEN).

When I first read about vHMC, I thought this would be great if it could run on a Laptop and essentially be the portable HMC I was after. That was until I saw the minimum requirements.

The vHMC has the following requirements, as listed within the IBM installation instructions:

(http://www.ibm.com/support/knowledgecenter/en/8286-42A/p8hai/p8hai_installvhmc.htm)

Virtualization Hypervisors:
- KVM
- Xen
- VMWARE

Minimum Hardware Requirements:
- 8GB Memory
- 4 Processors
- 1 Network Interface
- 160GB Disk Space (700GB recommended for Performance Data Gathering (PCM))

This put it outside the capabilities of my IBM-Owned laptop (Apple MacBook Pro, Early 2015, 2.7GHz i5 CPU, 8GB Memory, no network interface without adapters).

OS X El Capitan
Version 10.11.6

MacBook Pro (Retina, 13-inch, Early 2015)
Processor   2.7 GHz Intel Core i5
Memory   8 GB 1867 MHz DDR3
Graphics   Intel Iris Graphics 6100 1536 MB
Serial Number

System Report…   Software Update…

™ and © 1983-2016 Apple Inc. All Rights Reserved. License Agreement

These requirements were well outside what my laptop could manage, so I decided to shelve the idea of a portable HMC on my laptop and stick to tedious firmware upgrades.

Rob McNelly sparks the interest!

A few weeks after my first attempt of a portable HMC, I came across an article in the IBM Systems Magazine by Rob McNelly:

(http://www.ibmsystemsmag.com/Blogs/AIXchange/January-2016/Testing-Out-the-New-vHMC/)

Rob wrote about his foray into the vHMC. It was reading this that I noted the following information:

"In my test environment I saw tolerable performance with 1 CPU and 4G of memory. Of course I wouldn't recommend running it that way in production."

That got me thinking, if Rob had managed tolerable performance with those settings, and since the vHMC I would be using would be to perform firmware upgrades only on systems without an HMC attached, then maybe it could just work.

Configuring the Portable HMC

So, now I've given a bit of a back story, which won't be winning any Pulitzer prize any time soon, here's the information that everyone that's reading this article is looking for!

To enable a Virtualisation environment to be run on Apple hardware, we need some kind of Virtualisation management application (Parallels, VirtualBox and Veertu to name a few).

I decided to go with VirtualBox as a) it's free, b) it has good Virtualisation support and c) it was the one I was most comfortable with.

Now the first thing you notice when you go to download the vHMC from the IBM Entitled System Support (ESS) website is that you're only given an option to download the vHMC that supports either VMware, KVM or XEN.

There was no VirtualBox support (which is a vdi file format). Not to be defeated, I looked to see if there was a way in which one of those available options could be converted into the VirtualBox file format and allow me to proceed.

And there just so happens to be!

You need to have installed the command line extension on VirtualBox, which is selectable during the VIrtualBox installation and once you're ready it's a simple case of running the command. I only tested this against the KVM version of the vHMC, so I've no idea if this works on any of the others.

```
$ VBoxManage convertdd KVM-image.img VB-image.vdi
```

The conversion will take some time, so be patient with it.

Now we have the correct format for VirtualBox, we can start the configuration within VirtualBox.

Create a new Virtual Machine within VirtualBox, the following settings seem to work well with my laptop, and is probably the bare minimum needed to run the vHMC.
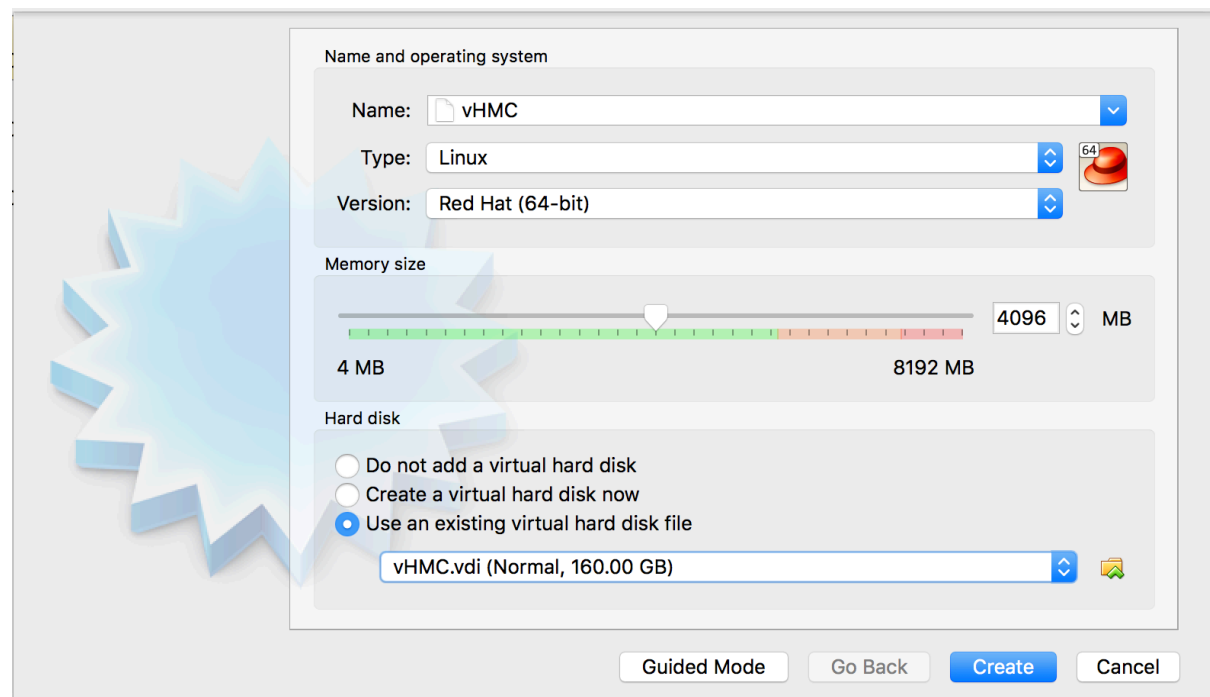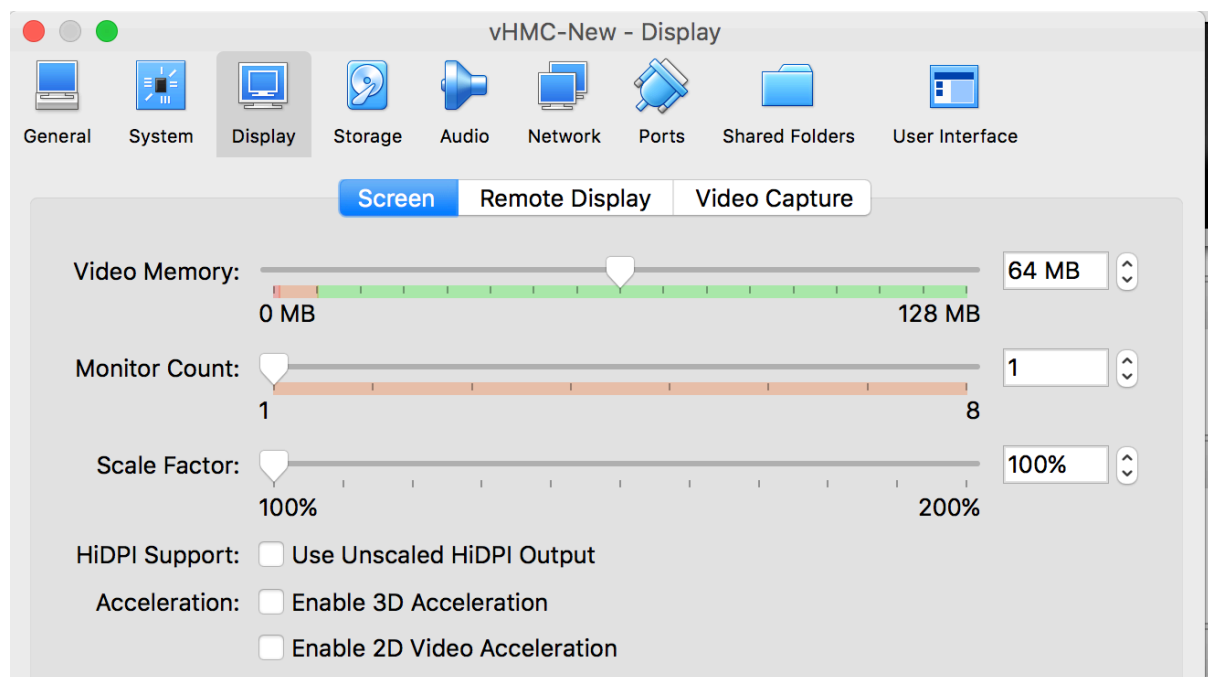
Ensure, you select "**Use an existing virtual hard disk file**" and select the VDI you created earlier. Click Create when done.
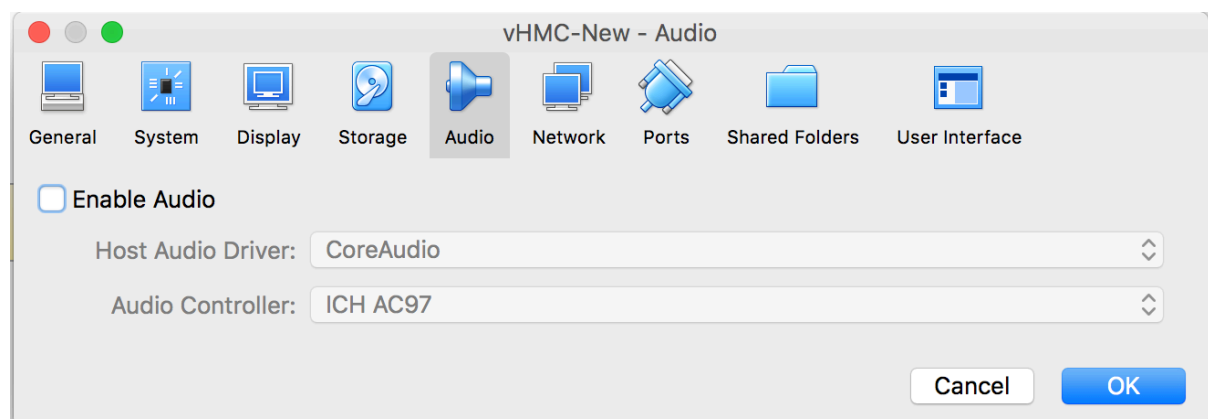
Before we start the machine, there are a couple of configuration changes needed.

Highlight the **Virtual Machine** and click **Settings**.

The first item to configure is **Video Memory**. I upped mine to 64mb and it seemed to work well.


Next I disabled the Audio as I found when booting previously, the HMC complained about not being able to load the audio drivers.


Now we need to make some changes to the Networks. This is required as the MacBook only has one Network interface (WiFi) and we need additional interfaces to allow correct functionality. Firstly, I needed to add two new interfaces by utilising a pair of Thunderbolt

1Gbps Adapters. One will be used for the Private Communication to the FSP. The other for Public interface. The WiFi adapter will be used as a NAT'd interface to allow internet connectivity to the vHMC, which is ideal when performing Firmware updates as it can download the firmware directly from the IBM support website.
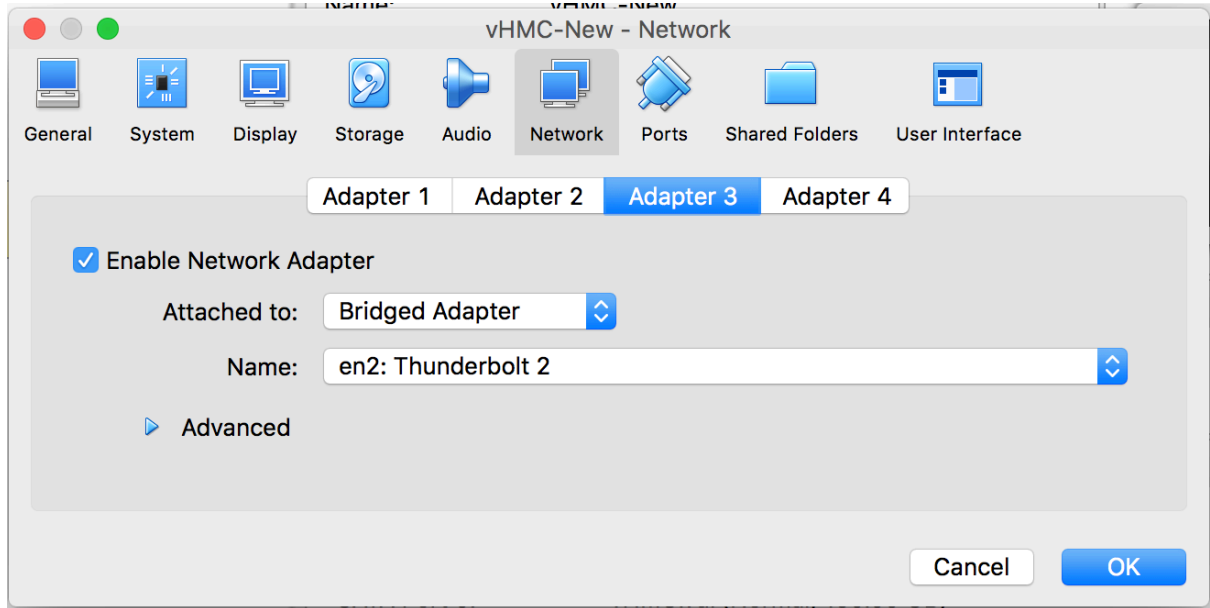
NAT
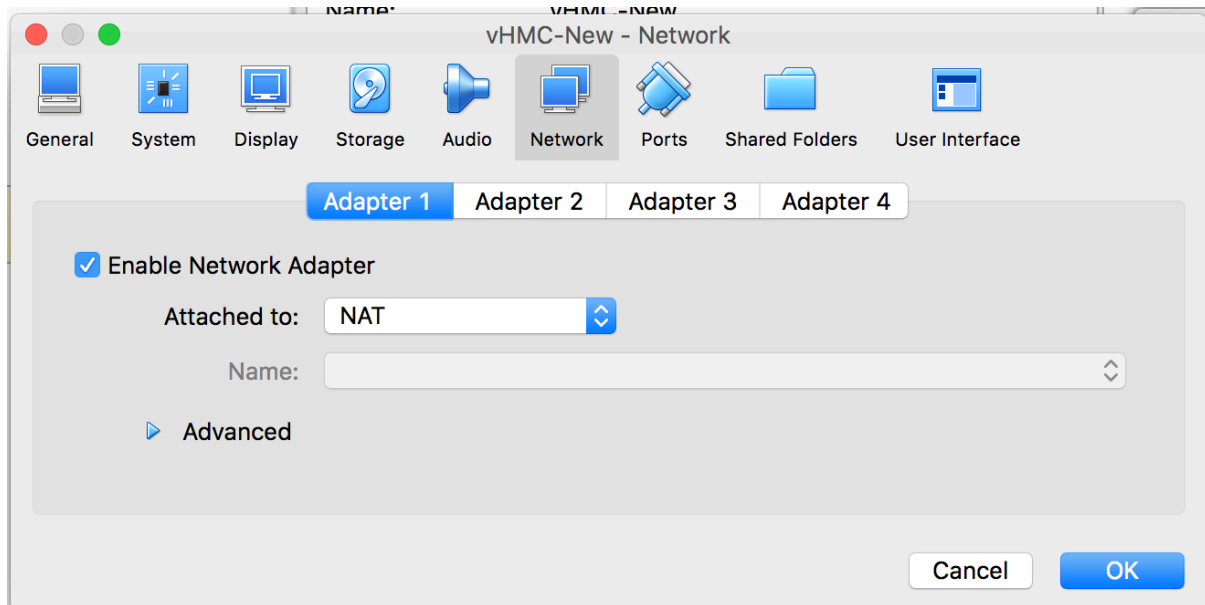
Private
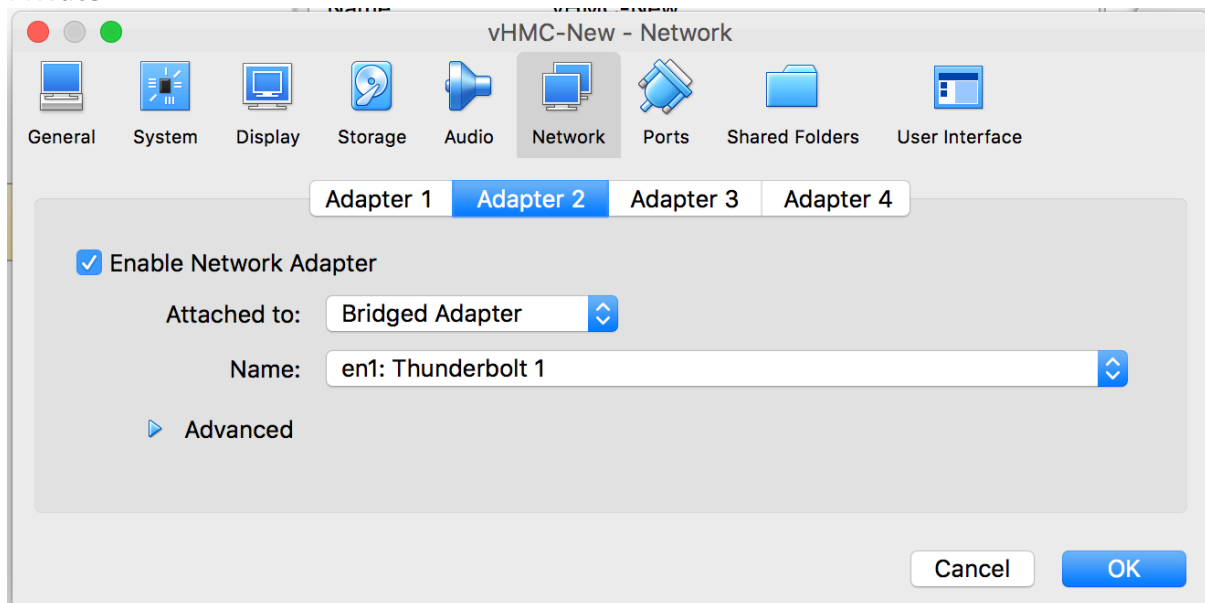
Public

You may get away without needing all these Network Adapters (probably the Public one), but this worked well for me.

Once you've configured those settings, you can go ahead and start the Virtual Machine and follow the install instructions.

I'm not going to take you through the vHMC install settings, or attaching a system to the vHMC as these are the same as a usual HMC.

Once the install completes …. You're all done……….
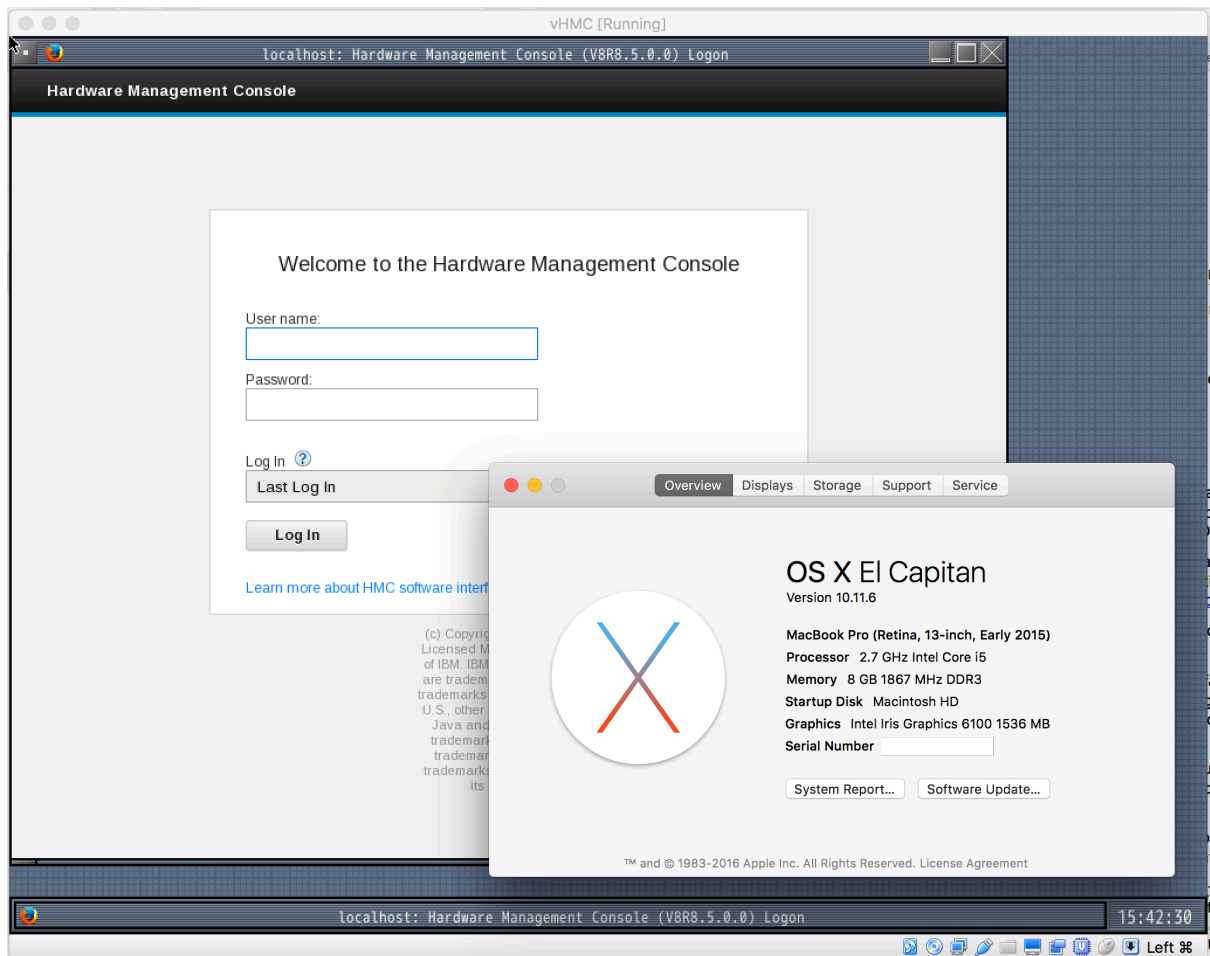
Apologies that the instructions are very rushed, I did these during my lunch hour.

Any issues, then feel free to drop me a note on twitter : @bdgsts

Ben Swinney
AIX & Power Systems Consultant
A/NZ Lab Services and Training
IBM Systems