

Using Project Photon on vCloud Air

Introduction

Project Photon is a secure, fully-customizable container host optimized for the VMware platform. By following this guide, you will be able to deploy it within your organization's vCloud Air Application Catalog.

Prerequisites

Prior to starting, it is expected that you have a vCloud Air Account. If your organization doesn't already have one, you may register for an On Demand Account [here](#).

Downloading Project Photon

For the purpose of this, the quickest way is to download the ISO directly from [here](#).

Creating a Project Photon vApp on vCloud Air

A catalog item is a common repository for applications that can be deployed within your vCloud Air Organisations. It contains not only ISO's, but also virtual machines, and collectively vApps that also encompass Network Topologies.

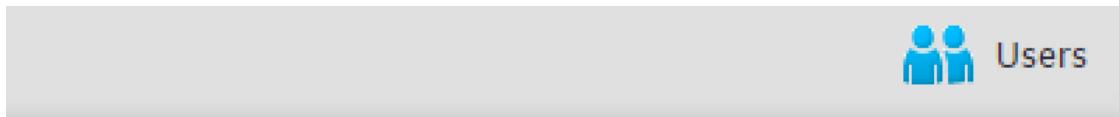
1. Login to vCloud Air – <http://vca.vmware.com/> and then select the appropriate VDC.

VIRTUAL DATA CENTERS (2)

VIRTUAL DATA CENTER	ALLOCATED	USED	FREE
M330716800-9470	40 GHz ALLOCATED	2.3 GHz USED / 38 GHz FREE	
	80 GB ALLOCATED	13 GB USED / 67 GB FREE	
	6.0 TB ALLOCATED	411.2 GB USED / 5.6 TB FREE	
M927032195-9475	10 GHz ALLOCATED	0 MHz USED / 10 GHz FREE	
	20 GB ALLOCATED	0 MB USED / 20 GB FREE	
	1.0 TB ALLOCATED	11 GB USED / 1.0 TB FREE	

2. Once inside your vCloud Air virtual datacenter select **Manage Catalogs in vCloud Director** on the far right of screen.





VM QUOTA: Unlimited

RELATED LINKS

/ 38 GHz FREE	 vCloud Director API URL Cloud Provider Address Manage Catalogs in vCloud Director
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3. Select the **_Media & Other**_ tab and _**_upload the Project Photon ISO which you have downloaded in the previous step, by clicking on the upload icon.
4. From your this page, Select “My Cloud” on the navigation bar, followed by so that we can start creating your Project Photon vApp.

Name	Ver...	Status
Developer Catalog	1	Ready

5. Click the *Build New vApp* button

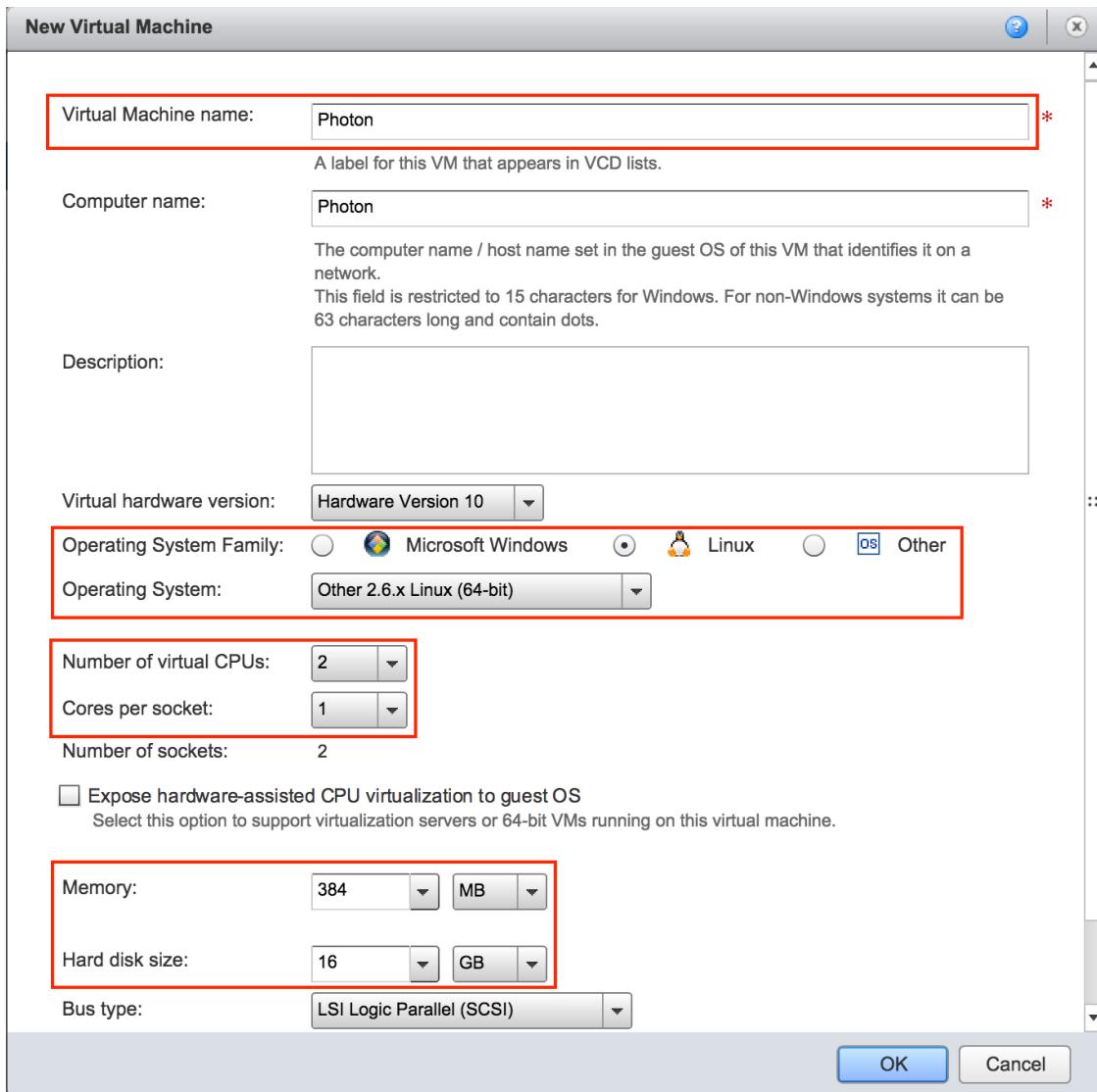
6. Define the Name, Runtime lease and storage lease values as desired.

The screenshot shows the 'New vApp' configuration interface. On the left, a sidebar lists options: 'Select Name and Location' (highlighted in blue), 'Add Virtual Machines', 'Configure Resources', 'Configure Virtual Machines', 'Configure Networking', and 'Ready to Complete'. The main area is titled 'Select Name and Location' with the sub-instruction: 'A vApp is a cloud computer system that contains one or more virtual machines. Describe this vApp and lease settings.' A red box highlights the 'Name' field, which contains 'Photon' with a required asterisk (*). Below it is a 'Description' field with a small text input box. The next section is 'Virtual Datacenter', showing a dropdown menu with 'M330716800-9470' selected. The 'Leases' section follows, with two rows: 'Runtime lease' set to 'Never Expires' and 'Hours' (with a dropdown arrow), and 'Storage lease' also set to 'Never Expires' and 'Hours'. Both rows have red boxes around them. A note below the storage lease says: 'When this vApp is stopped, how long it is available before being automatically cleaned up.'

7. Select the “New Virtual Machine” button

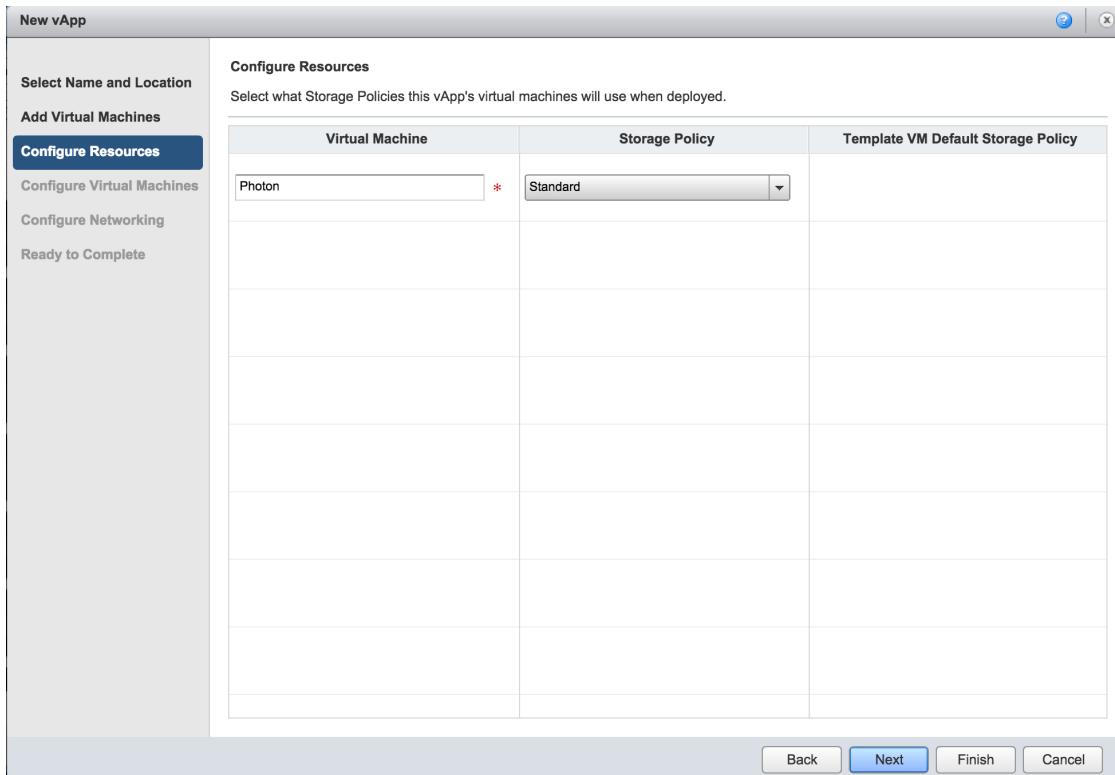
The screenshot shows the 'Add Virtual Machines' section of the 'New vApp' configuration. The sidebar on the left remains the same. The main area has a title 'Add Virtual Machines' with the sub-instruction: 'You can search the catalog for virtual machines to add to this vApp or add a new, blank VM and install an operating system.' A dropdown menu 'Look in:' is set to 'My Organization's Catalogs'. Below it is a table showing existing virtual machines: 'discuss' (Other (64-bit), Gold Master, vApp: 'Discuss', Catalog: 'CNA'). At the bottom of the table are 'Add' and 'Remove' buttons. A red box highlights the 'New Virtual Machine...' button at the bottom of the page.

8. Name the Virtual Machine (note that the hostname will inherit this value), set the Operating System Family to **Linux** and the **Operating System** to **Other Linux (64-bit)**. Set the desired CPU configuration, amount of memory and disk space needed as needed. When the dialog box closes, be sure to hit the Next button to proceed.

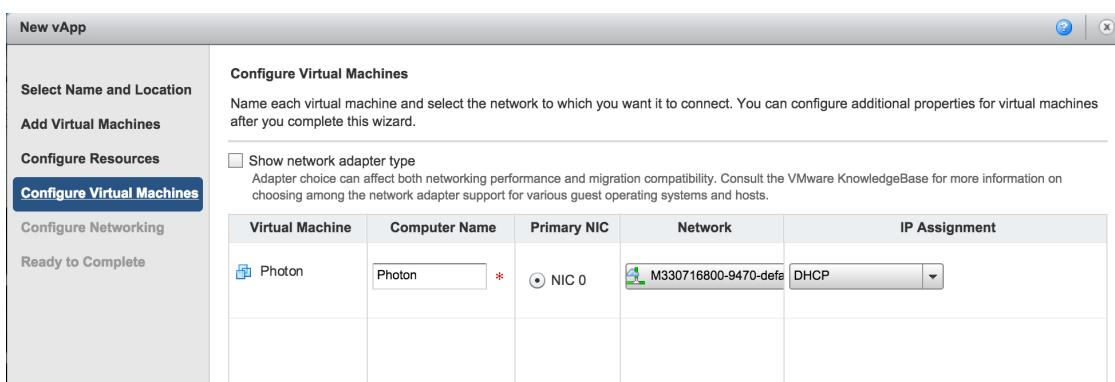


Note: VMware recommends at least 2CPU cores & 384MB of RAM for Photon, with additional memory recommended depending on the number and size of your containers.

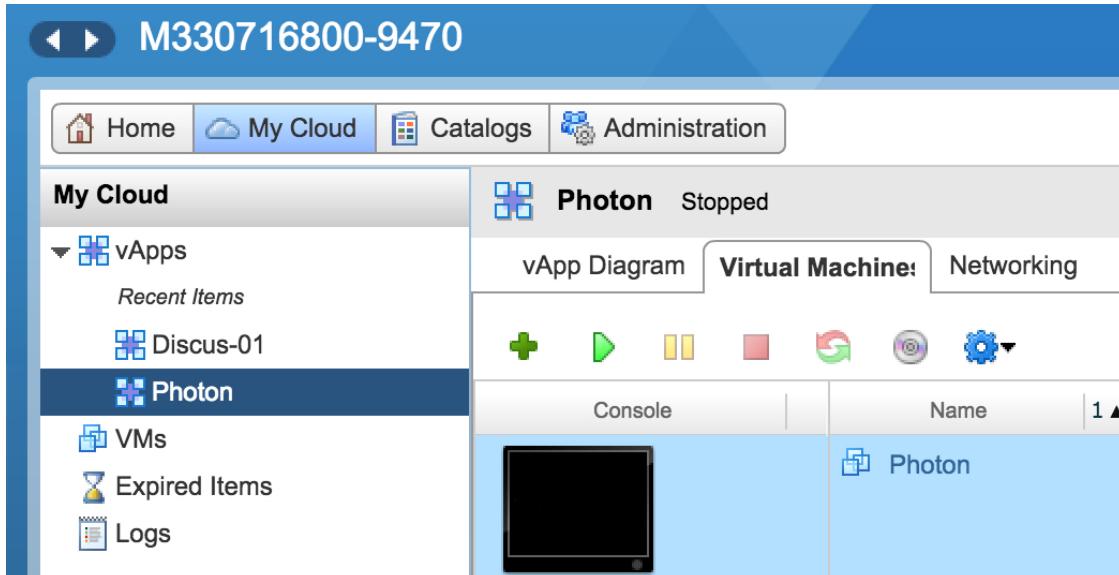
9. Select your desired Storage Policy



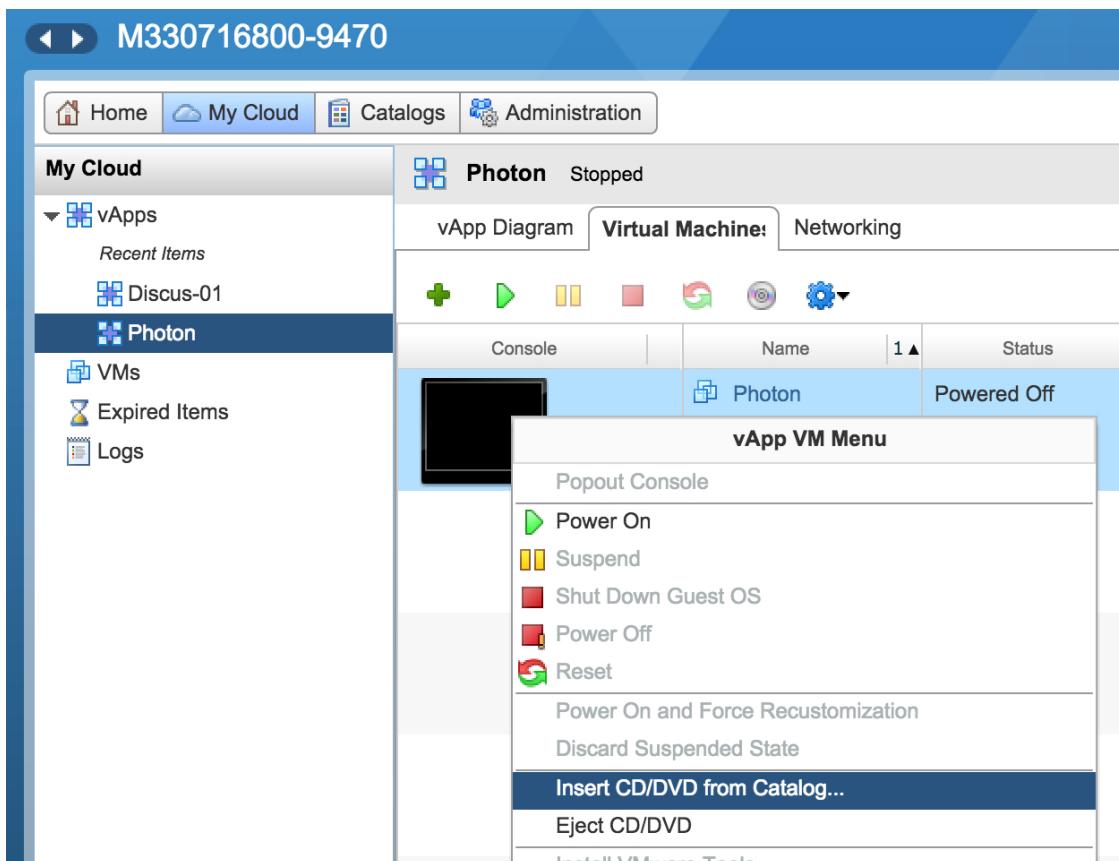
10. For this example we will connect the Project Photon VM directly to the routed org network to simplify the required NAT rules to access our application. In your environment, configure the networking as appropriate for the desired connectivity within your vCloud Air environment. Be sure to change the IP Assignment to DHCP, as the currently shipping version of VMware Tools in Photon does not support guest customisation. This limitation means that selecting IP Pool settings will not provide an IP address to the VM. Once you have completed this step, click the Finish button.



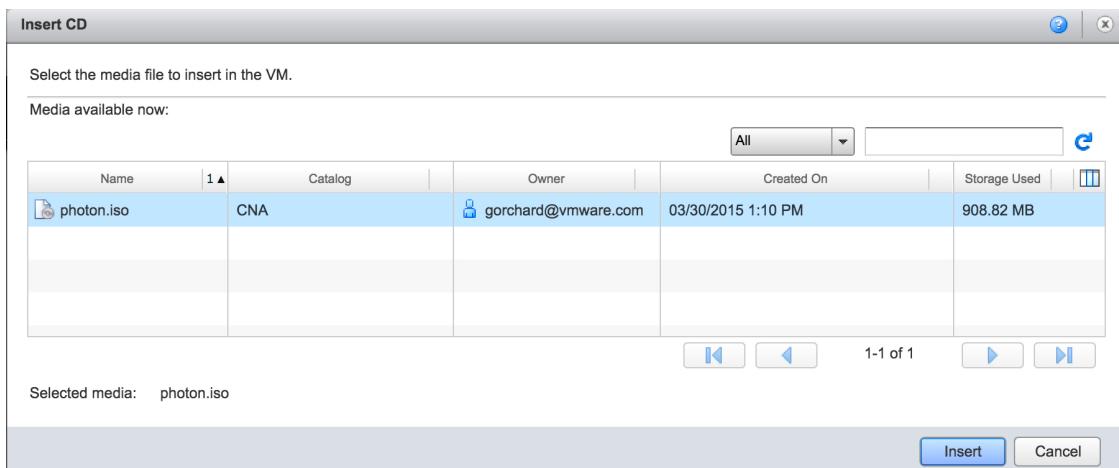
11. Back on your My Cloud screen, double click your Photon vApp



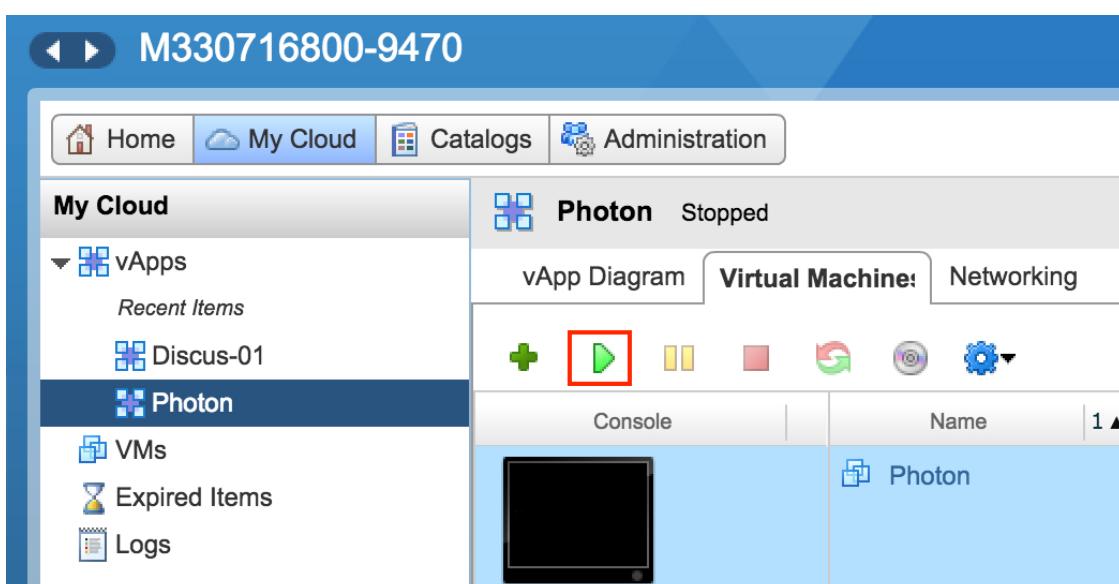
12. Right click the Project Photon VM and select “Insert CD/DVD from Catalog...”



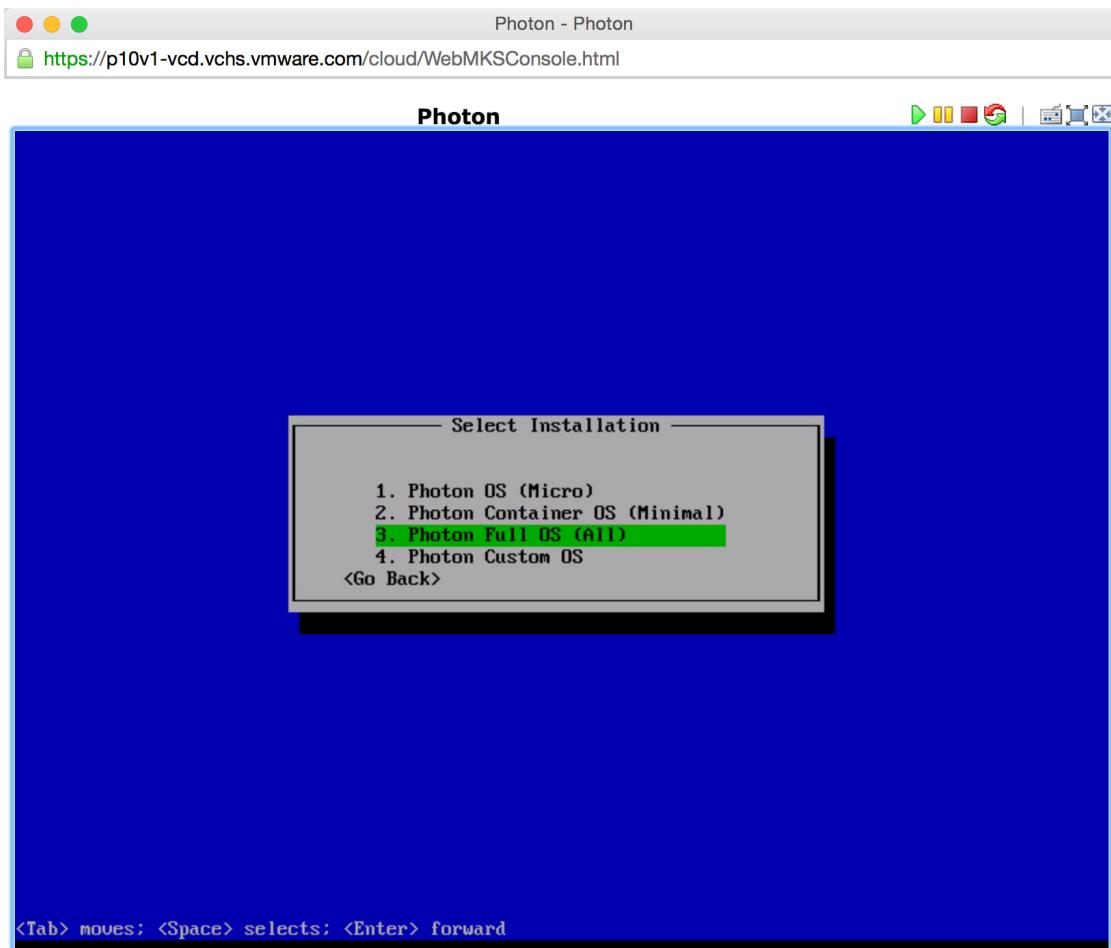
13. Select the Project Photon ISO file and click *Insert*.



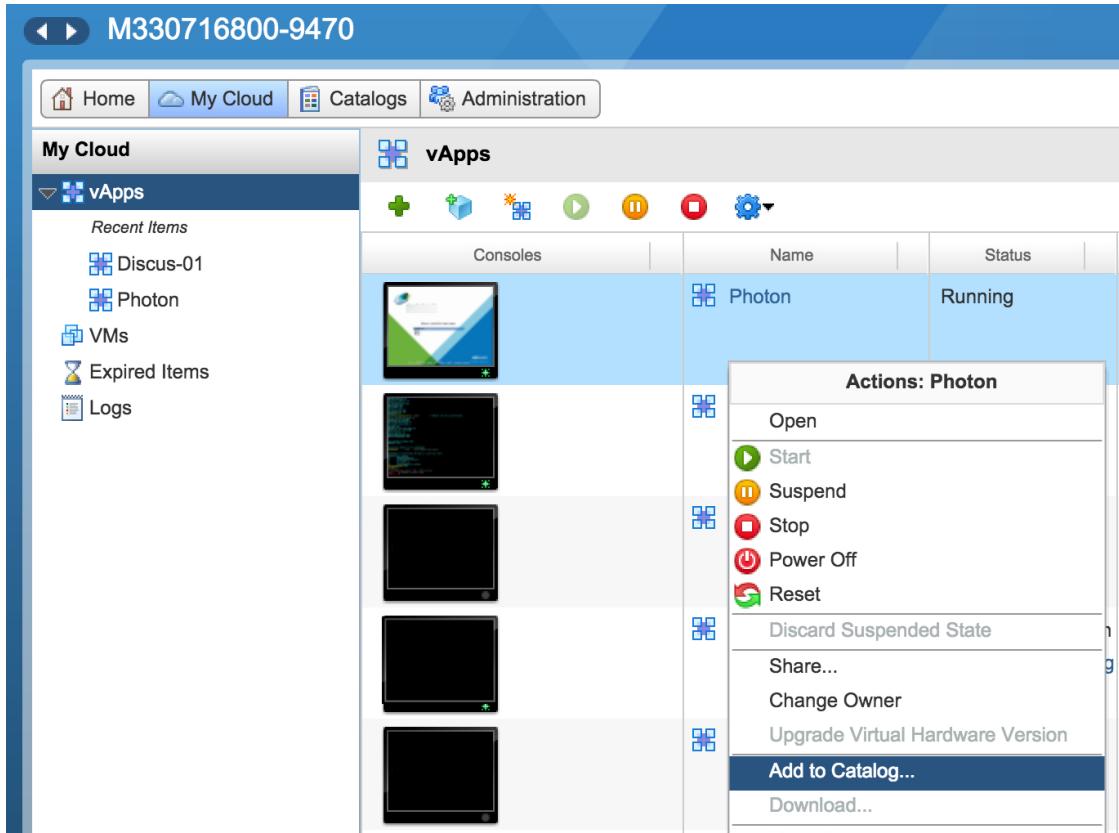
14. Once the CD is inserted (note that the CD icon changes to blue) click on the Start button.



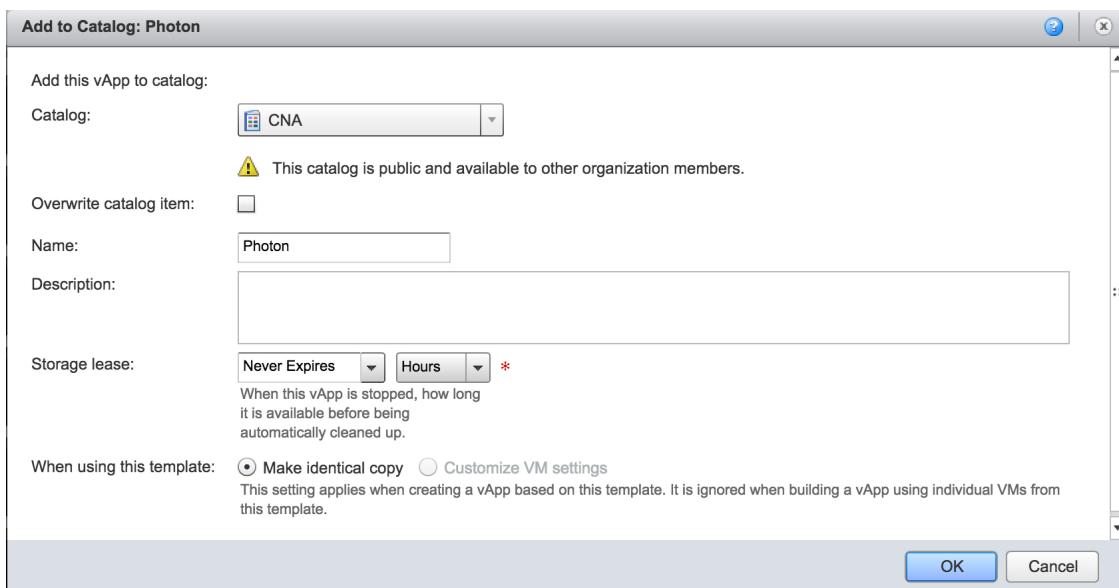
15. Follow the on-screen instruction and install Project Photon



16. Once the installation is complete, eject the media and return to your My Cloud page. Right click your vApp and select “Add to Catalog...”



17. Select the Catalog to add the Project Photon vApp to, ensure that “Make identical copy” is selected and then click OK.



Getting Containers Running with Project Photon

Now that you've created a Project Photon vApp in your catalog, you must deploy a vApp from the catalog entry to create a container host and, then, launch containers.

1. Login to vCloud Air - <https://vca.vmware.com/> and select your virtual datacenter.

VIRTUAL DATA CENTERS (2)

Virtual Data Center ID	Location	CPU Allocated	CPU Used	CPU Free	Memory Allocated	Memory Used	Memory Free	Storage Allocated	Storage Used	Storage Free
M330716800-9470	On: Multi-Tenant Cloud	40 GHz ALLOCATED	2.3 GHz USED	38 GHz FREE	80 GB ALLOCATED	13 GB USED	67 GB FREE	6.0 TB ALLOCATED	411.2 GB USED	5.6 TB FREE
M927032195-9475	On: Multi-Tenant Cloud	10 GHz ALLOCATED	0 MHz USED	10 GHz FREE	20 GB ALLOCATED	0 MB USED	20 GB FREE	1.0 TB ALLOCATED	11 GB USED	1.0 TB FREE

2. To deploy your Project Photon vApp, click "Add One".

DASHBOARD > VIRTUAL DATA CENTER DETAILS

M330716800-9470 ON MULTI-TENANT CLOUD

Usage & Allocation Virtual Machines Gateways Networks Users

Search by Name / Owner / Resou

Showing 15 of 15

Manage in vCloud Director + Add One

3. Select Project Photon from your catalog (not the public VMware catalog).

New Virtual Machine on M330716800-9470 X

Select Template

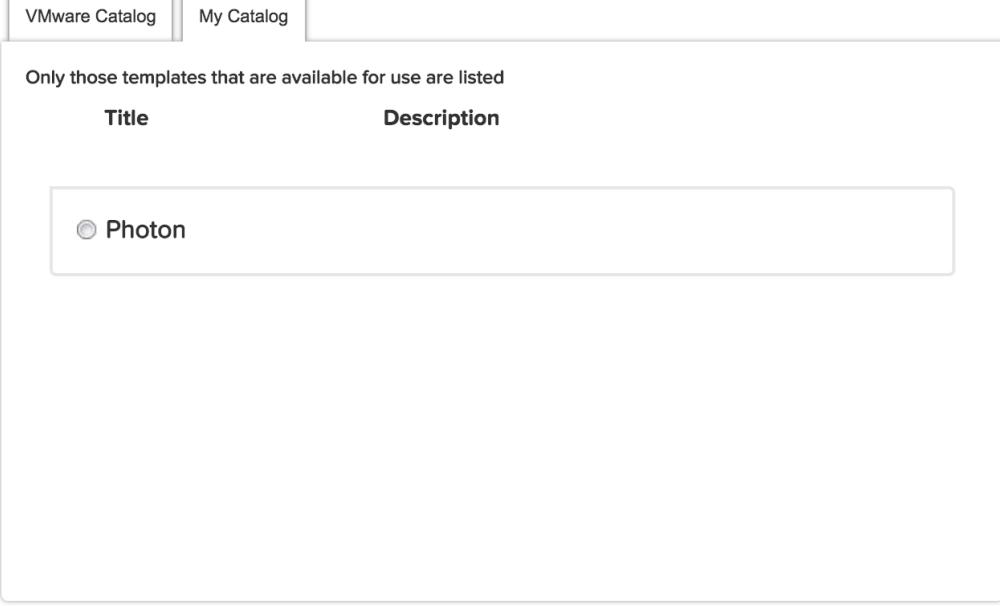
VMware Catalog My Catalog

Only those templates that are available for use are listed

Title	Description
<input checked="" type="radio"/> Photon	

Continue

[Create My Virtual Machine from Scratch](#)



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4. Enter a name for the vApp, a name for the computer and then click “Deploy This Virtual Machine”.

New Virtual Machine on M330716800-9470 X

IMAGE Photon [Change](#)

ADD KEY DETAILS
You can always edit them later

Name
photon

Computer Name
photon|

Allocated Resources
1 vCPU | 1 GB vRAM | 16 GB (Standard) Primary Drive [Change](#)

NETWORK ASSIGNMENT

Connect to network - M330716800-9470-default-routed (Gateway IP: 61.209.203.191/25) (You can always edit this later)

Select network manually (Advanced)

[Deploy This Virtual Machine](#)



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5. After a few moments you will see a notification that your virtual machine has been successfully created. Select the Project Photon virtual machine, and then click the Power On button.

DASHBOARD > VIRTUAL DATA CENTER DETAILS
M330716800-9470 ON MULTI-TENANT CLOUD

Usage & Allocation Virtual Machines Gateways Networks Users

Search by Name / Owner / Resources / OS / vApp / VDC / Recovery Status

Showing 16 of 16

Name	Owner	Resources	OS	vAPP	Virtual Data Center
CPU	Memory				
photon	gorchard@vmwar...	1 vCPUs 1 GB	Other (64-bit)	photon-VApp	M330716800-9470

Manage in vCloud Director + Add One **Power On** Power Off See More ▾

6. We will need to get the IP of the VM in order to configure the NAT rule(s), so click into your VM, and then select the Networks tab. Make note of both the Virtual Machine IP and the Gateway IP.

DASHBOARD > VIRTUAL DATA CENTER DETAILS > VIRTUAL MACHINE DETAILS
PHOTON ON M330716800-9470

Settings Networks Monitoring

Showing 1 of 1 networks this VM connects to

M330716800-9470-DEFAULT-ROUTED

Virtual Machine IP: **192.168.109.205**

TYPE: **GATEWAY**

GATEWAY: **VDC-GW**

Gateway IP: **[REDACTED]**

7. Select the appropriate gateway for your virtual datacenter.

Gateway	Configuration	High Availability	Networks	Public IPs
DRAAS-GW ON M927032195-94...	3-H compact	Enabled	5	2 1 USED / 1 FREE
VDC-GW ON M330716800-9470	3-H compact	Enabled	5	2 1 USED / 1 FREE

8. Create a new Destination NAT rule.

Type	Description
SNAT	Changes the source IP address of outbound packets. SNAT
SNAT	Changes the destination IP address and, optionally, port of inbound packets. DNAT
SNAT	Changes the source IP address of outbound packets. SNAT
SNAT	Changes the source IP address of outbound packets. SNAT
SNAT	Changes the source IP address of outbound packets. SNAT

9. Configure the NAT rule as follows to enable SSH access to your VM. Use the IP address details noted in step 6.

Edit a Destination NAT Rule X

Original (External) IP
Must belong to the sub-allocated IP range of the edge gateway.

Protocol

Original Port/Range

ICMP type

Translated (Internal) IP/Range ?

Translated Port/Range

Settings Enable this rule.

Save

10. Create another Destination NAT rule and configure it for HTTP access to your application. Use the IP address details noted in step 6.

Edit a Destination NAT Rule X

Original (External) IP
Must belong to the sub-allocated IP range of the edge gateway.

Protocol

Original Port/Range

ICMP type

Translated (Internal) IP/Range ?

Translated Port/Range

Settings Enable this rule.

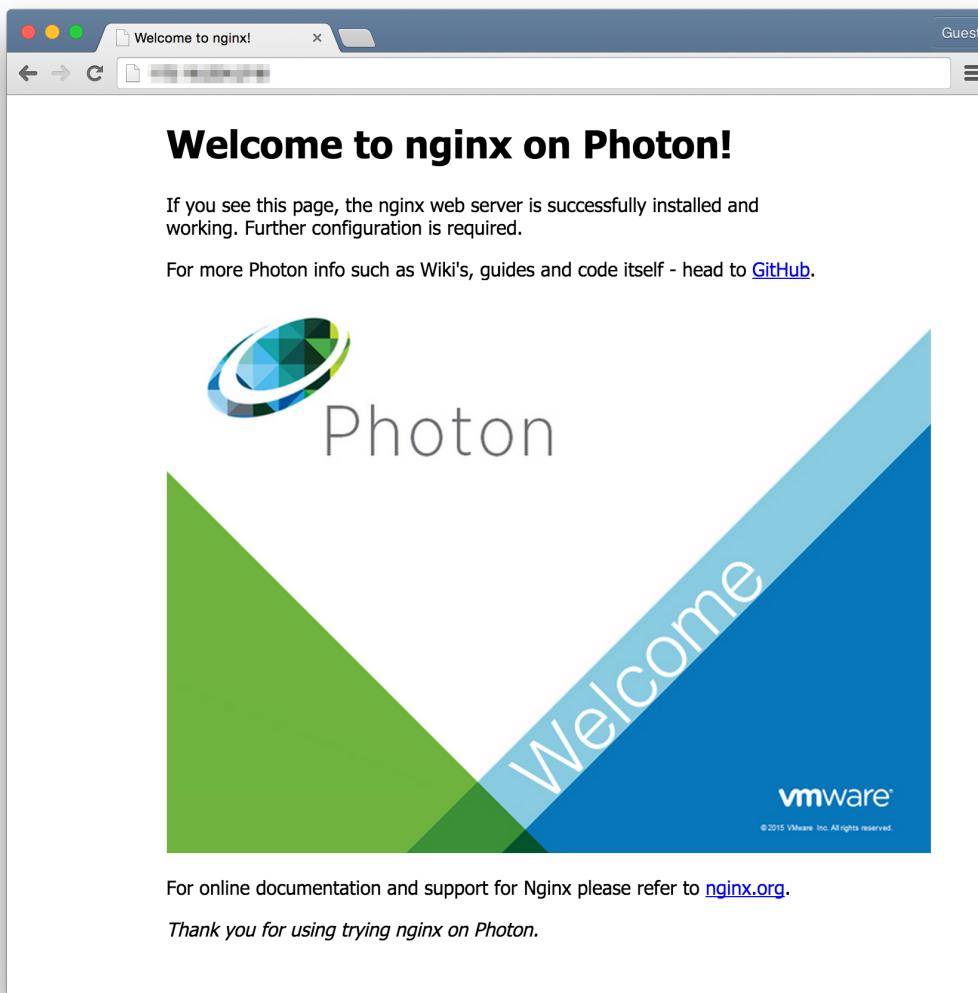
Save

Enable HTTP access to your Project Photon instance running on vCloud Air

Configure HTTP (Port 80) access on the Edge Gateway that is responsible for the Project Photon traffic. Now, record the External IP (Home > Gateways Tab) that you're exposing for Project Photon from the Gateway IP.

Run the Docker container

Start the Docker service so that it is enabled at boot time: `$ systemctl enable docker && systemctl start docker` Now to bring up a Docker container with Nginx simply run: `$ docker run -p 80:80 vmwarecnna/nginx` Then navigate your browser to the recorded IP from the previous step, and you should see a fresh Nginx installation and welcome screen.



For online documentation and support for Nginx please refer to nginx.org.

Thank you for using trying nginx on Photon.