Part 2 - Install the vCenter Server Appliance and dependencies

• In Part two, we will install the vSphere Client for Windows, create forward and reverse DNS (which is a prerequisite for installing vCenter in any form) and then we will install the VMware vCenter Server Appliance

Installing the vSphere Client for Windows

VMware would have you believe that the VMware vSphere[®] Client for Windows is best used only for managing standalone ESXi installations. Any administrator that has worked with the VMware vSphere[®] Web Client (even in vSphere 6.X) knows that the <u>vSphere Web Client sucks</u>! Not only is the web-client not capable of managing standalone ESXi installations, it is basically unsuitable for use in any production environments, largely due to its heavy dependence on Flash.

We already acquired the binary for the vSphere client for Windows from VMware (if you did not, go get it now), so we are ready to begin installing the client.

- 1. Install the vSphere Client for windows on your local PC
 - a. Locate the binary you downloaded from VMware and right-click to: Run as administrator



d. Click: Next

😼 VMware vSphere Client 6.0	
vmware	VMware vSphere Client 6.0 Install Wizard
	The installation wizard will complete the installation of VMware vSphere Client 6.0 on your computer. To continue, click Next.
VMware vSphere∘ Client [™]	
	Next > Cancel

e. Click: Next

📸 VMware vSphere Client 6.0	—
End User License Agreement	
Please read the following license agreement carefully.	
VMWARE END USER LICENSE AGREEMENT	^
PLEASE NOTE THAT THE TERMS OF THIS END US LICENSE AGREEMENT SHALL GOVERN YOUR US THE SOFTWARE, REGARDLESS OF ANY TERMS T MAY APPEAR DURING THE INSTALLATION OF THE SOFTWARE.	SER E OF HAT E
 I accept the terms in the license agreement I do not accept the terms in the license agreement 	
InstallShield < <u>B</u> ack	Cancel

f. Click: Install

g.

岗 VMware vSphere Client 6.0	—		
Ready to Install the Program			
The wizard is ready to begin installation.			
Click Install to begin the installation.			
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.			
InstallShield			
< <u>B</u> ack <u>Install</u>	Cancel		
Wait			

🛃 VMware v	/Sphere Client 6.0				
Installing VMware vSphere Client 6.0					
The prog	ram features you selected are being installed.				
17	Please wait while the installation wizard installs VMware vSphere This may take several minutes.	Client 6.0.			
	Status:				
InstallShield –					
		Cancel			

h. Click: Finish

📸 VMware vSphere Client 6.0	—
vmware	Installation Completed
	VMware vSphere Client 6.0 has been installed successfully. Click Finish to exit the wizard.
VMware vSphere∘ Client [™]	
	< Back Einish Cancel

2. Now open the vSphere client and connect to one of the ESXi VMs you installed in Part 1

mware ′Mware vSphere™ Client	
All vSphere features available only throug vSphere Client will o feature set as vSph	s introduced in vSphere 5.5 and beyond are gh the vSphere Web Client. The traditional ontinue to operate, supporting the same ere 5.0.
To directly manage a sing To manage multiple hosts, vCenter Server.	le host, enter the IP address or host name. , enter the IP address or name of a
To directly manage a sing To manage multiple hosts, vCenter Server. IP address / <u>N</u> ame: <u>U</u> ser name: <u>P</u> assword:	le host, enter the IP address or host name. , enter the IP address or name of a 192. 168. 153. 101 root

- ii. The username will be: root
- iii. Use the password you assigned during ESXi installation

a.

b. Install the certificate and then ignore the warning (we trust this host)

Security Warning				
Certificate Warnings An untrusted SSL certificate is installed on "192. 168. 15 be guaranteed. Depending on your security policy, this concern. You may need to install a trusted SSL certifica from appearing.	3. 101" and secure com s issue might not repres ate on your server to pr	munication cannot ent a security revent this warning		
The certificate received from "192.168.153.101" was issued for "localhost.localdomain". Secure communication with "192.168.153.101" cannot be guaranteed. Ensure that the fully-qualified domain name on the certificate matches the address of the server you are trying to connect to.				
Click Ignore to continue using the current SSL certificate.				
View Certificate Ignore Cancel				
$\boxed{\mathbf{M}}$ Install this certificate and do not display any security warnings for "192.168.153.101".				

Creating DNS for vCenter

Forward and reverse DNS are a prerequisite for installing vCenter, no matter if you choose vCenter for Windows or the VCSA. There are many ways to create DNS in the home lab including building a <u>Windows Server VM and adding the DNS</u> <u>Role</u>. I wanted something simpler, free and lighter weight.

Regardless of your choice for DNS Server (Windows or Linux), you will need to create the A-records manually, as the VCSA will not create them on your behalf.

Linux DNS ServerAppliance

Ubuntu server 14.04 LTS provides a convenient platform on which to install DNS. Ubuntu Server is thin and light, and will easily fit on the DAS of the ESXi VMs we have created, until such time as we have created SAN storage!

You can build your own VM, or download the actual VM that I built for this article, and then **re-configure the IB, Bind daemon and Forward/Reverse zones to suit your needs.** If you choose to use our OVA, then you are just a few easy steps from having a functional DNS Server in your home lab!

The goal of this lab is to re-configure a pre-built Linux DNS Server specific to your needs. I have done this in simplest way I could imagine, with the fewest possible number of steps! I will not be showing you how to build a Linux DNS Server from scratch, rather just re-configure the DNS Server I built for my lab. The net result should be a minimal DNS server suitable configured for your lab environment.

NOTE: My lab is on 192.168.153.0/24 and configured to be: jb-lab.local.

In the example screenshots, I will be showing you how to re-configure my Ubuntu DNS Server for your lab using: **your-lab.local** as an example of your domain and **192.168.174.0** as an example of your "subnet" (VMware misuses the term 'Subnet" in the Workstation product, technically this is a Broadcast Domain).

Download the ubuntu-server VM as an OVA from here:

1. Import the OVA into one of your newly-created ESXi VMs.

1.1. Choose: Deploy OVF Template



1.2. Locate the downloaded file: ubuntu-server.ova Click: Next

Deploy OVF Template	
Select the source location.	
Source OVF Template Details Name and Location Disk Format Ready to Complete	Deploy from a file or URL G: Users John Downloads \ubuntu-server.ova Ther a URL to download and install the OVF package from the Internet, or specify a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive.
	≤Back Next≥ Cancel



Deploy OVF Template OVF Template Details		
Verify OVF template details.		
Source OVF Template Details Name and Location Disk Format Ready to Complete	Product: Version: Vendor:	ubuntu-server
	Publisher:	No certificate present
	Download size: Size on disk:	828.6 MB 2.1 GB (thin provisioned) 16.0 GB (thick provisioned)
	Description:	administrator password is: P@ssw0rd Original IP: 192.168.153.5/24
		≤Back Next≥ Cancel

1.4. Name your Ubuntu-server. Per Best Practices, the VM name and its hostname should be the same. You may name your DNS something different, but if you choose a name other than "Ubuntu-server," you may be better off building DNS on a fresh build of Ubuntu, as opposed to re-configuring my Build. Click: Next

🖉 Deploy OVF Template	
Name and Location Specify a name and locatio	in for the deployed template
Source OVF Template Details Name and Location Disk Format Ready to Complete	Name: Vocunturserver The name can contain up to 80 characters and it must be unique within the inventory folder.
	≤Back Next ≥ Cancel

1.5. Choose: Thin Provision Click: Next

🕝 Deploy OVF Template				- • ×
Disk Format In which format do you wa	nt to store the virtual disks?			
Source OVF Template Details Name and Location Disk Format Ready to Complete	Datastore: Available space (GB): C Thick Provision Lazy Zero C Thick Provision Eager Zer C Thin Provision	datastore 1 28.2 ed oed		
			<u>≤ Back</u> Next ≥	Cancel

1.6. Choose: Power on after deployment, and then: Finish

💋 Deploy OVF Template		
Ready to Complete Are these the options you	want to use?	
Source OVF Template Details Name and Location Disk Format Ready to Complete	When you dick Finish, the deploym Deployment settings: OVF file: Download size: Size on disk: Name: Host/Cluster: Datastore: Disk provisioning: Network Mapping: Power on after deployment	ent task will be started. G:\Users\John\Downloads\ubuntu-server.ova 828.6 MB 2.1 GB ubuntu-server esx1-jb-lab.loai datastore1 Thin Provision "VM Network" to "VM Network"
		_≤Back Finish Cancel

1.7. Wait. This process should take 2-5 minutes on decent hardware.



2. Open the VMRC (be sure to right-click the VM, then go to: Open Console – NEVER use the Console tab, it's so annoying!)

	Home	▶ 🛃	Inv	entory	ال] ۱	Inventory	
168.153 Jountu-s	.101			esx1-	jb-lab.	local VMwar	e ESXi, 6.0.0, 30
	P <u>o</u> v	ver				•	Virtual Machi
	Gue	est				•	
	<u>S</u> na	pshot				•	been enabled
2	🖗 Op	en Cons	so <u>l</u> e				enabled
A	a Eda	Cotting					
	168.153 ibuntu-c	Home 168.153.101 Ibuntu-conver Pov Gue Sna Sna Convert Con	Home Ho	Home Register Console	Home Inventory 168.153.101 esx1- Ibuntu-convert Power Guest Snapshot Image: State of the second s	Home ▷ Inventory ▷ 168.153.101 Ibuntu-conver Power Guest Snapshot Snapshot Edit Settinger	Home Home Inventory Inventory Inv

3. Log on to the VMRC with the username: administrator and the password: P@ssw0rd (That's a zero in P@ssw0rd)

🕜 ubuntu-server on esx1-jb-lab.local	- • ×								
<u>F</u> ile Vie <u>w</u> <u>V</u> M									
Ubuntu 14.04.3 LTS ubuntu-server tty1									
ubuntu-server login: administrator									
Password: Last login: Mon Sep 28 12:00:08 MST 2015 on tty1 Welcome to Ubuntu 14.04.3 LTS (GNU/Linux 3.19.0-25-generic x86_64)									
* Documentation: https://help.ubuntu.com/									
System information as of Mon Sep 28 12:34:35 MST 2015									
System load:0.32Memory usage:5%Processes:81Usage of /:9.0% of 14.38GBSwap usage:0%Users logged in:0									
Graph this data and manage this system at: https://landscape.canonical.com/									
administrator@ubuntu-server:~\$									

4. Open the eth0 configuration by running: sudo vi /etc/network/interfaces



- 4.1. You will be asked for your password, which is: P@ssw0rd
- 4.2. There are many good <u>VI cheat sheets</u> like this one: http://www.lagmonster.org/docs/vi.html
- 4.3. The text editor Nano is also available, run: sudo nano /etc/network/interfaces

4.4. Customize the values in this file to suit your needs snd save (:wq). In this example, we have changed the address, network, broadcast, and gateway suitable for our example network.



4.4.1.I replaced every occurance of 153 in the third-octed of the IP address with 174

- 5. Define the forward and reverse zone files for Bind
 - 5.1. Open the named.conf.local file to edit with vi: sudo vi /etc/bind/named.conf.local



- 5.1.1.NOTE: sudo will not prompt for a password if used again within its default session timeout of 5 minutes.
- 5.2. Customize the values in this file to suit your needs



5.2.1.In the example, we changed the text: "jb-lab.local" to "your-lab.local" in each occurrence.

5.2.2.In the example we changed: "153.168.192.in-addr.arpa" to "174.168.192.in-addr.arpa" (NOTE:

174.168.192 represents the reverse of the Network portion of the IP. If this were a class B /16 network with a Subnet Mask of 255.255.0.0, then the zone would be "16.172.in-addr.arpa" and the file would be "/etc/bind/db.172"

6. Create your forward lookup zone by copying **my forward lookup zone** (/etc/bind/jb-lab.local) toand then editing it.

6.1. Run the command: sudo cp /etc/bind/db.jb-lab.local /etc/bind/db.your-lab.local



6.2. Edit the forward lookup zone for your-lab.local by running: sudo vi /etc/bind/db.your-lab.local

🖉 uk	ountu-s	erver o	on esx1	jb-lal	o.local					- • •
<u>F</u> ile	Vie <u>w</u>	<u>v</u> M								
			6	1		13	P			
admi	nistr	ator	Oubu	ntu-:	serve	er:~\$	sud	o vi	/etc/bind/db.your-lab.local _	

6.3. Customize the values in this file to suit your needs.

🖉 ubunt	u-server on e	esx1-jb-lab	local.		
File Vie	w VM				
	ı 🕟 🖉	s 🙉	a. 173 🛛		
; ; BIND	data fil	e for l	ocal loopl	ck interface	
; STTL	604800				
0	IN	SOA	ubuntu-s	rver.your-lab.local.your.localhost. (
			2	; Serial	
			604800	; Refresh	
			86400	; Retry	
			2419200	; Expire	
			004800	, negative cache IIL	
	IN	NS	ubuntu-s	rver.uour-lab.local.	
0	IN	A	127.0.0		
0	IN	AAAA	::1		
:A-Reco	rds				
ubuntu-	server		A	92.168.174.5	
esx11			H	92.168.174.101 92 169 174 102	
esvi3		IN	н А	92 168 174 103	
ucsa1		IN	A	92.168.174.110	
~				51.100.1111110	
~					
~					
~					
~					
~					
~					
~					
~					
·md					

- 6.3.1.I replaced every occurance of "jb-lab.local" with "your-lab.local"
- 6.3.2.I replaced "john" with "your"
- 6.3.3.I changed the 153 portion of every IP/A-record to 174
- 7. Create your reverse lookup zone by editing my reverse zone (/etc/bind/db.192)
 - 7.1. Edit the reverse lookup zone for 192 by running: sudo vi /etc/bind/db.192

🖉 uł	ountu-s	erver o	on esx1	L-jb-la	b.local					×
<u>F</u> ile	Vie <u>w</u>	<u>V</u> M								
			6	0		1	P			
admi	administrator@ubuntu-server:~\$ sudo vi /etc/bind/db.192 _									

7.2. Customize the values in this file to suit your needs.

🖉 ub	untu-server or	n esx1-jb-lal	b.local	
<u>F</u> ile	Vie <u>w V</u> M			
		S		
;				
; BIN	1D reverse	e data f	ile for local loopback interface	
ŞTTL	604800)		
2	IN	SOA	ubuntu-server.your-lab.local.your.localhost. (
			604800 ; Refresh	
			86400 ; Retry	
			2419200 ; Expire	
;				
	IN	NS	ubuntu-server.your-lab.local.	
101	IN	PTR	esxi1.your-lab.local	
103	IN	PTR	esxi3.your-lab.local	
110	IN	PTR	vcsa1.your-lab.local	
~				
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~				
~				
· wq_				

7.2.1.I replaced every occurance of "jb-lab.local" with "your-lab.local"

7.2.2.1 replaced "john" with "your"

- 7.2.3.NOTE: The numeric portion of pointer (PRT) record is the host portion of the IP address. In a Class C network with a subnet mask of 255.255.255.0 (or /24), the host portion of the IP is the last octet of the IP. In this case, 101 represents 192.168.174.101
- 8. Reboot your server to apply all the changes at once.
 - 8.1. Run the command: sudo reboot

8.2.

🖉 ubuntu-server on esx1-jb-lab.local
<u>File View</u> <u>V</u> M
administrator@ubuntu-server:~\$ sudo reboot
🕜 ubuntu-server on esx1-jb-lab.local
<u>File View VM</u>
Ubuntu 14.04.3 LTS ubuntu-server tty1
ubuntu-server login: administrator
Password: Last login: Tue Sep 29 09:06:06 MST 2015 on tty1
Welcome to Ubuntu 14.04.3 LTS (GNU/Linux 3.19.0-25-generic x86_64)
* Documentation: https://help.ubuntu.com/
System information disabled due to load higher than 1.0
7 packages can be updated. 7 updates are security updates.
administrator@ubuntu-server:~\$ ifconfig eth0 Link encap:Ethernet HWaddr 00:0c:29:12:0f:a7 inet addr:192.168.174.5 Bcast:192.168.174.255 Mask:255.255.255.0 inet6 addr: fe80::20c:29ff:fe12:fa7/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:20 errors:0 dropped:0 overruns:0 frame:0 TX packets:8 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:1392 (1.3 KB) TX bytes:648 (648.0 B)
<pre>lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0 inet6 addr: ::1/128 Scope:Host UP LOOPBACK RUNNING MTU:65536 Metric:1 RX packets:40 errors:0 dropped:0 overruns:0 frame:0 TX packets:40 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:2768 (2.7 KB) TX bytes:2768 (2.7 KB)</pre>
administratorQubuntu-server:~\$ service bind9 status * bind9 is running administratorQubuntu-server:~\$ _

- 8.2.1.Login with the username: administrator and password: P@ssw0rd
- 8.2.2.Run the command: ifconfig
- 8.2.3.Run the command: service bind9 status

You should be in business with DNS!

Installing VMware vCenter Server

Now we need to install vCenter in whatever form you choose. I choose the VMware VCSA! We will begin by creating the VCSA on the DAS of the first ESXi VM, which will be possible if we Thinly Provision the disks.

1. Locate the VCSA ISO you downloaded from VMware and extract it with a tool like 7-ZIP . If you are running Windows 8 and beyond, simply Mount the ISO on your desktop to browse the files.

	~~~										
-	😋 🔾 🗢 🐌 🕨 Search Results in Download	ds ▶ vSphere ▶									
	Organize 🔻 📙 Open 🔻 Share wit	n 🔻 New folder									
	Desktop ^	Name			Date modifi	ied	Туре	Size			
	Downloads	VMA-6.0.0.0-2503728.zip VMware-PowerCLI-6.0.0-30568	exe	9/26/2015 9:22 AM		M Compressed (zipp M Application	670,554 KB 81.200 KB				
	🕮 Recent Places	💮 VMware-VCSA-all-6.0.0-30408	💮 VMware-VCSA-all-6.0.0-3040890.iso			:27 Al	M WinImage ISO	2,914,088 KB			
	🕽 Libraries	VMware-VMvisor-Installer-6.0		Open Extract		16 AI 19 AI	M WinImage ISO M Application	360,610 KB 95,584 KB			
	Documents Music	7-Zip Open archive		Open archive							
	<ul><li>Pictures</li><li>Videos</li></ul>		K K	Scan for viruses Check reputation in KSN			Extract files				
	n Homegroup		K	Kaspersky Application Adv	lvisor		Extract to "VMware-VCSA-all-6.0.0-3040890\"				
	=			Open with	•		Test archive				

2. Browse the ISO (or the Extracted files) to: \VMware-VCSA-all-6.0.0-3040890\vcsa and run the Client Integration Plugin as Administrator

1		Search Results in Dow	nloads 🕨 vSphere	<ul> <li>VMware-VCSA-all-</li> </ul>	6.0.0-3040890 ▶ vcsa	3	
	Organiz	ze 🔻 💼 Open Share w	vith ▼ New fol	der			
	^ ^	Name		Date modified	Туре	Size	
	"	version.txt		9/4/2015 12:06 AM	Text Document	1 KB	
	- Q2	🔯 VMware-ClientIntegratio	nPlugin-6.0.0.exe	9/4/2015 12:06 AM	Application	97,362 KB	
י ו ח.		vmware-vcsa	Open Run as admi Troubleshoo 7-Zip	inistrator ot compatibility	•	1,990,401 KB	
).	VMware	Client Integration Plu Close the following - Microsoft Intern - Mozilla Firefox - Google Chrome	g-in 6.0.0 g browsers to et Explorer and all its ext	proceed: tensions			
		<u>R</u>	etry	Cancel			

c. If google Chrome refuses to close, you need to force-close ti with the task manager or at the command-

	VMware Client Integration Plug-in 6.0.0	
	Close the following browsers to proceed: - Google Chrome and all its extensions	
line	Retry Cancel	
1	VMware Client Integration Plug-in 6.0.0	- • •
(	Change, Repair, or Remove Installation	
	Change Not applicable. The VMware Client Integration Plug-in 6.0. independently selectable features.	0 has no
	Repair VMware Client Integration Plug-in 6.0.0 cannot be repaired	d.
	Remove Removes the VMware Client Integration Plug-in 6.0.0 from	your computer.
	<u>B</u> ack <u>N</u> ex	t Cancel

3. Now locate the vcsa-setup.html file and open it with Google Chrome



d.

a. Click: Install



b. Specify the FQDN or IP of your ESXi VM where the VCSA will be installed

🗅 vCenter Server Appliance 🗙 📃				john 👝 💷 🗙
← → C 🗋 file:///G:/Users/John/Downloads	/vSphere/VMware-VCSA-	all-6.0.0-3040890/vcsa-setup.ht	ml	☆ 💷 🗛 🗉
<b>vm</b> ware [,]	X			
VMware vCenter Server Appliance	e Deployment			
<ul> <li>1 End User License Agreement</li> <li>2 Connect to target server</li> <li>3 Set up virtual machine</li> <li>4 Select deployment type</li> <li>5 Set up Single Sign-on</li> <li>6 Single Sign-on Site</li> <li>7 Select appliance size</li> <li>8 Select datastore</li> <li>9 Configure database</li> <li>10 Network Settings</li> <li>11 Ready to complete</li> </ul>	Connect to target server Specify the ESXI host or vCenter FQDN or IP Address: User name: Password: Make sure the ESXI host When deploying to a vSp portgroup. After deploym	r Server on which to deploy the vCenter S	Server Appliance.	
		Back	Next Finish Cancel	

- i. I chose to enter the IP because the actual .HTML installer is on my PC, not inside the jb-lab.local network. For this reason, the DNS we configured will not work.
- ii. The username is: root
- iii. The password is what you set when you installed ESXi

#### c. Click: Yes

🖻 vCenter Server Appliance - 🗙 🔛					9	
← → C 🗋 file:///G:/Users/John/Download	s/vSphere/VMware-VCS	5A-all-6.0.0-3040890/vcsa-setup.htr	nl	ŝ	Φ	≡
VMWARE VMWARE VMWARE VMWARE VMWARE VCenter Server Appliance VMWARE Connect to target server 3 Set up virtual machine 3 Set up virtual machine 3 Set up virtual machine 3 Set up single Sign-on 6 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Configure database 10 Network Settings 11 Ready to complete	Deployment     Connect to target server     Specify the ESXI host or vCe     FQDN or IP Address:     User name:     Password:     Certificate Warning     An untrusted SSL certificat     communication cannot be     policy, this issue might not     The SHA1 thumbprint of th     85:E5:28:90:4F:67:A5:29:0     To accept and continue, pr	enter Server on which to deploy the vCenter S 192.168.153.101 root e is installed on 192.168.153.101 and secure guaranteed. Depending on your security represent as ecurity concern. e certificate is: 12:FE:D8:1B:31:21:63.07:34:89:0F:A3 ress Yes Yes No	erver Appliance.			
		Back	Next Finish Cancel			

d. Name the VCSA and assign a password for the OS. This will be the VM name in inventory.

🗅 vCenter Server Appliance 🛛 🗙 🚬				
← → C 🗋 file:///G:/Users/John/Download	ls/vSphere/VMware-VCSA-	all-6.0.0-3040890/vcsa-setup.htn	nl	☆ 💷 🌻 🔳
VMWare Mware vCenter Server Appliand	ce Deployment			-
<ul> <li>1 End User License Agreement</li> <li>2 Connect to target server</li> <li>3 Set up virtual machine</li> </ul>	Set up virtual machine Specify virtual machine settings Appliance name:	for the vCenter Server Appliance to be dep	oloyed.	-
4 Select deployment type 5 Set up Single Sign-on 6 Single Sign-on Site 7 Select appliance size 8 Select datastore	OS user name: OS password:	root	0	
8 Select datastore 9 Configure database 10 Network Settings 11 Ready to complete	Confirm OS password:		]	
		Back	Next Finish Cancel	

- i. The password you set there has nothing to do with vCenter Services, rather is just the OS password for updates, the shell, etc.
- e. Choose: Embedded Platform Services Controller



f. Now set the SSO Domain and password.

🕒 vCenter Server Appliance 🛛 🗙 📃							
$\leftrightarrow \rightarrow \mathbf{C}$ $\square$ file:///G:/Users/J	ohn/Downloads/vSphere/VM	/ware-VCSA-al	l-6.0.0-3040890/vcsa-setup.htm	I	5	•	₽ ≡
<b>vm</b> ware [.]							
🛃 VMware vCent	er Server Appliance Deployment						
<ul> <li>1 End User Lic</li> <li>2 Connect to ta</li> </ul>	ense Agreement arget server	<b>Sign-on (SSO)</b> a SSO domain. An S	SO configuration cannot be changed afte	er deployment.	_		
<ul> <li>3 Set up virtual</li> <li>4 Select deploy</li> </ul>	I machine  • Create a ne yment type • Join an SS	ew SSO domain O domain in an exis	ting vCenter 6.0 platform services control	ler			
5 Set up Single 6 Select applia	Sign-on vCenter SSC	User name:	administrator				
7 Select datast 8 Configure da	tore vCenter SSC tabase	Password:		] 🖸			
9 Network Sett 10 Ready to co	tings Confirm pass	word:					
	SSO Site nar	ne:	JD-IAD.SSO	0			
	Active Direct	roceeding, make su ory domain name.	re that the vCenter Single Sign-On doma	in name used is different than your			
			Back	Next Finish Cancel	]		

i. This is the password that makes you king of the world.

- ii. Be sure to note your SSO Domain name. The SSO Domain name must be unique and not the same as other domains.
- g. Set: Tiny

🗅 vCenter Server Appliance 🛛 🗙 📃		john 🗕 🗆 🗶
← → C 🗋 file:///G:/Users/John/Dow	nloads/vSphere/VMware-VCSA-all-6.0.0-3040890/vcsa-setup.html	☆ 💷 🌻 🗮
<b>vm</b> ware [*]		
VMware vCenter Server A	ppliance Deployment	
<ul> <li>✓ 1 End User License Agree</li> <li>✓ 2 Connect to target serve</li> </ul>	ment Select appliance size Specify a deployment size for the new appliance	
<ul> <li>3 Set up virtual machine</li> <li>4 Select deployment type</li> </ul>	Appliance size: Tiny (up to 10 hosts, 100 VMs)	
<ul> <li>5 Set up Single Sign-on</li> <li>Select appliance size</li> <li>7 Select datastore</li> <li>8 Configure database</li> <li>9 Network Settings</li> <li>10 Ready to complete</li> </ul>	Description: This will deploy a Tiny VM configured with 2 vCPUs and 8 GB of memory and requires 120 This option contains vCenter Server with an embedded Platform Services Controller.	GB of disk space.
	Back Next Fin	ish Cancel

h. Choose the DAS on the ESXi VM we created earlier and Enable Thin Disk Mode

🕒 vCenter Server Appliance 🗆 🗙								3	
← → C 🗋 file:///G:/Users/John/Download	ls/vSphere/VMw	are-VCSA-all-(	5.0.0-3040890/	/vcsa-setup.htn	nl		\$	Φ	Ξ
VMWare VMware vCenter Server Appliand	ce Deployment								
<ul> <li>✓ 1 End User License Agreement</li> <li>✓ 2 Connect to target server</li> <li>✓ 3 Set up virtual machine</li> <li>✓ 4 Select deployment type</li> <li>✓ 5 Set un Single Sign on</li> </ul>	Select datastore Select the storage The following data and all of the virtu	location for this de astores are accessi al disks.	ployment ble. Select the desi	tination datastore fo	or the virtual machin	e configuration files			
<ul> <li>✓ 5 Secup single significant</li> <li>✓ 6 Select appliance size</li> </ul>	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning			
7 Select datastore 8 Configure database 9 Network Settings 10 Ready to complete	datastore1	VMFS	32.5 GB	31.55 GB	0.95 GB	true			
	🗹 Enable Thin D	isk Mode 🊯							
				Back	Next Finis	h Cancel			

- i. We will move the VCSA to a SAN later.
- i. Choose: Use an embedded database



j. Set network properties for your lab configuration, along with the FQDN of the VCSA. Enable SSH and Synchronize time with the ESXi Host

🖹 vCenter Server Appliance 🗆 🗙							
← → C 🗋 file:///G:/Users/.	John/Downloads/v	Sphere/VMware-VCSA-a	II-6.0.0-3040890/vcsa-setup.ht	tml	5	•	<b>9 E</b>
<b>vm</b> ware [*]		$\wedge$ - /					
📑 VMware vCen	ter Server Appliance D	eployment					
✓ 1 End User Lic	cense Agreement N	etwork Settings configure network settings for this	s deployment.		*		
✓ 3 Set up virtua	Il machine C	hoose a network:	VM Network	0			
🗸 4 Select deplo	yment type						
✓ 5 Set up Single	Sign-on IF	o address family:	IPv4	,			
✓ 6 Select applia	ince size	etwork type:					
<ul> <li>8 Configure da</li> </ul>	itabase	earon ype.	static	7			
9 Network Set	tings N	etwork address:	192.168.153.110				
10 Ready to co	omplete S a	ystem name [FQDN or IP ddress]:	vcsa1.jb-lab.local	0	L		
	s	ubnet mask:	255.255.255.0	7			
	N	letwork gateway:	192.168.153.2	]	L		
	N (5	etwork DNS Servers separated by commas)	192.168.153.5		1		
	с	onfigure time sync:	<ul> <li>Synchronize appliance time with ES</li> <li>Use NTP servers (Senarated by con</li> </ul>	SXi host	-		
			Back	Next Finish Cancel	)		

k. Enable SSH and Synchronize time with the ESXi Host

🕒 vCenter Server Appliance 🗙 🔛			john 👝 🖂 🗙
$\leftrightarrow$ $\Rightarrow$ C iiie:///G:/Users/John/Download	ds/vSphere/VMware-VCSA	A-all-6.0.0-3040890/vcsa-setup.html	☆ 💷 🌻 🔳
<b>vm</b> ware [.]	X		
VMware vCenter Server Applian	ce Deployment		
<ul> <li>1 End User License Agreement</li> <li>2 Connect to target server</li> <li>3 Set up virtual machine</li> <li>4 Select deployment type</li> <li>5 Set up Single Sign-on</li> <li>6 Select appliance size</li> <li>7 Select datastore</li> <li>8 Configure database</li> <li>9 Network Settings</li> <li>10 Ready to complete</li> </ul>	IP address family: Network type: Network address: System name [FQDN or IP address]: Subnet mask: Network gateway: Network gateway: Network DNS Servers (separated by commas) Configure time sync: Enable ssh	IPv4       ▼         static       ▼         192.168.153.110       ▼         vcsa1.jb-lab.local       ●         255.255.255.0       ●         192.168.153.2       ●         192.168.153.5       ●         Synchronize appliance time with ESXi host       ●         Use NTP servers (Separated by commas)       ●	
		Back Next Finish Cancel	

## I. Review your settings and click: Finish

🕒 vCenter Server /	Appliance ×							john		×
← ⇒ C' □ f	file:///G:/Users/John/Download:	s/vSphere/VMware-	VCSA-all-6.0.0-3040890/v	csa-setup.htm	าไ			$\sim$	Φ	≡
vmwa	VMware vCenter Server Appliance     1 End User License Agreement     2 Connect to target server     3 Set up virtual machine     4 Select deployment type     5 Set up Single Sign-on     6 Select appliance size	e Deployment Ready to complete Please review your set Target server info: Name: Installation type: Deployment confourcation:	ings before starting the installation 192.168.153.101 vcsa1 Install Embedded Platform Services Cor Tiny (up to 10 hosts, 100 VMs)	n.				X		-
	<ul> <li>7 Select datastore</li> <li>8 Configure database</li> <li>9 Network Settings</li> <li>10 Ready to complete</li> </ul>	configuration: Datastore: Disk mode: Network mapping: IP allocation: Host Name Time synchronization: Database: Properties:	datastore1 thin Network 1 to VM Network IPv4 , static Synchronize appliance time with I embedded SSH enabled = True SSO User name = jb-lab.sso SSO Stie name = jb-lab.sso SSO Stie name = jb-lab Network 1 IP address = 192.168. Host Name = vcsa 1 jb-lab local Network 1 netmask = 255.255.255 Default gateway = 192.168.153.2 DNS = 192.168.153.5	ESXi host 153.110 5.0						
			[	Back	Next	Finish	Cancel			

m. This can take a long time!

← → C file:///G:/Users/John/Downloads/vSphere/VMware-VCSA-all-6.0.0-3040890/vcsa-setup.html		dhn 🗌																									joł	ohn	an			
VMWare vCenter Server Appliance Deployment     Initializing     Initializing <th>•</th> <th>☆</th> <th>٤</th> <th></th> <th>_</th> <th></th> <th>_</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>_</th> <th></th> <th>5</th> <th>Ś</th> <th>~</th> <th></th> <th>¢</th> <th>Þ</th>	•	☆	٤												_		_								_		5	Ś	~		¢	Þ
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C file:///G:/Users/John/Downloads/vSphere/VMware-VCSA-all-6.0.0-3040890/vcsa-setup.html     C file:///G:/Users/John/Downloads/vSphere/VMware-VCSA-all-6.0.0-3040890/vcsa-setup.html     C Image: Comparison of the set o	J	x					n .	ohn .	john	john	johr	joh	johi	johi	johr	john	ohn	hn	IN	ป	Л			<u> </u>	) [6			8	X			
VMWARE VMware vCenter Server Appliance Deployment	1	Ξ	2	φ	•	4	3	☆	ŝ	Ś	ť	く	ť	ť	ť	Ś	ŝ	☆	2	3	] ,	4	€	•	] (	φ	P		Ξ			
C VMware vCenter Server Appliance Deployment																																
Installed VMware-OpenSSL-6.0.0-3018523.x86_64.rpm																																

4.

🗋 vCenter Server	Appliance ×	john	1 -	o X
← → C 🗋	file:///G:/Users/John/Downloads/vSphere/VMware-VCSA-all-6.0.0-3040890/vcsa-setup.html	5	3 💷	⊕ ≡
<b>vm</b> wa	are			
	Mware vCenter Server Appliance Deployment			
	Installation Complete			
	Your vCenter Server is successfully installed.			
	Post install steps:			
	<ol> <li>vCenter Server is installed in evaluation mode. Activate vCenter Server by using the vSphere Web Client within 60 days. When the evaluation period of this vCenter Server expires, all hosts will be disconnected from this vCenter Server.</li> <li>Use the vSphere Web Client to manage vCenter Server. Log in with the Single Sign-On administrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistrator@inistr@inistrator@ininistrator@inistrator@inistrator@inistrator@inist</li></ol>			
	You can now login to vSphere Web Client: <u>https://vcsa1.jb-lab.local/vsphere-client</u> as administrator@jb-lab.sso			
		Close		

5.

## **Troubleshooting VCSA installations**

I have had tremendous success installing VCSA 6! In fact, my installations have only failed for one of two reasons:

 The vSphere Client Integration Plugin became incompatible when Google Chrome is updated (most recently to Version 45). In this case, detecting the Sphere Web Client Integration Plugin 6.x simply times out and no amount of re-configuring the browser or re-loading the installer page will make it work.



The fix is fairly simple, just download the latest version of the Sphere Web Client Integration Plugin 6.x, or (at the time of this writing) download from this VMware KB:

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2130672

2. Forward and Reverse DNS were not correctly configured for the Broadcast Domain (network) on which VCSA will be installed. If this is the case, you will see the installer fail with this message:

🚰 VMware	vCenter Server Appliance Deployment	
😣 Firstb	oot script execution error.	Show all \tag
	Installation Failed	
	Failed to download vCenter Server support bundle logs.All other logs can be found at	
	C:\Users\John\AppData\Local\VMware\CIP\vcsaInstaller\sessions\session_0002\logs	

The fix is very simple: Configure DNS correctly with forward and reverse zones and A-records for the VCSA, and all ESXi Hosts/VMs

## Connecting to your new vCenter and adding ESXi VMs

This is where VMware would really like you to start using the VMware vSphere Web Client. At this point, however, there is no need, as all of the operations we are going to perform are still fully supported by the VMware vSphere Client for Windows as well!

1. Open the vSphere Client for Windows and connect to your vCenter

🕜 VMware vSphere Client	
vmware VMware vSphere Client	
All vSphere features available only throug vSphere Client will co feature set as vSphe To directly manage a single To manage multiple hosts, vCenter Server.	introduced in vSphere 5.5 and beyond are h the vSphere Web Client. The traditional ntinue to operate, supporting the same re 5.0. host, enter the IP address or host name. enter the IP address or name of a
IP address / <u>N</u> ame:	192.168.153.110
<u>U</u> ser name:	administrator@jb-lab.sso
Password:	******
	Use <u>Wi</u> ndows session credentials

a.

- i. You should use the IP address of your vCenter, as the vSphere Client lives on your PC and the DNS Server you configured earlier will work only for the NAT network on Workstation (in my case, DNS is only for VMs on 192.168.153.0/24)
- ii. The username is on your SSO domain that you specified during the VCSA installation process
- iii. The password is what you specified during the VCSA installation process

Certificate Warnings	
An untrusted SSL certificate is installe be guaranteed. Depending on your s concern. You may need to install a tr from appearing.	d on "192.168.153.110" and secure communication canna ecurity policy, this issue might not represent a security usted SSL certificate on your server to prevent this warn
The certificate received from "192.16	8.153.110" was issued for "vcsa1.jb-lab.local". Secure
communication with "192.168.153.11	0" cannot be guaranteed. Ensure that the fully-qualified
domain name on the certificate match	es the address of the server you are trying to connect to
The certificate received from "192.16	8.153.110" was issued for "vcsa1.jb-lab.local". Secure
communication with "192.168.153.11	0" cannot be guaranteed. Ensure that the fully-qualified
domain name on the certificate match	es the address of the server you are trying to connect to
Click Ignore to continue using the curre	ent SSL certificate.
The certificate received from "192.16	8.153.110" was issued for "vcsa1.jb-lab.local". Secure
communication with "192.168.153.11	0" cannot be guaranteed. Ensure that the fully-qualified
domain name on the certificate match	es the address of the server you are trying to connect to
Click Ignore to continue using the curre	ent SSL certificate.
<u>V</u> iew Certificate	IgnoreCancel

2. Create a Datacenter object

	er vesusjo lubliotar vojnere ellent					
	File Edit View Inventor	y Administration Plug-in	s Help			
	🖸 🖸 🏠 Home	🕨 🚮 Inventory 👂 🛐 He	osts and Clusters			
	Vcsa1.jb-lab.local					
	0	New Folder	Ctrl+F			
		New Datacenter	Ctrl+D			
a.		Add Permission	Ctrl+P	- A'		
🖉 vcsa1.jb-lab.local - vSphere Client						
	<u>File E</u> dit Vie <u>w</u> I <u>n</u> ventory <u>A</u> dminis	tration <u>P</u> lug-ins <u>H</u> elp				
	🖸 🔂 Home 🕨 👸 Inventory 🕨 🛐 Hosts and Clusters					
	Image: State and State an					
b.				~		

- 3. Add your ESXi VMs. If DNS is working, they should add by hostname!
  - a. Choose: Add Host



b. Input your hostname or IP. I recommend using the hostname because it proves that DNS is working, whereas using the IP proves nothing. The username for this operation is always: root

🕗 Add Host Wizard	
Specify Connection Settings Type in the information used to connec	t to this host.
Connection Settings Host Summary Virtual Machine Location Ready to Complete	Connection         Enter the name or IP address of the host to add to vCenter.         Host:       esxi1.jb-lab.local         Authorization         Enter the administrative account information for the host. vSphere Client will use this information to connect to the host and establish a permanent account for its operations.         Username:       root         Password:       *******
	≤Back Next ≥ Cancel

c. The SHA1 Thumbprint is visible in the Troubleshooting Options screen of the DCUI. Choose Yes

Security Al	Security Alert				
2	Unable to verify the authenticity of the specified host. The SHA1 thumbprint of the certificate is: 85:E5:28:90:4F:67:A5:29:D2:FE:D8:1B:31:21:63:07:34:89:0F:A3 Do you wish to proceed with connecting anyway? Choose "Yes" if you trust the host. The above information will be remembered until the host is removed from the inventory. Choose "No" to abort connecting to the host at this time.				
	Yes <u>N</u> o				

#### d. Click: Next

🕗 Add Host Wizard				
Host Information Review the product information for the specified host.				
Connection Settings Host Summary	You have chosen to add the following host to vCenter:			
Assign License Lockdown Mode Virtual Machine Location Ready to Complete	Name: Vendor: Model: Version: Virtual Machines: 앱ubuntu-server @vcsa1	esxi1.jb-lab.local VMware, Inc. VMware Virtual Platform VMware ESXi 6.0.0 build-3029758		
	•	III	4	
		<u>≤</u> Back Nex	t ≥ Cancel	

e. Click: Next

🚱 Add Host Wizard		
Assign License Assign an existing or a new license key	to this host.	
Connection Settings Host Summary Assign License	• Assign an existing license key to this host	
Lockdown Mode	Product	Available
Virtual Machine Location	Evaluation Mode     (No License Key)	
	C Assign a new license key to this host	
	Product: Evaluation Mode	
	Capacity: - Available: -	
	Expires: 11/25/2015 Label:	
	≤Back	Next ≥ Cancel

## f. Click: Next

2 Add Host Wizard			
Configure Lockdown Mode Specify whether lockdown mode is to be enabled for this host.			
Connection Settings Host Summary Assign License Lockdown Mode Virtual Machine Location Ready to Complete	Lockdown Mode When enabled, lockdown mode prevents remote users from logging directly into this host. The host will only be accessible through local console or an authorized centralized management application. If you are unsure what to do, leave this box unchecked. You can configure lockdown mode later by navigating to the host's Configuration tab and editing its Security Profile. Enable Lockdown Mode		
Back Next ≥ Cancel			

# g. Click: Next

e				
🕝 Add Host Wizard				
Virtual Machine Location Select a location in the vCenter Server inventory for the host's virtual machines.				
Connection Settings Host Summary Assign License Lockdown Mode Virtual Machine Location Ready to Complete	Select a location for this host's virtual machines.			
<u>.</u>	≤Back Nex	t ≥ Cancel		

h. Click: Finish

🕗 Add Host Wizard			- • •	
Ready to Complete Review the options you have selected and click Finish to add the host.				
Connection Settings Host Summary Assign License Lockdown Mode Virtual Machine Location Ready to Complete	Review this summ Host: Version: Networks: Datastores: Lockdown Mode:	esxi 1. jb-lab. local VMvare ESXi 6.0.0 build-3029758 VM Network datastore 1 Disabled		
		<u>≤</u> Back <u>F</u>	inish Cancel	

- 4. Now do the same for esxi2 and esxi3!
- 5. This is what your completed home vSphere lab on VMware Workstation Pro looks like!

🖉 vcsa1.jb-lab.local - vSphere Client 📃 💷					
<u>File E</u> dit Vie <u>w</u> Inventory Administration Plug-ins Help					
🖸 🖸 🏠 Home 🕨 🚮 In	iventory 🕨 🛐 Hosts and Clusters Search Inventory				
5 e x					
Image: State of the state					
			Resources		
	rer:	VMware, Inc. VMware Virtual Platform	CPU usage: 993 MHz Capacity 8 x 2, 195 GHz		
	: Туре:	Intel(R) Core(TM) i7-2720QM CPU @ 2.20GHz	Memory usage:         76/4.00 мв         Сарасту           8191.49 MB		
		Evaluation Mode -	Storage 🛆 Status Drive Type		
	Sockets:	2	datastore1 🗥 Warning Non-SSD		

# Coming soon.....

- In Part three, we will create shared storage using Openfiler as an iSCSI SAN
- In Part four, we will configure vSphere Storage, Jumbo Frames, Port Binding and All, and then migrate our VMs to the SAN
- In Part five, we will configure a vSphere Cluster for DRS and HA, then test those services