

VMware vCenter Server[™] 6.0 Deployment Guide

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vmware[®]

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Introduction

The VMware vCenter Server™ 6.0 release introduces new, simplified deployment models. The components that make up a vCenter Server installation have been grouped into two types: *embedded* and *external*. Embedded refers to a deployment in which all components—this can but does not necessarily include the database—are installed on the same virtual machine. External refers to a deployment in which vCenter Server is installed on one virtual machine and the Platform Services Controller (PSC) is installed on another. The Platform Services Controller is new to vCenter Server 6.0 and comprises VMware vCenter™ Single Sign-On™, licensing, and the VMware Certificate Authority (VMCA).

Embedded installations are recommended for standalone environments in which there is only one vCenter Server system and replication to another Platform Services Controller is not required. If there is a need to replicate with other Platform Services Controllers or there is more than one vCenter Single Sign-On enabled solution, deploying the Platform Services Controller(s) on separate virtual machine(s)—via external deployment—from vCenter Server is required.

This paper defines the services installed as part of each deployment model, recommended deployment models (reference architectures), installation and upgrade instructions for each reference architecture, postdeployment steps, and certificate management in VMware vSphere 6.0.

VMware vCenter Server 6.0 Services

SERVICE	INSTALLED WITH
VMware AFD Service	vCenter Server and PSC
VMware Certificate Service	PSC
VMware Component Manager	vCenter Server and PSC
VMware Content Library Service	vCenter Server
VMware Directory Service	PSC
VMware ESX Agent Manager	vCenter Server
VMware HTTP Reverse Proxy	vCenter Server and PSC
VMware Identity Management Service	PSC
VMware vCenter Inventory Service	vCenter Server
VMware License Service	PSC
VMware Message Bus Configuration Service	vCenter Server
VMware Performance Charts	vCenter Server
VMware Postgres	vCenter Server (vCenter Server Appliance, Microsoft Windows if embedded database is chosen)
VMware Security Token Service	PSC
VMware Service Control Agent	vCenter Server and PSC
VMware Syslog Collector	vCenter Server
VMware System and Hardware Health Manager	vCenter Server
VMware vAPI Endpoint	vCenter Server

SERVICE	INSTALLED WITH
VMware vCenter Configuration Service	vCenter Server and PSC
VMware vCenter Workflow Manager	vCenter Server
VMware VirtualCenter Server	vCenter Server
VMware vService Manager	vCenter Server
VMware vSphere Auto Deploy Waiter	vCenter Server
VMware vSphere ESXi™ Dump Collector	vCenter Server
VMware vSphere ESXi Dump Collector Web Service	vCenter Server
VMware vSphere Profile-Driven Storage	vCenter Server
VMware vSphere Web Client	vCenter Server

Table 1. vCenter Server and Platform Services Controller Services

Requirements

General

A few requirements are common to both installing vCenter Server on Microsoft Windows and deploying VMware vCenter Server Appliance[™]. Ensure that all of these prerequisites are in place before proceeding with a new installation or an upgrade.

- DNS Ensure that resolution is working for all system names via fully qualified domain name (FQDN), short name (host name), and IP address (reverse lookup).
- Time Ensure that time is synchronized across the environment.
- Passwords vCenter Single Sign-On passwords must contain only ASCII characters; non-ASCII and extended (or high) ASCII characters are not supported.

Windows Installation

Installing vCenter Server 6.0 on a Windows Server requires a Windows 2008 SP2 or higher 64-bit operating system (OS). Two options are presented: Use the local system account or use a Windows domain account. With a Windows domain account, ensure that it is a member of the local computer's administrator group and that it has been delegated the "Log on as a service" right and the "Act as part of the operating system" right. This option is not available when installing an external Platform Services Controller.

Windows installations can use either a supported external database or a local PostgreSQL database that is installed with vCenter Server and is limited to 20 hosts and 200 virtual machines. Supported external databases include Microsoft SQL Server 2008 R2, SQL Server 2012, SQL Server 2014, Oracle Database 11*g*, and Oracle Database 12*c*. When upgrading to vCenter Server 6.0, if SQL Server Express was used in the previous installation, it will be replaced with PostgreSQL. External databases require a 64-bit DSN. DSN aliases are not supported.

When upgrading vCenter Server to vCenter Server 6.0, only versions 5.0 and later are supported. If the vCenter Server system being upgraded is not version 5.0 or later, such an upgrade is required first.

Table 2 outlines minimum hardware requirements per deployment environment type and size when using an external database. If VMware vSphere Update Manager™ is installed on the same server, add 125GB of disk space and 4GB of RAM.

RESOURCES	TINY: UP TO 10 HOSTS/ 100 VIRTUAL MACHINES OR EXTERNAL PSC	SMALL: UP TO 100 HOSTS/ 1,000 VIRTUAL MACHINES	MEDIUM: UP TO 400 HOSTS/ 4,000 VIRTUAL MACHINES	LARGE: UP TO 1,000 HOSTS/ 10,000 VIRTUAL MACHINES
CPU	2	4	8	16
Memory	8GB	16GB	24GB	32GB
Disk Space	50GB 10GB (PSC)	100GB	100GB	100GB

Table 2. Minimum Hardware Requirements - Windows Installation

Appliance Deployment

vCenter Server Appliance can use either a local PostgreSQL database that is built in to the appliance, which is recommended, or an external database. Unlike Windows support for PostgreSQL, vCenter Server Appliance supports up to 1,000 hosts or 10,000 virtual machines at full vCenter Server scale. Supported external databases include Oracle Database 11g and Oracle Database 12c. External database support is being deprecated in this release; this is the last release that supports the use of an external database with vCenter Server Appliance.

When deploying vCenter Server Appliance, the target host must be ESXi 5.0 or later. In addition, prechecks such as connectivity to an external database, NTP server, DNS server, and so on, are performed on the client deploying the appliance rather than against the target host and destination port group. This does not ensure that all required connectivity is available from the ESXi host and the destination port group of vCenter Server Appliance. Users must ensure that the ESXi host and port group have the required connectivity.

Upgrading is possible only from versions 5.1 update 3 and later.

Table 3 outlines minimum hardware requirements per deployment environment type and size.

RESOURCES	TINY: UP TO 10 HOSTS/ 100 VIRTUAL MACHINES OR EXTERNAL PSC	SMALL: UP TO 100 HOSTS/ 1,000 VIRTUAL MACHINES	MEDIUM: UP TO 400 HOSTS/ 4,000 VIRTUAL MACHINES	LARGE: UP TO 1,000 HOSTS/ 10,000 VIRTUAL MACHINES
CPU	2	4	8	16
Memory	8GB	16GB	24GB	32GB
Disk Space (External PSC)	86GB (vCenter) 30GB (PSC)	106GB	245GB	295GB
Disk Space (Embedded PSC)	116GB	136GB	275GB	325GB

Table 3. Minimum Hardware Requirements - vCenter Server Appliance Deployment

Reference Architectures

We examine the following architectures in this deployment guide:

- Fresh embedded deployment
- Upgrade in which all vCenter Server components are installed on a single machine
- Fresh external deployments
- Upgrade with external vCenter Single Sign-On
- Fresh vCenter Single Sign-On high availability deployment
- Upgrade of vCenter Single Sign-On high availability

Fresh Embedded Deployment

A fresh, or new, embedded installation is the simplest of all the deployments. In this scenario, vCenter Server and the Platform Services Controller are deployed together onto a single virtual machine.

The vCenter Server database can be either local or remote. On the Windows platform, the local PostgreSQL database is limited to 20 hosts and 200 virtual machines.

Embedded installations are recommended for standalone environments in which there is only one vCenter Server and replication to another Platform Services Controller is not required. If there is a need to replicate with other Platform Services Controllers or there is more than one vCenter Single Sign-On enabled solution, deploying the Platform Services Controller(s) on separate virtual machine(s)—via external deployment—from vCenter Server is required.



Upgrade in Which All vCenter Server Components Are Installed on a Single Machine

Upgrading vCenter Server 5.0 or vCenter Server with vCenter Single Sign-On—that is, vCenter Server 5.1 or 5.5—installed on the same virtual machine can be accomplished using the embedded deployment method.

All vCenter Server components are upgraded. If upgrading from vCenter Server 5.0, an external Platform Services Controller can be installed or an embedded one can be used. vCenter Single Sign-On in vCenter Server 5.1 and 5.5 is upgraded to a Platform Services Controller. In all upgrade scenarios, all services listed in Table 1 are installed or upgraded.

The vCenter Server database is upgraded during vCenter Server upgrade. On Windows installations using the embedded SQL Server Express database, SQL Server Express is migrated to the PostgreSQL database during the upgrade.



Figure 2. Upgraded Embedded Architecture

Fresh External Deployment

A fresh, or new, external deployment involves running the deployment wizard twice. The first time is to deploy the Platform Services Controller. After this successful deployment, vCenter Server is deployed.

The vCenter Server database can be either local or remote. On the Windows platform, the local PostgreSQL database is limited to 20 hosts and 200 virtual machines.

Deploying the Platform Services Controller externally is recommended for all but standalone vCenter Server systems.



Figure 3. External Platform Services Controller Architecture

Upgrade External vCenter Single Sign-On

When upgrading from vCenter Server 5.1 or 5.5 and vCenter Single Sign-On is deployed externally from vCenter Server, vCenter Single Sign-On is first upgraded to a Platform Services Controller. After the Platform Services Controller has been deployed, the vCenter Server system can be upgraded.

The vCenter Server database is upgraded during the vCenter Server upgrade. In Windows installations using the embedded SQL Server Express database, SQL Server Express is migrated to the PostgreSQL database during the upgrade.



Figure 4. Upgraded External Platform Services Controller Architecture

Fresh vCenter Single Sign-On High Availability Deployment

A fresh, or new, vCenter Single Sign-On high availability deployment is recommended when there are multiple vCenter Server systems or vCenter Single Sign-On enabled solutions that require a high level of uptime.

When deploying the Platform Services Controller externally for multiple services, availability of the Platform Services Controller must be considered. In some cases, simply having the Platform Services Controller located in a vSphere cluster with VMware vSphere High Availability enabled is sufficient. In other cases, having more than one Platform Services Controller deployed in a highly available architecture is recommended. This requires a network load balancer. In Figure 5, we examine redundant Platform Services Controllers behind a network load balancer.



Figure 5. Highly Available Platform Services Controllers

Upgrade of vCenter Single Sign-On High Availability

Upgrading an existing vCenter Single Sign-On high availability deployment converts vCenter Single Sign-On servers to Platform Services Controllers. vCenter Single Sign-On 5.5 and previous versions do not work with vCenter Server 6.0, so upgrading vCenter Single Sign-On to Platform Services Controller is a prerequisite.

After the Platform Services Controllers are up and running, the load balancer rules must be adjusted to loadbalance the Platform Services Controller ports before attempting to upgrade vCenter Server. Session affinity is required based on source address and must-span ports. If vCenter Server initiates communication to the Platform Services Controller on port 443 and is placed on the first Platform Services Controller, all subsequent requests must also go to the first Platform Services Controller.

Upgrading from vCenter Single Sign-On high availability has been tested and validated only when upgrading from vCenter Server 5.5 and when the vCenter Single Sign-On with network load balancer guide is followed to set up the vCenter Single Sign-On high availability environment.



Figure 6. Upgrade of Highly Available Single Sign-On to Highly Available Platform Services Controller

Deploying vCenter Server 6.0

Fresh Embedded Deployment

Windows Deployment

- 1. Verify all prerequisites.
- 2. If using a remote database, ensure that a 64-bit DSN has been created. DSN aliases are not supported. This step is not necessary if using the local PostgreSQL database.
- 3. Mount the vCenter Server 6.0 ISO image.
- 4. If autorun does not start, execute autorun.exe.
- 5. Select vCenter Server for Windows and click Install.

0	VMware® vCenter™ Installer
vmware vSphere®	
Vilware vCenter Server VCenter Server for Windows Vilware vCenter Desktop Client vSphere Update Manager Server Download Service Vilware vCenter Support Tools vSphere Authentication Proxy	Worker Server for Windows Marar vCenter Server is a windows application that manages datacenter access control, performed monitoring and configuration, and unifies resources from individual servers to be shared among virtual machines in the entire datacenter. Tor a list of information you need to install this component, see the installation checklist http://www.ymware.com/ Prerequisites: Nore
	Explore Media Exit

- 6. Click Next.
- 7. Accept the license agreements.
- 8. Select **Embedded Deployment** and click **Next**.

1	VMware vCenter Server 6.0.0						
S	Select deployment type Select the component to deploy.						
	vCenter Server 6.0.0 requires a Platform Services Controller, which contains shared services such as vCenter Single Sign-On, Licensing, and Certificate Management. An embedded Platform Services Controller is deployed on the same Windows Host as vCenter Server. An external Platform Services Controllers is deployed in a separate Windows Host. For smaller installations, consider vCenter Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Servers, consider one or more Platform Services Controllers. Refer to product documentation for more information. Note: Once you deploy vCenter Server, you can only change from an embedded to an external Platform Services Controller with a						
	fresh install. Embedded Deployment Image: Server and Embedded Platform Services Controller VM or Host Platform Services Controller VCenter Server						
	External Deployment O Platform Services Controller O vCenter Server A previously installed Platform Services Controller is required VM or Host VM or Host VM or Host VM or Host vCenter Server						
	< Back Next > Cancel						

9. Verify that the FQDN is correct and click **Next**.

10. Enter a **password** and **Site name** for vCenter Single Sign-On and click **Next**.

vCenter Single Sign-On Configuration Create or join a vCenter Single Sign-On domain. Oreate a new vCenter Single Sign-On domain Domain name: vCenter Single Sign-On user name: vCenter Single Sign-On user name: administrator					
Create a new vCenter Single Sign-On domain Domain name: vCenter Single Sign-On user name: administrator					
vCenter Single Sign-On <u>u</u> ser name: administrator					
vCenter Single Sign-On password:					
Confirm password:					
Site name: Palo-Alto					
○ Join a vCenter Single Sign-On domain					
Platform Services Controller EQDN or IP address:					
vCenter Single Sign-On HTTPS port: 443					
vCenter Single Sign-On user name: administrator					
vCenter Single Sign-On password:					
Note: vCenter Single Sign-On configuration cannot be changed after deployment.					
< Back Next > Cancel					

11. Select the local system account or enter the service account **user name** and **password**.

) VMware vCenter Server 6.0.0 X						
vCenter Server Service Account						
Enter the vCenter Server service account information.						
By default, the vCenter Server instance runs in the Windows Local System account. To run in another administrative user account, select the option to specify a user service account and provide the account credentials. The user service account must be granted the 'Log on as a service' privilege.						
O Use Windows Local System Account						
Note: If you select this option, you cannot connect to an external database using Integrated Windows authentication.						
Specify a user service account						
Account user name: VMWARE\svcvCenter						
Account password:						
· · · · · · · · · · · · · · · · · · ·						
< Back Next > Cancel						

12. Select Use an embedded database (vPostgres) or Use an external database server's DSN Name and click Next.

b	VMware vCenter Server 6.0.0	x
Database Settings Configure the database for this depl	oyment.	
O Use an embedded database (vPo	stgres)	
• Use an external database		
DSN Name:	VCDB v Refresh	
DB <u>u</u> ser name:		
DB gassword:		
The chosen DSN is configured t	o use Integrated Windows Authentication. SQL Server will use the credentials of the user	
to verify dualendary.		
	< Back Next > Cancel	

- 13. Unless required, leave all ports at their defaults and click **Next**.
- 14. Unless required, leave the default paths for installation and click Next.
- 15. Review and then click Install.



vCenter Server Appliance Deployment

- 1. Mount the ISO image on PC.
- 2. Open the vcsa folder and install the plug-in.
- 3. In the root of the ISO image, double-click the vcsa-setup.html file.
- 4. Wait until you are prompted to enable the client integration plug-in to run. Click Install.

	6		
vCenter [≞] S	Server Ap	pliance 6.0)
Install		Upgrade	
IIIstan		opgrade	

- 5. Accept the License Agreement and click Next.
- 6. Enter a target host and a User name and Password on the host with root access.

T VMware vCenter Server Appliance Deployment			
 1 End User License Agreement 2 Connect to target server 	Connect to target server Specify the ESXi host on which to deploy the vCenter Server Appliance.		
3 Set up virtual machine	FQDN or IP Address:	w3-tm-hp380-010.vmware.local]
4 Select deployment type 5 Set up Single Sign-on	User name:	root	•
6 Single Sign-on Site 7 Select appliance size	Password:	••••••]
 8 Select datastore 9 Configure database 10 Network Settings 11 Ready to complete 	 Before proceeding: Make sure the ESXi host is not in lock down mode or maintenance mode. When deploying to a vSphere Distributed Switch (VDS), the appliance must be deployed to an ephemeral portgroup. After deployment, it can be moved to a static or dynamic portgroup. 		
		Back	Next Finish Cancel

- 7. Click **Yes** to accept the host's certificate.
- 8. Enter an Appliance name and the root OS password you want to assign. Click Next.

T VMware vCenter Server Appliance Deployment				
 ✓ 1 End User License Agreement ✓ 2 Connect to target server 	Set up virtual machine Specify virtual machine settings for the vCenter Server Appliance to be deployed.			
3 Set up virtual machine	Appliance name:		•	
4 Select deployment type	, oppilarioo namo.	Vcenterous	0	
5 Set up Single Sign-on	OS user name:	root		
6 Single Sign-on Site				
7 Select appliance size	OS password:	******	0	
8 Select datastore				
9 Configure database	Confirm OS password:	•••••	•	
10 Network Settings				
11 Ready to complete				
		Back	Next	Cancel
		Back	Inexi (h)	Cancel

9. Select Install vCenter Server with an Embedded Platform Services Controller and click Next.

Mware vCenter Server Appliance Deployment			
 I 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 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Configure database 10 Network Settings 11 Ready to complete 	Select deployment type Select the services to deploy onto this appliance. vCenter Server 6 0 requires a Platform Services Controller, which contains shared services such as Single Sign-On, Licensing, and Certificate Management. An embedded Platform Services Controller is deployed on the same Appliance VM as vCenter Server. An external Platform Services Controller is deployed in a separate Appliance VM. For smaller installations, consider VCenter Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Server, consider one or more external Platform Services Controllers. Refer to the vCenter Server documentation for more information. Note: Once you install vCenter Server, you can only change from an embedded to an external Platform Services Controller with a fresh install. Embedded Platform Services Controller (i) Install vCenter Server with an Embedded Platform Services Controller VM or Hoat VM or Hoat VCentor Services		
	External Platform Services Controller O Install Platform Services Controller O Install VCenter Server (Requires External Platform Services Controller) VM or Host VM or Host VM or Host VM or Host VCenter Server		
	Back Next Finish Cancel		

10. Select Create a new SSO Domain and enter an administrator vCenter SSO Password; enter an SSO Domain name such as vsphere.local and an SSO Site name such as a city or physical location name.

VMware vCenter Server Applianc	e Deployment		
 1 End User License Agreement 2 Connect to target server 	Set up Single Sign-on (SSO) Create or join a SSO domain. An	SSO configuration cannot be changed aft	er deployment.
 3 Set up virtual machine 4 Select deployment type 	 Create a new SSO domain Join an SSO domain in an exit 	isting vCenter 6.0 platform services contro	ller
6 Select appliance size	vCenter SSO User name:	administrator	
8 Network Settings	vCenter SSO Password:		0
9 Ready to complete	Confirm password:]
	SSO Domain name:	vsphere.local	0
	SSO Sile name.	Houston	0
		Back	Next Finish Cancel

11. Select appliance size from the drop-down list and click Next.



12. Select datastore to deploy the appliance on and click Next.

Mware vCenter Server Appliance Deployment						
 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 	Select datastore Select the storage location for this deployment The following datastores are accessible. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.					
✓ 6 Select appliance size 7 Select datastore	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning
8 Configure database	RDM Mappings	VMFS	4.75 GB	2.25 GB	2.5 GB	true
9 Network Settings	NFSMGMT01	NFS	500 GB	331 GB	169 GB	true
10 Ready to complete	NFSMGMT02	NFS	500 GB	306.96 GB	238.13 GB	true
	Enable Thin Di	sk Mode 🚯				
				Back	Vext Finish	Cancel

13. Select Use an embedded database (vPostgres), which is recommended, or Use Oracle database and click Next.

T VMware vCenter Server Appliance Deployment			
 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 7 Select datastore 8 Configure database 9 Network Settings 10 Ready to complete 	Configure database Configure the database for this deployment ① Use an embedded database (vPostgres) ① Use Oracle database		
	Back Next Finish Cancel		

14. Enter Network Settings and click Next.

NOTE: The FQDN and IP addresses entered here must be resolvable by the DNS server specified or the deployment will fail.

Mware vCenter Server Applianc	e Deployment			
 ✓ 1 End User License Agreement ✓ 2 Connect to target server 	Choose a network:	VM Network 🗸	0	•
 3 Set up virtual machine 4 Select deployment type 	IP address family:	IPv4 v]	
 5 Set up Single Sign-on 6 Select appliance size 7 Select datastore 	Network type:	static •]	
 Sconfigure database Network Settings 	Network address:	10.155.168.81]	
10 Ready to complete	System name [FQDN or IP address]:	vcenter003.vmware.local	•	
	Subnet mask:	255.255.255.0]	
	Network gateway:	10.155.168.253]	
	Network DNS Servers separated by comas	10.155.168.60]	
	Configure time sync:	 Synchronize appliance time with ESX Use NTP servers (Separated by com 10.17.0.1,10.17.0.2 	Ki host mas)	•
		Back	Next Finish Cancel]

15. Review and click **Finish**.

ESXi server info: Name: Installation type: Deployment type: Deployment configuration: Datastore: Disk mode: Network mapping: P allocation:	w3-tm-hp380-010.rmware.local vcenter003 Install Embedded Platform Services Controller Tiny (up to 20 hosts, 400 VMs) NFSMGMT01 thin Network 1 to VM Network IPv4_static	
Time synchronization: Database: Properties:	10.17.0.1,10.17.0.2 embedded SSH enabled = true SSO User name = administrator SSO Domain name = vsphere.local SSO Sile name = Houston Network 1 IP address = 10.155.168.81 Host Name = vcenter003.ymware.local Network 1 netmask = 255.255.255.0 Default gateway = 10.155.168.253 DNS = 10.155.168.60	
F	Jatabase: Yroperties:	Database: embedded Properties: SSH enabled = true SSO User name = administrator SSO Domain name = vsphere.local SSO Site name = Houston Network 11 P address = 10.155.168.81 Host Name = vcenter003.ymware.local Network 1 netmask = 255.255.255.0 Default gateway = 10.155.168.253 DNS = 10.155.168.60

Upgrade in Which All vCenter Server Components Are Installed on a Single Machine

Windows Upgrade

- 1. Verify all prerequisites.
- 2. Mount the vCenter Server 6.0 ISO image.
- 3. If autorun does not start, execute autorun.exe.
- 4. Select vCenter Server for Windows and click Install.

	VMware® vCenter™ Installer
vm ware vSphere	
VMware vCenter Server vCenter Server for Windows VMware vCenter Desktop Client vSphere Client vSphere Update Manager Server Download Service VMware vCenter Support Tools vSphere Authentication Proxy	VCenter Server for Windows Willware vCenter Server is a windows application that manages datacenter access control, performance monitoring and configuration, and unifies resources from individual servers to be shared among virtual machines in the entire datacenter. For a list of information you need to install this component, see the installation checklist http://www.ymware.com/ Prerequisites: None Install
	Explore Media Exit

- 5. Click Next.
- 6. Accept the license agreements.
- 7. Enter the vCenter Single Sign-On password and the service account password if applicable. Click Next.

B	VMware vCenter Server 6.0.0			
vCenter Single Sign-On and vCenter Server Credentials				
Enter your veenter single sign on 3.5 a				
vCenter Single Sign-On <u>u</u> ser name:	administrator@vsphere.local			
vCenter Single Sign-On password:	•••••			
✓ Use the same credentials for vCenter	Server			
vCenter Server user n <u>a</u> me:	administrator@vsphere.local			
vCenter Server pass <u>w</u> ord:				
The installer has detected that the vCen credentials for this service account.:	ter Server service is running under the following service account. Enter the			
Account us <u>e</u> r name:	VMWARE\svcvcenter			
Account passwor <u>d</u> :	••••••			
The vCenter Single Sign-On credentials	must be of a user with vCenter Single Sign-On administrative privileges to your existing			
vCenter Single Sign-On domain. The vC	enter Server credentials must be of a user with administrative privileges to your vCenter			
requirements.	and domain names were used, the administrator wysphere.rocal account Would Meet Doth			
	< Back Next > Cancel			

8. Wait for the **pre-upgrade checks** to complete.



9. Accept the default ports and click **Next**.

붱	VMware vCenter Server 6.0.0			
Configure Ports Configure network settings and ports for this deployment.				
Common Banka				
Common Ports				
HTTP Port:	80			
HTTP <u>S</u> Port:	443			
Syslog Service Port:	514			
Syslog Service TLS Port:	1514			
Platform Services Controller Ports				
Secure Token Service Port:	7444			
vCenter Server Ports				
Auto Deploy Management Port:	6502			
Auto Deploy Service Port:	6501			
ESXi Dump Collector Port:	6500			
ESXi Heartbeat Port:	902			
vSphere Web Client Port:	9443			
Some ports are not configurable. To proce	eed, make the following ports available:			
88, 389, 636, 2012, 2014, 2020, 7080, 11	711, and 11712			
	< Back Next > Cancel			

10. Accept or change the installation paths as necessary. Click $\ensuremath{\textit{Next}}.$

岁 VMware vCente	er Server 6.0.0	
Destination Directory		
Select the storage location for this deployment.		
Install vCenter Server with an embedded Platform Services Contro	ller to:	
C:\Program Files\VMware\	Change	
Store data for vCenter Server with an embedded Platform Service	s Controller in:	
C:\ProgramData\VMware\	Change	
Export your 5.X data to:		
C:\ProgramData\VMware\vCenterServer\export\	Change	
Note: During the upgrade, 5.x data will be stored in this directory, and then migrated to the 6.0.0 deployment. Data exported to this directory will not be cleaned up by the installer. Remove this directory and its contents after the upgrade completes.		
	< Back Next > Cancel	

11. Check the box to verify that you have backed up this vCenter Server and its database. Click **Upgrade**.

岁 VM	Iware vCenter Server 6.0.0
Ready to upgrade Confirm the settings below and click Upgrade.	
Deployment type: vCenter Single Sign-On user name: vCenter Single Sign-On domain: vCenter Single Sign-On site name: Installation directory: Data directory: Upgrade export directory:	vCenter Server with an embedded Platform Services Controller administrator vsphere.local PaloAlto C:\Program Files\VMware\ C:\ProgramData\VMware\ C:\ProgramData\VMware\vCenterServer\export\
VMware vCenter Server will be in evaluation mo Activate vCenter Server through the vSphere We vCenter Server expires, all hosts will be disconn I verify that I have backed up this vCenter Server	de after the upgrade. 2b Client within 60 days after the upgrade. When the evaluation period of the ected from this vCenter Server. machine and the database server pointed by the 'vcenter002' DSN. <hr/> <hr/> <hr< th=""></hr<>

12. When completed, click **Finish**.

₽	VMware vCenter Server 6.0.0	x
vm ware [.]	Setup Completed	
	 Your vCenter Server 5.5 is upgraded to version 6.0.0. Post upgrade step(s): 1. vCenter Server is upgraded and is now 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. 2. Data exported to C:\ProgramData\VMware\vCenterServer\export\ directory is not cleaned up by the installer. Verify that the upgraded vCenter Server works correctly and remove the directory and its contents. 3. Use the vSphere Web Client to manage vCenter Server. Log in with the vCenter Single Sign-On administrator account administrator@vsphere.local. 	
VMware® vCenter Server®6.0	Launch vSphere Web Client	

vCenter Server Appliance Upgrade

- 1. Mount the ISO image on PC.
- 2. Open the vcsa folder and install the plug-in.
- 3. In the root of the ISO image, double-click the vcsa-setup.html file.
- 4. Wait until you are prompted to enable the client integration plug-in to run. Click Upgrade.



5. Click **OK** to the supported upgrades pop-up.

Supported Upgrades

You can upgrade to vCenter Server Appliance 6.0 from the following versions:

- vCenter Server Appliance 5.1 U3
- vCenter Server Appliance 5.5

If you have an earlier version of the appliance, you must first upgrade it to one of the above versions, then you can upgrade it to 6.0.

Continue upgrading to vCenter Server Appliance 6.0?

С	Cancel
-4	

- 6. Accept the license agreement and click **Next**.
- 7. Enter a target host and a **User name** and **Password** on the host with root access.

	T VMware vCenter Server Appliance Deployment			
~	1 End User License Agreement 2 Connect to target server	Connect to target server Specify the ESXI host on which to deploy the vCenter Server Appliance.		
	3 Set up virtual machine	FQDN or IP Address:	w3-tm-hp380-009.vmware.local]
	4 Connect to source appliance	Lloor name:		1 -
	5 Set up Single Sign-on	User name.	root	0
	6 Select appliance size	Password:		1
	7 Select datastore			1
	8 Network Settings	Before proceeding:		
	9 Ready to complete	 Make sure the ESXi host i 	is not in lock down mode or maintenance	mode
		 When deploying to a vSphere Distributed Switch (VDS), the appliance must be deployed to an ephemeral 		
		portgroup. After deployment, it can be moved to a static or dynamic portgroup.		
			Back	Next Finish Cancel

- 8. Click **Yes** to accept the host's certificate.
- 9. Enter an Appliance name and Enable SSH if required. Click Next.

VMware vCenter Server Appliance Deployment			
VMware vCenter Server Appliance 1 End User License Agreement 2 Connect to target server 3 Set up virtual machine 4 Connect to source appliance 5 Set up Single Sign-on 6 Select appliance size 7 Select datastore 8 Network Settings 9 Ready to complete	2 Deployment Set up virtual machine Specify virtual machine settings for Appliance name:	the vCenter Server Appliance to be depi	ioyed
		Back	Next Finish Cancel

10. Enter the vCenter Server version, FQDN, Password, vCenter SSO Port (443), ESXi host FQDN, user name, and password. Click Next.

VMware vCenter Server Applianc	ce Deployment	
 1 End User License Agreement 2 Connect to target server 3 Set up virtual machine 4 Connect to source appliance 	Existing Appliance Type	VCSA 5.5
5 Select appliance size 6 Select datastore 7 Network Settings 8 Ready to complete	vCenter Server IP address/FUDN: vCenter Administrator User name: vCenter Administrator Password:	vcsa01.vmware.local administrator@vsphere.local
	vCenter SSO Port: Appliance (OS) Root password: Temporary Upgrade Files Path: Migrate Performance & other historical data	443 /mp/vmware/cis-export-folder Enabled
	ESXi host IP address/FQDN: ESXi host user name: ESXi host password:	w3-tm-hp380-010 vmware.local root
		Back Next Finish Cancel

11. Select Appliance size from the drop-down list and click Next.

 Ind User License Agreement Connect to target server Set up virtual machine Select deployment type Set up single sign-on Select daptiance size Select appliance size Select appli
Back Next Finish Cancel

12. Select datastore to deploy the appliance on and click Next.

Mware vCenter Server Appliance Deployment						
 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 	Select datastore Select the storage location for this deployment The following datastores are accessible. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.					
 ✓ 6 Select appliance size Z Select datastore 	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning
8 Configure database	RDM Mappings	VMFS	4.75 GB	2.25 GB	2.5 GB	true
9 Network Settings	NFSMGMT01	NFS	500 GB	331 GB	169 GB	true
10 Ready to complete	NFSMGMT02	NFS	500 GB	306.96 GB	238.13 GB	true
	Enable Thin Di	sk Mode 🕦				
				Back	Vext Finish	Cancel

13. Review and click **Finish**.

T VMware vCenter Server Appliance Deployment					
 1 End User License Agreement 2 Connect to target server 	Ready to complete Please review your settings before starting the installation.				
 2 Connect to target server 3 Set up virtual machine 4 Connect to source appliance 5 Select appliance size 6 Select datastore 7 Network Settings 8 Ready to complete 	ESXI server info: Name: Installation type: Deployment type: Deployment configuration: Datastore: Disk mode: Network mapping: IP allocation: Time synchronization: Properties:	w3-tm-hp380-009, vmware.local vcsa01 Install and Migrate Embedded Platform Services Controller Tiny (up to 20 hosts, 400 VMs) NFSMGMT01 thick Network 1 to VM Network IPv4 , dhcp SSH enabled = true SSO User name = administrator			
		Back	Next	Finish Cancel	

Fresh External Platform Services Controller Deployment

Windows Deployment

- 1. Verify all prerequisites.
- 2. Mount the vCenter Server 6.0 ISO image.
- 3. If autorun does not start, execute autorun.exe.
- 4. Select vCenter Server for Windows and click Install.



5. Click Next.

- 6. Accept the license agreements.
- 7. Select External Deployment Platform Services Controller and click Next.

в	VMware vCenter Server 6.0.0	x
Select deple Select the con	pyment type nponent to deploy.	
vCenter Serve Licensing, and vCenter Serve consider vCen consider one o Note: Once yo fresh install.	r 6.0.0 requires a Platform Services Controller, which contains shared services such as vCenter Single Sign-On, Certificate Management. An embedded Platform Services Controller is deployed on the same Windows Host as r. An external Platform Services Controllers is deployed in a separate Windows Host. For smaller installations, ter Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Servers, or more Platform Services Controllers. Refer to product documentation for more information. u deploy vCenter Server, you can only change from an embedded to an external Platform Services Controller with a	, ,
Embedded D	eployment ver and Embedded Platform Services Controller vCenter Server	
External Dep Platform Se VCenter Se A previousl required	koyment ervices Controller rver y installed Platform Services Controller is	
	< Back Next > Cancel	

8. Verify the system name and click **Next**.

₿.	VMware vCenter Server 6.0.0
System Network Nam Configure the name of this s	e ystem.
Enter the system name to us system so that the componen domain name (FQDN). If DNS	se for managing the local system. The system name will be encoded in the SSL certificate of the nts can communicate with each other by using this name. Enter the system name as a fully-qualified S is not available, you can provide a static IPv4 address. IPv6 is supported only by using a name.
<u>S</u> ystem Name:	psc001.vmware.local
1 Note: The System Netwo	ork Name cannot be changed after deployment.
	< Back Next > Cancel

- 9. If this is the first Platform Services Controller, select **Create a new vCenter Single Sign-On domain**. If this is an additional Platform Services Controller, select **Join a vCenter Single Sign-On domain**.
 - a. For a new vCenter Single Sign-On domain, enter a **password** for the vCenter Single Sign-On administrator, a **Domain name** such as vsphere.local, and a **Site name** such as a city or physical building name.

岁 VMware vCenter Ser	ver 6.0.0
vCenter Single Sign-On Configuration Create or join a vCenter Single Sign-On domain.	
Create a new vCenter Single Sign-On domain	
Domain name:	vsphere.local
vCenter Single Sign-On <u>u</u> ser name:	administrator
vCenter Single Sign-On password:	•••••
Confirm p <u>a</u> ssword:	•••••
<u>S</u> ite name:	Houston
○ Join a vCenter Single Sign-On domain	
Platform Services Controller EQDN or IP address:	
vCenter Single Sign-On HTTPS port:	443
vCenter Single Sign-On <u>u</u> ser name:	administrator
vCenter Single Sign-On password:	
1 Note: vCenter Single Sign-On configuration cannot be changed after	r deployment.
	< Back Next > Cancel

b. To join an existing vCenter Single Sign-On domain, enter the FQDN of an existing Platform Services Controller and the vCenter Single Sign-On administrator's password. Click **Next**. Choose a site to join from the drop-down list. Click **Next**.

VMware vCenter Server 6.0.0					
vCenter Single Sign-On Configuration Create or join a vCenter Single Sign-On domain.					
O Create a new vCenter Single Sign-On domain					
Domain name:	vsphere.local				
vCenter Single Sign-On <u>u</u> ser name:	administrator				
vCenter Single Sign-On <u>p</u> assword:	•••••				
Confirm p <u>a</u> ssword:	•••••				
Site name:	Houston				
Ioin a vCenter Single Sign-On domain					
Platform Services Controller <u>EQDN</u> or IP address:	psc01.vmware.local				
vCenter Single Sign-On HTTPS port:	443				
vCenter Single Sign-On <u>u</u> ser name:	administrator				
vCenter Single Sign-On password:	••••••				
Note: vCenter Single Sign-On configuration cannot be changed after deployment.					
	< Back Next > Cancel				

10. Accept the default ports and click **Next**.

· 過	/Mware vCenter Server 6.0.0	x
Configure Ports Configure network settings and ports for this depl	oyment.	
Common Ports		
HTTP Port:	80	
HTTP <u>S</u> Port:	443	
Syslog Service Port:	514	
Syslog Service TLS Port:	1514	
Platform Services Controller Ports		
Secure <u>T</u> oken Service Port:	7444	
 Some ports are not configurable. To proceed, 	, make the following ports available:	
88, 389, 636, 2012, 2014, 2020, 7080, 11711	, and 11712	
	< Back Next > Cancel	

11. Accept or change the installation paths as necessary. Click Next.

병 VMware vCenter Server 6.0.0 💌						
Destination Directory						
Select the storage location for this deployment.						
Install Platform Services Controller to:						
C:\Program Files\VMware\	Change					
	Changen					
Store data for Platform Services Controller in:						
C:\ProgramData\VMware\	Change					
	< Back Next > Cancel					

12. Review and click Install.

岁 VM	ware vCenter Server 6.0.0			
Ready to install Review your settings before starting the installation.				
System Name: Deployment type: vCenter Single Sign-On configuration: vCenter Single Sign-On user name:	psc001.vmware.local Platform Services Controller Create a new vCenter Single Sign-On domain administrator			
vCenter Single Sign-On domain: vCenter Single Sign-On site name: Installation directory: Data directory:	vsphere.local Houston C:\Program Files\VMware\ C:\ProgramData\VMware\			
	< Back Install Cancel			

vCenter Server Appliance Deployment

- 1. Mount the ISO image on a PC.
- 2. Open the vcsa folder and install the plug-in.
- 3. In the root of the ISO image, double-click the vcsa-setup.html file.
- 4. Wait until you are prompted to enable the client integration plug-in to run. Click Install.



- 5. Accept the license agreement and click Next.
- 6. Enter a target host and a User name and Password on the host with root access.

VMware vCenter Server Appliance	e Deployment			
 1 End User License Agreement 2 Connect to target server 	Connect to target server Specify the ESXI host on which to deploy the vCenter Server Appliance.			
 2 Connect to target server 3 Set up virtual machine 4 Select deployment type 5 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 	FQDN or IP Address: w3-tm-hp380-010.vmware.local User name: root Password: ● ● ● Make sure the ESXi host is not in lock down mode or maintenance mode. ● ● When deploying to a vSphere Distributed Switch (VDS), the appliance must be deployed to an ephemerr portgroup. After deployment, it can be moved to a static or dynamic portgroup.			
		Back	Next Finish Cancel	

- 7. Click Yes to accept the host's certificate.
- 8. Enter an Appliance name and the root password you want to assign. Click Next.

🚰 VMware vCenter Server Appliance Deployment					
~	1 End User License Agreement 2 Connect to target server	Set up virtual machine Specify virtual machine settings for the vCenter Server Appliance to be deployed.			
	3 Set up virtual machine 4 Select deployment type	Appliance name:	psc01.vmware.local	0	
	5 Set up Single Sign-on	OS user name:	root		
	7 Select appliance size	OS password:] 0	
	8 Select datastore 9 Configure database	Confirm OS password:]	
	10 Network Settings				
			Back	Next Finish Cancel	

9. Under External Platform Services Controller, select Install Platform Services Controller. Click Next.

Mware vCenter Server Appliance	Deployment		
 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 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Network Settings 10 Ready to complete 	Select deployment type Select the services to deploy onto this appliance. vCenter Server 6.0 requires a Platform Services Controller, which contains shared services such as Single Sign-On, Icicensing, and Certificate Management Lan embedded Platform Services Controller is deployed on the same Appliance VM as vCenter Server, An external Platform Services Controller is deployed in a separate Appliance VM. For smaller installations, consider vCenter Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Servers, consider one or more external Platform Services Controllers. Refer to the vCenter Server documentation for more information. Note: Once you install vCenter Server, you can only change from an embedded to an external Platform Services Controller with a fresh install. Embedded Platform Services Controller O Install vCenter Server with an Embedded Platform Services Controller with a fresh install. VM or Host Platform Services Controller VM or Host Platform Services Controller		
	External Platform Services Controller Install Platform Services Controller Install vCenter Server (Requires External Platform Services Controller) VM or Host VM or Host VCenter Server		
	Back Next Finish Cancel		

- 10. If this is the first Platform Services Controller, select **Create a new SSO domain**. If this is an additional Platform Services Controller, select **Join an SSO Domain**.
 - a. For a new vCenter Single Sign-On domain, enter an administrator vCenter SSO Password, an SSO Domain name such as vsphere.local, and an SSO Site name.

🚰 VMware vCenter Server Appliance Deployment					
 1 End User License Agreement 2 Connect to target server 	Set up Single Sign-on (SSO) Create or join a SSO domain. An SSO configuration cannot be changed after deployment.				
 3 Set up virtual machine 4 Select deployment type 5 Set up Single Sign-on 	 Create a new SSO domain Join an SSO domain in an existing vCenter 6.0 platform services controller 				
6 Select appliance size	vCenter SSO User name:	administrator			
7 Select datastore 8 Network Settings	vCenter SSO Password:	•••••	0		
9 Ready to complete	Confirm password:]		
	SSO Domain name:	vsphere.local	•		
	SSO Site name:	Houston	0		
		Back	Next Finish Cancel		
		Back	Next Finish Cancel		

b. To join an existing vCenter Single Sign-On domain, enter the FQDN of an existing Platform Services Controller and the vCenter Single Sign-On administrator's password. Then click **Next**. Choose a site to join from the drop-down list. Click **Next**.

VMware vCenter Server Appliance Deployment				
 VMware vCenter Server Applianc 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 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Configure database 10 Network Settings 11 Ready to complete 	a Deployment Set up Single Sign-on (SSO) Create or join a SSO domain. An S ○ Create a new SSO domain ③ Join an SSO domain in an exis Platform Services Controller FQDN or IP address: vCenter SSO User name: vCenter SSO Password: Port: M Before proceeding make sui name will create a new site.	SO configuration cannot be changed after ting vCenter 6.0 platform services controlle psc01.vmware.local administrator 443 re to type the correct site name that you wa	deployment. r int to join. Typing in the wrong site	
		Back	Next Finish Cancel	
		Back	Next Finish Cancel	

11. Click **Next**. There is only one appliance size for the Platform Services Controller.



12. Select a datastore to deploy the appliance on and click $\ensuremath{\textit{Next}}.$

Mware vCenter Server Appliance Deployment						
 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 	Select datastore Select the storage location for this deployment The following datastores are accessible. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.					
6 Select appliance size 7 Select datastore	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning
8 Configure database	RDM Mappings	VMFS	4.75 GB	2.25 GB	2.5 GB	true
9 Network Settings	NFSMGMT01	NFS	500 GB	331 GB	169 GB	true
10 Ready to complete	NFSMGMT02	NFS	500 GB	306.96 GB	238.13 GB	true
	🗌 Enable Thin Di	sk Mode 🚯				
				Back	Vext Einish	Cancel

13. Enter Network Settings and click Next.

NOTE: The FQDN and IP addresses entered here must be resolvable by the DNS server specified or the deployment will fail.
T VMware vCenter Server Appliance Deployment				
 1 End User License Agreement 2 Connect to target server 	Choose a network:	VM Network 🔻	0	
 3 Set up virtual machine 4 Select deployment type 	IP address family:	IPv4 •		
 ✓ 5 Set up Single Sign-on ✓ 6 Select appliance size 	Network type:	static 🔻		
7 Select datastore 8 Network Settings	Network address:	10.155.168.73]	
9 Ready to complete	System name [FQDN or IP address]:	psc01.vmware.local	0	
	Subnet mask:	255.255.255.0]	
	Network gateway:	10.155.168.253]	
	Network DNS Servers separated by comas	10.155.168.60]	
	Configure time sync:	 Synchronize appliance time with ES3 Use NTP servers (Separated by com 10.17.0.1,10.17.0.2 	Ki host mas)	
		Back	Next Finish Cancel	

14. Review and click Finish.

S VMware vCenter Server Appliance Deployment				
VMware vCenter Server Applianc 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 7 Select datastore 8 Network Settings 9 Ready to complete	e Deployment Ready to complete Please review your se ESXi server info: Name: Installation type: Deployment type: Datastore: Disk mode: Network mapping: IP allocation:	ettings before starting the installation. w3-tm-hp380-010.vmware.local psc01.vmware.local Install Platform Services Controller NFSMGMT01 thin Network 1 to VM Network IPV4 , static		
	Time synchronization Properties:	1: 10.17.0.1,10.17.0.2 SSH enabled = true SSO User name = administrator SSO Domain name = vsphere.local SSO Site name = Houston Network 11 Paddress = 10.155.168.73 Host Name = psc01.vmware.local Network 1 netmask = 255.255.0 Default gateway = 10.155.168.253 DNS = 10.155.168.60		
		Back Next Finish Cancel		

Fresh External vCenter Server Deployment

Windows Deployment

- 1. Verify all prerequisites.
- 2. If using a remote database, ensure that a 64-bit DSN has been created. This step is not necessary if using the local PostgreSQL database.
- 3. Mount the vCenter Server 6.0 ISO image.
- 4. If autorun does not start, execute autorun.exe.

5. Select vCenter Server for Windows and click Install.



6. Click Next.

- 7. Accept the license agreements.
- 8. Under External Deployment, select vCenter Server. Click Next.

il and a second	VMware vCenter Server 6.0.0			
Select deploys	ment type nent to deploy.			
vCenter Server 6. Licensing, and Ce vCenter Server. A consider vCenter consider one or n Note: Once you d fresh install.	0.0.0 requires a Platform Services Controller, which contains shared services such as vCenter Single Sign-On, rtificate Management. An embedded Platform Services Controller is deployed on the same Windows Host as An external Platform Services Controllers is deployed in a separate Windows Host. For smaller installations, Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Servers, nore Platform Services Controllers. Refer to product documentation for more information. leploy vCenter Server, you can only change from an embedded to an external Platform Services Controller with a			
Embedded Depl	r and Embedded Platform Services Controller			
External Deploy Platform Servi Conter Serve A previously in required	rment ces Controller r nstalled Platform Services Controller is VM or Host VM or Host			
	< Back Next > Cancel			

9. Verify that the FQDN is correct and click **Next**.

10. Enter the external Platform Services Controller FQDN and vCenter Single Sign-On password. Click Enter.

WWware vCenter Server 6.0.0					
vCenter Single Sign-On registration					
Connect vCenter Server to a vCenter Single Sign-On domain in an existing Platform Services Controller.					
Platform Services Controller FODN or IP address:					
Note: This is the external Platform Services Controller with the	vCenter Single Sign-On you want to register with.				
vCenter Single Sign-On HTTPS port:	443				
vCenter Single Sign-On user name:	administrator				
vCenter Single Sign-On password					
veener single sign on gassword.					
	< Back Next > Canc	.el			

11. Click \mathbf{OK} to accept the certificate.



12. Select Use Windows Local System Account or enter the service account user name and password.

岁 VMware vCenter Server 6.0.0 ×				
vCenter Server Service Account				
Enter the vCenter Server service account information.				
By default, the vCenter Server instance runs in the Windows Local System account. To run in another administrative user account, select the option to specify a user service account and provide the account credentials. The user service account must be granted the 'Log on as a service' privilege.				
O Use Windows Local System Account				
Note: If you select this option, you cannot connect to an external database using Integrated Windows authentication.				
Specify a user service account				
Account user name:				
Account password:				
< Back Next > Cancel				

13. Select Use an embedded database (vPostgres) or Use an external database and enter the server's DSN Name. Click Next.

30	Viviware veenter Server 0.0.0	^
Database Settings Configure the database for this deployment.		
\bigcirc Use an embedded database (vPostgres)		
• Use an external database		
DSN Name: VCDB	✓ Refresh	
DB <u>u</u> ser name:		
DB gassword:		
The chosen DSN is configured to use Inte to verify authenticity.	egrated Windows Authentication. SQL Server will use the credentials of the user	
, , ,		
	< Back Next > Cancel	

- 14. Unless required, leave all ports at their defaults and click Next.
- 15. Unless required, leave the default paths for installation and click Next.
- 16. Review and then click **Install**.

岁 VMware vCenter Server 6.0.0 X				
Ready to install Review your settings before starting the installation.				
System Name:	vcenter010.vmware.local			
Deployment type:	vCenter Server with an external Platform Services Controller			
vCenter Single Sign-On registration host:	psc010.vmware.local			
vCenter Single Sign-On user name:	administrator			
vCenter Single Sign-On domain:	vsphere.local			
vCenter Server service account:	VMWARE\svcvcenter			
Database type:	embedded (vPostgres)			
Installation directory:	C:\Program Files\VMware\			
Data directory:	C:\ProgramData\VMware\			
	< Back Install Cancel			

vCenter Server Appliance Deployment

- 1. Mount the ISO image on a PC.
- 2. Open the vcsa folder and install the plug-in.
- 3. In the root of the ISO image, double-click the vcsa-setup.html file.
- 4. Wait until you are prompted to enable the client integration plug-in to run. Click Install.



- 5. Accept the license agreement and click **Next**.
- 6. Enter a target host, a user name, and a password on the host with root access.

5	VMware vCenter Server Appliance	e Deployment					
~	1 End User License Agreement 2 Connect to target server	Connect to target server Specify the ESXi host on which to deploy the vCenter Server Appliance.					
	3 Set up virtual machine	FQDN or IP Address:	w3-tm-hp380-010.vmware.local				
	4 Select deployment type			-			
	5 Set up Single Sign-on	User name:	root	0			
	6 Single Sign-on Site	Pageword		1			
	7 Select appliance size	Fassword.	••••••]			
	8 Select datastore	A Before proceeding:					
	9 Configure database	Make sure the FOVi heat i					
	10 Network Settings	When deploying to a vSph	 Make sure the ESX host is not in lock down mode or maintenance mode. When deploying to a vSphere Distributed Switch (VDS), the appliance must be deployed to an ephemeral portgroup. After deployment, it can be moved to a static or dynamic portgroup. 				
	11 Ready to complete	portgroup. After deployme					
			Back	Next Finish Cancel			
				4m)			

- 7. Click **Yes** to accept the host's certificate.
- 8. Enter Appliance name and the root password you want to assign. Click Next.

Mware vCenter Server Applianc	e Deployment			
 1 End User License Agreement 2 Connect to target server 	Set up virtual machine Specify virtual machine settings for the vCenter Server Appliance to be deployed.			
3 Set up virtual machine	Appliance name:		0	
4 Select deployment type	rippilarios nario.	VcenteroTT	0	
5 Set up Single Sign-on	OS user name:	root		
6 Single Sign-on Site				
7 Select appliance size	OS password:	•••••	0	
8 Select datastore				
9 Configure database	Confirm OS password:			
10 Network Settings				
11 Ready to complete				
			Back Next	Finish Cancel

9. Under External Platform Services Controller, select Install vCenter Server. Click Next.



10. Enter the external Platform Services Controller FQDN and vCenter SSO password. Click Next.

T VMware vCenter Server Appliance Deployment					
 1 End User License Agreement 2 Connect to target server 3 Set up virtual machine 	1 End User License Agreement Configure Single Sign-On (SSO) 2 Connect to target server Connect vCenter Server to a SSO domain in an existing platform services controller. An SSO configuration canno be changed after deployment. 3 Set up virtual machine Set up virtual machine				
 4 Select deployment type 5 Configure Single Sign-On 	Platform Services Controller FQDN or IP address:	psc011.vmware.local			
6 Select appliance size 7 Select datastore	vCenter SSO User name:	administrator			
8 Configure database	vCenter SSO password:	•••••			
9 Network Settings 10 Ready to complete	vCenter Single Sign-On HTTPS Port:	443			
		Back Next fry Finish Cancel)		

11. Select **Appliance size** from the drop-down list. Click **Next**.



12. Select datastore to deploy the appliance on. Click Next.

S VMware vCenter Server Appliance Deployment						
 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 	Select datastore Select the storage location for this deployment The following datastores are accessible. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.					
✓ 6 Select appliance size 7 Select datastore	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning
8 Configure database	RDM Mappings	VMFS	4.75 GB	2.25 GB	2.5 GB	true
9 Network Settings	NFSMGMT01	NFS	500 GB	331 GB	169 GB	true
10 Ready to complete	NFSMGMT02	NFS	500 GB	306.96 GB	238.13 GB	true
	Enable Thin Di	sk Mode 🚯				
				Back	Vext I Finish	Cancel

13. Select **Use an embedded database (vPostgres)**, which is recommended, or **Use Oracle database**. Click **Next**.



14. Enter Network settings and click Next.

NOTE: The FQDN or IP address entered here must be resolvable by the DNS server specified or the deployment will fail.

🚰 VMware vCenter Server Appliance Deployment					
 1 End User License Agreement 2 Connect to target server 3 Set up virtual machine 	Network type:	static •	_		
 ✓ 4 Select deployment type ✓ 5 Configure Single Sign-On 	Network address:	10.155.168.89]		
6 Select appliance size 7 Select datastore 8 Configure database	System name [FQDN or IP address]:	vcenter011.vmware.local	•		
9 Network Settings	Subnet mask:	255.255.255.0]		
	Network gateway:	10.155.168.253			
	Network DNS Servers separated by comas	10.155.168.60]		
	Configure time sync:	 Synchronize appliance time with ESX Use NTP servers (Separated by common 10.17.0.1,10.17.0.2 	(i host mas)		
	Enable ssh				
	A Before proceeding make su deployment will fail.	ire there is time synchronization between	ESXi host and the NTP servers. If not,		
		Back	Next Finish Cancel		

15. Review and click **Finish**.



Upgrade External vCenter Single Sign-On

- 1. Back up the vCenter Single Sign-On and vCenter Server machines.
- 2. Log in to the vCenter Single Sign-On machine.
- 3. Mount the vCenter Server 6.0 ISO image.
- 4. If autorun does not start, execute autorun.exe.
- 5. Select vCenter Server for Windows and click Install.



- 6. Click Next.
- 7. Accept the license agreements.
- 8. Enter the vCenter Single Sign-On password for the administrator@vsphere.local account. Click Next.

谩	VMware vCenter Server 6.0.0	×				
vCenter Single Sign-On Credentials						
Enter your vCenter Single Sign-On 5.5 admi	inistrator credentials.					
vCenter Single Sign-On <u>u</u> ser name:	administrator@vsphere.local]				
vCenter Single Sign-On password:	••••••]				
	< Back	Next > Cancel				

9. Wait for the **pre-upgrade checks** to complete.



10. Accept the default ports and click **Next**.

岁 VV	ware vCenter Server 6.0.0	x
Configure Ports Configure network settings and ports for this deployr	nent.	
Common Ports		
HTTP Port:	80	
HTTP <u>S</u> Port:	443	
Syslog Service Port:	514	
Syslog Service TLS Port:	1514	
Platform Services Controller Ports		
Secure Token Service Port:	7444	
🚯 Some ports are not configurable. To proceed, m	ake the following ports available:	
88, 389, 636, 2012, 2014, 2020, 7080, 11711, a	nd 11712	
	< Back Next > Cancel	

11. Select your installation path or take the defaults. Click $\ensuremath{\textit{Next}}.$

岁 VMware vCente	er Server 6.0.0
Destination Directory	
Select the storage location for this deployment.	
Install Platform Services Controller to:	
C:\Program Files\VMware\	Change
Store data for Platform Services Controller in:	
C:\ProgramData\VMware\	Change
Export your 5.X data to:	
C:\ProgramData\VMware\vCenterServer\export\	Change
Note: During the upgrade, $5.x$ data will be stored in this directory, this directory will not be cleaned up by the installer. Remove this d	and then migrated to the 6.0.0 deployment. Data exported to lirectory and its contents after the upgrade completes.
	< Back Next > Cancel

12. Check I verify that I have backed up this vCenter Single Sign-On machine. Click Upgrade.

討	VMware vCenter Server 6.0.0	x
Ready to upgrade Confirm the settings below and click Upgrade.		
Deployment type:	Platform Services Controller	
vCenter Single Sign-On replication host:	sso02.vmware.local	
vCenter Single Sign-On user name:	administrator	
vCenter Single Sign-On domain:	vsphere.local	
vCenter Single Sign-On site name:	Palo Alto	
Installation directory:	C:\Program Files\VMware\	
Data directory:	C:\ProgramData\VMware\	
Upgrade export directory:	C:\ProgramData\VMware\vCenterServer\export\	
I verify that I have backed up this vCenter Si	ngle Sign-On machine.	
	< Back Upgrade Cancel	

- 13. Click Finish.
- 14. Log in to the vCenter Server you want to upgrade.
- 15. Mount the vCenter Server 6.0 ISO image.
- 16. If autorun does not start, execute autorun.exe.
- 17. Select vCenter Server for Windows and click Install.



18. Click Next.

19. Accept the license agreements.

20. Enter the vCenter Server password for the administrator@vsphere.local account and the Account password for the service account (if applicable). Click Next.

붱	VMware vCenter Server 6.0.0	x
vCenter Server Credentials Enter your vCenter Server 5.5 administrato	or credentials.	
vCenter Server <u>u</u> ser name: vCenter Server <u>p</u> assword:	administrator@vsphere.local	
The installer has detected that the vCenter credentials for this service account.:	Server service is running under the following service account. Enter the	
Account user name:	VMWARE\svcvcenter	
Account password:	••••••	
	< Back Next > Cancel	

21. Wait for the **pre-upgrade checks** to complete.

륗	VMware vCenter Server 6.0.0	x
Running	pre-upgrade checks. This could take a few minutes	

22. Enter the vCenter Single Sign-On password for the administrator@vsphere.local account. Click Next.

岁 VMware vCen	ter Server 6.0.0	X
vCenter Single Sign-On registration Connect vCenter Server to a vCenter Single Sign-On domain in a	n existing Platform Services Controller.	
Platform Services Controller <u>FQDN</u> or IP address: Note: This is the external Platform Services Controller with the v	sso.vmware.local Center Single Sign-On you want to register with.	
vCenter Single Sign-On HTTPS port:	443	
vCenter Single Sign-On <u>u</u> ser name:	administrator	
vCenter Single Sign-On <u>p</u> assword:	•••••	
	< Back Next >	Cancel

23. Click **OK** to accept the certificate.

	Windows Security X			
Certificate Validation Please confirm that the certificate provided by the remote server matches the expected certificate. Select OK if you approve it, otherwise select Cancel.				
	VMWareDirectoryService,d Issuer: CA, CN=sso02, dc=vsphere,dc=local Valid From: 12/18/2014 to 12/15/2024 <u>Click here to view certificate</u> <u>properties</u>			
	OK Cancel			

24. Accept the default ports and click **Next**.

ġ	VMware vCenter Server 6.0.0
Configure Ports Configure network settings and ports for this dep	ployment.
Common Ports	
HTTP Port:	80
HTTP <u>S</u> Port:	443
Syslog Service Port:	514
Syslog Service TLS Port:	1514
vCenter Server Ports	
Auto Deploy Management Port:	6502
Auto Deploy Service Port:	6501
ESXi Dump Collector Port:	6500
ESXi Heart <u>b</u> eat Port:	902
vSphere Web Client Port:	9443
Some ports are not configurable. To proceed	d, make the following ports available:
2020	
	< Back Next > Cancel

25.	Accept	or	change	the	installation	paths	as	necessary.	Click	Next
-----	--------	----	--------	-----	--------------	-------	----	------------	-------	------

붱	VMware vCenter Server 6.0.0
г	Destination Directory
1	Select the storage location for this deployment.
	Install vCenter Server with an external Platform Services Controller to:
	C:\Program Files\VMware\ Change
	Store data for vCenter Server with an external Platform Services Controller in:
	C:\ProgramData\VMware\ Change
	Export your 5 X data to:
	C:\ProgramData\VMware\vCenterServer\export\ Change
	Note: During the upgrade, 5.x data will be stored in this directory, and then migrated to the 6.0.0 deployment. Data exported to this directory will not be cleaned up by the installer. Remove this directory and its contents after the upgrade completes.
	< Back Next > Cancel

26. Check the box to verify that you have backed up the vCenter Server and its database. Click Upgrade.

븅 VM	ware vCenter Server 6.0.0
Ready to upgrade Confirm the settings below and click Upgrade.	
Deployment type: vCenter Single Sign-On user name: vCenter Single Sign-On domain: Installation directory: Data directory: Upgrade export directory:	vCenter Server with an external Platform Services Controller administrator vsphere.local C:\Program Files\VMware\ C:\ProgramData\VMware\vCenterServer\export\
 VMware vCenter Server will be in evaluation mod Activate vCenter Server through the vSphere We vCenter Server expires, all hosts will be disconne I verify that I have backed up this vCenter Server r 	de after the upgrade. Ib Client within 60 days after the upgrade. When the evaluation period of the ected from this vCenter Server. machine and the database server pointed by the 'vcenter001' DSN.
	< Back Upgrade Cancel

27. When completed, click Finish.

붱	VMware vCenter Server 6.0.0	
vm ware [*]	Setup Completed	
	Your vCenter Server 5.5 is upgraded to version 6.0.0.	
	Post upgrade step(s):	
	 vCenter Server is upgraded and is now 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. Data exported to C:\ProgramData\VMware\vCenterServer\export\ directory is not cleaned up by the installer. Verify that the upgraded vCenter Server works correctly and remove the directory and its contents. Use the vSphere Web Client to manage vCenter Server. Log in with the vCenter Single Sign-On administrator account administrator@vsphere.local. 	
VMware® vCenter Server® 6.0	Launch vSphere Web Client	
	< Back Finish Cancel	

Fresh vCenter Single Sign-On High Availability Deployment

Windows Deployment

- 1. Complete steps 1-12 in the "Fresh External Platform Services Controller Deployment" section.
- 2. Log in to the second Windows Server to become a Platform Services Controller.
- 3. Mount the vCenter Server 6.0 ISO image.
- 4. If autorun does not start, execute autorun.exe.
- 5. Select vCenter Server for Windows and click Install.



- 6. Click Next.
- 7. Accept the license agreements.
- 8. Under External Deployment, select Platform Services Controller. Click Next.

VMware vCenter Server 6.0.0		
Select deployment type Select the component to deploy.		
Vecnter Server 6.0.0 requires a Platform Services Controller, which contains shared services such as vCenter Single Sign-On, Licensing, and Certificate Management. An embedded Platform Services Controller is deployed on the same Windows Host as vCenter Server. An external Platform Services Controllers is deployed in a separate Windows Host. For smaller installations, consider vCenter Server with an embedded Platform Services Controller. For larger installations with multiple vCenter Servers, consider one or more Platform Services Controllers. Refer to product documentation for more information. Note: Once you deploy vCenter Server, you can only change from an embedded to an external Platform Services Controller with a		
fresh install.	VM or Hest	
OvCenter Server and Embedded Platform Services Controller	Platform Services Controller vCenter Server	
External Deployment Platform Services Controller Vcenter Server A previously installed Platform Services Controller is required	VM or Host VM or Host VM or Host VCenter Server	
	< Back Next > Cancel	

9. Verify the **System Name** and click **Next**.

谩	VMware vCenter Server 6.0.0			
System Network Na Configure the name of the	ame is system.			
Enter the system name to use for managing the local system. The system name will be encoded in the SSL certificate of the system so that the components can communicate with each other by using this name. Enter the system name as a fully-qualified domain name (FQDN). If DNS is not available, you can provide a static IPv4 address. IPv6 is supported only by using a name.				
<u>S</u> ystem Name:	psc002.vmware.local			
🚯 Note: The System N	etwork Name cannot be changed after deployment.			
	< Back Next > Cancel			

VMware vCenter Server 6.0.0				
vCenter Single Sign-On Configuration Create or join a vCenter Single Sign-On domain.				
O Create a new vCenter Single Sign-On domain				
uornam marne: vOenter Single Sign-On geer name:	vsphere.local			
vCenter Single Sign-On gassword:				
Confirm p <u>a</u> ssword:				
Site name:	Default-First-Site			
Ioin a vCenter Single Sign-On domain				
Platform Services Controller FQDN or IP address:	psc001.vmware.local			
vCenter Single Sign-On HTTPS port:	443			
vCenter Single Sign-On <u>u</u> ser name:	administrator			
vCenter Single Sign-On password:	••••••			
1 Note: vCenter Single Sign-On configuration cannot be changed after deployment.				
	< Back Next > Cancel			

10. Select Join a vCenter Single Sign-On domain and enter the FQDN and password. Click Next.

11. Click **OK** to accept the certificate from the Platform Services Controller.



12. Select Join an existing site and enter the site. Click Next.

6	VMware	vCenter Server 6.0.0
vCenter Single Sign-On S Create or join a vCenter Single S	Site Sign-On site.	
Select an option to join an existi recommends a maximum of eigh	ng site or create a new site It Platform Services Contro	e for this Platform Services Controller. For an existing site, VMware ollers per site. The site selection cannot be changed after install.
Join an existing site	Houston	~
Select this option for high ava	hiability at a single site.	
○ Create a new site		
Select this option for a multi-	site deployment.	
		< Back Next > Cancel

13. Accept the default ports and click $\ensuremath{\textit{Next}}.$

뤙	VMware vCenter Server 6.0.0	x
Configure Ports Configure network settings and ports for this de	eployment.	
Common Ports		
HTTP Port:	80	
HTTP <u>S</u> Port:	443	
Syslog Service Port:	514	
Syslog Service TLS Port:	1514	
Platform Services Controller Ports		
Secure Token Service Port:	7444	
Some ports are not configurable. To proce	ed, make the following ports available:	
88, 389, 636, 2012, 2014, 2020, 7080, 117	11, and 11712	
	< Back Next > Cancel	

14. Accept or change the installation paths as necessary. Click Next.

過	VMware vCenter Server 6.0.0	×
Destination Directory		
Select the storage location for this deployment.		
Install Platform Services Controller to:		
C:\Program Files\VMware\	Change	
Store data for Platform Services Controller in:		
C:\ProgramData\VMware\	Change	
	< Back Next > Cancel	_

15. Review and click Install.

退	VMware vCenter Server 6.0.0	x
Ready to install Review your settings before starting the installa	tion.	
System Name: Deployment type:	psc002.vmware.local Platform Services Controller	
vCenter Single Sign-On configuration: vCenter Single Sign-On replication host:	Replicate with an existing vCenter Single Sign-On server psc001.vmware.local	
vCenter Single Sign-On user name:	administrator	
vCenter Single Sign-On site name:	Houston	
Installation directory: Data directory:	C:\Program Files\VMware\ C:\ProgramData\VMware\	
	< Back Install Cano	cel

- 16. Log back in to the first Platform Services Controller.
- 17. Download the vCenter Single Sign-On high availability configuration scripts from the vCenter Server product download page.
- 18. Extract the vCenter Single Sign-On high availability scripts to c:\sso-ha.
- 19. Open a command prompt.
- 20. Add Python to your path by typing:

PATH=%PATH%;%VMWARE PYTHON HOME%



- 21. Change directories to c:\sso-ha.
- 22. Run:

python gen-lb-cert.py --primary-node --lb-fqdn=loadbalancerFQDN

where *loadbalancerFQDN* is the FQDN of the load balancer's virtual IP (VIP) used for load-balancing the Platform Services Controllers.

Administrator. C. (Windows/systemsz/chiu.exe	
C:\sso-ha>python gen-lb-cert.pyprimary-nodelb-fqdn=psc010.vmware.local Initialization complete executing certIool command executing certIool command Using config file : C:\Program Files\VMware\vCenter Server\vmcad\certool.cfg Status : Success	
Executing openssl command Loading 'screen' into random state - done Executing openssl command writing RSA key Modifying hostname.txt modifying server.xml Executing StopServiceall INFO:root:Service: UnicenseService(Action: stop INFO:root:Service: wwareService(ControlAgent, Action: stop INFO:root:Service: wwareService(ControlAgent, Action: stop INFO:root:Service: wwareService(ControlAgent, Action: stop INFO:root:Service: WhareComponentManager, Action: stop INFO:root:Service: UMwareIdentiyMgmtService, Action: start INFO:root:Service: UMwareIdentiyMgmtService, Action: start INFO:root:Service: UMwareIdentiyMgmtService, Action: start INFO:root:Service: UMwareIdentiyMgmtService, Action: start INFO:root:Service: UMwareGertificateService, Action: start INFO:root:Service: UMwareGertificateService, Action: start INFO:root:Service: UMwareGertificateService, Action: start INFO:root:Service: UMwareGortificateService, Action: start INFO:root:Service: UMwareGortificateService, Action: start INFO:root:Service: UMwareGortificateService, Action: start INFO:root:Service: UMwareService, Action	

- 23. Set up your load balancer to balance between the two or more Platform Services Controllers on ports 443, 2012, 2014, 2020, 389, and 636.
 - a. An SSL certificate (generated earlier and stored in c:\ha) is required for port 443 only.
 - b. For configuration steps for the F5 BIG-IP, see the appendix in this document.
- 24. Create a forward and reverse DNS entry for the VIP created to load balance the Platform Services Controller traffic.
- 25. Log in to the second Platform Services Controller.

- 26. Copy the sso-ha and ha folder from the first Platform Services Controller into the c: drive.
- 27. Copy C:\ProgramData\VMware\vCenterServer\cfg\sso\keys from the first Platform Services Controller to c:\ha\keys.
- 28. Open a command prompt.
- 29. Add Python to your path by typing:

PATH=%PATH%;%VMWARE PYTHON HOME%



- 30. Change directories to c:\sso-ha.
- 31. Run:

python gen-lb-cert.py --secondary-node --lb-fqdn=loadbalancerFQDN --lb-certfolder=C:\ha --sso-serversign-folder=c:\ha\keys\

where *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load-balancing the Platform Services Controllers.



32. Repeat steps 26–32 for any additional Platform Services Controllers.

33. On one Platform Services Controller, update the endpoint URL by running:

python lstoolHA.py --hostname=FQDNofLocalMachine --lb-fqdn=loadbalancerFQDN --lb-certfolder=C:\ha --user=Administrator@SSODomain --password="password"

where *FQDNofLocalMachine* is the FQDN of the machine where the script is being run, *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load balancing the Platform Services Controllers, *SSODomain* is the vCenter Single Sign-On domain (by default vsphere.local), and *password* is the password for the vCenter Single Sign-On administrator. The password parameter is optional; if not specified, you will be prompted for it.



34. Follow the steps to install a new external vCenter Server. When asked for the Platform Services Controller, enter the FQDN of the load balancer's VIP.

vCenter Server Appliance Deployment

- 1. Complete steps 1-14 in the "Fresh External Platform Services Controller Deployment" section.
- 2. Click Install to start the installation for the second Platform Services Controller.



- 3. Accept the license agreement and click Next.
- 4. Enter a target host and a User name and Password on the host with root access.

5	VMware vCenter Server Appliance Deployment			
~	1 End User License Agreement 2 Connect to target server	Connect to target server Specify the ESXI host on which to deploy the vCenter Server Appliance.		
	3 Set up virtual machine	FQDN or IP Address:	w3-tm-hp380-010.vmware.local	
	4 Select deployment type			-
	5 Set up Single Sign-on	User name:	root	0
	6 Single Sign-on Site	Password		1
	7 Select appliance size	Fassword.	••••••]
	8 Select datastore	A Before proceeding:		
	9 Configure database	 Make sure the ESXi host is not in lock down mode or maintenance mode. When deploying to a vSphere Distributed Switch (VDS), the appliance must be deployed to an ephemeral portgroup. After deployment, it can be moved to a static or dynamic portgroup. 		
	10 Network Settings			
	11 Ready to complete			
_				
			Back	Next Finish Cancel

- 5. Click **Yes** to accept the host's certificate.
- 6. Enter an Appliance name and the root password you want to assign. Click Next.

VMware vCenter Server Applianc	e Deployment			
 1 End User License Agreement 2 Connect to target server 	Set up virtual machine Specify virtual machine setting	s for the vCenter Server Appliance	to be deployed.	
3 Set up virtual machine4 Select deployment type	Appliance name:	psc03.vmware.local	0	
5 Set up Single Sign-on 6 Single Sign-on Site	OS user name:	root		
7 Select appliance size	OS password:	•••••	0	
8 Select datastore 9 Configure database	Confirm OS password:	••••••		
10 Network Settings 11 Ready to complete				
		Back	Next Fir	ish Cancel

- Mware vCenter Server Appliance Deployment Select deployment type Select the services to deploy onto this appliance. 1 End User License Agreement ✓ 2 Connect to target server vCenter Server 6.0 requires a Platform Services Controller, which contains shared services such as Single Sign-On, Licensing, and Certificate Management. An embedded Platform Services Controller is deployed on the same Appliance VM as vCenter Server. An external Platform Services Controller is deployed in a separate Appliance VM. For smaller installations, consider vCenter Server with an embedded Platform Services Controller. I or larger installations with multiple vCenter Servers, consider one or more external Platform Services Controllers. Refer to the Center Server dependenties for server intermedies. ✓ 3 Set up virtual machine 4 Select deployment type 5 Set up Single Sign-on 6 Single Sign-on Site vCenter Server documentation for more information. 7 Select appliance size Note: Once you install vCenter Server, you can only change from an embedded to an external Platform Services 8 Select datastore Controller with a fresh install. 9 Network Settings Embedded Platform Services Controller VM or Host 10 Ready to complete Platform Services Controller O Install vCenter Server with an Embedded Platform Services Controller vCenter Server External Platform Services Controller VM or Host Platform Services Controller Install Platform Services Controller O Install vCenter Server (Requires External Platform Services Controller) VM or Host VM or Host vCenter Server vCenter Server Back Next Finish Cancel
- 7. Under External Platform Services Controller, select Install Platform Services Controller. Click Next.

8. Select Join an SSO domain and enter the FQDN and password. Click Next.

VMware vCenter Server Appliance Deployment			
 1 End User License Agreement 2 Connect to target server 	Set up Single Sign-on (SSO) Create or join a SSO domain. An SSO configuration cannot be changed after deployment.		
3 Set up virtual machine	Create a new SSO domain		
4 Select deployment type	 Join an SSO domain in an exis 	Join an SSO domain in an existing vCenter 6.0 platform services controller	
5 Set up Single Sign-on			
6 Single Sign-on Site	Platform Services Controller	psc01.vmware.local	
7 Select appliance size	FOUN OF IF address.		
8 Select datastore	vCenter SSO User name:	administrator	
9 Network Settings			
10 Ready to complete	vCenter SSO Password:		
	Port:	443	
	▲ Before proceeding make su name will create a new site.	rre to type the correct site name that you want to join. Typing in the wrong site	
		Back Next Finish Cancel	

9. Select Join an existing site. Choose the site and click Next.

🚰 VMware vCenter Server Appliance Deployment					
 VMware vCenter Server Appliant 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 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Network Settings 10 Ready to complete 	e Deployment Single Sign-on Site Create or join a vCenter Single Sig Join an existing site Create a new site Choose SSO Site name from the list	n-on site. Palo-Alto]	
			Back	Javit Ei	nich Concel
			Back	Vext Fi	nish Cancel

10. Click **Next**. There is only one appliance size for the Platform Services Controller.

VMware vCenter Server Appliance Deployment							
 ✓ 1 End User License Agreement ✓ 2 Connect to target server 	Select appliance size Specify a deployment size for the new appliance						
 3 Set up virtual machine 4 Select deployment type 	Appliance size:	Appliance size: Platform Services Controller					
 ✓ 5 Set up Single Sign-on 6 Select appliance size 							
7 Select datastore	Description						
8 Network Settings	This will deploy an external Pl	atform Services Controller VM with 2 vCPU and 2GB of memory and requires 30					
9 Ready to complete	OD OT USK Space.						
		Back Next Finish Cancel					

 2 Connect to target server 	Select datastore Select the storage location for this deployment						
 3 Set up virtual machine 4 Select deployment type 5 Set up Single Sign-on 	The following datastores are accessible. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.						
6 Select appliance size 7 Select datastore	Name	Туре	Capacity	Free	Provisioned	Thin Provisioning	
8 Configure database	RDM Mappings	VMFS	4.75 GB	2.25 GB	2.5 GB	true	
9 Network Settings	NFSMGMT01	NFS	500 GB	331 GB	169 GB	true	
10 Ready to complete	NFSMGMT02	NFS	500 GB	306.96 GB	238.13 GB	true	

11. Select a datastore to deploy the appliance on and click **Next**.

12. Enter Network Settings and click Next.

NOTE: The FQDN and IP addresses entered here must be resolvable by the DNS server specified or the deployment will fail.

VMware vCenter Server Applianc	e Deployment			
 1 End User License Agreement 2 Connect to target server 	Choose a network:	VM Network •	0	•
 3 Set up virtual machine 4 Select deployment type 	IP address family:	IPv4 ▼]	
 Set up single sign-on 6 Single Sign-on Site 7 Select appliance size 	Network type:	static •]	
 8 Select datastore 9 Network Settings 	Network address:	10.155.168.74]	
10 Ready to complete	System name [FQDN or IP address]:	psc03.vmware.local	0	
	Subnet mask:	255.255.255.0]	
	Network gateway:	10.155.168.253]	
	Network DNS Servers separated by comas	10.155.168.60]	
	Configure time sync:	 Synchronize appliance time with ESX Use NTP servers (Separated by com 10.17.0.1,10.17.0.2 	(i host mas)	•
		Back	Next Finish Cancel	

13. Review and click **Finish**.

 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 Single Sign-on Site 7 Select appliance size 9 Network Settings 10 Ready to complete Mean Mark Setting: 10 Ready to complete Ready to the ready to complete Ready to the ready to the	VMware vCenter Server Appliance	e Deployment					
SSO Domain name = vsphere local SSO Site name = Palo-Alto Network 11P address = 10.155.168.74 Host Name = psc03.vmware.local Network 1 netmask = 255.255.0 Default gateway = 10.155.168.253 DNS = 10.155.168.60	 Whware 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 Single Sign-on Site 7 Select appliance size 8 Select datastore 9 Network Settings 10 Ready to complete 	e Deployment Please review your se ESXi server info: Name: Installation type: Deployment type: Datastore: Disk mode: Network mapping: IP allocation: Time synchronization Properties:	ttings before starting the installati w3-tm-hp380-011.vmware.local psc03.vmware.local Install Platform Services Controller NFSMGMT01 thin Network 1 to VM Network IPV4, static : 10.17.0.1,10.17.0.2 SSH enabled = true SSO User name = administrator Single Sign-On instance IP = ps	ion.			
N ¹⁰			Single Sign-On Instance IP = ps SSO Domain name = vsphere.It SSO Site name = Palo-Alto Network 11 Paddress = 10.155. Host Name = psc03.vmware.loc Network 1 netmask = 255.255.2 Default gateway = 10.155.168.2 DNS = 10.155.168.60	Control Water Jocal coal 168.74 al 55.0 55.3 Back	Next	Finish day	Cancel

14. Connect to the first Platform Services Controller via SSH.

15. Type:

shell.set --enabled True

16. Type:

shell

- 17. Download the vCenter Single Sign-On high availability configuration scripts from the vCenter Server product download page.
- 18. Extract the vCenter Single Sign-On high availability scripts to /sso-ha.
- 19. Change directories to /sso-ha.

20. Run:

python gen-lb-cert.py --primary-node --lb-fqdn=loadbalancerFQDN

where *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load-balancing the Platform Services Controllers.



- 21. Set up your load balancer to balance between the two or more Platform Services Controllers on ports 443, 2012, 2014, 2020, 389, and 636.
 - a. An SSL certificate (generated earlier) is required for port 443 only.
 - b. For configuration steps for the F5 BIG-IP, see the appendix in this document.
- 22. Create a forward and reverse DNS entry for the VIP created to load-balance the Platform Services Controller traffic.
- 23. Connect to the second Platform Services Controller via SSH.
- 24. Copy the /sso-ha and /ha folder from the first Platform Services Controller.
- 25. Copy /etc/vmware-sso/keys/ from the first Platform Services Controller to /ha/keys.
- 26. Change directories to /sso-ha.
- 27. Run:

python gen-lb-cert.py --secondary-node --lb-fqdn=loadbalancerFQDN --lb-cert-folder=/ha --sso-serversign-folder=/ha/keys

where *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load-balancing the Platform Services Controllers.

Initialization complete	
Please make sure that you have copied the contents from HA folder in Node 1 into	
the nx totaer in the local hode	
Please Make that you have copied the ssoserversign." Tiles and ssoserverkoot.crt file from hode 1	
Press enter to continue.	
nootrying nostname.txt	
Houriying Server.xmL	
Executing StopService Vmware-Sisu Eventing StopService Vmware-Sto-idad	
Executing Stoperate Amone-sts-tung	
Executing Stonstarter	
INFO:root:Service: vwware-syslog-health. Action: stop	
INFO:root:Service: appleget, Action: stop	
INFO:root;Service: vmware-cis-license. Action: stop	
INFO:root:Service: vmware-syslog, Action: stop	
INFO:root:Service: vmware-sca, Action: stop	
INFO:root:Service: vmware-cm, Action: stop	
INFO:root:Service: vmware-rhttpproxy, Action: stop	
INFO:root:Service: vmvare-sts-idmd, Action: stop	
INFO:root:Service: vmcad, Action: stop	
INFO:root:Service: vmdird, Action: stop	
INFO:root:Service: vmafdd, Action: stop	
Executing StartServiceall	
INFO:rootiService: vmatdd, Action: start	
INFO:rootiservice: VMWare-rhttpproxy, Action: start	
INFOURDOTSERVICE: VMGTRG, ACTION: Start	
INFO:rootiService: vmcau, Action: Start	
TNFO: root: Service: Vilvare-sts: fullo, Action: start	
TNEO-root/Service/vnuvre/cm/start	
INFO: root/Service: valuere.cis.licence action: start	
INFO: cont:Service: vmware.sca. Action: start	
INFO:root:Service: applggbt, Action: start	
INFO:root:Service: vmware-syslog. Action: start	
INFO:root:Service: vmware-syslog-health, Action: start	

28. Repeat steps 24–28 for any additional Platform Services Controllers.

29. On one Platform Services Controller, update the endpoint URL by running:

python lstoolHA.py --hostname=FQDNofLocalMachine --lb-fqdn=loadbalancerFQDN --lb-certfolder=/ha --user=Administrator@SSODomain --password=password

where *FQDNofLocalMachine* is the FQDN of the machine where the script is being run, *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load-balancing the Platform Services Controllers, *SSODomain* is the vCenter Single Sign-On domain (by default, vsphere.local), and *password* is the password for the vCenter Single Sign-On administrator. The password parameter is optional; if not specified, you will be prompted for it.

2015-01-13 18:80:18,252 INFO org.springframework.beans.factory.xml.XmlBeanDefinitionReader - Loading XML bean definitions from class path resource [com/vmware/vi
m/binding/lookup/context.xml]
2015-01-13 18:00:18,363 INFO com.vmware.vim.vmomi.core.types.impl.VmodlContextImpl\$NonValidatingClassPathXmlApplicationContext - Closing com.vmware.vim.vmomi.cor
e.types.impl.YmodlContextImpl\$NonValidatingClassPathXmlApplicationContext@7fcd72ca: startup date [Tue Jan 13 18:00:18 UTC 2015]; root of context hierarchy
2015-01-13 18:00:19,200 VARN com.vmware.vim.vmomi.client.http.impl.HttpConfigurationCompilerBase\$ConnectionMonitorThreadBase - Shutting down the connection monit
or.
2015-01-13 18:00:20,055 INFO com.vmware.vim.vmomi.core.types.impl.YmodlContextImpl\$NonYalidatingClassPathXmlApplicationContext - Refreshing com.vmware.vim.vmomi.
core.types.impl.YmodlContextImpl\$NonValidatingClassPathXmlApplicationContext@fd13cab: startup date (Tue Jan 13 18:00:20 UTC 2015): root of context hierarchy
2015-01-13 18:00:20.112 INFO org.springframework.beans.factory.xml.XmlBeanDefinitionReader - Loading XML bean definitions from class path resource [com/ymware/vi
<pre>n/binding/ymodl/context v2.xml]</pre>
2015-01-13 18:00:20,427 INFO com.vmware.vim.vmomi.core.types.impl.YmodlContext1mpl\$NonYalidatingClassPathXmlApplicationContext - Closing com.vmware.vim.vmomi.cor
e.types.impl.YmodlContextImpl\$NonValidatingClassPathYmlApplicationContext@fdl3cab: startup date [Tue Jan 13 18:08:20 UTC 2015]: root of context bierarchy
2015-01-13 18:00:20,431 INFO com. ymware.vim. ymoni.core.types.impl.YmodlContext1mpl\$NonYalidatingClassPathXmlApplicationContext - Refreshing com.ymware.vim.ymoni.
core types impl. YmodlContextImpl\$NonValidatingClassPathXml&onlicationContext@48hbalc5: startup date [Tue Jan 13 18:88:28 UTC 28151: root of context hierarchy
2015-01-13 18:00:20, 433 INFO org.springframework.beans.factory.xml.XmlBeanDefinitionReader - Loading XML bean definitions from class path resource (com/ymware/yi
<pre>a/binding/ymodl/context v2.xmll</pre>
2015-01-13 18:00:20,482 INED _com_vmware.vim_vmomi.core.types.impl.YmodlContext1mplSNonValidatingClassPathXmlApplicationContext - Closing com_vmware.vim_vmomi.cor
e.tvces.impl.VmodlContextImpl\$NonValidatingClassPathXmlApplicationContext048bbalc5: startup date [Tue Jan 13 18:00:20 UTC 2015]: root of context hierarchy
2015-01-13 18:00:20,486 INED com veware vie vees tent vees tent version and context and second assertive and context - Refreshing com veware vie vees
core types impl YmodiContextimpl\$NonYalidatingClassPathXalignDicationContext@2aca6ddf: startup date Twe Jan 13 18:88:28 UTC 20151: root of context bierarchy
2015-01-13 18:00:20.488 INED org.springframework.beans.factory.xml.XmlBeanDefinitionReader - Loading XML bean definitions from class path resource (com/ymware/yi
a/binding/lookup/context.xwll
2015.01.13.18.00.29.506 INFO com vavare via vacat core tvoes ianl YmodlContextIanl\$NonYalidatineflassPathYalionLicationContext . Closing com vavare via vacat cor
et voes jant voorlejste trant Skonvalidating (lassPathis) in nication Context #2ara6ddf (startun date (Tue Jan 13.18:88:28 UTC 2015); root of context bigrarchy
ercypes map i more sum provide international international and the sum of the sum provide sum provide sum provide sum of the sum of
fore type: (an) Vandiontavtiani\$NonValidationClassificationContext@d556ddd: startun date (Tie lan 13 18:00:01 UTC 2015); root of context biararchy
2015-01-13 18:00-21 634 INFO org springframework beans factory val XalReanDefinitionReader - Loading XML bean definitions from class path resource [con/vwware/vi
aligned and a second se
anonneng-Job Concertae; 2015-01-11:10:00 - Concertae;
201901-19 10/00.22,000 IN C. Com, WWW EVENT HOLECO EVENT HOLECO TEXT HE ISON TO COME AND A COME AND
e cyces implimination contraction indicates a dimetraper contraction contextume scantable to act the context metra c
2015 01-13 10:00.22,000 into companying commencement and the companying commencement of contract as contact successfully and the companying
201301-13 10:00:22,424 WKW Com, WWWEL-VEH, WOWLCCEERCHCCCONTINUE CONDITION OF CONSISTENCY CONTINUE CONTENTS IN CONTENT
vi. 2015-01-12 19:00:77 474 INEO, con unuser vin eco admin client unemi inclienterschülent . Client use disposed sussessfullu
2015/01-13 10:00:22,944 INFO Com.vMV01E.VIM.SOCIABILIT.CTERT.MOMILINET.ADVIGCTETETE C ETERT WAS anaposed successfully
2015 01:13 10:00:22,751 INFO Communer identity token implorite Keading resources from 21p Frie path-from / informativy torvstories in / information / inform
2015-01-15 10:00:22,000 INFO COM,VMVATE.TUENTLY, COKEN.IMPLC.VITT - READING RESOURCES From decoded 21p THE partm-[/ds7/th//whitentry/tob/stc/th/ws/ctient.jarj
2015 01:13 10:00:22,074 INFO Com.vMvare Fuenci (v. token, implication esources from 21p Fire path=[/057/cfu/v#mident/uk/v/osamit/uk/en.jar]
2015-01-15 10:00:25,575 1NPD CUM, AWARE. Henrity, token, hipt. oft. * Reading resources from decoded 21p Tile pathe[/usr/lb//whidentity/tools/lb/25ahttoken.jar] 2015-01-15 10:00:25,575 1NPD Cum, AwarE. Henrity, token, tapit. * Reading resources from decoded 21p Tile pathe[/usr/lb//whidentity/tools/lb/25ahttoken.jar]
2019/13/10/13/10/200/20,001 http://oken.tmpt.samtrokentmpt.*.skm2 (oken for SubjectNamero [value-koministrator@vsrneke.Lockt, format-http://stnema
Stratisoph org/claims/orm/ Successfully parsed from clement
2015-01-15 10:00:23,749 INPU CUM, ANVARE.VIM.SSU.CTERT. HDT.SECUTITYTOKENSETVILEIMDI - SUCCESSTULLY acquired token for user: administratorevsphere.local
2013/01/13 10.00.24,101 WARK COMPARENTMINATER THE CONFICT ON THE C
ur.

30. Follow the steps to install a new external vCenter Server. When asked for the Platform Services Controller, enter the FQDN of the load balancer VIP.

Upgrade of vCenter Single Sign-On High Availability

- 1. Back up all vCenter Single Sign-On machines.
- 2. Log in to the load balancer. In this example, we're using an F5 BIG-IP.
- 3. Create a pool for ports 443, 2012, 2014, 2020, 389, and 636. Set health monitors to use **TCP** and **Load Balancing Method** to **Round Robin**.

When complete, the **Pool List** should look like this:

Loc	al Traffic »	Pools : Pool List				
.	, Pool List	Statistics				
_			_			
*			Search			Crea
	 Status 	▲ Name		Application	Members	Partition / I
	0	SSO			2	Common
	0	sso.vmware.local-2012			2	Common
	0	sso.vmware.local-2014			2	Common
	0	sso.vmware.local-2020			2	Common
	0	sso.vmware.local-389			2	Common
	0	sso.vmware.local-443			2	Common
	•	sso.vmware.local-636			2	Common

4. Create a virtual server using the same IP address as the original vCenter Single Sign-On high availability virtual server for each of the new pools. Use **TCP** for each virtual server. Set **Source Address Translation** to **Auto Map** and **Default Persistence Profile to Source Address**. Assign the client and server SSL profiles created when setting up vCenter Single Sign-On high availability for vCenter Server 5.5 to port 443 only. No other port requires a client or server SSL profile.

When complete, the Virtual Server List should look like this:

Loca	Local Traffic » Virtual Servers : Virtual Server List									
÷	Virtual S	erver List	Virtual Address Li	st Statistics	-					
1				Search						Create
	 Status 	 Name 			Application	Destination	Service Port	Type	Resources	Partition / Path
	0	sso.vmwa	are.local			10.155.168.100	7444	Standard	Edit	Common
	0	sso.vmwa	are.local-2012			10.155.168.100	2012	Standard	Edit	Common
	0	sso.vmwa	are.local-2014			10.155.168.100	2014	Standard	Edit	Common
	0	sso.vmwa	are.local-2020			10.155.168.100	2020	Standard	Edit	Common
	0	sso.vmwa	are.local-389			10.155.168.100	389	Standard	Edit	Common
	0	sso.vmwa	are.local-443			10.155.168.100	443 (HTTPS)	Standard	Edit	Common
	0	sso.vmwa	are.local-636			10.155.168.100	636	Standard	Edit	Common
Enab	le Disab	le Delet	te							

5. Edit the source_addr Persistence Policy and check the Match Across Services box.

•	• • • GBIG-IP8 - bigip1.vmware.i ×							
÷ -	→ C A https://10.155.170.1	50/xui/			52	≡		
Host IP Ar	name: bigip1.vmware.local Date: Ji ddress: 10.155.170.150 Time: 2:	an 9, 2015 User: admin 29 PM (PST) Role: Administrator		Partition: Common :	E Log out			
	5 ONLINE (ACTIVE) Standalone	Local Toriffic of Reading - Rea						
m	ain Heip About	Properties	Istence » source_acor					
~	Statistics	-O + Properaes						
	IApps	General Properties						
53	DNS	Name	source_addr					
00		Partition / Path	Common					
	Local Traffic	Persistence Type	Source Address Affinity					
	Network Map	Configuration						
	Virtual Servers >	Match Across Services	C Enabled					
	Policies >	Match Across Virtual Servers						
	Profiles >	Match Across Pools	0					
	iRules >	Hash Algorithm	Default 🛊					
	Pools >	Timeout	Specify 180 seconds					
	Nodes >	Mask				-		
	Monitors	Mask				_		
Traffic Class (*)		Map Proxies	C Enabled					
	Address Translation	Override Connection Limit	0					
	Acceleration Device Management	Update						

- 6. Log in to one of the vCenter Single Sign-On machines in your high availability configuration.
- 7. Mount the vCenter Server 6.0 ISO image.
- 8. If autorun doesn't start, execute autorun.exe.
- 9. Select vCenter Server for Windows and click Install.



- 10. Click Next.
- 11. Accept the license agreements.
- 12. Enter the **password** for the administrator@vsphere.local account and click **Next**.

₩ ₩	VMware vCenter Server 6.0.0					
vCenter Single Sign-On Credentials Enter your vCenter Single Sign-On 5.5 administrator credentials.						
vCenter Single Sign-On <u>u</u> ser name: vCenter Single Sign-On <u>password</u> :	administrator@vsphere.local					
	< Back Next > Cancel					

13. Wait for the **pre-upgrade checks** to complete.



14. Review the ports and click **Next**.

岁 VN	/ware vCenter Server 6.0.0	x
Configure Ports Configure network settings and ports for this deploy	ment.	
Common Ports		
HTTP Port:	80	
HTTP <u>S</u> Port:	443	
Syslog Service Port:	514	
Syslog Service TLS Port:	1514	
Platform Services Controller Ports		
Secure Token Service Port:	7444	
Some ports are not configurable. To proceed, n	nake the following ports available:	
88, 389, 636, 2012, 2014, 2020, 7080, 11711, a	and 11712	
	< Back Next > Cancel	

15. Choose your installation path or take the defaults. Click Next.

岁 VMware vCenter Server 6.0.0 ×					
Destination Directory					
Select the storage location for this deployment.					
Install Platform Services Controller to:					
C:\Program Files\VMware\ Change					
Store data for Platform Services Controller in:					
C:\ProgramData\VMware\ Change					
Export your 5.X data to:					
C:\ProgramData\VMware\vCenterServer\export\ Change					
Note: During the upgrade, 5.x data will be stored in this directory, and then migrated to the 6.0.0 deployment. Data exported to					
this directory will not be cleaned up by the installer. Remove this directory and its contents after the upgrade completes.					
< Back Next > Cancel					

16. Check I verify that I have backed up this vCenter Single Sign-On machine. Click Upgrade.

B	VMware vCenter Server 6.0.0				
Ready to upgrade Confirm the settings below and click Upgrade.					
Deployment type:	Platform Services Controller				
vCenter Single Sign-On replication host:	sso02.vmware.local				
vCenter Single Sign-On user name:	administrator				
vCenter Single Sign-On domain:	vsphere.local				
vCenter Single Sign-On site name:	Palo Alto				
Installation directory:	C:\Program Files\VMware\				
Data directory:	C:\ProgramData\VMware\				
Upgrade export directory:	C:\ProgramData\VMware\vCenterServer\export\				
I verify that I have backed up this vCenter Single Sign-On machine.					
	< Back Upgrade Cance	I			

17. Click Finish.

- 18. Repeat steps 6-17 on the remainder of the vCenter Single Sign-On machines.
- 19. Download the vCenter Single Sign-On high availability configuration scripts from the vCenter Server product download page.
- 20. Extract the vCenter Single Sign-On high availability scripts to c:\sso-ha.
- 21. Create a folder named HA in the root of c:\.
- 22. Copy rui.crt and rui.p12 from c:\certs\sso to c:\ha and Root64.cer from c:\certs to c:\ha.
- 23. Rename rui.crt to lb.crt, rui.p12 to lb.p12, and Root64.cer to root.cer.
- 24. Open a command prompt.

25. Add Python to your path by typing:

PATH=%PATH%;%VMWARE _ PYTHON _ HOME%



26. Change directories to c:\sso-ha.

27. Run:

python gen-lb-cert.py --upgrade --lb-fqdn=loadbalancerFQDN --root-cert=c:\ha\root.cer

where *loadbalancerFQDN* is the FQDN of the load balancer's VIP used for load-balancing vCenter Single Sign-On.

63	Administrator: C:\Window	vs\system32\cmd.exe	_ _ ×
Microsoft Windows [Version 6.3.9600 (c) 2013 Microsoft Corporation. All] rights reserved.		^
C:\Users\administrator.UMWARE> C:\Users\administrator.UMWARE>PATH=	%PATH%;"c:\Program Files\VMw	are\vCenter Server\python"	=
C:\Users\administrator.UMWARE>cd \s	so-ha		
C:Sas-ha>python gen-lb-cert.pyu iniialization complete monifying server.ani Podifying server.ani Execting dir-cli command Enter Password: Executing StopServiceall HNG0:not:Service: UnwareService, INEO:not:Service: UnwareService, INEO:not:Service: UnwareService, INEO:not:Service: UnwareService, INEO:not:Service: UnwareService, INEO:not:Service: UnwareService, INEO:not:Service: UnwareService INEO:not:Service: UnwareService	<pre>pgradelb-fqdn=sso.vnware. Action: stop on:stop on:stop n: stop n:stop n:stop storion: stop g, Action: stop g, Action: stop g, Action: start evvice, Action: start bisevice, Action: start bisevate, Action: start bisevate, Action: start bisevate, Action: start bisevate, Action: start anager, Action: start trolAgent, Action: start</pre>	localroot-cert=c:\ha\root.cer	
C:\sso-ha>_			

28. When prompted, enter the **password** for the administrator@vsphere.local account.

29. Repeat steps 19–28 on the remaining Platform Services Controllers.

30. On one Platform Services Controller in the site, run:

python lstoolHA.py --hostname=FQDNofLocalMachine --lb-fqdn=loadbalancerFQDN --lb-certfolder=C:\ha --user=Administrator@vsphere.local --password"

where *FQDNofLocalMachine* is the FQDN of the Platform Services Controller the command is being run on, loadbalancerFQDN is the FQDN of the load balancer's VIP used for load-balancing vCenter Single Sign-On, and password is the password for the administrator@vsphere.local account. The password parameter is optional; if not specified, you'll be prompted for it.
Administrator: C:\Windows\system32\cmd.exe	-			×
2015-91-09 14:15:28,434 1MFO org.springframework.beans.factory.wnl.wnlema.beanbefinitionReader - Loading XML be ns from class path resource [conv.vmware.vim.binding/vmodl/context.ugl.wnl] 2015-01-09 14:15:28,512 1MFO com.umware.vim.lonoll.core.types.impl.Umodl/ContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.umoni.core.types.impl.Umodl/ContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.umoni.core.types.impl.Umodl/ContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.umoni.core.types.impl.Umodl/ContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.Vimoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,520 1MFO com.umware.vim.Vimoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn Context - Closing com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,240 1MFO com.umware.vim.vimoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,241 NFO com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn 2015-01-09 14:15:28,240 1MFO com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn Context - Closing com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn Context - Refreshing com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn Context - Refreshing + Fri Jun 99 14:15:29 FSI 2015]; root of context hierarchy 2015-01-09 14:15:29, 2014 1MFO com.umware.vim.umoni.core.types.impl.UmodlContextImplSMonUalidatingClassPathXn Context - Refreshing + Fri Jun 99 14:15:29 FSI 2015]; root of context hierarchy 2015-01-09 14:15:29, 421 1MFO com.umware.vim.umoni.core.types.impl.UmodlContextI	in de Appl Conte Appl IonCo in de Appl Conte IAppl Conte LAppl	fin ica xt0 ica fin ica xt0 ica fin ica fin ica	iti tio 42b tio xt@ iti tio 52e1 tio 53e tio	○ nff n5 ○ n2 n5 ○ n9 n
2015-61-69 14:15:38,800 INFC con.unware.uin.sso.admin.client.unoni.inpl.ldminClientInpl - Client was creater 19 2015-61-69 14:15:38,867 WARM con.unware.uin.sso.admin.client.htp.impl.HttpConfigurationCompilerBase\$Connection 18ase - Shutting down the connection monitor. 2015-61-61-69 14:15:38,869 INFC con.unware.uin.sso.admin.client.unoni.inpl.AbstractClient - Client was dispose 2015-61-69 14:15:38,869 INFC con.unware.uin.sso.admin.client.unoni.inpl.AbstractClient - Client was dispose 2015-61-69 14:15:38,869 INFC con.unware.uin.sso.admin.client.unoni.inpl.AbstractClient - Client was dispose 2015-61-69 14:15:32,650 INFC con.unware.uin.sso.admin.client.unoni.inpl.AbstractClient - Client was dispose 2015-61-69 14:15:32,650 INFC con.unware.uin.sso.admin.client.unoni.inpl.AbstractClient - Glient was dispose 2015-61-69 14:15:32,650 INFC con.unware.uin.inpl.Clii - Reading resources from decoded zip file path=L/C Files/UMware/vCenter Server/UMware Identity.Services/lstool/lib/vatClient.jarl 2015-61-69 14:15:32,57 INFC con.unware.uidentity.yteNen.inpl.Util - Reading resources from zip file path=L/C Files/UMware/vCenter/2006 UNG con.unware.uidentity.yteNen.inpl.Util - Meading resources from zip file path=L/C Files/UMware/vCenter/2006 UNG con.unware.uidentity.services/lstool/lib/vatIoten.jarl 2015-61-69 14:15:32,560 INFC con.unware.uidentity.services.jstool/lib/sellong - Soft 2015-61-69 14:15:32,571.FFC con.unware.uidentity.service.inpl.tomITekenIngl.SetUNP1 successfully pared from Element 2015-61-69 14:15:32,571.FFC con.unware.uin.sso.client.inpl.NetUNP1 successfully pared from Element 2015-61-69 14:15:32,785 UNFC con.unware.uin.sso.client.http.inpl.HttpConfigurationConpilerBase\$Connection 2015-61-69 14:15:32,785 UNFN con.unware.uin.soo.client.http.inpl.HttpConfigurationConpilerBase\$Connection 2015-61-69 14:15:32,785 UNFN con.unware.uin.soo.client.http.inpl.HttpConfigurationConpilerBase\$Connection 2015-61-69 14:15:32,785 UNFN con.unware.uin.soo.client.http.inpl.HttpConfigurationConpilerBase\$Connection	suc onit suc /Pro ath= lue= tok	cces orI cces gra [/C gra [/C Adm cen orI	sfu sfu mx2 :/P mx2 :/P ini for hre	1 a 1 0 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
				\sim

31. View the Network Map and verify that all services are up (green).

See "Appendix" for full configuration instructions for the F5 BIG-IP load balancer.

BIG-IP® - bigip1.vmware.			
← → C 🔒 https://10.155.170.1	150/xui/		sta 🕄 🗉
ONLINE (ACTIVE) Standsione	Local Teeffe v. Maharak Man		
Statistics	to vetwork Map		
LApps	Status Any Status C Type Al Show Summary Update Map	Types Search	Search iRule Definition
Local Traffic	Local Traffic Network Map		
Network Map	sso.vmware.local	sso.vmware.local-2020	sso.vmware.local-443
Virtual Servers	SSO 10 155 168 101 7444	sso.vmware.local-2020	sso.vmware.local-443
Policies	10.155.168.102:7444	0 10.155.168.102:2020	10.155.168.102:443
Profiles	seo ymwara local-2012		eso ymwara local-636
iRules >	sso.vmware.local-2012	sso.vmware.local-389	sso.vmware.local-636
Pools >	10.155.168.101:2012	10.155.168.101:389	10.155.168.101:636
Nodes >	10.155.168.102:2012	10.155.168.102:389	10.155.168.102:636
Monitors (+)	sso.vmware.local-2014		
Traffic Class (+)	sso.vmware.local-2014		
Address Translation	10.155.168.101:2014 10.155.168.102:2014		
Acceleration			
Device Management			
Network			

- 32. Log in to the vCenter Server you want to upgrade.
- 33. Mount the vCenter Server 6.0 ISO image.
- 34. If autorun doesn't start, execute autorun.exe.
- 35. Select vCenter Server for Windows and click Install.



36. Click Next.

- 37. Accept the license agreements.
- 38. Enter the **password** for the administrator@vsphere.local account and the **password** for the service account (if applicable). Click **Next**.

븅	VMware vCenter Server 6.0.0	x
vCenter Server Credentials Enter your vCenter Server 5.5 administrato	r credentials.	
vCenter Server <u>u</u> ser name: vCenter Server <u>p</u> assword: The installer has detected that the vCenter credentials for this service account.:	administrator@vsphere.local ••••••• Server service is running under the following service account. Enter the	
Account user n <u>a</u> me: Account password:	VMWARE\svcvcenter	
needan pasa <u>n</u> oran	••••••	
	< Back Next > Cancel	

39. Wait for the **pre-upgrade checks** to complete.



40. Enter the **password** for the administrator@vsphere.local account. Click **Next**.

岁 VMware vCenter Server 6.0.0							
vCenter Single Sign-On registration							
Connect vCenter Server to a vCenter Single Sign-On domain in an existing Platform Services Controller.							
Platform Services Controller <u>F</u> QDN or IP address:	sso.vmware.local						
Note. This is the external Flatform Services Conditioner with the							
vCenter Single Sign-On HTTPS port:	443						
vCenter Single Sign-On <u>u</u> ser name:	administrator						
vCenter Single Sign-On password:	••••••						
	< Back Next > Cancel						

41. Click **OK** to accept the certificate.

	Windows Security X
Certificate Please confirm the expected Cancel.	Validation n that the certificate provided by the remote server matches certificate. Select OK if you approve it, otherwise select
<u>?</u>	VMWareDirectoryService,d Issuer: CA, CN=sso02, dc=vsphere,dc=local Valid From: 12/18/2014 to 12/15/2024 <u>Click here to view certificate</u> <u>properties</u>
	OK Cancel

42. Accept the default ports and click **Next**.

븅	VMware vCenter Server 6.0.0	X
Configure Ports Configure network settings and ports for th	iis deployment.	
Common Ports		
HTTP Port:	80	
HTTP <u>S</u> Port:	443	
Syslog Service Port:	514	
Syslog Service TLS Port:	1514	
vCenter Server Ports		
Auto Deploy Management Port:	6502	
Auto Deploy Service Port:	6501	
ESXi Dump Collector Port:	6500	
ESXi Heart <u>b</u> eat Port:	902	
vSphere Web Client Port:	9443	
Some ports are not configurable. To present the second	roceed make the following ports available:	
2020	recease mane are relievening ports available.	
2020		
	< Back Next >	Cancel

43. Accept or change the installation paths as necessary. Click Next.

闄	VMware vCenter Server 6.0.0	x
τ	Destination Directory	
	Select the storage location for this deployment.	
	Install vCenter Server with an external Platform Services Controller to:	
	C:\Program Files\VMware\ Change	
	Store data for vCenter Server with an external Platform Services Controller in:	
	C:\ProgramData\VMware\ Change	
	Export your 5.X data to:	
	C:\ProgramData\VMware\vCenterServer\export\ Change	
	Note: During the upgrade, 5.x data will be stored in this directory, and then migrated to the 6.0.0 deployment. Data exported to this directory will not be cleaned up by the installer. Remove this directory and its contents after the upgrade completes.	
		_
	< Back Next > Cancel	
_		_

44. Check the box to verify that you have backed up the vCenter Server and its database. Click Upgrade.

谢 VM	Iware vCenter Server 6.0.0
Ready to upgrade Confirm the settings below and click Upgrade.	
Deployment type:	vCenter Server with an external Platform Services Controller
vCenter Single Sign-On user name:	administrator
vCenter Single Sign-On domain:	vsphere.local
Installation directory:	C:\Program Files\VMware\
Data directory:	C:\ProgramData\VMware\
Upgrade export directory:	C:\ProgramData\VMware\vCenterServer\export\
VMware vCenter Server will be in evaluation mo	de after the upgrade.
Activate vCenter Server through the vSphere We vCenter Server expires, all hosts will be disconne	$\rm eb$ Client within 60 days after the upgrade. When the evaluation period of the ected from this vCenter Server.
\checkmark I verify that I have backed up this vCenter Server	machine and the database server pointed by the 'vcenter001' DSN.
	< Back Upgrade Cancel

45. When completed, click Finish.



Postdeployment Steps

Configure Identity Sources

- 1. Open your Web browser and navigate to https://vcenter:9443, where *vcenter* is the FQDN of the vCenter Server.
- 2. Log in with User name administrator@vsphere.local and the Password used during installation.

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vm ware [.]			
User name: Password:	administrator@vsphere.local UMWare®vCe Use Windows session authentication Login	nter [~] Single Sign-On	
Download Client Integra	lon Plugin		

3. Click Administration in the left-hand Navigator pane.

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4. Click Configuration under vCenter Single Sign-On.

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5. Click Identity Sources.

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Roles						•			
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✓ Single Sign-On	Password Policy				Edit				11
Users and Groups	Description								
Configuration	Maximum lifetime		Password must be changed a	every 90 days					
✓ Licensing	Restrict reuse		Users cannot reuse any previ	ious 5 passwords			Work in P	rogress 🐥	11
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Reports	Minimum length		8 characters						
✓ Solutions	Character requirem	ients	At least 2 alphabetic character	ers					
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6. Click the green plus icon to Add Identity Source.

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7. If using Microsoft Active Directory, select **Active Directory (Integrated Windows Authentication)**. It will autopopulate the root domain in the forest. If using Open LDAP, select and configure it.

1 Add identity source		?
Identity source type:	Active Directory (Integrated Windows Authentication) Active Directory as an LDAP Server Open LDAP Local OS	
Identity source settings		
Domain name:	vmware.local	0
● Use machine account ○ Use Service Principal Name (SPN)		
Service Principal Name (SPN):		0
User Principal Name (UPN):		0
Password:		

8. Highlight the newly added identity source. Click the **Set as Default Domain** icon.

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9. Click **Yes** in the pop-up.

License Management

1. Click Licenses in the left-hand Navigator pane.

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Global Permissions	-	-	Local OS	VCENTER05	-			
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2. Click Licenses.

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	You can upgrade, combine, and divide license keys through MyVMware. Go to My VMware	•	
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3. Click the green plus icon to add your licenses.

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Global Permissions Single Sign-On Users and Groups Configuration Licensing Licensing Cents Solutions Cient Plug-ins vCenter Server Extensions Deployment System Configuration	
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- 4. Enter your license keys, one per line, and click Next.
- 5. Give each license a descriptive name and click **Next**.
- 6. Click Finish.
- 7. Click Assets.

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8. Highlight vCenter Server systems in evaluation mode and click the Assign License icon.

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9. Select the vCenter Server license entered earlier and click **OK**.

Global Permissions

1. Click **Global Permissions** in the left-hand **Navigator** pane.

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- 2. Click Manage.
- 3. Click the green plus icon to add a permission.

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4. Click Add.

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Navigator	Global Permis	sions		3
(I Home) 🕲	Global Permiss	sion Root - Add Permission	• • • •	3
Administration	Select the users	s or groups on the left and th	e role to assign to them on the right.	Vork I
	Users and G	Groups	Assigned Role	n Pro
Roles	The users or gro	oups listed below are	The users or groups obtain the permissions on the selected ts children	gress
Global Permissions	'Global Permiss	le selected on the right on ion Root'.	objects as defined by their assigned role. ts children	0
Users and Groups	User/Group	Role Propag	Administrator	
Configuration			All Privileges All children	3
+ Licensing			Alarms	Alam
Licenses			Certificates	20
Reports			Content Library	
- Solutions			Datacenter	
Client Plug-Ins			> Datastore	
- Deployment			Datastore cluster	
System Configuration >			Distributed switch	
			Description: All Privileges	
			Propagate to children	
		Add Remove	View Children	
			Cancel 5 items	
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5. Select your Active Directory domain or other identity source you added earlier.

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	ara.local:9443/vsphere-client/?csp#extensionld%3Dvsphere.core.inventory.globalPermissions.views.manage.permission 2	
	Separate multiple names with semicolons Check names	
	OK Cancel	
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6. Add your vSphere Administrators group or users. Click **OK**.

Select Users/	Groups		? X
Select users f validate your Domain: vn	from the list or type names in the entries against the directory.	Users text box. Click Check names to	
Users and	Groups		
Show Users	First -	Q vsphere	
User/Group	2 🛦	Description/Full name	
👸 vSphere	Admins		
		Ad	ld
Users:			
Groups: VI	mware.local\vSphereAdmins		
	Separate mult	iple names with semicolons Check na	mes
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7. Ensure that the Administrator role is selected and Propagate to children is checked. Click OK.

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8. You can now log out and back in to vSphere Web Client as an **Administrator** you just added.

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Certificate Management

In most cases, certificate replacement in vSphere 6.0 is not necessary. This is because the Platform Services Controller contains the VMware Certificate Authority (VMCA), which issues certificate authority (CA) signed certificates with a validity period of 10 years.

These certificates are issued to solution users—the users created when a solution such as vCenter Server, vCenter Inventory Service, and so on, is registered with vCenter Single Sign-On—and are utilized as certificate endpoints. These users are issued certificates instead of individual services. This enables the services associated with a solution user to utilize the same certificate, substantially reducing the number of certificates required to manage in the environment.

ESXi hosts are also issued certificates from the VMCA when the hosts are added to the vCenter Server inventory or when vCenter Server is upgraded.

When certificates must be changed—such as when making the VMCA a subordinate of an existing enterprise CA or when generating new solution user certificates after the VMCA mode has changed—the certificate manager utility can be used.

6 5	Administrator: C:\Windows\system32\cmd.exe - certificate-manager
C:\Program Files\UMware\	wCenter Server\bin>certificate-manager
	*** Welcome to the vSphere 6.0 Certificate Manager ***
	Select Operation
1	. Replace Machine SSL certificate with Custom Certificate
2	2. Replace UMCA Root certificate with Custom Signing Certificate and replace all Certificates
3	3. Replace Machine SSL certificate with UMCA Certificate
4	 Regenerate a new UMCA Root Certificate and replace all certificates
5	. Replace Solution user certificates with Custom Certificate
6	. Replace Solution user certificates with UMCA certificates
5	 Revert last performed operation by re-publishing old certificates
8	3. Reset all Certificates
Note : Use Ctrl-Z and hi Option[1 to 8]: _	it Enter to exit.

Make the VMCA a Subordinate Certificate Authority

- 1. Log in to the Platform Services Controller.
- 2. Using openssl, generate a certificate request.

```
openssl genrsa -out c:\certs\psc001.key 2048
openssl req -new -key c:\certs\psc001.key -out c:\certs\psc001.csr
```

- a. Answer questions to build the request.
- b. Submit the request to a CA. Use the subordinate CA template for the request.

Microsoft Active	Directory Certificate Services vmware-DC01-CA	
Submit a Certi	ficate Request or Renewal Request	
To submit a sav Request box.	ved request to the CA, paste a base-64-encode	1 CMC or PKCS #10 certificate request or PKCS #7
Saved Request:		
Base-64-encoded certificate request (CMC or PKCS #10 or PKCS #7):	djMr3idyBQqMRbk8g7GrDOhF7rwR6/2VAXtSrYjl 9yRM9jmsOX90wbgOrBU6Aa8Sm2+rwVXrR2wGTduxi bTEK200ELR9iz9j6Oin4gLen49xX4v0x/Yc50jXCi 1M9RkBQaN3XM29dRbk2HESuwzb+RZw318/JaC+ms END CERTIFICATE REQUEST	
Certificate Templa	ate:	
	Subordinate Certification Authority 🗸	
Additional Attribu	ites:	
Attributes:	<	
	Submit >	

- c. Download the certificate in Base 64 format; save it to c:\certs.
- 3. Wait at least 24 hours before continuing. The VMCA requires that the certificate have a valid date of at least 24 hours prior.
- 4. Run certificate-manager from c:\program files\vmware\vCenter Server\bin for Windows installs or /usr/lib/ vmware-vmca/bin/certificate-manager for vCenter Server Appliance.
- 5. Choose option 2: Replace VMCA Root certificate with Custom Signing Certificate and replace all Certificates.
- 6. Enter the administrator@vsphere.local password.
- 7. Answer all questions as you did earlier when creating the certificate request.
- 8. When asked to provide a valid custom certificate for root, enter the path to the certificate obtained earlier.
- 9. When asked to provide a valid custom key for root, enter the path to the .key file generated with openssl earlier.
- 10. Enter **Y** to continue to replace the certificate.
- 11. Add the certificate to a Windows Group policy as an intermediate CA. This will enable client machines —such as those using vSphere Web Client—to trust the certificates issued by the VMCA.

I Group Policy	Mi	anagement Editor	_ D X
File Action View Help			
🗢 🄿 📶 📋 🖻 🖻 🖬			
File System	>	Issued To	Issued By
Wired Network (IEEE 802.3) Policies		🔄 psc10.vmware.local	vmware-DC01-CA
Windows Firewall with Advanced Security		🔄 psc11.vmware.local	vmware-DC01-CA
Network List Manager Policies			
Wireless Network (IEEE 802.11) Policies			
🔺 🚞 Public Key Policies			
🚞 Encrypting File System			
🛅 Data Protection			
BitLocker Drive Encryption	≡		
BitLocker Drive Encryption Network Unlock (
Automatic Certificate Request Settings			
Trusted Root Certification Authorities			
🚞 Enterprise Trust			
Intermediate Certification Authorities			
🛗 Trusted Publishers			
Untrusted Certificates			
C III >	×	< III	
Intermediate Certification Authorities store contains 2 certificates			

Appendix

Configure the F5 BIG-IP Load Balancer

- 1. Download the lb.p12 file from the ha folder of one of the Platform Services Controllers.
- 2. Log in to the F5 BIG-IP configuration Web page.
- 3. Click System.
- 4. Open File Management, SSL Certificate List.
- 5. Click Import.
- 6. For **Import Type**, select **PKCS 12**. Provide a descriptive **Certificate Name**. Browse for the **Certificate** downloaded earlier. Enter **changeme** for the **Password**. Click **Import**.

NOTE: If you want to use a custom password when running the gen-lb-cert.py --primary-node command on the first Platform Services Controller to generate the certificates, add the following: --password=yourPassword.

System » File Management : SSL Certificate List » Import SSL Certificates and Keys		
SSL Certificate/Key Source		
Import Type	PKCS 12 (IIS)	
Certificate Name	psc011	
Certificate Source	Choose File D.p12	
Password		
Key Security	Normal	
Free Space on Disk	146 MB	
Cancel Import		

- 7. Click Local Traffic.
- 8. Open Profiles, SSL, Client.
- 9. Click Create.
- 10. Provide a descriptive Name.
 - a. Click Custom.
 - b. Choose the **Certificate** and **Key** installed earlier.
 - c. Enter the **Passphrase** for the certificate.
 - d. Click Add.
 - e. Scroll to the bottom and click Finished.

Local Traffic » Profiles : SSL : Client » New Client SSL Profile					
General Properties					
Name	psc011				
Parent Profile	clientssl	•			
Configuration: Basic 🗘					
	Certificate	psc011 \$			
	Key	psc011 \$			
	Chain	None 🗘			
	Passphrase				
	OCSP Stapling Parameters	None 🗘			
Certificate Key Chain	Add Replace				
	/Common/psc011.crt /Comm	non/psc011.key _********			
	Delete				

- 11. Open Profiles, SSL, Server.
- 12. Click Create.
- 13. Provide a descriptive Name.
 - a. Click Custom.
 - b. Choose the Certificate and Key installed earlier.
 - c. Click Add.
 - d. Scroll to the bottom and click **Finished**.

Local Traffic » Profiles : SSL : Server » New Server SSL Profile				
General Properties				
Name	psc011-server			
Parent Profile	serverssl			
Configuration: Basic ᅌ				
Certificate	psc011 0			
Кеу	psc011 🗘			
SSL Forward Proxy	Disabled			
SSL Forward Proxy Bypass	Disabled			
	Enabled Options Don't insert empty fragments			
Options List	Disable			

- 14. Open Nodes, Node List.
- 15. Click Create.
- 16. Add all Platform Services Controllers as a node. Use **Repeat** to speed up the process.

Local Traffic » Nodes : Node List » New Node					
General Properties					
Name	psc01				
Description					
Address	Address O FQDN				
Address	10.155.168.101				
Configuration					
Health Monitors	Node Default				
Ratio	1				
Connection Limit	0				
Connection Rate Limit	0				
Cancel Repeat Finished	Cancel Repeat Finished				

- 17. Open Pools, Pool List.
- 18. Click Create.
- 19. Create six pools, one each for port 443, 2012, 2014, 2020, 389, and 636.
 - a. All pools have the same **Configuration**, **tcp** for monitoring, and **Round Robin** for **Load Balancing Method**.
 - b. Use **Repeat** to save time: Remove the existing members from the list.

Local Traffic » Pools : Pool List » New Pool			
Configuration: Basic			
Name	psc011-443		
Description			
Health Monitors	Active Available /Common https tcp <		
Resources			
Load Balancing Method	Round Robin		
Priority Group Activation	Disabled		
New Members	New Node New FQDN Node Node List Address: psc002.vmware.local (10.155.168.83) © Service Port: 443 HTTPS © Add		
Cancel Repeat Finished			

- 20. Open Virtual Servers, Virtual Server List.
- 21. Click Create.
- 22. All virtual servers-except the one for port 443-have the same configuration.
 - a. Provide a descriptive Name.
 - b. Enter the **Destination Address**.
 - c. For Service Port, enter 443.
 - d. For SSL Profile (Client), select the client profile created earlier.
 - e. For SSL Profile (Server), select the client profile created earlier.
 - f. For Source Address Translation, select Auto Map.
 - g. For the **Default Pool**, select the pool created for port 443.
 - h. For the **Default Persistence Profile**, select source_addr.
 - i. Click Finished.

Local Traffic » Virtual Servers : Virtual Server List » New Virtual Server				
General Properties				
Name	psc011-443			
Description				
Туре	Standard			
Source Address				
Destination Address	10.155.168.87			
Service Port	443 HTTPS 📀			
Notify Status to Virtual Address				
State	Enabled O			
Configuration: Basic ᅌ				
Protocol	ТСР			
Protocol Profile (Client)	tcp			
Protocol Profile (Server)	(Use Client Profile)			
HTTP Profile	None			
FTP Profile	None			
RTSP Profile	None \$			
SSL Profile (Client)	Selected Available /Common clientssl-insecure-compatible psc011-client < >> psc010-client >> sso-client wom-default-clientssl			
SSL Profile (Server)	Selected Available /Common apm-default-serverssl psc011-server <			

SMTP Profile	None				
VLAN and Tunnel Traffic	All VLANs and Tunnels				
Source Address Translation	Auto Map ᅌ				
Content Rewrite					
Rewrite Profile	None				
HTML Profile	None				
Acceleration: Basic ᅌ					
Rate Class	None				
OneConnect Profile	None				
NTLM Conn Pool	None ¢				
HTTP Compression Profile	None				
Web Acceleration Profile	None \$				
SPDY Profile	None				
Resources					
	Enabled				
iRules	<pre>/Commonsys_APM_Excharsys_APM_Excharsys_APM_Excharsys_APM_Excharsys_APM_Exchar</pre>				
	Up Down				
Policies	Enabled Available				
Default Pool +	psc011-443				
Default Persistence Profile	source_addr				
Fallback Persistence Profile	None				
Cancel Repeat Finished					

23. Repeat step 22 for all other ports: 2012, 2014, 2020, 389, and 636. All settings are the same, except there is no **SSL Profile (Client)** or **SSL Profile (Server)** and the **Service Port** and **Default Pool** should match. For example, if the **Service Port** is 2012, the **Default Pool** should be the pool set up for port 2012.

Local Traffic » Virtual Servers	: Virtual Server List » New Virtual Server					
General Properties						
Name	psc011-20142					
Description						
Туре	Standard					
Source Address						
Destination Address	10.155.168.87					
Service Port	2012 Other:					
Notify Status to Virtual Address						
State	Enabled					
Configuration: Basic ᅌ						
Protocol	ТСР					
Protocol Profile (Client)	tcp					
Protocol Profile (Server)	(Use Client Profile)					
HTTP Profile	None					
FTP Profile	None ᅌ					
RTSP Profile	None					
	Selected Available					
SSL Profile (Client)	<					
	Selected Available					
SSL Profile (Server)	apm-default-serverssl crypto-client-default-serverssl pcoip-default-serverssl psc010-server serverssl					

- 24. Open Profiles, Persistence.
- 25. Click source_addr.
- 26. Check Match Across Services and click Update.

Local Traffic » Profiles : Persistence » source_addr					
🚓 👻 Properties					
General Properties					
Name	source_addr				
Partition / Path	Common				
Persistence Type	Source Address Affinity				
Configuration					
Match Across Services	R Enabled				
Match Across Virtual Servers					
Match Across Pools					
Hash Algorithm	Default				
Timeout	Specify 3 180 seconds				
Mask	None				
Map Proxies	C Enabled				
Override Connection Limit					
Update					

27. After both Platform Services Controller nodes have been installed and configured, click **Network Map** and verify that all services are up (green).

Local Traffic	» Network Map					
🔅 👻 Netwo	ork Map					
Status	Any Status	Туре	All Types	Search	•	Search iRule Definition
Show Summa	ary Update Map					
ocal Traffic N	Network Map					
psc010-20	012		psc010-6	36		psc011-389
psc010	0-2012		O psc0	0-636	psc011-389	
0 10.	.155.168.82:2012		O 10	.155.168.82:636		0 10.155.168.73:389
O 10.	.155.168.83:2012		i 10	.155.168.83:636	10.155.168.74:389	
psc010-20	014		psc011-2	012		psc011-443
psc010	0-2014		O psc0	1-2012		psc011-443
O 10.	.155.168.82:2014		Q 10	.155.168.73:2012		0 10.155.168.73:443
10.155.168.83:2014			i 10	.155.168.74:2012	10.155.168.74:443	
psc010-20	020		psc011-2	014		psc011-636
psc010	0-2020		O psc0	1-2014		psc011-636
10.155.168.82:2020		Q 10	.155.168.73:2014	0 10.155.168.73:636		
10.155.168.83:2020			O 10	.155.168.74:2014	10.155.168.74:636	
psc010-38	89		psc011-2	020		sso.vmware.local
psc010	0-389		O psc0	1-2020		SSO
10.155.168.82:389			i 10	.155.168.73:2020	0 10.155.168.101:7444	
10.155.168.83:389			O 10	10.155.168.74:2020		10.155.168.102:7444
psc010-44	43					
psc010	0-443					
O 10.	.155.168.82:443					
O 10.	.155.168.83:443					

Scripted vCenter Server Installations

vCenter Server Appliance can be deployed via custom JSON files from a command line. The ISO ships with examples for deploying an embedded (vCenter Server and Platform Services Controller), management (vCenter Server), and Platform Services Controller appliance.

There are command-line utilities for 64-bit Linux, Mac OS X, and Windows.

The following is a sample embedded JSON file:

```
{
    "___comments":
    [
    "Will deploy an embedded VCSA to host 10 in the MGMT Cluster"
],
```

"deployment":

```
{
```

"esx.hostname":"w3-tm-hp380-010.vmware.local",

"esx.datastore":"NFSMGMT01",

"esx.username":"root",

"esx.password":"VMware1!",

"deployment.option":"tiny",

"deployment.network":"VM Network",

"appliance.name":"embedded-node",

"appliance.thin.disk.mode":true

},

"vcsa":

{

"system":

{

"root.password":"VMware1!", "ssh.enable":true

5511.EHar

},

```
"sso":
```

{

}

```
"password":"VMware1!",
"domain-name":"vsphere.local",
"site-name":"PaloAlto"
}
```

To deploy vCenter Server Appliance from this file, save it on your local system. From a command line, navigate to the utilities folder for your OS. For example, on Mac OS X, this is /Volumes/VMware VCSA/vcsa-cli-installer/ mac. Now run vcsa-deploy followed by the full path to the custom JSON file. For example:

./vcsa-deploy /Users/mike/Downloads/embedded node.json



References

vSphere 6.0 Documentation Center http://pubs.vmware.com/vsphere-60

Additional Resources

VMware vSphere 6.0 Feature Walkthroughs http://featurewalkthrough.vmware.com/#!/vsphere-6-0

VMware Mobile Knowledge Portal http://www.vmwaremkp.com

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