



OmniCube™ Deployment Guide

OmniStack™ Software Version 3.0.8

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Preface

This document describes the configuration and deployment of OmniCube systems using OmniStack™ software.

OmniCube System Overview

OmniCube™ from SimpliVity™, the Data Virtualization Company™, is a converged server and storage solution optimized for the VMware® vSphere® environment. It provides:

- High availability
- Scalability
- Efficient disaster protection
- Global unified management

To enable key functionality such as high availability, dynamic resource sharing, and efficient data movement, OmniCube ESXi hosts are deployed in sets of two units within vCenter Server. As capacity and performance needs increase, you can add OmniCube ESXi hosts without disruption to users. This network of hosts is called a SimpliVity Federation.

Audience

The audience for this document is individuals responsible for configuring and deploying OmniCube systems. To perform OmniCube system deployments, it is useful to know about:

- VMware, vCenter Server, vSphere Client, and virtual environments
- Networks in your environment

Organization

This document is organized as follows:

- [Preparing for an OmniCube System Deployment](#) on page 6 describes the user accounts, VMware, networking, OmniCube system, and Deployment Manager requirements to configure and deploy OmniCube systems.
- [Deploying OmniCube Systems](#) on page 16 describes Deployment Manager, deployment discovery, using OmniStack IP address pools and hostnames for deployments, tasks for deployments, and the procedures to configure and deploy OmniCube systems.

Customer Support

Support services are available to answer your questions about OmniCube systems. In addition, SimpliVity recommends you configure Phone Home to automatically send messages about OmniCube system events to diagnose and correct issues. To contact [Customer Support](#), visit <https://www.simplivity.com/company/support/>.

1 - Preparing for an OmniCube System Deployment

This section describes the requirements to deploy OmniCube systems.

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- Deployment Checklist 9**
- VMware Software Requirements 10**
- Networking Requirements 11**
- OmniCube Environment and Model Type Requirements 13**
- SimpliVity Arbiter Requirements 14**
- Deploying OmniCube Systems in a vCenter Server in Linked Mode 15**

OmniCube System User Accounts

This section describes the user accounts to deploy and manage OmniCube systems, including the SimpliVity command line interface (CLI), ESXi root user, and vCenter Server single sign-on accounts.

SimpliVity CLI Account

You use the SimpliVity CLI account to run SimpliVity CLI commands when your VMware single sign-on account is not available. You create the password to log into the CLI account when you deploy an OmniCube system using Deployment Manager. The CLI account includes these features and limitations:

- You can run `svt-*` and standard bash CLI commands.
- Can SSH to the Virtual Controller.
- Supports operations on the OmniCube console where you cannot use single sign-on accounts. Some operations may require a console log in.
- Does not automatically log into vCenter Server and may not have the necessary permissions for all operations that require vCenter access. Use an appropriate single sign-on account.

Note: A vCenter Server account with administrator privileges is required to run certain SimpliVity (`svt-*`) commands, such as `svt-session-start` or to set an environment variable.

See the *OmniCube Command Reference* for more information about the SimpliVity CLI.

ESXi Host Root User Account

You use the ESXi host root user account to log into an OmniCube system. You create the password for the ESXi host root user account when you deploy an OmniCube system using Deployment Manager. For ESXi host password requirements and restrictions, see the article on the VMware Knowledge Base at www.vmware.com.

vCenter Server Single Sign-On Account

vCenter Server single sign-on accounts are controlled-privilege, vCenter Server (Active Directory supported) to manage a Federation. The single sign-on accounts include these features and limitations:

- The accounts are a vCenter Server administrator account or one or more dedicated vCenter Server accounts of equal or lesser privilege than you intend to use for SimpliVity management.
- Requires vCenter-level role permissions when a Federation is in a linked mode environment.
- No `sudo` privilege.
- Automatically starts a user session. You do not have to specify the `svt-session-start` command or set an environment variable.
- Limited to running SimpliVity CLI commands only.
- Can SSH to other Federation OmniCube systems.

- Cannot be used for a console log in. Some operations require access through the OmniCube console and you must use the SimpliVity CLI account.
- Automatically logs into vCenter Server.

Related Topics

[Deployment Checklist](#) on page 9

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

[OmniCube Environment and Model Type Requirements](#) on page 13

[Deploying OmniCube Systems in a vCenter Server in Linked Mode](#) on page 15

[Deployment Manager Requirements](#) on page 19

Deployment Checklist

To ensure smooth and efficient OmniCube system deployments, a pre-flight checklist is available to record all information for a deployment such as IP address and DNS information. If you did not complete the pre-flight checklist during the planning phase for deploying OmniCube systems in your environment, contact [Customer Support](#) to request the pre-flight checklist.

Note: Take an inventory of all OmniCube systems by serial number. Deployment Manager shows the status of a deployment by serial number only.

Related Topics

[OmniCube System User Accounts](#) on page 7

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

[OmniCube Environment and Model Type Requirements](#) on page 13

[Deployment Manager Requirements](#) on page 19

VMware Software Requirements

Before deploying an OmniCube system, verify your vSphere environment meets the software requirements described in the table.

Requirement	Description
VMware vCenter Server	Install or upgrade the vCenter Server environment where you will deploy the OmniCube systems. For the requirements to install vCenter Server, see the VMware documentation. Note: If vSphere Client is running on the vCenter Server that manages the Federation, connect to the vCenter Server using the vCenter Server IP address. Do not connect to the vCenter Server using FQDN or the localhost IP 127.0.0.1.
VMware vSphere Client	Install or upgrade vSphere Client on all clients that you use to deploy OmniCube systems and manage the Federation.
VMware customer account credentials	Credentials for your VMware user account to download VMware software tools and updates. See OmniCube System User Accounts on page 7.
vCenter Server credentials	The vCenter Server administrator credentials (user name and password).

Related Topics

[OmniCube System User Accounts](#) on page 7

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[Ports Required for Network Communication](#) on page 63

Networking Requirements

An OmniCube system in a Federation requires three separate networks. You should maintain a separate network for 10GbE storage data traffic between OmniCube systems in a Federation.

You can use existing networks (such as a dedicated virtualization management network) if you have appropriate networks in your VMware environment. You can also use VLANs to separate management and virtual machine traffic. However, ensure that the Management network and OmniCube ESXi host can route to each other through a common VLAN.

Open TCP ports 9292 and 9299 on the Management network to deploy OmniCube systems. You can close these ports after a deployment is complete.

Important: OmniCube system deployment using Deployment Manager requires that Internet Control Message Protocol (ICMP) is enabled.

Maximum Transmission Unit (MTU)

When using Cisco UCS Manager to manage OmniCube system network interfaces with a MTU greater than 1500, set the Quality of Service (QoS) MTU attribute to 9216.

The MTU size range on the Federation networks is 1000 to 9000 bytes. For a 10GbE Only network, the MTU on the Management, Storage, and Federation networks must be the same value. SimpliVity recommends the MTU is 9000 for a 10GbE Only connection.

For a 1/10GbE or 10GbE Direct network, the MTU size on the Storage and Federation networks must be the same value. The MTU size on the Management network can be any value (1500 is recommended) but the MTU value must be the same on all Management networks on the subnet.

Network Address and vSphere Inventory Requirements

The following table describes the network address requirements and objects required in the vSphere inventory to contain the Federation OmniCube systems.

Requirement	Description
NTP	<p>The Network Time Protocol (NTP) is pre-configured in an OmniCube system using US internet time servers. The default servers are 0.us.pool.ntp.org through 3.us.pool.ntp.org.</p> <p>Record any NTP servers the vCenter Server is using. At least three NTP servers are required for an OmniCube system deployment.</p>
DNS IP	<p>The IP address for a primary and optional secondary DNS server.</p> <p>Note: The DNS server(s) must be the same and reachable by the OmniCube Virtual Controller, OmniCube host, vCenter Server,</p>

Requirement	Description
	vSphere Client, and the Windows computer running Deployment Manager.
DNS Suffix Name	The DNS suffix name for each OmniCube system. Note: The OmniCube system you are deploying cannot be a DNS child domain.
DNS Search Domain Suffix	The default DNS suffix to search for a domain.
vCenter Server IP address or FQDN	The IP address or FQDN for the vCenter Server that will contain the Federation.
Datacenter	The name of the datacenter in vCenter Server to contain the OmniCube systems. To create a datacenter, see the OmniCube for vSphere Client Help.
Cluster (Optional)	The name of the cluster in vCenter Server to contain the OmniCube systems. To create a cluster, see the OmniCube for vSphere Client Help.
OmniStack IP Address Pools	<p>There are separate OmniStack IP address pools that you assign to these five interfaces on the OmniCube system networks during a deployment:</p> <p>Management Network</p> <ul style="list-style-type: none"> • OmniCube ESXi Host • Virtual Controller <p>Storage Network</p> <ul style="list-style-type: none"> • Virtual Controller • VMkernel Port <p>Federation Network</p> <ul style="list-style-type: none"> • Virtual Controller <p>For more information about OmniStack IP address pools, see Deploying OmniCube Systems With OmniStack IP Address Pools on page 22.</p>

Related Topics

[OmniCube System User Accounts](#) on page 7

[VMware Software Requirements](#) on page 10

[OmniCube Environment and Model Type Requirements](#) on page 13

[Deployment Manager Requirements](#) on page 19

[Ports Required for Network Communication](#) on page 63

OmniCube Environment and Model Type Requirements

Review these environment and model type requirements before deploying OmniCube systems in an existing datacenter or cluster.

Environment

- At least two OmniCube systems must be installed in a rack, connected to power and the required networks, and powered on. See the *Hardware Installation and Maintenance Guide* for your platform.
- Avoid deploying OmniCube systems across a wide-area network (WAN) from a remote vSphere Client. Network disruptions that cause the remote vSphere Client to close may cause the deployment to fail.

Model Types

To deploy OmniCube systems in the same datacenter or cluster, the model types must be within the same family with the same number of CPUs (single or dual). For example, CN-5000 and CN-5400 dual CPU models.

For more information about interoperability requirements, see the *Interoperability Guide* for your platform available from the Downloads & Documents page of the SimpliVity Online Support Center at <https://support.simplivity.com>.

Related Topics

[OmniCube System User Accounts](#) on page 7

[Deployment Checklist](#) on page 9

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

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SimpliVity Arbiter Requirements

Review these requirements before installing SimpliVity Arbiter on the computer hosting a vCenter Server or a different Windows server.

Feature	Requirement
CPU frequency	1.0GHz or higher
Number of cores	Single Core/Dual Thread or better
Memory	1GB (for SimpliVity Arbiter application)*
Persistent storage	Minimum of 16GB (HDD or SDD)**
Storage type	<p>Storage device capable of 80 IOPS per 128 virtual machines in the arbitration control domain. For example:</p> <ul style="list-style-type: none"> • 1 x 7.2K RPM HDD for up to 128 virtual machines • 1 x 10K RPM HDD for up to 256 virtual machines • 1 x SSD for up to 4096 virtual machines <p>Note: Do not place more than 4096 virtual machines under the control of one SimpliVity Arbiter.</p> <p>The SimpliVity Arbiter storage device must not be recovered to a previous point in time by a snapshot or backup restore process. Data corruption of guest virtual machines may occur.</p>
Network	1xGigE
Minimum operating system	Windows XP SP2, Windows 2003 SP1x64

*Consult Microsoft documentation for OS memory requirements.

**Disk caching policy must be set to write-through or write cache disabled.

Related Topics

[Task 3—Installing the SimpliVity Arbiter](#) on page 29

Deploying OmniCube Systems in a vCenter Server in Linked Mode

SimpliVity Federations support VMware vCenter Servers in linked mode and enable access to SimpliVity and VMware virtual objects across all OmniCube systems. Joining multiple vCenter Server systems using vCenter Server linked mode to allow them to share information. To support a Federation in linked mode using vCenter 5.5 or later, install single sign-on (SSO) using multisite mode. Multisite mode requires an Active Directory (AD) server for authentication.

When you deploy OmniCube systems in a datacenter or cluster with no deployed OmniCube systems, Deployment Manager displays the SimpliVity Federation Information screen. In this screen, you specify whether the OmniCube systems create a SimpliVity Federation in the current vCenter Server or join a SimpliVity Federation in a vCenter Server in linked mode. If the OmniCube systems join a SimpliVity Federation, you specify a Virtual Controller IP address of an OmniCube system in the existing SimpliVity Federation.

For more information about Federations in vCenter Server linked mode, see the *OmniCube for vSphere Client Administrator Guide* and *OmniCube for vSphere Client Help*.

Related Topics

[OmniCube System User Accounts](#) on page 7

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

[OmniCube Environment and Model Type Requirements](#) on page 13

[Deploying OmniCube Systems](#) on page 16

[Deployment Manager Requirements](#) on page 19

2 - Deploying OmniCube Systems

This section describes the deployment of OmniCube systems within a vCenter Server environment.

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About Deployment Manager

Deployment Manager is a standalone Windows application to configure and deploy OmniCube systems in an existing datacenter or cluster. The OmniCube system deployment methods include:

- Manually entering configuration information
- Importing data from a configuration file
- Using OmniStack IP address pools to deploy OmniCube systems

When you import an existing configuration file, Deployment Manager validates the information and stores it in an XML file located in your home directory, by default. The file name format is *starting_ip_address_timestamp.xml*.

For a first-time deployment in a datacenter or cluster, Deployment Manager creates the virtual switches (vSwitches) and port groups for the network connection that you specify in Deployment Manager. For example, the default vSwitch names are vSwitch0 and vSwitch1 for a 1/10GbE network.

After you deploy at least one OmniCube system in a datacenter or cluster, you can deploy multiple OmniCube systems in the same datacenter or cluster using Deployment Manager or the **SimpliVity - Deploy OmniCube Systems** menu option in vSphere Client.

When an OmniCube system deployment is complete, its associated Virtual Controller appears as the SimpliVity block icon  with a green arrow indicating the Virtual Controller is powered on.

Note: To create a datacenter or a cluster using vSphere Client, see the *OmniCube for vSphere Client Administrator Guide* and *OmniCube for vSphere Client Help*.

Deployment Manager Screen Icons

Deployment Manager includes these icons at the top of each screen:

Icon	Description
	The task icon displays the Settings screen. You can set a connection timeout between Deployment Manager and the vCenter Server that is appropriate for your networking environment. The default is 30 seconds and the maximum is 120 seconds. Any changes that you make in the Settings screen are effective after restarting Deployment Manager.
	The information icon displays the Deployment Manager version installed on the Windows computer and SimpliVity contact information.
	The deployment icon starts blinking when you begin a deployment. Click on the icon to open a status window that shows the progress of a deployment. The icon indicates the number of OmniCube systems that are currently deploying.

Related Topics

[OmniCube System User Accounts](#) on page 7

[Deployment Checklist](#) on page 9

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

[OmniCube Environment and Model Type Requirements](#) on page 13

[Deployment Manager Requirements](#) on page 19

[Tasks for Deploying OmniCube Systems](#) on page 25

Deployment Manager Requirements

This section describes the software requirements to deploy OmniCube systems using Deployment Manager.

OmniStack Software

OmniStack software version 3.0.8 or a later release is required to deploy OmniCube systems using Deployment Manager. Do not mix OmniCube systems with different OmniStack software versions in a datacenter or cluster.

Third Party Software

Install this third party software on every Windows® computer running Deployment Manager:

- Oracle® Java 1.7 or later release
- Microsoft® .NET Framework 4.0 web installer package or later release

Important: Install only one version of the third party software on the Windows computer you are using to deploy OmniCube systems. Uninstall an older version before you install a new version.

Windows Operating Systems

Deployment Manager is supported on these Windows operating systems:

- Windows Server 2012 R2
- Windows Server 2008 R2
- Windows 8.1
- Windows 7

Related Topics

[OmniCube System User Accounts](#) on page 7

[Deployment Checklist](#) on page 9

[VMware Software Requirements](#) on page 10

[Networking Requirements](#) on page 11

[OmniCube Environment and Model Type Requirements](#) on page 13

OmniCube System Deployment Discovery

When you power on an OmniCube system, it obtains a temporary IP address from a DHCP server. The temporary IP address allows the Deployment Manager client to communicate with the OmniCube system.

The Deployment Manager client uses the Service Locator Protocol (SLP) to discover the OmniCube system. The temporary IP address connects to an installer and collects the properties of an OmniCube system, such as model type and serial number.

In certain situations, an OmniCube system may not acquire a temporary IP address automatically. This requires that you manually assign a static IP address, netmask, and gateway to the OmniCube system. You specify the IP address in the **Manual** tab in the Select OmniCube System screen.

Assigning a Static IP Address to an OmniCube System

Use this procedure to assign an IP address, netmask, and gateway to an OmniCube system.

Before You Begin

Perform these tasks before you assign IP information to an OmniCube system:

1. Connect an Ethernet cable from the Windows computer to the Ethernet management port on the rear of the OmniCube system.
2. Configure the remote management interface for your platform.
3. Connect to the remote management interface and launch the virtual console or KVM console for your platform. This displays the SimpliVity Installer screen.

For the instructions to perform these tasks, see the *Hardware Installation and Maintenance Guide* for your platform.

To assign a static IP address to an OmniCube system:

1. In the SimpliVity Installer screen, press **Ctrl+N** when the status is **Waiting to be discovered**.
2. In the next screen, determine the network interface for the connection you are planning to use on the Management network to deploy the OmniCube system.

If the Management network and network interface are on different VLANs, indicate the VLAN for the network interface as follows:

- a. Use the **Tab** key to select **Add VLAN** and press **Enter**.
 - b. Enter the VLAN ID for the network interface, tab to **OK**, and press **Enter**.
3. Use the **Tab** key to select **Enable NIC** and press **Enter**.
 4. Using the **Tab** key, specify the IP address, netmask, and gateway for the OmniCube system.

5. Tab to **Apply** and press **Enter**.
6. Tab to **Done** and press **Enter**.
7. In Deployment Manager, specify the IP address in the **Manual** tab in the Select OmniCube System screen.

Related Topics

[Deploying OmniCube Systems With OmniStack IP Address Pools](#) on page 22

[Using Hostnames for OmniCube System Deployments](#) on page 24

Deploying OmniCube Systems With OmniStack IP Address Pools

OmniStack IP address pools are ranges of IP addresses that are reserved and assigned to OmniCube systems during a deployment. The main benefit of OmniStack IP address pools is the ability to deploy multiple OmniCube systems in a single session. Using Deployment Manager, you define separate OmniStack IP address pools for these five interfaces on the OmniCube system networks:

- Management Network
 - OmniCube ESXi host
 - Virtual Controller
- Storage Network
 - Virtual Controller
 - VMkernel port
- Federation Network
 - Virtual Controller

OmniStack IP address pools are at the datacenter level. Each datacenter contains its own set of OmniStack IP address pool information, and each OmniCube system can view the pool information for the other OmniCube systems within its datacenter.

When you define the OmniStack IP address pools, Deployment Manager adds each IP address to the OmniStack IP pool database. When a deployment starts, Deployment Manager allocates and assigns the IP addresses to an OmniCube system based on the serial number of the OmniCube system. You deallocate, manage, and remove IP addresses in an OmniStack IP address pool using the SimpliVity CLI.

Note: When you initially define the OmniStack IP address pool ranges, overallocate IP addresses in each pool to ensure that IP addresses are available for future deployments.

Deployment Manager allocates the IP addresses in an OmniStack IP address pool when a deployment is complete. If a deployment fails during a Federation join, you must deallocate the IP addresses assigned to the OmniCube system. The deallocated IP addresses will be available for future deployments.

You can check the state of the IP pool database using IP pool commands, specifically the `svt-ip-assignments-show` command which displays information about the IP assignments for an OmniCube system. If an IP assignment persists after a deployment fails, you must deallocate the IP address as part of the recovery.

OmniStack IP Address Pool Guidelines

Review this information before you deploy OmniCube systems using OmniStack IP address pools.

- OmniStack IP address pools cannot be within these ranges:
 - 169.254.0.0/16
 - 0.0.0.0/8
 - 127.0.0.0/8
- Only IPv4 addresses are supported.
- Do not use IP addresses that are allocated in a pool within another datacenter. For example, *Datacenter1* is using OmniStack IP address pool 10.0.0.5/10 on its Management network. An OmniStack IP address pool for *Datacenter2* cannot overlap or coincide with the *Datacenter1* IP address pool range.
- To avoid IP address collisions, do not include IP addresses in an OmniStack IP address pool that are already in use by other OmniCube systems in the network.
- IP addresses in an OmniStack IP address pool for each interface on the Management, Storage, and Federation networks must be unique.
- IP addresses in an OmniStack IP address pool must be contiguous and on the same subnet.
- When you deallocate IP addresses in an OmniStack IP address pool using the `svt-ippool-deallocate` command, the IP addresses are returned to the pool and are available for allocation for the next deployment. To permanently remove IP addresses from an OmniStack IP address pool, use the `svt-ippool-remove` command after you deallocate the IP addresses. This is necessary when you manually deploy an OmniCube system with a static IP address that was originally allocated in an OmniStack IP address pool.
- A majority of OmniCube systems in a datacenter must be online and accessible to add IP addresses to a pool using the `svt-ippool-add` command. For example, you cannot add an IP address to a pool when four OmniCube systems are deployed in a datacenter and two are offline.
- There are SimpliVity CLI commands to configure, manage, and display information about OmniStack IP address pools. [OmniStack IP Pool and Deployment CLI Summary](#) on page 61 summarizes these commands. See the *OmniCube Command Reference* for more information.

Note: In vSphere Client, there is an **IP Pools** tab at the datacenter level. This tab displays information about IP pools for vSphere vApp and not information about OmniStack IP address pools. Use the SimpliVity CLI commands to view information about OmniStack IP address pools.

Related Topics

[About Deployment Manager](#) on page 17

[OmniCube System Deployment Discovery](#) on page 20

Using Hostnames for OmniCube System Deployments

During the deployment of an OmniCube system, the OmniStack software performs a reverse DNS lookup. When an IP address resolves to a hostname, the OmniCube system appears in vCenter Server with an assigned hostname. When an IP address does not resolve to a hostname, the OmniCube system appears in vCenter Server with an assigned IP address.

To register an OmniCube system in vCenter Server by hostname, configure the DNS server for the IP address or hostname prior to deploying the OmniCube system. The hostname must be registered with DNS. The DNS server(s) must be the same and reachable by the OmniCube Virtual Controller, OmniCube host, vCenter Server, vSphere Client, and the Windows computer running Deployment Manager.

Related Topics

[About Deployment Manager](#) on page 17

[OmniCube System Deployment Discovery](#) on page 20

Tasks for Deploying OmniCube Systems

Perform these tasks to deploy OmniCube systems in an existing datacenter or cluster in vCenter Server. To create a datacenter or cluster, see the *OmniCube for vSphere Client Administrator Guide* and *OmniCube for vSphere Client Help*.

Task	Description
Task 1—Downloading SimpliVity Software on page 27	Download the SimpliVity software from the Customer Support website at https://simplivity.force.com/Support/login .
Task 2—Installing the SimpliVity vSphere Extension on page 28	Install the SimpliVity vSphere Extension on every vSphere Client computer you are using to deploy and manage the OmniCube systems.
Task 3—Installing the SimpliVity Arbiter on page 29	Install the SimpliVity Arbiter on a vCenter Server or a different Windows server the OmniCube systems will use.
Task 4—Installing Deployment Manager on page 30	Install the Deployment Manager on every Windows computer you are using to deploy OmniCube systems. Note: The Windows computer and OmniCube systems must be on the same broadcast domain for Deployment Manager to discover the OmniCube systems automatically on the network. If the OmniCube systems are not on the same broadcast domain, but on a reachable network, you must provide the IP address of each OmniCube system manually. See OmniCube System Deployment Discovery on page 20 for more information.
Task 5—Deploying OmniCube Systems on page 31	Configure and deploy OmniCube systems using these deployment methods: <ul style="list-style-type: none"> • Deploying OmniCube in a Datacenter or Cluster with No Deployed OmniCube Systems on page 32 • Deploying OmniCube Systems Using Existing OmniStack IP Address Pools on page 38 • Deploying OmniCube Systems and Adding IP Addresses to OmniStack IP Address Pools on page 40
Task 6—Performing Post-Deployment Tasks on page 44	Perform these tasks after an OmniCube system deployment is successful: <ul style="list-style-type: none"> • Configure the VMware license settings for vCenter Server and the ESXi hosts. For instructions, see the VMware vSphere documentation at https://www.vmware.com/support/pubs/. • Configure NIC teaming on the standard or distributed port groups (optional). • Set the time zone for all the datacenters. The default time zone is Coordinated Universal Time (UTC). • Create backup policies.

Task	Description
	<ul style="list-style-type: none">• Create datastores.• Set up your virtual environment. For example, create, clone, move, or migrate virtual machines.• Assign backup policies to the virtual machines.• Add rules to the backup policies.

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Deployment Manager Requirements](#) on page 19

[Deploying OmniCube Systems](#) on page 16

[About Deployment Manager](#) on page 17

Task 1—Downloading SimpliVity Software

The software to deploy and manage OmniCube systems includes the SimpliVity vSphere Extension, SimpliVity Arbiter, and SimpliVity Deployment Manager.

Before You Begin

Login is required to access the SimpliVity software on the Customer Support website. To obtain a login account, contact [Customer Support](#).

To download the SimpliVity software:

1. Log into your account on the [Customer Support](#) website.
2. Click the **Software** tab and then **OmniCube Software**.
3. Click the folder for the current release and then the release-specific folder.
4. Save these files to a directory of your choice, where *n.n.n.n* is the current release version:
 - simplivity-vsphere-plugin-*n.n.n.n*.msi
 - simplivity-arbiter-*n.n.n.n*.msi
 - simplivity-deployment-manager-*n.n.n.n*.msi

Next Step

[Task 2—Installing the SimpliVity vSphere Extension](#) on page 28

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Tasks for Deploying OmniCube Systems](#) on page 25

Task 2—Installing the SimpliVity vSphere Extension

The SimpliVity vSphere Extension (plug-in) runs on the vSphere Client computer from which you deploy an OmniCube system and manage the Federation.

The default installation folder for the SimpliVity vSphere Extension is C:\Program Files (x86)\VMware\Infrastructure\Virtual Infrastructure Client\Plugins\SimpliVity vSphere Extension\.

Before You Begin

- At least 163MB of free disk space is required on the Windows computer.
- Uninstall an existing version of the SimpliVity vSphere Extension before installing a new version.

To install SimpliVity vSphere Extension:

1. Close vSphere Client if it is open.
2. Click the `simplivity-vsphere-plugin-n.n.n.n.msi` file that you downloaded from [Customer Support](#) to open the setup wizard.
3. Click **Run**.
4. Click **Next** in the Welcome screen.
5. Check **I Agree** to accept the license and click **Next**.
6. In the Installation Location screen, select the default installation folder.

Note: Do not choose an alternate installation folder. Use the default folder only.

7. Click **Next** to open the Confirm Installation screen.
8. Click **Next** to begin the installation. The Installing Plug-In screen displays the progress of the task, which takes no more than a few minutes to complete.
9. Click **Close** in the Installation Complete screen to complete the installation.
10. Verify the installation by opening vSphere Client and clicking the Plug-ins menu. Click **About SimpliVity** to confirm the plug-in installed correctly.

Next Step

[Task 3—Installing the SimpliVity Arbiter](#) on page 29

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Tasks for Deploying OmniCube Systems](#) on page 25

Task 3—Installing the SimpliVity Arbiter

The SimpliVity Arbiter software runs on the computer hosting a vCenter Server or a different Windows server, and is required in every Federation.

The SimpliVity Arbiter is an independent witness that acts as a tie-breaking vote when a Federation contains an even number of OmniCube systems. For example, there are two deployed OmniCube systems in a Federation. One OmniCube system is in an Alive (healthy) state and the other OmniCube system is in a Faulty state. In this situation, there is not a majority of healthy OmniCube systems in the Federation. The OmniCube system in the Alive state combined with the SimpliVity Arbiter vote become a majority over the one OmniCube system in the Faulty state. This preserves the health of the Federation and you can deploy additional OmniCube systems within the Federation.

During a first-time deployment in a datacenter or cluster, Deployment Manager displays the SimpliVity Federation Information screen. You specify whether the OmniCube systems use a SimpliVity Arbiter running on a vCenter Server or a different Windows server. If the OmniCube systems use a SimpliVity Arbiter on a different Windows server, you specify the IP address of the Windows server.

Before You Begin

Review the requirements to install SimpliVity Arbiter. See [SimpliVity Arbiter Requirements](#) on page 14.

To install SimpliVity Arbiter:

1. Click the `simplivity-arbiter-n.n.n.n.msi` file that you downloaded from [Customer Support](#) to open the setup wizard.
2. Click **Run**.
3. Click **Next** in the Welcome screen.
4. Check the license acceptance box and click **Next** to open the Setup Type screen.
5. Click **Complete** then **Install**.
6. Click **Finish** in the Completed screen.

Next Step

[Task 4—Installing Deployment Manager](#) on page 30

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Tasks for Deploying OmniCube Systems](#) on page 25

Task 4—Installing Deployment Manager

You install Deployment Manager on the Windows computer you are using to deploy an OmniCube system.

Before You Begin

- Verify the required third party software is installed on the Windows computer you are using to deploy the OmniCube systems. See [Deployment Manager Requirements](#) on page 19.
- Deployment Manager requires 127MB of disk space on the Windows computer.
- If an older version of Deployment Manager is installed on the Windows computer, uninstall that version and install the new version.
- vCenter Server administrator credentials are required to log into Deployment Manager.

To install Deployment Manager:

1. Click the `simplivity-deployment-manager-n.n.n.n.msi` file that you downloaded from [Customer Support](#) to open the setup wizard.
2. Double-click the file in the download location and click **Run**.
3. Click **Next** in the Welcome screen.
4. Check **I Agree** to accept the license then **Next**.
5. In the Select Installation Folder screen:
 - a. Click **Disk Cost** to view the drives and disk space available for the installation.
 - b. Specify an installation folder if you do not want to use the default location which is `C:\Program Files (x86)\SimpliVity\DeploymentManager`. Use the **Browse** button to select a location or manually enter a directory path.
 - c. Specify whether all users on the Windows computer can use Deployment Manager or only the current user. The default is **Everyone**.
 - d. Click **Next**.
6. Click **Next** in the Confirm Installation screen.
7. Click **Close** in the Installation Complete screen.

Next Step

[Task 5—Deploying OmniCube Systems](#) on page 31

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

Task 5—Deploying OmniCube Systems

This section describes these OmniCube system deployments:

- [Deploying OmniCube in a Datacenter or Cluster with No Deployed OmniCube Systems](#) on page 32
- [Deploying OmniCube Systems Using Existing OmniStack IP Address Pools](#) on page 38
- [Deploying OmniCube Systems and Adding IP Addresses to OmniStack IP Address Pools](#) on page 40

Note: The *OmniCube System Quick Start—Configuration and Deployment* provides basic instructions to deploy OmniCube systems in an existing datacenter or cluster with no deployed OmniCube systems, and is intended for experienced installers.

Before You Begin

- The SimpliVity vSphere Extension, SimpliVity Arbiter, and Deployment Manager are installed. See [Tasks for Deploying OmniCube Systems](#) on page 25.
- Verify you created the user accounts and meet the requirements described in [Preparing for an OmniCube System Deployment](#) on page 6.
- All OmniCube systems you deploy in a datacenter or cluster must have the same OmniStack software version. Do not mix OmniCube systems with different OmniStack software versions in the same datacenter or cluster.
- Use the latest version of Deployment Manager when deploying systems of different OmniStack versions. For example, if you have 3.0.7 systems and then purchase 3.0.8 systems, use Deployment Manager 3.0.8.

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Retrying a Failed OmniCube System Deployment](#) on page 45

[Troubleshooting OmniCube System Deployments](#) on page 50

Deploying OmniCube in a Datacenter or Cluster with No Deployed OmniCube Systems

This section describes the deployment of OmniCube systems in a datacenter or cluster with no deployed OmniCube systems. A datacenter or cluster must contain at least two deployed OmniCube systems to create a Federation.

Important: Do not close Deployment Manager when OmniCube system deployments are in progress. Also, do not run concurrent instances of Deployment Manager when deploying OmniCube systems to create a Federation, or when deploying groups of OmniCube systems in the same datacenter or cluster.

Before You Begin

- Only IPv4 addresses are supported.
- OmniStack IP address pools cannot be within these ranges:
 - 169.254.0.0/16
 - 0.0.0.0/8
 - 127.0.0.0/8
- The IP addresses allocated in each OmniStack IP address pool on the Management, Storage, and Federation networks must be unique for each OmniCube system deployment.
- Overallocate IP addresses in each OmniStack IP address pool to ensure that IP addresses are available for future OmniCube system deployments.
- If you are deploying one OmniCube system, the starting IP address in an OmniStack IP address pool range is required and the ending IP address is optional. However, SimpliVity recommends that you specify starting and ending OmniStack IP address pool ranges so that IP addresses are available for future OmniCube system deployments.
- IP addresses in a pool must be contiguous and on the same subnet.
- The Windows computer and OmniCube systems you are deploying must be on the same network. If the Windows computer and an OmniCube system are not on the same network, you must manually obtain an IP address for the OmniCube system. See [OmniCube System Deployment Discovery](#) on page 20 for more information.
- Open TCP ports 9292 and 9299 on the Management network to deploy an OmniCube system. You can close these ports after the deployment is successful.
- The ESXi version you specify for each OmniCube system in the same datacenter must be in the same release family. See the *Interoperability Guide* available from the Downloads & Documents page of the SimpliVity Online Support Center at <https://support.simplivity.com> for the ESXi versions that are supported.
- An option is available to migrate existing virtual switches (vSwitches) to a vSphere Distributed Switch (VDS). If you select this option, you deploy one OmniCube system, manually migrate the vSwitches to a VDS, and then deploy the additional OmniCube systems in the same datacenter or cluster. All subsequent deployments use the VDS. For a VDS environment, VMware vSphere must be at a license level that includes Enterprise Plus.

- Verify the Windows computer you are using to deploy an OmniCube system is not configured to enter hibernation or sleep mode during the deployment.
- You cannot cancel an OmniCube system deployment while it is in progress.
- When you deploy OmniCube systems in a datacenter with no deployed OmniCube systems in a Federation and all the deployments fail in that datacenter, deployments queued in other datacenters stop. Retry the failed and stopped deployments. See [Retrying a Failed OmniCube System Deployment](#) on page 45.

To deploy OmniCube systems in a datacenter or cluster with no deployed OmniCube systems:

1. Launch Deployment Manager on the Windows computer you are using to deploy the OmniCube systems.
2. Enter the vCenter Server address and administrator credentials.
3. In the Select Deployment Location screen, select a datacenter or expand a datacenter and select a cluster for the deployment. If you modify the inventory in vCenter Server while in this screen, click **Refresh Inventory** to update the contents in the screen. Click **Next**.
4. In the OmniCube Federation Settings screen, specify the OmniCube Federation and SimpliVity Arbiter settings. Click **Next**.
 - Select one of the following:
 - Create a SimpliVity Federation—The OmniCube systems create a new SimpliVity Federation in the current vCenter Server.
 - Join an existing SimpliVity Federation—The OmniCube systems join a SimpliVity Federation in a vCenter Server in linked mode. Specify a Virtual Controller IP address of an OmniCube system in the SimpliVity Federation.
 - Select whether the OmniCube systems use a SimpliVity Arbiter running on a vCenter Server or a different Windows server. If SimpliVity Arbiter is on a different Windows server, specify the IP address of the Windows server.

Note: If you are running the SimpliVity Arbiter on a Windows server and not vCenter Server, an additional step is required after deployment. Contact [Customer Support](#) for more information.

5. In the Select Deployment Method screen, select the type of deployment and whether to prepare for migration of the virtual switches (vSwitches) in your environment to a vSphere Distributed Switch (VDS). Click **Next**.
 - Deploy an OmniCube system manually—You manually enter configuration information for the deployment.
 - Import a configuration file for this deployment—Imports data from an existing deployment configuration file and populates some fields. You can modify the data at any time during the deployment. Click **Browse to Configuration File** to select the configuration file to import. Read privileges are required to import a configuration file.
 - Use vSphere Distributed Switch—Prepares for manual migration of vSwitches to a VDS.
6. In the Select OmniCube Systems screen, do one of the following and click **Next**.

- In the **Discovered** tab, select the checkbox for each OmniCube system to deploy.
 - If you selected **Use vSphere Distributed Switch** in Step 5, select only **one** OmniCube system to deploy.
 - If the **Discovered** tab does not list an OmniCube system, select the **Manual** tab. Enter the IP address of the OmniCube system, click **Add**, select the ESXi version, and verify the checkbox is selected for the OmniCube system. Click **Next**.

Note: An OmniCube system may not acquire an IP address automatically. For example, when Deployment Manager and an OmniCube system are on a different broadcast domain. This requires that you manually obtain the IP address for the OmniCube system and specify it in the **Manual** tab. See [OmniCube System Deployment Discovery](#) on page 20 for more information.

- Select **Create a configuration file to assist with deployment at a later time** to create a configuration file and deploy an OmniCube system at a later time.
7. In the OmniCube Information screen, enter your user account information. Click **Next**.

Note: This screen does not appear if you select **Create a configuration file to assist with deployment at a later time** in Step 6.

- OmniCube ESXi host password—Create the password for the ESXi root user account to log into the OmniCube system you are deploying. For ESXi host password requirements and restrictions, see the article on the [VMware Knowledge Base](#).
 - SimpliVity Command Line Interface (CLI) password—Create the password to log into the SimpliVity CLI user account (svtcli). You can use this account to run SimpliVity CLI commands, if your VMware single sign-on account is not available.
8. In the OmniCube System Network Topology screen, select the topology for your networking environment. Click **Next**.
- 1GbE switched Management network and 10GbE switched Storage and Federation networks (the default).
 - 1GbE switched Management network and the 10GbE physical ports are not connected to a 10GbE switched physical network.

Note: Use the 1GbE and disconnected 10GbE topology when the datacenter or cluster will contain only **one** OmniCube system, and you do not plan to deploy additional OmniCube systems in the same datacenter or cluster.

- 10Gbe Only when the Management, Storage, and Federation networks use 10GbE network interfaces.
 - Direct 10GbE connection when the Storage and Federation networks on the 10GbE network interfaces are connected directly to each other.
9. In the Management Network Information screen, specify information for the Management network. Click **Next**.

Note: If you are deploying OmniCube with a 1GbE/10GbE or Direct 10GbE connection, the Virtual Controller and OmniCube ESXi host IP address on the Management network must be on a different subnet than the Storage and Federation networks.

- (Required) Starting OmniCube ESXi host IP address.
 - Ending OmniCube ESXi host address. This is required if you selected more than one OmniCube system in the Select OmniCube System screen.
 - (Required) OmniCube ESXi host netmask.
 - (Required) OmniCube ESXi host gateway.
 - (Required) Starting Virtual Controller IP address.
 - Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube System screen.
 - (Required) Virtual Controller netmask.
 - (Required) Virtual Controller gateway.
 - (Required) vSwitch name for the Management network.
 - (Required) Port group name for the Management network.
 - (Required) MTU size, in bytes. The range is 1000 to 9000.
 - 10GbE Only network: The MTU size on the Management, Storage, and Federation networks must be the same value. SimpliVity recommends the MTU size is 9000 for a 10GbE Only connection.
 - 1/10GbE or 10GbE Direct network: The MTU size on the Storage and Federation networks must be the same value. The MTU size on the Management network can be any value (1500 is recommended) but must be the same MTU value on all Management networks on the subnet.
 - VLAN ID. This is required if you select **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.
10. In the Storage Network Information screen, specify information for the Storage network. If you are using a Direct 10GbE connection, some fields are populated with data from the Management Network Information screen and you cannot modify the information. Click **Next**.

Note: If your network topology is a 1GbE/10GbE or Direct 10GbE connection, the Virtual Controller IP address and VMkernel port IP address on the Storage network must be on the same subnet and the Virtual Controller IP address on the Storage and Management networks must be on a different subnet.

- (Required) Starting Virtual Controller IP address.
- Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems to Deploy screen.
- (Required) Virtual Controller netmask.
- (Optional) Virtual Controller gateway.
- (Required) Starting VMkernel port IP address.
- Ending VMkernel port IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems to Deploy screen.
- (Required) VMkernel port netmask.

- (Optional) VMkernel gateway.
- (Required) vSwitch name for the Storage network.
- (Required) Port group name for the Storage network.
- (Required) MTU size, in bytes. The range is 1000 to 9000.
 - 10GbE Only network: The MTU size on the Management, Storage, and Federation networks must be the same value. SimpliVity recommends the MTU is 9000 for a 10GbE Only connection.
 - 1/10GbE or 10GbE Direct network: The MTU size on the Storage and Federation networks must be the same value. The MTU size on the Management network can be any value (1500 is recommended) but the MTU value must be the same on all Management networks on the subnet.
- VLAN ID. This is required if you select **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.

11. In the Federation Network Information screen, specify the Federation network and DNS information. Click **Next**.

Note: If you are deploying OmniCube systems with a 1GbE/10GbE or Direct 10GbE connection, the Virtual Controller IP address on the Federation network must be on a different subnet than the Management and Storage networks.

- (Required) Starting Virtual Controller IP address.
- Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems screen.
- (Required) Virtual Controller netmask.
- (Optional) Virtual Controller gateway.
- (Required) vSwitch name for the Federation network.
- (Required) Port group name for the Federation network.
- (Required) MTU size, in bytes. The range is 1000 to 9000.
 - 10GbE Only network: The MTU size on the Management, Storage, and Federation networks must be the same value. SimpliVity recommends the MTU size is 9000 for a 10GbE Only connection.
 - 1/10GbE or 10GbE Direct network: The MTU size on the Storage and Federation networks must be the same value. The MTU size on the Management network can be any value (1500 is recommended).
- VLAN ID. This is required if you selected **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.
- (Required) DNS suffix name. Do not specify a DNS child domain for an OmniCube system.
- (Required) Default DNS suffix to search for a domain.
- (Required) IP address for a primary DNS server.
- (Optional) IP address for a secondary DNS server.

12. In the NTP Server Information screen, select at least three NTP servers and click **Add**. The default servers are:

- 0.us.pool.ntp.org

- 1.us.pool.ntp.org
- 2.us.pool.ntp.org
- 3.us.pool.ntp.org

You can add an IP address or DNS name for an alternate NTP server in the **Alternate Server** field and then click the corresponding **Add** button. Use the **Up** and **Down** buttons to change the priority of the NTP servers. Click **Next**.

13. Review the information in the Deployment Summary screen. To correct errors, use the **Back** button to return to previous screens. Click **Next**.
14. In the Ready to Deploy screen, specify the next step in the deployment process. Click **Finish**.
 - Select both options to deploy the OmniCube systems and create a configuration file.
 - Select **Deploy the Selected OmniCube system(s)** to deploy the OmniCube systems. This option is disabled if you selected **Create a configuration file to assist with deployment at a later time** in the Select OmniCube Systems screen.
 - Select **Create a configuration file to assist with deployment at a later time** and browse to a directory to create a deployment configuration file.
15. Click the blinking deployment icon  at the top of the screen to open a status window that displays the progress of a deployment. The deployment icon shows the number of deployments that are in progress. When a deployment is successful, you can remove the progress bar for an OmniCube system by clicking **Clear Completed**.

If you selected **vSphere Distributed Switch** to migrate existing vSwitches to a VDS and **one** OmniCube system in the Select OmniCube Systems screen, perform these steps:

1. When the deployment of the OmniCube system is complete, manually migrate the existing vSwitches to the vSphere Distributed Switch. See [Migrating Virtual Switches to a vSphere Distributed Switch](#) on page 54.
2. Deploy the additional OmniCube systems within the same datacenter or cluster. See [Deploying OmniCube Systems Using Existing OmniStack IP Address Pools](#) on page 38.

Next Step

[Task 6—Performing Post-Deployment Tasks](#) on page 44

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Retrying a Failed OmniCube System Deployment](#) on page 45

[Troubleshooting OmniCube System Deployments](#) on page 50

Deploying OmniCube Systems Using Existing OmniStack IP Address Pools

This section describes the deployment of OmniCube systems with OmniStack IP address pools using the **SimpliVity - Deploy OmniCube Systems** option in vSphere Client or Deployment Manager.

Before You Begin

- When you deploy OmniCube systems using OmniStack IP address pools, a majority of the OmniCube systems in a Federation must be in an Alive (healthy) state. The SimpliVity Arbiter acts as a tie-breaker vote when there are an even number of OmniCube systems in a Federation. See [Task 3—Installing the SimpliVity Arbiter](#) on page 29 for more information.
- You can view the status of the OmniCube systems in a Federation in the vSphere Client OmniCube Systems panel or use the `svt-federation-show` command.
- TCP ports 9292 and 9299 must be open on the Management network to deploy OmniCube systems. You can close these ports after the deployments are successful.
- Verify the Windows computer you are using to deploy an OmniCube system is not configured to enter hibernation or sleep mode during the deployment.
- You cannot cancel an OmniCube system deployment while the deployment is in progress.

To deploy OmniCube systems with OmniStack IP address pools using vSphere Client:

1. In the vSphere Client inventory panel, right-click the datacenter or cluster and select **SimpliVity - Deploy OmniCube Systems**.
2. Select the OmniCube systems to deploy in the Deploy OmniCube Systems screen. If the **Discovered** tab does not list an OmniCube system, select the **Manual** tab. Enter the IP address of the OmniCube system to deploy and click **Add**.
3. Click **Deploy**.
4. Click **Yes** to continue with the deployment.

The vSphere Client Recent Tasks panel shows the status of the deployment. When the deployment of all OmniCube systems is complete, configure the VMware licenses and inventory, datastores, and virtual machines for each OmniCube system. See [Task 6—Performing Post-Deployment Tasks](#) on page 44.

To deploy OmniCube systems with OmniStack IP address pools using Deployment Manager:

1. Launch Deployment Manager on the Windows computer you are using to deploy the OmniCube systems.
2. Enter the vCenter Server address and administrator credentials.
3. In the Select Deployment Location screen, select a datacenter or expand a datacenter and select a cluster for the deployment. If you modify the inventory in vCenter Server while in this screen, click **Refresh Inventory** to update the contents in the screen. Click **Next**.

4. In the SimpliVity Federation Information screen, select whether the OmniCube systems use a SimpliVity Arbiter running on a vCenter Server or a different Windows server. If SimpliVity Arbiter is on a different Windows server, specify the IP address of the Windows server. Click **Next**.

Note: If you are running the SimpliVity Arbiter on a Windows server and not vCenter Server, an additional step is required after deployment. Contact [Customer Support](#) for more information.

5. In the Select Deployment Method screen, select **Deploy OmniCube systems using IP address pools**. Click **Next**.
6. In the Select OmniCube System screen, select the checkbox for each OmniCube system to deploy. If the **Discovered** tab does not list an OmniCube system, select the **Manual** tab. Enter the IP address of the OmniCube system, click **Add**, and click **Next**.

Note: An OmniCube system may not acquire an IP address automatically. For example, when Deployment Manager and an OmniCube system are on a different broadcast domain. This requires that you manually obtain the IP address for the OmniCube system and specify it in the **Manual** tab. See [OmniCube System Deployment Discovery](#) on page 20 for more information.

7. Review the information in the Deployment Summary screen. To correct errors, use the **Back** button to return to previous screens. Click **Next** to start the deployment.
8. Click the blinking deployment icon  at the top of the screen to open a status window that displays the progress of a deployment. The deployment icon shows the number of deployments in progress. When a deployment is successful, you can remove the progress bar for an OmniCube system by clicking **Clear Completed**.

Next Step

[Task 6—Performing Post-Deployment Tasks](#) on page 44

Related Topics

[Preparing for an OmniCube System Deployment](#) on page 6

[Retrying a Failed OmniCube System Deployment](#) on page 45

[Troubleshooting OmniCube System Deployments](#) on page 50

Deploying OmniCube Systems and Adding IP Addresses to OmniStack IP Address Pools

This section describes deploying OmniCube systems when OmniStack IP address pools ranges were not configured in a previous deployment, or there were not enough IP addresses in an OmniStack IP address pool to deploy the OmniCube systems.

Before You Begin

- Only IPv4 addresses are supported.
- OmniStack IP address pools cannot be within these ranges:
 - 169.254.0.0/16
 - 0.0.0.0/8
 - 127.0.0.0/8
- The IP addresses allocated in each pool on the Management, Storage, and Federation networks must be unique for each OmniCube system deployment.
- The IP addresses you add to an OmniStack IP address pool are in addition to the IP addresses already in the pool, and they do not have to be continuous with the defined IP addresses. The netmask, gateway, MTU, and VLAN must be the same value as the IP addresses already defined in the OmniStack IP address pool.
- Open TCP ports 9292 and 9299 on the Management network to deploy an OmniCube system. You can close these ports after a deployment is successful.
- Verify the Windows computer you are using to deploy an OmniCube system is not configured to enter hibernation or sleep mode during the deployment.
- You cannot cancel an OmniCube system deployment while it is in progress.

To deploy OmniCube systems with OmniStack IP address pools:

1. Launch Deployment Manager on the Windows computer you are using to deploy the OmniCube systems.
2. Enter the vCenter Server address and administrator credentials.
3. In the Select Deployment Location screen, select a datacenter or expand a datacenter and select a cluster for the deployment. If you modify the inventory in vCenter Server while in this screen, click **Refresh Inventory** to update the contents in the screen. Click **Next**.
4. In the SimpliVity Federation Information screen, select whether the OmniCube systems use a SimpliVity Arbiter running on a vCenter Server or a different Windows server. If SimpliVity Arbiter is on a different Windows server, specify the IP address of the Windows server. Click **Next**.

Note: If you are running the SimpliVity Arbiter on a Windows server and not vCenter Server, an additional step is required after deployment. Contact [Customer Support](#) for more information.

5. In the Select Deployment Method screen, select the type of deployment. Click **Next**.

- Deploy an OmniCube manually—You manually enter configuration information for the deployment.
- Import a configuration file for this deployment—Imports data from an existing deployment configuration file and populates some fields. Click **Browse to Configuration File** to select the configuration file to import. Read privileges are required to import a configuration file.

Note: You can modify the imported data to extend the number of IP addresses in an OmniStack IP address pool. The IP addresses in a pool must be contiguous and on the same subnet. Configuring overlapping IP address pool groups is not supported.

6. In the Select OmniCube Systems screen, do one of the following and click **Next**.

- In the **Discovered** tab, select the checkbox for each OmniCube system to deploy. If the **Discovered** tab does not list an OmniCube system, select the **Manual** tab. Enter the IP address of the OmniCube system, click **Add**, select the ESXi version, and verify the checkbox is selected for the OmniCube system.

Note: An OmniCube system may not acquire an IP address automatically. This requires that you manually obtain the IP address for the OmniCube system and specify it in the **Manual** tab. See [OmniCube System Deployment Discovery](#) on page 20 for more information.

- Select **Create a configuration file to assist with deployment at a later time** to create a configuration file and deploy the OmniCube system at a later time.

7. In the OmniCube Information screen, enter your user account information. Click **Next**.

Note: This screen does not appear if you selected **Create a configuration file to assist with deployment at a later time** in Step 6.

- OmniCube ESXi host password—Create the password for the ESXi root user account to log into the OmniCube system you are deploying. For ESXi host password requirements and restrictions, see the article on the [VMware Knowledge Base](#).
- SimpliVity Command Line Interface (CLI) password—Create the password to login to the SimpliVity CLI user account (svtcli). You can use this account to run SimpliVity CLI commands, if your VMware single sign-on account is not available.

8. In the Management Network Information screen, specify information for the Management network. Click **Next**.

Note: If you are deploying OmniCube with a 1GbE/10GbE or Direct 10GbE connection, the Virtual Controller and OmniCube ESXi host IP address on the Management network must be on a different subnet than the Virtual Controller IP address on the Storage and Federation networks.

- (Required) Starting OmniCube ESXi host IP address.
- Ending OmniCube ESXi host address. This is required if you selected more than one OmniCube system in the Select OmniCube System screen.
- (Required) OmniCube ESXi host netmask.
- (Required) OmniCube ESXi host gateway.
- (Required) Starting Virtual Controller IP address.

- Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube System screen.
 - (Required) Virtual Controller netmask.
 - (Required) Virtual Controller gateway.
 - (Required) MTU size, in bytes. The range is 1000 to 9000.
 - 10GbE Only network: The MTU size on the Management, Storage, and Federation networks must be the same value. SimpliVity recommends the MTU size is 9000 for a 10GbE Only connection.
 - 1/10GbE or 10GbE Direct network: The MTU size on the Storage and Federation networks must be the same value. The MTU size on the Management network can be any value (1500 is recommended) but must be the same MTU value on all Management networks on the subnet.
 - VLAN ID. This is required if you select **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.
9. In the Storage Network Information screen, specify information for the Storage network. If you are using a Direct 10GbE connection, some fields are populated with data from the Management Network Information screen and you cannot modify the information. Click **Next**.

Note: If your network topology is a 1GbE/10GbE or Direct 10GbE connection, the Virtual Controller IP address and VMkernel port IP address on the Storage network must be on the same subnet and the Virtual Controller IP address on the Storage and Management networks must be on a different subnet.

- (Required) Starting Virtual Controller IP address.
 - Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems to Deploy screen.
 - (Required) Virtual Controller netmask.
 - (Optional) Virtual Controller gateway.
 - (Required) Starting VMkernel port IP address.
 - Ending VMkernel port IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems to Deploy screen.
 - (Required) VMkernel port netmask.
 - (Optional) VMkernel gateway.
 - VLAN ID. This is required if you select **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.
10. In the Federation Network Information screen, enter information for the Federation network and DNS. Click **Next**.

Note: The Virtual Controller IP address for the Federation network must be on a different subnet than the Management and Storage networks.

- (Required) Starting Virtual Controller IP address.
- Ending Virtual Controller IP address. This is required if you selected more than one OmniCube system in the Select OmniCube Systems screen.
- (Required) Virtual Controller netmask.

- (Optional) Virtual Controller gateway.
 - VLAN ID. This is required if you selected **10GbE Only (Switched)** in the Network Topology screen. The VLAN ID range is 0 to 4094.
 - (Required) DNS suffix name. Do not specify a DNS child domain for an OmniCube system.
 - (Required) Default DNS suffix to search for a domain.
 - (Required) IP address for a primary DNS server.
 - (Optional) IP address for a secondary DNS server.
11. In the NTP Server Information screen, select at least three NTP servers and click **Add**. The default servers are:
- 0.us.pool.ntp.org
 - 1.us.pool.ntp.org
 - 2.us.pool.ntp.org
 - 3.us.pool.ntp.org
- You can add an IP address or DNS name for an alternate NTP server in the **Alternate Server** field and then click the corresponding **Add** button. Use the **Up** and **Down** buttons to change the priority of the NTP servers. Click **Next**.
12. Review the information in the Deployment Summary screen. To correct errors, use the **Back** button to return to previous screens. Click **Next**.
13. In the Ready to Deploy screen, specify the next step in the deployment process and click **Finish**.
- Select both options to deploy the OmniCube systems and create a configuration file.
 - Select **Deploy the Selected OmniCube system(s)** to deploy OmniCube systems. This option is disabled if you selected **Create a configuration file to assist with deployment at a later time** in the Select OmniCube System screen.
 - Select **Create a configuration file to assist with deployment at a later time** and browse to a directory to save the configuration file. This option is disabled if you are using OmniStack IP address pools for the deployment.
14. Click the blinking deployment icon  at the top of the screen to open a status window that displays the progress of a deployment. The deployment icon shows the number of deployments that are in progress. When a deployment is successful, you can remove the progress bar for an OmniCube system by clicking **Clear Completed**.

Next Step

[Task 6—Performing Post-Deployment Tasks](#) on page 44

Related Topics

[Deploying OmniCube Systems With OmniStack IP Address Pools](#) on page 22

[Retrying a Failed OmniCube System Deployment](#) on page 45

[Troubleshooting OmniCube System Deployments](#) on page 50

Task 6—Performing Post-Deployment Tasks

After a deployment is successful, perform these tasks for each OmniCube system.

- Configure the VMware license settings for vCenter Server and the ESXi hosts. See the VMware documentation at <https://www.vmware.com/support/pubs/> for more information.
- If you are running SimpliVity Arbiter on a Windows server and not on a vCenter Server, an additional step is required a after deployment which is performed by Customer Support. Contact [Customer Support](#) for more information.
- See the *OmniCube for vSphere Client Administrator Guide* and OmniCube for vSphere Client Help to perform these tasks:
 - (Optional) Configure NIC teaming on the standard or distributed port groups.
 - Set the time zone for all the datacenters. The default datacenter time zone is Coordinated Universal Time (UTC).
 - Create backup policies.
 - Create datastores.
 - Set up your virtual environment. For example, create or migrate virtual machines.
 - Assign backup policies to the virtual machines.
 - Add rules to the backup policies.

Related Topics

[Deploying OmniCube Systems](#) on page 16

[Tasks for Deploying OmniCube Systems](#) on page 25

Retrying a Failed OmniCube System Deployment

An OmniCube system deployment may fail when these conditions occur:

- There is a temporary network interruption.
- Deployment Manager did not locate the OmniCube system during discovery.
- There are no IP addresses available in an OmniStack IP address pool to assign to the OmniCube system.

When a deployment is in progress, click the blinking deployment icon  at the top of the screen to view status messages for the deployment. When a deployment fails, Deployment Manager displays an error message with the serial number of the OmniCube system. For example:

```
Serial number of OmniCube: ERROR: step 33 of 33 - IP Pool set up failed
```

The point at which a deployment fails determines the action to retry the deployment as follows:

- [Recoverable Error With A Deployment Retry](#)—Failure occurs between steps 1 to 3 during a deployment.
- [Recoverable Error With A Discovery State Reset](#)—Failure occurs between steps 4 to 6 during a deployment.
- [Recoverable Error With A Boot Drive or Deploy Installer Image Reset](#)—Failure occurs at step 7 or a subsequent step during a deployment.

Recoverable Error With A Deployment Retry

A recoverable error in which you can automatically retry a deployment occurs between steps 1 to 3 during a deployment. The status messages are:

```
step 1 of 33 - Created a session with HMS  
step 2 of 33 - Connecting to OmniCube Installer  
step 2 of 33 - Successfully connected to OmniCube Installer  
step 3 of 33 - Received system information from Installer  
step 3 of 33 - Host configuration determined
```

Retry the deployment using Deployment Manager. If the deployment fails, contact [Customer Support](#).

Recoverable Error With A Discovery State Reset

A recoverable error that requires a discovery state reset of the OmniCube system occurs between steps 4 to 6 during a deployment. When a deployment fails during these steps, you must reset the discovery state of the OmniCube system using the SimpliVity Installer software. The status messages are:

```
step 4 of 33 - Set OmniCube discovered  
step 4 of 33 - OmniCube discovery is complete  
step 5 of 33 - Send Hypervisor install spec  
step 5 of 33 - Appropriate Hypervisor version found
```

```
step 5 of 33 - Appropriate Virtual Controller version found
step 5 of 33 - Hypervisor install spec sent
step 6 of 33 - Starting Hypervisor Installer
step 6 of 33 - Installing hypervisor
step 6 of 33 - Claiming boot disk
step 6 of 33 - Writing hypervisor image to boot disk
step 6 of 33 - Releasing boot disk
step 6 of 33 - Configuring hypervisor
step 6 of 33 - Filling cheetah template
step 6 of 33 - Removing virtual network
step 6 of 33 - Creating virtual machine
step 6 of 33 - Starting virtual machine
step 6 of 33 - Removing virtual machine
step 6 of 33 - Waiting for hypervisor to start in virtual machine
step 6 of 33 - Waiting for hypervisor to gracefully shut down in virtual machine
step 6 of 33 - Connecting to hypervisor
step 6 of 33 - Copying configuration scripts
step 6 of 33 - Creating initial datastore
step 6 of 33 - Copying Virtual Controller to datastore
step 6 of 33 - Configuring PCI passthrough devices
step 6 of 33 - Configuring uplink NIC
step 6 of 33 - Resetting UUID
step 6 of 33 - Generating keys
step 6 of 33 - Setting new password
step 6 of 33 - Verifying new password
step 6 of 33 - Configuring network and powering down virtual machine
step 6 of 33 - Waiting for hypervisor to gracefully shut down in virtual machine
step 6 of 33 - Finished installing hypervisor
step 6 of 33 - Ending Hypervisor Installer
```

Before You Begin

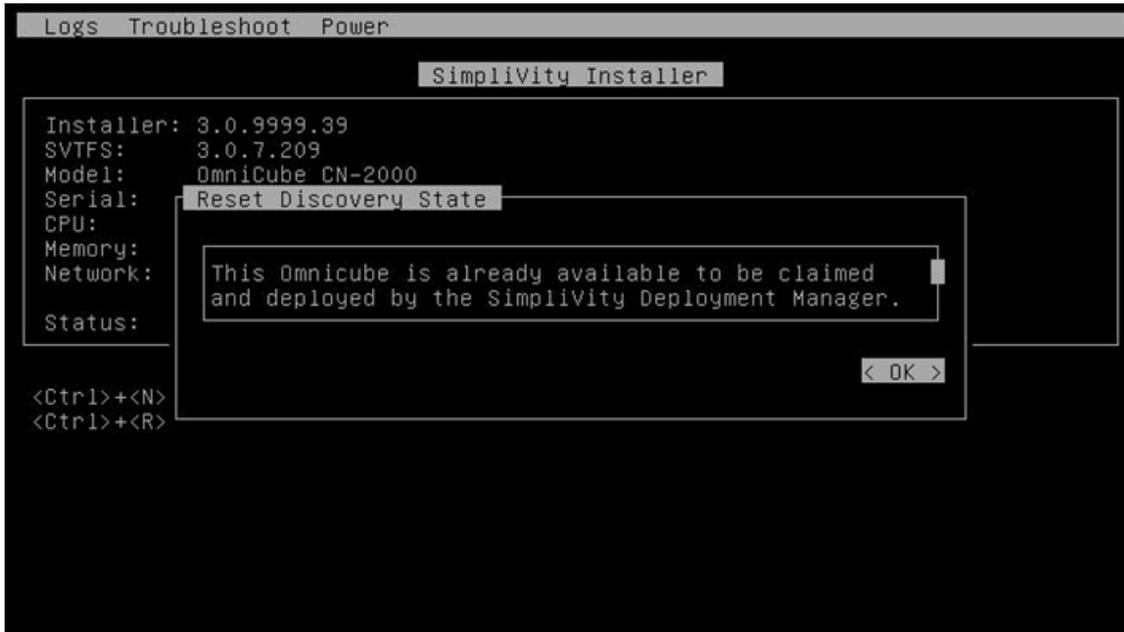
Verify an active instance of Deployment Manager is not currently discovering or deploying the OmniCube system on which you are resetting the discovery state.

To reset the discovery state on an OmniCube system:

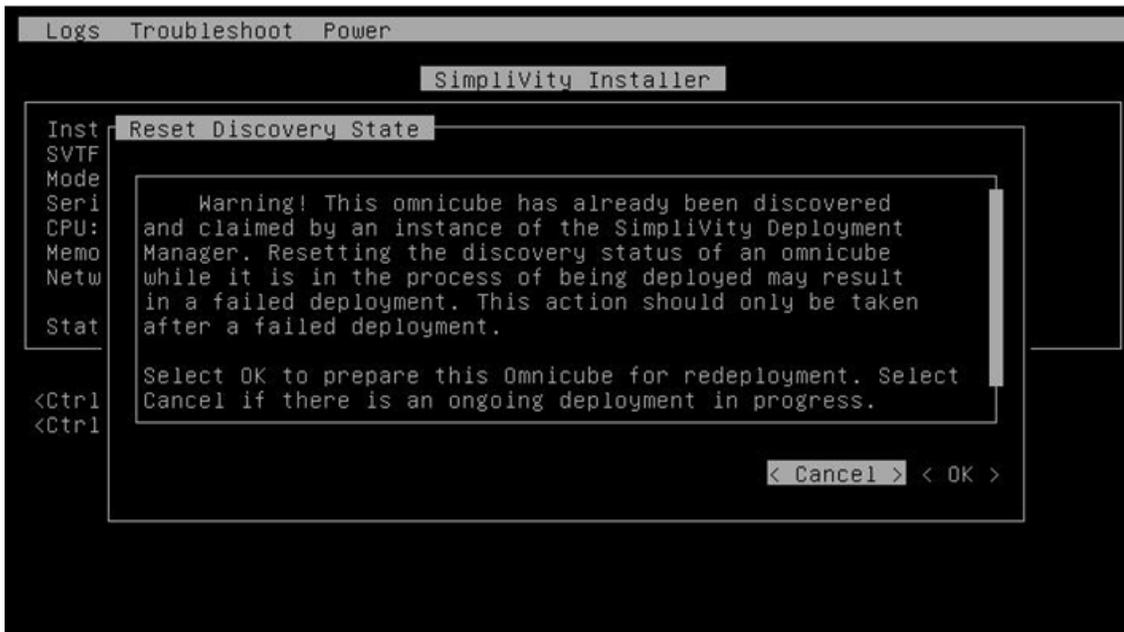
1. Connect an Ethernet cable from the Windows computer to the Ethernet management port on the rear of the OmniCube system.
2. Configure and connect the remote management interface for your platform and launch the virtual console. This SimpliVity Installer screen opens.
3. In the SimpliVity Installer screen, press **Ctrl+R** when the status is **Discovered** to start the reset process.

The following messages may appear during the reset process:

- This message indicates that the OmniCube system is available and is ready for re-deployment. Press **Enter** to continue.



- This message indicates an instance of Deployment Manager discovered this OmniCube system and is in the process of deploying it. Use the **Tab** key to make a selection and press **Enter**.
 - Select **Cancel** if deployment of this OmniCube system is in progress.
 - Select **OK** to prepare this OmniCube system for deployment.



4. Retry the deployment using Deployment Manager. If the deployment fails, contact [Customer Support](#).

Recoverable Error With A Boot Drive or Deploy Installer Image Reset

A recoverable error that occurs at step 7 or a subsequent step during a deployment requires resetting the boot drive or the deploy installer image, depending on your platform. The status messages are:

```
Step 7 of 33 - Start reboot host to Hypervisor
Step 7 of 33 - Reboot host to Hypervisor
Step 7 of 33 - Wait for Hypervisor to boot
```

See the following sections to retry the deployment on your platform.

Retrying a Deployment on a CN-Series Platform

Use this procedure to retry an OmniCube system deployment on a CN-Series platform.

1. Connect an Ethernet cable from the Windows computer to the Ethernet management port on the rear of the OmniCube system.
2. Configure and connect the remote management interface for the platform and launch the virtual console. This SimpliVity Installer screen opens.
3. In the SimpliVity Installer screen, select **BIOS Boot Manager** in the Next Boot menu.
4. Click **OK** in the Next Boot message.
5. In the Power menu, select **Reset System (warm boot)**.
6. Click **OK** in the Power Control message.
7. If a prompt appears, enter your BIOS password.
8. In the Boot Manager Main Menu, select **BIOS Boot Menu**.
9. Select * **Hard drive C:** to open the device selection menu.
10. Select **SD Card: Internal Dual SD** and press **Enter**.

Note: If **SD Card: Internal Dual SD** does not appear in the BIOS Boot Menu screen, contact [Customer Support](#).

11. In the GNU GRUB screen, use the arrow key to select **Deploy** and press **Enter**. The OmniCube system reboots and receives a new IP address.
12. Deploy the OmniCube system using Deployment Manager.

Important: If you are entering the OmniCube system IP address in the **Manual** tab in the Select OmniCube Systems screen to retry a deployment, click the **X** icon for the error message associated with the OmniCube system in the Deployment Status window to remove the error. Then, enter the IP address in the **Manual** tab.

Retrying a Deployment on an OmniStack Integrated Solution with Cisco C240 M3S or Cisco UCS C240 M4SX Platform

Retrying an OmniCube system deployment on a Cisco UCS C240 M3S or Cisco UCS C240 M4SX requires a factory reset of the deploy installer image. Contact [Customer Support](#).

Retrying a Deployment on an OmniStack Solution with Lenovo x3650 M5 Type 5462 Platform

Use this procedure to retry an OmniCube system deployment on a Lenovo x3650 M5 Type 5462 platform.

1. Connect an Ethernet cable from the Windows computer to the Ethernet management port on the rear of the OmniCube system.
2. Configure and connect the remote management interface for the platform and launch the virtual console. This SimpliVity Installer screen opens.
3. In the Power menu, select **Restart Option**.
4. While the server is booting, press **F12** to open the Boot Device Selection menu.
5. In the Boot Device Selection Menu, select **Embedded Hypervisor** and press **Enter**.
6. In the GNU GRUB screen, use the arrow key to select **Deploy** and press **Enter**. The OmniCube system reboots and receives a new IP address.
7. Deploy the OmniCube system using Deployment Manager.

Note: If you are entering the OmniCube system IP address in the **Manual** tab in the Select OmniCube Systems screen to retry a deployment, click the **X** icon for the error message associated with the OmniCube system in the Deployment Status window to remove the error. Then, enter the IP address in the **Manual** tab.

Related Topics

[Task 5—Deploying OmniCube Systems](#) on page 31

[Troubleshooting OmniCube System Deployments](#) on page 50

Troubleshooting OmniCube System Deployments

The table describes general issues associated with OmniCube system deployments and the recommended action to resolve an issue.

Problem	Cause	Resolution
<p>Deployment Manager displays this message:</p> <pre>Error connecting to address n.n.n.n port 9299</pre>	<p>Deployment Manager could not connect to the specified IP address on port 9299.</p>	<p>Verify the specified IP address is not in use by another OmniCube system.</p> <p>Verify the firewall rules on a switch or network router do not prevent access to port 9299.</p> <p>Open port 9299 on the Management network and redeploy the OmniCube system.</p>
<p>Deployment Manager displays a message that an IP address is already in use on a network.</p>	<p>The IP address is assigned to another OmniCube system.</p>	<p>Assign an IP address to the OmniCube system that is not in use by another OmniCube system.</p>
<p>Deployment Manager displays this message for all OmniCube systems during a deployment:</p> <pre>Unknown error occurred. Contact SimpliVity Customer Support.</pre>	<p>An unexpected internal error occurred.</p>	<p>Contact Customer Support.</p>
<p>Deployment Manager displays these messages:</p> <pre>Java not found. Please install Java version 1.7 or above to use Deployment Manager. Please upgrade your Java version to 1.7 or above to use Deployment Manager.</pre>	<p>Oracle™ Java is not installed on the Windows computer or the Java version installed on the Windows computer is an older version.</p>	<p>Install Java 1.7 or a later release on the Windows computer you are using to deploy the OmniCube systems.</p>
<p>Deployment Manager displays this message during a deployment:</p> <pre>Interface error from Installer</pre>	<p>A network connection timeout occurred between Deployment Manager and the OmniCube systems you are deploying.</p>	<p>Reboot the OmniCube systems. Contact Customer Support.</p> <p>After the reboot is successful, redeploy the OmniCube systems when network traffic is low.</p>
<p>Deployment Manager displays this message:</p> <pre>This setup requires the .NET Framework version 4.0.</pre>	<p>Microsoft™ .NET Framework 4.0 is not installed on the Windows computer or the .NET Framework version installed on the Windows computer is an older version.</p>	<p>Click Yes in the message to install .NET Framework 4.0 or a later release on the Windows computer you are using to deploy the OmniCube systems.</p>

Problem	Cause	Resolution
Please install the .NET Framework and run the setup again. The .NET Framework can be obtained from the web. Would you like to do this now?		
Deployment Manager displays this message during a deployment: ERROR: step 1 of 33 - Failed to create a session to HMS.	OmniStack software 3.0.7 is running on an OmniCube system that was released in 3.0.8.	Use the latest version of Deployment Manager when deploying systems of different OmniStack versions. For example, if you have 3.0.7 systems and then purchase 3.0.8 systems, use Deployment Manager 3.0.8.
Deployment Manager displays this message during a deployment on a CN-Series platform: ERROR: step 8 of 33 - Timeout while waiting for hypervisor to boot.	Deployment Manager cannot connect to the OmniCube ESXi host.	Verify the OmniCube ESXi host IP address is correct. Verify the OmniCube systems you are deploying are on the same subnet. Check network configuration settings. Retry the deployment.
Deployment Manager displays this message during a deployment on a OmniStack Integrated Solution with Cisco UCS C240 M4SX platform: ERROR: step 8 of 33 - Timeout while waiting for hypervisor to boot.	There is an issue with the boot order on the C240 M4SX system.	Contact Customer Support .
Deployment Manager displays this message during a deployment: ERROR: step 14 of 33 - A task error occurred adding host to port group.	The IP address you are using to deploy an OmniCube system is in use by an OmniCube system.	Verify the IP addresses that are available using the <code>svt-ippool-show --pool all</code> command.
Deployment Manager displays this message when you navigate from the Select Deployment Location screen to the SimpliVity Federation Information screen: Cannot connect to selected resource. Select another resource to continue.	The datacenter or cluster you selected in the Select Deployment Location screen may contain OmniCube systems in the Federation that are disconnected or unavailable for any reason (such as a network outage).	Verify the power and network cables are connected to the OmniCube system. For more information, see the <i>Hardware Installation and Maintenance Guide</i> for your platform.
vSphere Client displays this alarm during the deployment of an	The OmniStack IP pool does not contain IP addresses to deploy	Increase the number of IP addresses in the OmniStack IP

Problem	Cause	Resolution
<p>OmniCube system: SimpliVity IP Pool insufficient for deployment request</p>	<p>the OmniCube systems.</p>	<p>address pool using the <code>svt-ippool-add</code> command and retry the deployment.</p>
<p>Deployment Manager displays this message during a deployment: Federation Join Failed</p>	<p>A majority of OmniCube systems in the datacenter are not in an Alive (healthy) state.</p> <p>There are network or connectivity issues between the OmniCube systems joining the Federation and the OmniCube systems deployed in the Federation.</p> <p>Joining the OmniCube systems into the Federation took too long.</p>	<p>Contact Customer Support.</p>
<p>Deployment Manager displays this message during a deployment: The selected datacenter or cluster contains OmniCube systems with an older version of OmniStack software. Deployment Manager requires OmniStack software version 3.0.7 or a later release to deploy the OmniCube systems. To upgrade the OmniStack software, contact SimpliVity Customer Support.</p>	<p>The deployed OmniCube systems in the selected datacenter or cluster require OmniStack software version 3.0.7 or a later release.</p>	<p>Contact Customer Support to upgrade the OmniStack software.</p> <p>Deploy the OmniCube systems in a different datacenter or cluster that contains OmniCube systems with OmniStack software 3.0.7 or a later release.</p>
<p>Deployment Manager displays this message during a deployment: ERROR: step 26 of 34 - Failed to align OmniCube Accelerator firmware.</p>	<p>The OmniCube Accelerator firmware installed on the OmniCube system is not compatible with Deployment Manager.</p>	<p>Contact Customer Support to update the OmniCube Accelerator firmware.</p>
<p>When you retry a deployment and enter the OmniCube system IP address in the Manual tab in the Select OmniCube Systems screen, Deployment Manager displays this message: Deployment is already in processing for the OmniCube system.</p>	<p>The IP address entered in the Manual tab is associated with an OmniCube system that exists as a failed deployment, as shown by the error message in the Deployment Status window.</p>	<p>In the Deployment Status window, click the X icon for the error message associated with the OmniCube system to clear the message. Then, enter the IP address of the OmniCube system in the Manual tab.</p>

Problem	Cause	Resolution
<p>An OmniCube system deployment fails when using Cisco UCSM on an OmniStack Integrated Solution with Cisco C240 M3S or Cisco UCS C240 M4SX platform.</p>	<p>Network connectivity issue.</p> <p>UCSM settings are not compatible with OmniCube system deployments.</p>	<p>Verify network connectivity between the Windows computer running Deployment Manager and the UCSM Managed Server running the SimpliVity Installer.</p> <p>UCSM Dynamic Pinning (or Not Pinned) may not allow full network connectivity for the duration of the deployment and may cause a network connectivity issue during deployment. Check with your UCSM administrator about the current pinning setting.</p> <p>A UCS-Managed Server contains 10GbE interfaces only. SimpliVity recommends using a 10GbE Only (Switched) connection. Retry the deployment using Deployment Manager and select 10GbE Only in the Network Topology screen.</p> <p>The 10GbE interface used for a deployment must carry the VLANs for the Management, Storage, and Federation networks. Check with your UCSM administrator if the 10GbE interface is not carrying these VLANs.</p>

Related Topics

[Deploying OmniCube Systems](#) on page 16

[Retrying a Failed OmniCube System Deployment](#) on page 45

[Ports Required for Network Communication](#) on page 63

Appendix A - Migrating Virtual Switches to a vSphere Distributed Switch

This section describes the migration of standard virtual switches (vSwitches) to a vSphere Distributed Switch (VDS). To migrate vSwitches to a VDS, you deploy one OmniCube system in a datacenter or cluster with no deployed OmniCube systems using Deployment Manager, manually migrate the vSwitches to the VDS, and deploy the additional OmniCube systems within the same datacenter or cluster.

Example of Distributed Port Group Names and VLAN Assignments on a VDS

The following table is an example of port groups configured on existing vSwitches, and the distributed port groups and VLAN assignments that you configure when migrating to a VDS.

vSwitch	Port Group on vSwitch	Distributed Port Group on VDS	VLAN Assignments for Distributed Port Groups
vSwitch0	VM Network (Port group for the Virtual Controller on the Management network)	dvVMNetwork	For a networking environment with a 10Gbe Only vSwitch, specify these VLAN settings when you create the distributed port group: <ul style="list-style-type: none"> • VLAN type: VLAN • VLAN ID: Same VLAN ID assigned to the Virtual Controller Management network on the vSwitch.
vSwitch0	Management Network (Port group for the OmniCube ESXi host on the Management network)	dvManagement Network	For a networking environment with a 10Gbe Only vSwitch, specify these VLAN settings when you create the distributed port group: <ul style="list-style-type: none"> • VLAN type: VLAN • VLAN ID: Same VLAN ID assigned to the Host Management network on the vSwitch.
vSwitch1	SVT_StorPG (Port group for the VMkernel port on the Storage network)	dvSVT_StorPG	For a networking environment with a 10Gbe Only vSwitch, specify these VLAN settings when you create the distributed port group: <ul style="list-style-type: none"> • VLAN type: VLAN • VLAN ID: Same VLAN ID assigned to the VMkernel port Storage network

vSwitch	Port Group on vSwitch	Distributed Port Group on VDS	VLAN Assignments for Distributed Port Groups on the vSwitch.
vSwitch1	SVT_Storage PortGroup (Port group for the Virtual Controller on the Storage network).	dvSVT_Storage PortGroup	For a networking environment with a 10Gbe Only vSwitch, specify these VLAN settings when you create the distributed port group: <ul style="list-style-type: none"> • VLAN type: VLAN • VLAN ID: VLAN ID assigned to the Virtual Controller Storage network on the vSwitch.
vSwitch1	SVT_FedPort Group (Port group for the Virtual Controller on the Federation network)	dvSVT_FedPort Group	For a networking environment with a 10Gbe Only vSwitch, specify these VLAN settings when you create the distributed port group: <ul style="list-style-type: none"> • VLAN type: VLAN • VLAN ID: VLAN ID assigned to the Virtual Controller Federation network on the vSwitch.

Before You Begin

- Record the port group names and VLAN assignments configured on the vSwitches. This information will be required during the migration to the VDS. To view this information, select the OmniCube ESXi host in the vSphere inventory panel, select the **Configuration** tab, and click **Networking** in the Hardware box.
- SimpliVity recommends that you do not use private VLANs (PVLANS) with a Virtual Controller in a VDS environment. If you do use a PVLAN with the Virtual Controller, the Management, Storage, and Federation networks must use a community port and not a promiscuous port.
- The default load balancing policy for OmniCube systems on a VDS is *Route based on originating virtual port*. See the [VMware documentation](#) for more information about NIC teaming.
- VMware vSphere must be at a license level that includes Enterprise Plus for a VDS environment.
- Bulk migration from vSwitches to a VDS using host profiles is not supported.

Task 1—Create VDS

Perform these steps to create a VDS:

1. In vSphere Client, go to the **Home > Inventory > Networking** view.
2. In the vSphere Client inventory panel, right-click on the datacenter containing the deployed OmniCube system and select **New vSphere Distributed Switch**.
3. Select the VDS version that is equal to the version of hypervisor deployed on the OmniCube ESXi hosts. Click **Next**.

Note: VMware does not allow OmniCube ESXi hosts to migrate to a VDS that is a higher version than the hypervisor version.

4. Enter a name for the VDS with a **dv** prefix. The default is **dvSwitch** (recommended).
5. Enter the number of uplink ports. This number of uplink ports is equal to the number of NICs that are connected and carrying Management, Storage, and Federation traffic on each OmniCube ESXi host. Click **Next**.
6. In the Add Hosts and Physical Adapters screen, select **Add later**. Click **Next**.
7. Uncheck **Automatically create a default port group**. You will create the port groups for the VDS in [Task 2—Create Distributed Port Groups](#). Click **Finish**.
8. Verify the maximum MTU value for the VDS is appropriate for your networking environment. SimpliVity recommends a maximum MTU of 9000.
 - a. In the vSphere Client inventory panel, right-click on the VDS and select **Edit Settings**.
 - b. In the **Properties** tab, select **Advanced**.
 - c. Change the maximum MTU value to 9000, if necessary.
 - d. Click **OK**.

Task 2—Create Distributed Port Groups

1. In vSphere Client, go to the **Home > Inventory > Networking** view.
2. In vSphere Client, right-click the VDS and select **New Port Group**.
3. Specify the distributed port group name, number of ports, and VLAN type for the OmniCube ESXi host on the Management network. To distinguish a VDS port group from a vSwitch port group include a **dv** prefix in the name. For example, **dvHostManagement**. The VLAN type for the distributed port group must match the VLAN assignment for the corresponding port group on the vSwitch. Click **Next**.
4. Review the settings for the distributed port group. Click **Finish**.

5. Repeat steps 3 and 4 to create the remaining distributed port groups for these interfaces on the OmniCube system networks:
 - Virtual Controller on the Management network
 - VMkernel port on the Storage network
 - Virtual Controller on the Storage network
 - Virtual Controller on the Federation network

The next task depends on your existing network:

- For a 10GbE network, go to [Task 3—Migrate a 10GbE Network to a VDS](#) on page 57.
- For a 1/10GbE network, go to [Task 4—Migrate a 1/10GbE Network to a VDS](#) on page 58.

Task 3—Migrate a 10GbE Network to a VDS

Perform these steps to migrate a 10GbE network to a VDS:

1. In vSphere Client, go to the **Home > Inventory > Networking** view.
2. Right-click the VDS and select **Add Host**.
3. Select the OmniCube ESXi host and the physical adapter(s) marked **In use by switch** for vSwitch0. Click **Next**.
4. Expand the OmniCube ESXi host and select the virtual adapter for the OmniCube ESXi host on the Management network on vSwitch0.
5. Click **Assign port group** and select the distributed port group for the OmniCube ESXi host on the management network. Click **OK**.
6. Select the virtual adapter for the Virtual Controller on the Storage network on vSwitch0.
7. Click **Assign port group** and select the distributed port group for the Virtual Controller on the management network. Click **OK**.
8. Review the settings in the Destination port group column. Click **Next**.
9. In the Virtual Machine Networking screen, select **Migrate virtual machine networking**.
10. Expand the OmniCube ESXi host and assign the distributed port group to each network adapter for the Virtual Controller, in this order:
 - Virtual Controller on the Management network
 - Virtual Controller on the Federation network
 - Virtual Controller on the Storage network

When done, verify the settings in the Destination port group column. Click **Next**.

11. Review the settings in the Ready to Complete screen. To correct errors, use the **Back** button. Click **Finish**.

You can track the status of the migration in the Recent Tasks panel in vSphere Client. A **Completed** status indicates the migration was successful. If the migration to the VDS fails, contact [Customer Support](#).

12. Complete the following verification steps after the migration completes:
 - a. In vSphere Client, select the VDS and the **Configuration** tab.
 - b. Verify each distributed port group maps to the proper dvUplink.
 - c. In vSphere Client, select **Home > Inventory > Networking**.
 - d. Select the OmniCube ESXi host that was migrated and the **Configuration** tab.
 - e. Select the **vSphere Distributed Switch** tab in the **View** area.
 - f. In the Hardware box, select **Networking**.
 - g. Select **Manage Virtual Adapters**.
 - h. Verify the virtual adapters have the appropriate network connection and NIC settings. To adjust settings, click **Edit**.

Task 4—Migrate a 1/10GbE Network to a VDS

Perform these steps to migrate a 1/10GbE network to a VDS:

1. In vSphere Client, go to the **Home > Inventory > Networking** view.
2. Right-click the VDS and select **Add Host**.
3. Select the OmniCube ESXi host and the physical adapter(s) for vSwitch1 that are listed in the In use by switch column. Click **Next**.
4. Select the virtual adapter for vSwitch1 and click **Assign port group**.
5. Select the distributed port group for the VMkernel port on the Storage network. Click **OK**.
6. Click **Next**.
7. In the Virtual Machine Networking screen, select **Migrate virtual machine networking**. Click **Next**.
8. Expand the OmniCube ESXi host and click **Assign port group** to assign a distributed port to the network adapter associated with the Virtual Controller on these networks, in this order:
 - Virtual Controller on the Federation network
 - Virtual Controller on the Storage network

When done, verify the port group assignments and click **Next**.

9. Review the settings in the Ready to Complete screen. To correct errors, use the **Back** button. Click **Finish**.

10. Adjust the dvUplink assignments to associate the distributed port groups to the network interfaces:
 - a. Under the VDS in vSphere Client, right-click the distributed port group for the Virtual Controller on the Federation network and select **Edit Settings**.
 - b. Under **Policies**, select **Teaming and Failover**.
 - c. Use **Ctrl+click** to select the dvUplink ports that are not assigned to the physical NIC(s) carrying Federation and Storage traffic.
 - d. Click **Move Down** to move the dvUplink ports in step c under **Unused Uplinks**.
 - e. Repeat steps a to d for these distributed port groups:
 - Virtual Controller on the Storage network
 - VMkernel port on the Storage network
 - f. Under the VDS in vSphere Client, right-click on the distributed port group for the OmniCube ESXi host on the Management network and select **Edit Settings**.
 - g. Under **Policies**, select **Teaming and Failover**.
 - h. Use **Ctrl+click** to select the dvUplink ports that are assigned to the physical NIC(s) carrying Federation and Storage traffic.
 - i. Click **Move Down** to move the dvUplink ports in step h under **Unused Uplinks**.
 - j. Repeat steps f to i for the Virtual Controller on the Management network distributed port group.
11. In vSphere Client, right-click the VDS and select **Manage Hosts**.
12. Select the OmniCube ESXi host. Click **Next**.
13. Select the physical adapter(s) for vSwitch0 that are listed in the In use by switch column and verify the physical adapter(s) for vSwitch1 are selected. Click **Next**.
14. Expand the OmniCube ESXi host and select the virtual adapter for vSwitch0. Click **Assign port group** and select the distributed port group that corresponds to the source port group. Click **OK**.
15. Review the settings in the Destination port group column. Click **Next**.
16. In the Virtual Machine Networking screen, select **Migrate virtual machine networking**. Click **Next**.
17. Expand the OmniCube ESXi host and click **Assign port group** to assign the distributed port to the network adapter associated with the Virtual Controller on the Management network. Click **Next**.
18. Review the settings in the Ready to Complete screen and click **Finish**. To correct errors, use the **Back** button.

You can track the status of the migration in the Recent Tasks panel in vSphere Client. A **Completed** status indicates the migration was successful. If the migration to the VDS fails, contact [Customer Support](#).

19. Complete the following verification steps after the migration completes:
 - a. In vSphere Client, select the VDS and the **Configuration** tab.
 - b. Verify each distributed port group maps to the proper dvUplink.
 - c. In vSphere Client, select **Home > Inventory > Networking**.
 - d. Select the OmniCube ESXi host that was migrated and the **Configuration** tab.
 - e. Select the **vSphere Distributed Switch** tab in the **View** area.
 - f. In the Hardware box, select **Networking**.
 - g. Select **Manage Virtual Adapters**.
 - h. Verify the virtual adapters have the appropriate network connection and NIC settings. To adjust settings, click **Edit**.

Task 5—Remove vSwitch

When you are done migrating a vSwitch to a VDS, you can remove the vSwitch associated with an OmniCube ESXi host.

1. Go to the **Home > Inventory > Hosts and Clusters** view.
2. In vSphere Client, select the OmniCube ESXi host.
3. In the Hardware box, select the **Configuration** tab and **Networking**.
4. Click the **vSphere Standard Switch** tab.
5. Click **Remove** for the vSwitch.

Related Topics

[Deploying OmniCube in a Datacenter or Cluster with No Deployed OmniCube Systems](#) on page 32

Appendix B - OmniStack IP Pool and Deployment CLI Summary

This section summarizes SimpliVity CLI commands to create and manage OmniStack IP address pools, manually deploy an OmniCube system, and display information about OmniCube systems that are not deployed. See the *OmniCube Command Reference* for more information.

Command	Description
<code>svt-ippool-set</code>	Configure the attributes of an OmniStack IP address pool within a network.
<code>svt-ippool-add</code>	Add individual or a range of IP addresses to an existing OmniStack IP pool within a network.
<code>svt-ippool-remove</code>	Remove individual or a range of IP addresses from an existing OmniStack IP pool within a network.
<code>svt-ippool-show</code>	Display information for one or more OmniStack IP pools.
<code>svt-ip-assignments-show</code>	Display information about the IP assignments for an OmniCube system.
<code>svt-ippool-deallocate</code>	Deallocate all IP addresses assigned to an OmniCube system, and return the IP addresses to the OmniStack IP address pool for use by newly-deployed OmniCube systems.
<code>svt-omnicube-deploy</code>	Manually deploy an OmniCube system using the host IP address.
<code>svt-undeployed-omnicube-show</code>	Display the IP address, serial number, and model type of OmniCube systems that are not deployed.

Related Topics

[Deploying OmniCube Systems](#) on page 16

Appendix C - OmniCube System and Federation Heartbeats

OmniCube systems in a Federation provide two heartbeat functions to help you monitor and maintain system connections.

- The SimpliVity Arbiter provides a connection heartbeat between OmniCube systems within a Federation. If the SimpliVity Arbiter heartbeat stops, this error message appears in vCenter Server:

```
Lost contact with the SimpliVity Arbiter at ip-address.
```

- The OmniCube Accelerator™ Firmware provides a heartbeat. If this heartbeat stops, this error message appears in vCenter Server:

```
SimpliVity OmniCube Accelerator Firmware Unresponsive.
```

SimpliVity also supports the VMware vSphere HA datastore heartbeat, if it is configured in your environment.

See the OmniCube for vSphere Client Help for information about monitoring events and alarms, and restarting the SimpliVity Arbiter.

Related Topics

[Task 3—Installing the SimpliVity Arbiter](#) on page 29

Appendix D - Ports Required for Network Communication

The following table describes the ports that each OmniCube or OmniStack system uses to communicate with your network and other systems. You are required to open these ports. For ports required by VMware vSphere, see the VMware documentation. For ports required by your specific platform, such as IPMI access, see the vendor documentation.

Important: System deployment using Deployment Manager requires that Internet Control Message Protocol (ICMP) is enabled.

Ports	Protocols	Networks	Sources	Destinations	Description
22	TCP	All	Management Workstation	OmniCube or OmniStack system (Primary and Secondary)	For remote access, using SSH, to the system when the web server is unavailable.
25	TCP	Management	OmniCube or OmniStack system (Primary and Secondary)	SMTP Server	Phone Home and email alerts sent from a system to SimpliVity Support.
80	TCP	Management	Deployment Manager	OmniCube or OmniStack system	vCenter Server uses this port for direct HTTP connections. Do not change this port assignment.
427	TCP	Management	Deployment Manager	OmniCube or OmniStack system (Primary and Secondary)	Deployment Manager uses this port to discover the system, over SSL, prior to deployment.
443	TCP	Management	OmniCube or OmniStack system (Primary and Secondary)	Internet	Phone Home proactive support.
9190	TCP	Management	vSphere Client	OmniCube or OmniStack system	OmniCube CLI or vSphere Client access to the system.

Ports	Protocols	Networks	Sources	Destinations	Description
9292	TCP	Management	Deployment Manager	OmniCube or OmniStack system (Primary and Secondary)	Deployment Manager access to the system over SSL. This port must be open to deploy the system. You can close this port after a deployment is successful.
9299					
9390	TCP	Management	<ul style="list-style-type: none"> • OmniCube or OmniStack system (Primary and Secondary) • vCenter Server (Primary and Secondary) 	<ul style="list-style-type: none"> • OmniCube or OmniStack system (Primary and Secondary) • vCenter Server (Primary and Secondary) 	Event Manager uses this port to manage events between systems and vCenter Servers.
22122	UDP and TCP	Federation	OmniCube or OmniStack system (Primary and Secondary)	OmniCube or OmniStack system (Primary and Secondary)	Federation traffic between systems, SimpliVity Arbiter communication, and backups to remote datacenters.
111, with Port Mapper enabled	UDP and TCP	Storage	OmniCube or OmniStack system (Primary and Secondary)	OmniCube or OmniStack system (Primary and Secondary)	Storage traffic between systems and when existing ESXi hosts are configured to use SimpliVity datastores.
32764-32768, 2049	UDP and TCP	Storage	<ul style="list-style-type: none"> • OmniCube or OmniStack system (Primary and Secondary) • vCenter Server (Primary and Secondary) 	<ul style="list-style-type: none"> • OmniCube or OmniStack system (Primary and Secondary) • vCenter Server (Primary and Secondary) 	Required by all 10GbE Storage networks for data communication.

Related Topics

[Networking Requirements](#) on page 11

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