



Virtuozzo Infrastructure Platform 2.5

Quick Start Guide

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CHAPTER 1

Introduction

1.1 About This Guide

This guide describes how to set up a full-fledged storage cluster on five nodes, deploy a compute cluster on top of it, and create a virtual machine.

1.2 Hardware Requirements

A typical Virtuozzo Infrastructure Platform installation recommended for production consists of a single management node and at least four nodes for storage and compute. The following table lists the *minimal* hardware requirements for the management node and storage/compute nodes. The recommended configurations are provided in the *Installation Guide*.

Table 1.1: Node hardware requirements

Type	Management node	Each storage and compute node
CPU	64-bit x86 processors with AMD-V or Intel VT hardware virtualization extensions enabled. 16 logical CPUs*	64-bit x86 processors with AMD-V or Intel VT hardware virtualization extensions enabled. 8 logical CPUs*
RAM	32 GB**	8 GB**

Continued on next page

Table 1.1 – continued from previous page

Type	Management node	Each storage and compute node
Storage	1 disk: system + metadata, 100+ GB SATA HDD 1 disk: storage, SATA HDD, size as required	1 disk: system, 100+ GB SATA HDD 1 disk: metadata, 100+ GB SATA HDD (only on the first three nodes in the cluster) 1 disk: storage, SATA HDD, size as required
Network	1 GbE for storage traffic 1 GbE (VLAN tagged) for other traffic	1 GbE for storage traffic 1 GbE (VLAN tagged) for other traffic

* A logical CPU is a core (thread) in a multicore (multithreading) processor.

** Each CS, e.g., storage disk, requires 1 GB of RAM (0.5 GB anonymous memory + 0.5 GB page cache). The total page cache limit is 12 GB. In addition, each MDS requires 0.2 GB of RAM + 0.1 GB per 100TB of physical storage space.

CHAPTER 2

Installing Virtuozzo Infrastructure Platform

To install Virtuozzo Infrastructure Platform, do the following:

1. Prepare bootable media using the distribution ISO image (mount it to an IPMI virtual drive, create a bootable USB drive, or set up a PXE server).
2. First, boot the server dedicated for management from the chosen media.
3. Proceed to install the necessary components on the first and other servers as described in the following sections.

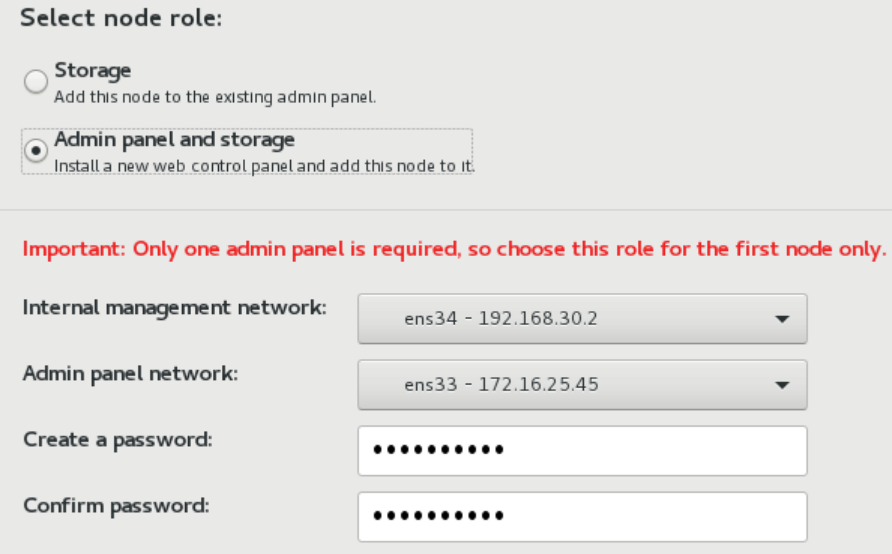
2.1 Deploying the Management Node

To install the necessary components on the first server, do the following:

1. On the welcome screen, choose **Install Virtuozzo Infrastructure Platform**. After the installation program loads, you will see the **INSTALLATION SUMMARY** screen.
2. Open the **NETWORK & HOST NAME** screen, configure a static IP address for the NIC and provide a hostname: either a fully qualified domain name (hostname, domainname) or a short name (hostname).
3. Open the **INSTALLATION DESTINATION** screen and select a system device in the **Device Selection** section. Configure other options if required.
4. Set the remaining options:
 - Open the **DATE & TIME** screen and make sure that **Network Time** is enabled so that time on each

node is synchronized.

- Open the **EULA** screen and accept the end-user license agreement.
 - Open the **ROOT PASSWORD** screen and create a password for node's root account.
5. Open the **VIRTUOZZO INFRASTRUCTURE PLATFORM** screen and choose **Admin panel and storage**.



Select node role:

Storage
Add this node to the existing admin panel.

Admin panel and storage
Install a new web control panel and add this node to it.

Important: Only one admin panel is required, so choose this role for the first node only.

Internal management network: ens34 - 192.168.30.2

Admin panel network: ens33 - 172.16.25.45

Create a password:

Confirm password:

6. Make sure that correct network interfaces are selected in the **Admin panel network** and **Management network** drop-down lists.
7. Create a password for the superadmin account.
8. Having configured everything necessary on the **INSTALLATION SUMMARY** screen, click **Begin Installation**.

Once the installation is complete, the node will reboot automatically and you will see a welcome prompt with the address of the admin panel.

9. Log in to the admin panel: on a computer with access to the admin panel network, open a web browser and visit the management node IP address on port 8888, e.g., https://<management_node_IP_address>:8888. Use the default user name shown on the login screen and the password created during installation.

If prompted, add the security certificate to browser's exceptions.

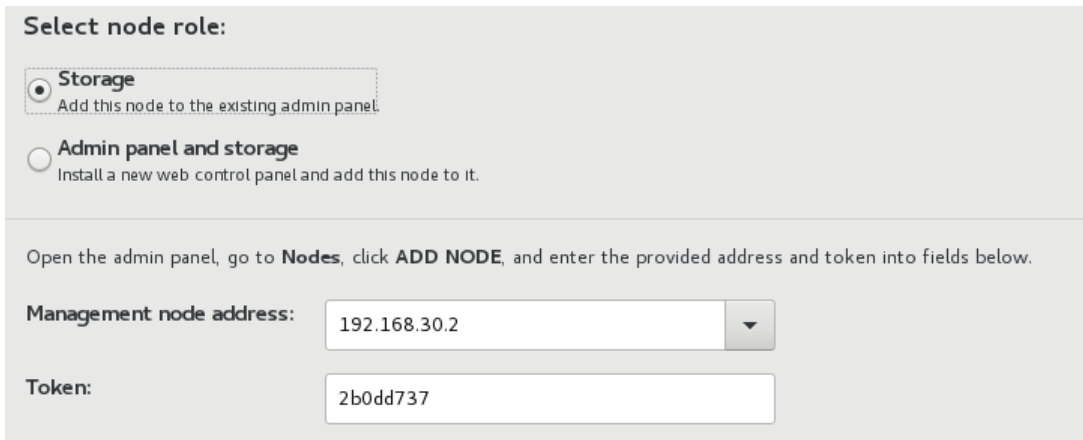
10. In the admin panel, click **ADD NODE** and a screen with instructions on adding storage nodes will appear. On it, a token will be shown (you can generate a new one if needed; generating a new token invalidates the old one).

Having obtained the token, proceed to install the remaining storage nodes.

2.2 Deploying Storage Nodes

To install storage components on the second and remaining servers, boot them from the chosen media, repeat the steps 1-4 listed in *Deploying the Management Node* (page 3), and do the following:

1. Open the **VIRTUOZZO INFRASTRUCTURE PLATFORM** screen and choose **Storage**.
2. In the **Admin panel address** field, specify the IP address of the node with the admin panel.
3. In the **Token** field, specify the acquired token.



Select node role:

Storage
Add this node to the existing admin panel.

Admin panel and storage
Install a new web control panel and add this node to it.

Open the admin panel, go to **Nodes**, click **ADD NODE**, and enter the provided address and token into fields below.

Management node address:

Token:

4. Back on the on the **INSTALLATION SUMMARY** screen, click **Begin Installation**.
5. While the node is installing, repeat these steps for the remaining servers.

CHAPTER 3

Creating the Storage Cluster

Before you create the storage cluster, enable management node high availability as described in the *Administrator's Guide*.

To create the storage cluster, do the following:



1. Open the **INFRASTRUCTURE > Nodes** screen and click a node in the **UNASSIGNED** list.
2. On the node overview screen, click **Create cluster**.
3. In the **Cluster** field, type a name for the cluster. The name may only contain Latin letters (a-z, A-Z), numbers (0-9), underscores ("_") and dashes ("-").



✕ **New cluster**

Create cluster on node **node001**

Cluster

Storage interface

 Encryption 



NEW CLUSTER **ADVANCED CONFIGURATION**

4. Click **New cluster**.
5. Click the next node in the **UNASSIGNED** list and click **Join cluster**.

✕ Join cluster

Node to join: **node002**

Storage interface

eth1 - 10.37.130.127  

JOIN CLUSTER **ADVANCED CONFIGURATION**

6. Repeat the previous step for the remaining unassigned nodes.

You can monitor cluster creation progress in the **HEALTHY** list of the **INFRASTRUCTURE > Nodes** screen. The creation might take some time depending on the number of disks to be configured. Once the automatic configuration is complete, the cluster is created.

CHAPTER 4

Deploying Compute Cluster

Before creating a compute cluster, make sure the following requirements are met:

1. Network is set up according to recommendations in the *Administrator's Guide*. The basic requirement is that the traffic types **VM private**, **VM public**, and **Compute API** are assigned to networks; and that the nodes to be added to the compute cluster are connected to these networks.
2. All nodes to be added to the compute cluster are connected to the same network with the **VM public** traffic type.

It is also recommended to enable high availability for the management node (see the *Administrator's Guide*).

Also take note of the following:

1. Creating the compute cluster prevents (and replaces) the use of the management node backup and restore feature.
2. If nodes to be added to the compute cluster have different CPU models, consult the section "Setting Virtual Machines CPU Model" in the *Administrator's Command Line Guide*.

To create the compute cluster, open the **COMPUTE** screen, click **Configure** and do the following in the **Configure compute cluster** window:

1. In the **Nodes** section, select nodes to add to the compute cluster, make sure the network state of each selected node is **Configured**, and click **Next**.

Nodes in the management node high availability cluster are automatically selected to join the compute cluster.

Configure compute cluster ×

Nodes
Select nodes to add to the compute cluster.

- Nodes
- Public network
- DHCP and DNS
- Summary

<input checked="" type="checkbox"/>	Name ↓	Node status	IP address	Network state
<input checked="" type="checkbox"/>	node001.vsto... ⓘ	Healthy	10.37.130.109	✔ Configured ⚙
<input checked="" type="checkbox"/>	node002.vstorage...	Healthy	10.37.130.127	✔ Configured ⚙
<input checked="" type="checkbox"/>	node003.vstorage...	Healthy	10.37.130.148	✔ Configured ⚙

Next

If node network interfaces are not configured, click the cogwheel icon, select networks as required, and click **Apply**.

- In the **Public network** section, enable IP address management if needed and provide the required details for the public network.

With IP address management enabled, Virtuozzo Infrastructure Platform will handle virtual machine IP addresses and provide the following features:

- Allocation pools. You can specify ranges of IP addresses that will be automatically assigned to VMs.
- Built-in DHCP server. Assigns IP addresses from allocation pools to virtual machines. With the DHCP server enabled, VM network interfaces will be automatically assigned IP addresses from allocation pools or, if no pools are specified, network's entire IP range. With the DHCP server disabled, VM network interfaces will be allocated IP addresses, but you will have to manually assign them inside VMs.
- Custom DNS servers. You can specify DNS servers that will be used by VMs. These servers will be delivered to virtual machines via the built-in DHCP server.

With IP address management disabled:

- VMs connected to a network will be able to obtain IP addresses from DHCP servers in that network.
- Spoofing protection will be disabled for all VM network ports. Each VM network interface will accept all traffic, even frames addressed to other network interfaces.

In any case, you will be able to manually assign static IP addresses from inside VMs.

If you choose to enable IP address management, select a physical network to connect the public virtual network to and optionally specify its gateway. The subnet IP range in the CIDR format will be filled in automatically. If you choose to leave IP address management disabled, select a physical network to connect the public virtual network to.

The screenshot shows a configuration window titled "Configure compute cluster" with a close button (X) in the top right corner. On the left is a vertical navigation pane with four items: "Nodes", "Public network" (which is highlighted), "DHCP and DNS", and "Summary". The main content area is titled "Specify the subnet CIDR and gateway for the external virtual network." and contains the following elements:

- A toggle switch for "IP address management" which is currently turned on (green).
- A dropdown menu for "Physical network" with "Public" selected.
- A text input field for "Subnet CIDR" containing the value "10.94.0.0/16".
- A text input field for "Gateway (optional)" which is currently empty.

At the bottom right of the dialog are two buttons: "Back" and "Next".

The selected public network will appear in the list of virtual networks on compute cluster's **VIRTUAL NETWORKS** tab.

Click **Next**.

3. If you enabled IP address management on the previous step, you will move on to the **DHCP and DNS** section. In it, enable or disable the built-in DHCP server and specify one or more allocation pools and DNS servers. Click **Next**.

Configure compute cluster ✕

- Nodes
- Public network
- DHCP and DNS
- Summary

Set DHCP and specify one or more allocation pools for the public virtual network.

Enable the built-in DHCP server.

Allocation pools + Add pool

10.94.10.128 — 10.94.10.254 126 addresses available ✎ 🗑

DNS servers + Add server

10.94.0.10 ✎ 🗑

Back
Next

4. In the **Summary** section, review the configuration and click **Create cluster**.

Configure compute cluster ✕

- Nodes
- Public network
- DHCP and DNS
- Summary

Review the compute cluster details and go back to change them if necessary.

Nodes
node001.vstoragedomain. (10.37.130.109)
node003.vstoragedomain. (10.37.130.148)
node002.vstoragedomain. (10.37.130.127)

Subnet CIDR 10.94.0.0/16

Physical network Public

DHCP Enabled

Allocation pools 10.94.10.128 — 10.94.10.254
126 addresses available

DNS servers 10.94.0.10

Back
Create cluster

You can monitor the compute cluster deployment progress on the **Compute** screen.

CHAPTER 5

Creating a Virtual Machine

Note: For supported guest operating systems and other information, see the *Administrator's Guide*.

To create a VM, do the following:









1. On the **COMPUTE > VIRTUAL MACHINES** tab, click **Create VM**. A window will open where you will need to specify VM parameters.

Create virtual machine ×

Review the virtual machine details and go back to change them if necessary.

Name
vm1

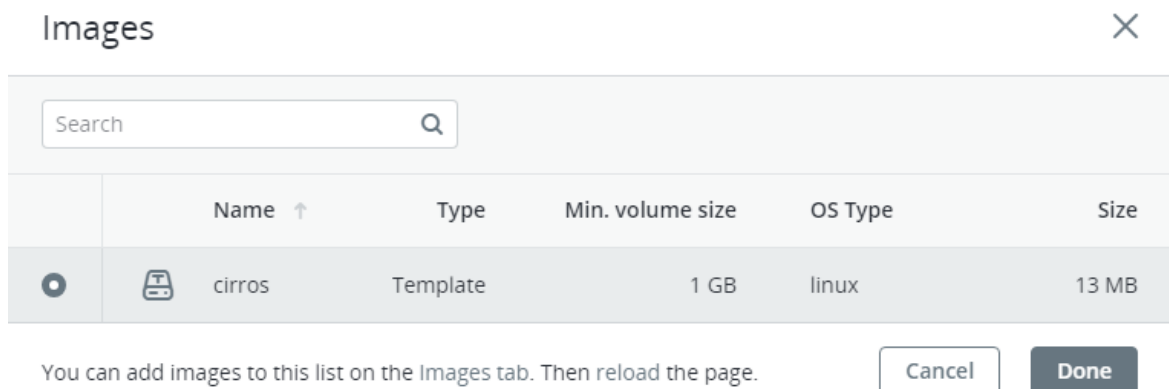
Deploy from: Image Volume

 Image	Specify	
 Volumes	Specify	
 Flavor	Specify	
 Networks	Specify	

Deploy

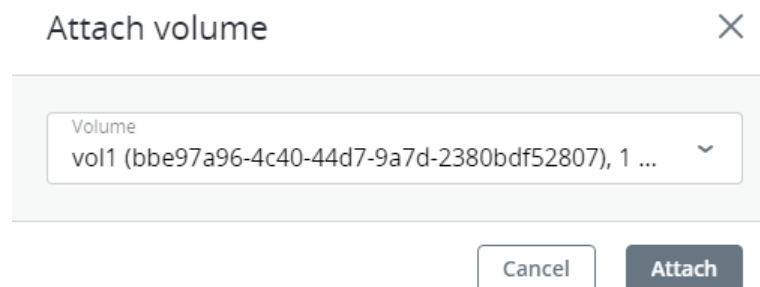
2. Specify a name for the new VM.

3. In **Deploy from**, choose **Volume** if you have a boot volume or want to create one. Otherwise, choose **Image**.
4. Depending on your choice, click the pencil icon in the **Volumes** or **Image** section and do one of the following:
 - In the **Images** window, select the ISO image or template and click **Done**.



Then, in the **Volumes** window, make sure the default boot volume is large enough to accommodate the guest OS and click **Done**.

- In the **Volumes** window, do one of the following:
 - If you have prepared a volume with an installed guest OS, click **Attach**, find and select the volume, and click **Done**.



- Otherwise, click **Add new**. In the **Add volume** window, specify a name, size in GB, and select a storage policy from the drop-down list. Click **Add**.

Add volume
✕

Name
 vol1

Size (GiB)
 1

Min. 1 GiB,
 Max. 512 TiB

Storage policy
 default

Delete on termination

Cancel
Add

The top volume in the list is considered bootable. So the first created or attached volume becomes the boot volume by default.

5. Optionally, in the **Volumes** window, click **Add new** or **Attach new** to create or attach any other volumes you need. To select a volume as bootable, place it first in the list by clicking the up arrow button next to it.
6. In the **Flavor** window, choose a flavor and click **Done**.

Flavor
✕

	Name ↑	vCPU ↑	Memory
<input checked="" type="radio"/>	tiny	1	512 MiB
<input type="radio"/>	small	1	2 GiB
<input type="radio"/>	medium	2	4 GiB
<input type="radio"/>	large	4	8 GiB
<input type="radio"/>	xlarge	8	16 GiB

You can add flavors to this list on the Flavors tab. Then reload the page.

Cancel
Done

7. In the network window, click **Add**, select a virtual network interface and click **Add**. It will appear in the

Network interfaces list.

Network
public

Cancel Add

To edit additional parameters of network interfaces that you have just added (IP and MAC addresses and spoofing protection), click interface's ellipsis icon, click **Edit**, and specify needed details in the **Edit network interface** window. Click **Save**.

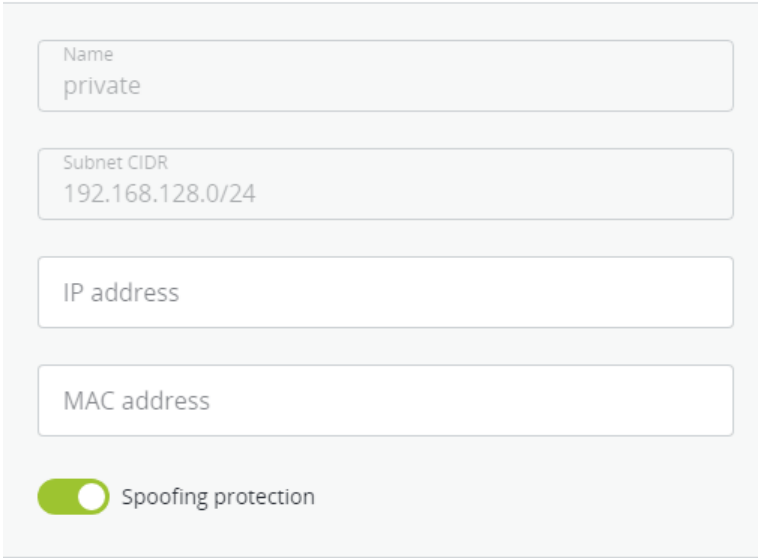
Search Q + Add

Name	IP address	MAC address	Spoofing prot...
private	Auto	Auto	Yes

Edit Remove

Cancel Done

You will not be able to edit these parameters later. Instead, you will be able to delete old network interface and replace it with a new one.



Edit network interface ✕

Name
private

Subnet CIDR
192.168.128.0/24

IP address

MAC address

Spoofing protection

Cancel Save

Click **Done**.

8. Back in the **Create virtual machine** window, click **Deploy** to create and boot the VM.
9. If you are deploying the VM from an ISO image (not a boot volume template or volume with a pre-installed guest OS), select the VM, click **Console**, and install the guest OS using the built-in VNC console.