

# Xen Roll: Users Guide



Version 5.0 Edition



**Xen Roll: Users Guide :**

Version 5.0 Edition

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# Table of Contents

<b>Preface</b> .....	<b>v</b>
<b>1. Overview</b> .....	<b>1</b>
<b>2. Installing</b> .....	<b>2</b>
2.1. On a New Server .....	2
<b>3. Using the Xen Roll</b> .....	<b>3</b>
3.1. Installing VM Containers .....	3
3.2. Adding, Installing and Booting VMs .....	4
<b>4. Command Reference</b> .....	<b>5</b>
4.1. add .....	5
4.2. create .....	6
4.3. dump .....	7
4.4. list .....	7
4.5. move .....	8
4.6. pause .....	8
4.7. remove .....	9
4.8. report .....	9
4.9. restore .....	10
4.10. resume .....	11
4.11. save .....	11
4.12. set .....	12
4.13. start .....	13
4.14. stop .....	14
<b>A. Rocks Copyright</b> .....	<b>15</b>
<b>B. Third Party Copyrights and Licenses</b> .....	<b>17</b>
B.1. xen.....	17

# List of Tables

1-1. Summary..... 1  
1-2. Roll Compatibility ..... 1

# Preface

The Xen Roll installs and configures the ...

Please visit the xen site<sup>1</sup> to learn more about their release and the individual software components.

## Notes

1. <http://xen.org>

# Chapter 1. Overview

**Table 1-1. Summary**

Name	xen
Version	5.0
Maintained By	Rocks Group
Architecture	i386, x86_64
Compatible with Rocks™	5.0

**Table 1-2. Roll Compatibility**

Roll	Requires <sup>a</sup>	Optional <sup>b</sup>	Conflicts
alpha		X	
area51		X	
base	X		
bio		X	
condor		X	
ganglia		X	
grid		X	
hpc		X	
java		X	
kernel	X		
os (disk 1)	X		
os (disk 2)	X		
os (disk 3)		X	
os (disk 4)		X	
os (disk 5)		X	
os (disk 6)		X	
os (disk 7)		X	
pbs		X	
service-pack		X	
sge		X	
viz		X	
web-server		X	

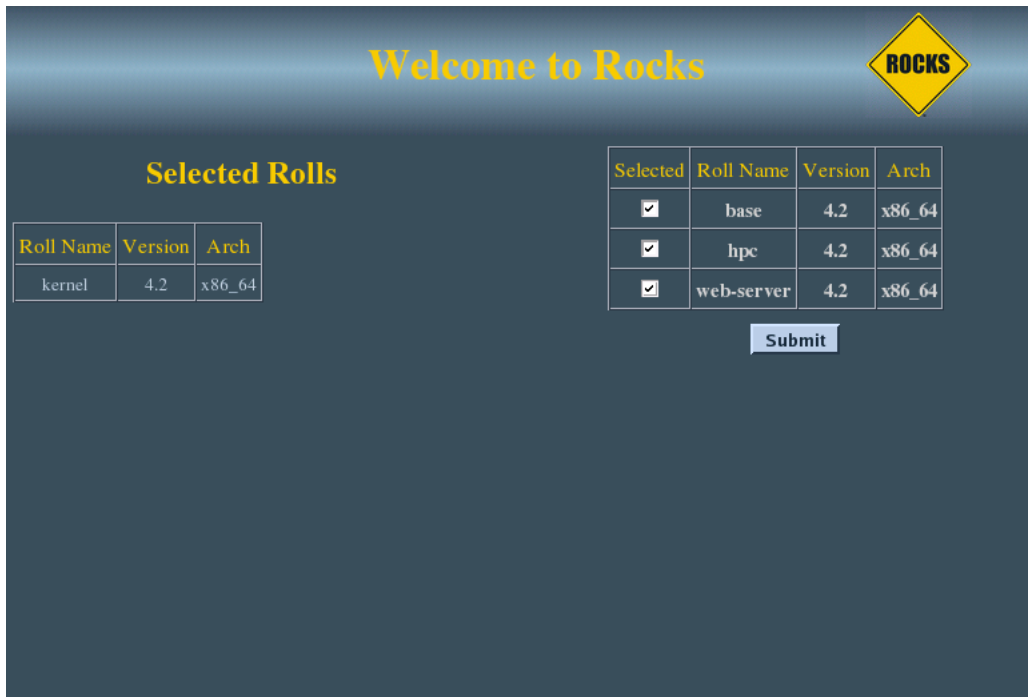
Notes:

- a. You may also substitute your own OS CDs for the Rocks™ OS Roll CDs. In this case you must use all the CDs from your distribution and not use any of the Rocks™ OS Roll CDs.
- b. Only Rolls that have been verified as compatible with this Roll are listed. Other Rolls will likely work, but have not been tested by the maintainer of this Roll.

# Chapter 2. Installing

## 2.1. On a New Server

The xen Roll should be installed during the initial installation of your server (or cluster). This procedure is documented in section 1.2 of the Rocks™ usersguide. You should select the xen Roll from the list of available rolls when you see a screen that is similar to the one below.



The screenshot shows a dark blue background with the text "Welcome to Rocks" in yellow at the top center. To the right is a yellow diamond logo with the word "ROCKS" in black. Below the title, the heading "Selected Rolls" is displayed in yellow. There are two tables: a smaller one on the left and a larger one on the right. The larger table has columns for "Selected", "Roll Name", "Version", and "Arch", with three rows of selected rolls. A "Submit" button is located below the larger table.

Roll Name	Version	Arch
kernel	4.2	x86_64

Selected	Roll Name	Version	Arch
<input checked="" type="checkbox"/>	base	4.2	x86_64
<input checked="" type="checkbox"/>	hpc	4.2	x86_64
<input checked="" type="checkbox"/>	web-server	4.2	x86_64

Submit

# Chapter 3. Using the Xen Roll

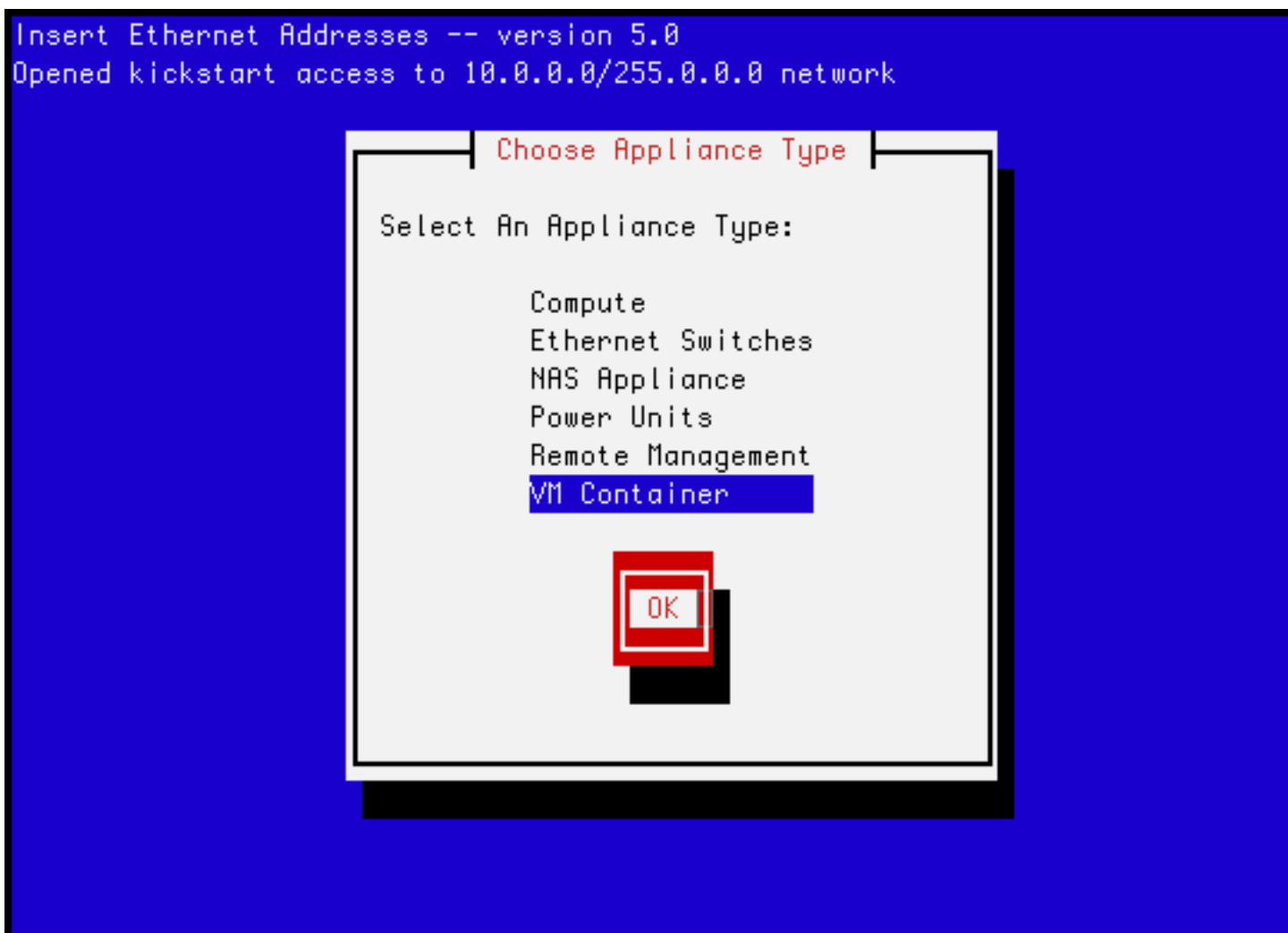
## 3.1. Installing VM Containers

First, you will need to install a physical machine that will act as the "container" for your VMs. This method is very similar to the method for installing compute nodes.

On the frontend, execute:

```
# insert-ethers
```

You will see a screen that looks like:



Select the 'VM Container' appliance, then hit 'OK'.

Now PXE boot the physical machine that will be your VM container. Just like a compute node, the VM container will be recognized by insert-ethers and installed. The default name of the node will be `vm-container-X-Y`.



You can install as many VM containers as you like.

## 3.2. Adding, Installing and Booting VMs

In the common case, you will execute three Rocks commands over the lifetime of your VMs: `add` (to add VM info to the database), `create` (to install a newly added VM) and `start` (to boot an installed VM).

To add a VM to the system, you need to associate a VM with a physical machine (i.e., a VM container) and you need to assign an appliance type to the VM. Here's an example:

```
# rocks add host vm vm-container-0-0 membership="Compute"
```

The above command will output a message similar to:

```
added VM on node "vm-container-0-0" slice "0" with vm_name "compute-0-0-0"
```

This tells us that, in the database, the compute VM named "compute-0-0-0" has been assigned to the physical machine "vm-container-0-0".

The next step is to install the VM.

VMs are installed with the `create` command. Here's how to install the VM that was added above:

```
# rocks create host vm compute-0-0-0
```

The above command will start the standard Rocks installation process for the VM named "compute-0-0-0". After the installation process initializes the network inside the VM, you can monitor the installation just like a physical machine installation by executing:

```
# rocks-console compute-0-0-0
```

After the installation completes, you can boot the VM by executing:

```
# rocks start host vm compute-0-0-0
```

After the VM boots, you can interact with the VM just like any other physical machine.

# Chapter 4. Command Reference

## 4.1. add

### 4.1.1. add host vm

**rocks add host vm** {host...} {membership} [cpus=*string*] [disk=*string*] [disk-size=*string*] [ip=*string*] [mac=*string*] [mem=*string*] [membership=*string*] [name=*string*] [num-macs=*string*] [slice=*string*] [subnet=*string*]

Add a VM specification to the database.

#### arguments

host

One or more physical host names.

membership

The membership to assign to the VM.

#### parameters

[cpus=*string*]

The number of CPUs to assign to this VM. The default is: 1.

[disk=*string*]

A disk specification for this VM. The default is:

file: /<largest-partition-on-physical-node>/xen/disks/<vm-name>.hda,hda,w

[disksize=*string*]

The amount of disk space in gigabytes to assign to the disk specification. The default is: 36.

[ip=*string*]

The IP address to assign to the VM. If no IP address is provided, then one will be automatically assigned.

[mac=*string*]

A MAC address to assign to this VM. If no MAC address is specified, the next free MAC address will be selected.

[mem=*string*]

The amount of memory in megabytes to assign to this VM. The default is: 1024.

[membership=*string*]

Can be used in place of the membership argument.

[name=*string*]

The name to assign to the VM (e.g., 'compute-0-0-0').

[num-macs=*string*]

The number of MAC addresses to automatically assign to this VM. The default is 1.

[slice=*string*]

The 'slice' id on the physical node. Each VM on a physical node has a unique slice number. The default is the next available free slice number.

[subnet=*string*]

The subnet to associate to this VM. The default is: private.

## examples

```
# rocks add host vm
```

Create a default VM.

```
# rocks add host vm mem=4096
```

Create a VM and allocate 4 GB of memory to it.

## 4.2. create

### 4.2.1. create host vm

```
rocks create host vm {host...}
```

Create a VM slice on a physical node. This command will configure a VM and install it. This can be used for the initial setup of a VM or to reconfigure an existing VM.

### arguments

host

A list of one or more VM host names.

### examples

```
# rocks create host vm compute-0-0-0
```

Create VM host compute-0-0-0.

## 4.3. dump

### 4.3.1. dump host vm

**rocks dump host vm** [host...]

Dump host VM information as rocks commands.

#### arguments

[host]

Zero, one or more host names. If no host names are supplied, information for all hosts will be listed.

#### examples

```
$ rocks dump host vm compute-0-0-0
```

Dump VM info for compute-0-0-0.

```
$ rocks dump host interface
```

Dump VM info for all configured virtual machines.

#### related commands

add host vm

## 4.4. list

### 4.4.1. list host vm

**rocks list host vm** [host...] [showdisks=*bool*]

Lists the VM configuration for hosts.

#### arguments

[host]

Zero, one or more host names. If no host names are supplied, information for all hosts will be listed.

**parameters**

[showdisks=*bool*]

If true, then output VM disk configuration. The default is 'false'.

**examples**

```
$ rocks list host vm compute-0-0
```

List the VM configuration for compute-0-0.

```
$ rocks list host vm compute-0-0 compute-0-1
```

List the VM configuration for compute-0-0 and compute-0-1.

**4.5. move****4.5.1. move host vm**

```
rocks move host vm {host} {physhost} {file}
```

Move a VM from its current physical node to another.

**arguments**

host

The name of the VM host to move.

physhost

The name of the physical host in which to move the VM.

file

The name of the file that stores the running VM's state.

**examples**

```
# rocks move host vm compute-0-0-0 vm-container-1-0
```

Move VM host compute-0-0-0 to physical host vm-container-1-0.

## 4.6. pause

### 4.6.1. pause host vm

**rocks pause host vm** {host...}

Pauses a VM slice on a physical node.

#### arguments

host

A list of one or more VM host names.

#### examples

```
# rocks pause host vm compute-0-0-0
```

Pause VM host compute-0-0-0.

## 4.7. remove

### 4.7.1. remove host vm

**rocks remove host vm** {host...}

Remove the configuration info in the database for the supplied hosts.

#### arguments

host

A list of one or more VM host names.

#### examples

```
# rocks remove host vm compute-0-0-0
```

Remove the configuration info in the database for compute-0-0-0.

## 4.8. report

### 4.8.1. report host vm

**rocks report host vm** {host} [create=*bool*]

Outputs the VM configuration file for a slice on a physical node.

#### arguments

host

One VM host name (e.g., compute-0-0-0).

#### parameters

[create=*bool*]

If set, then output a configuration specification that will be used to create (install) a VM.

#### examples

```
$ rocks report host vm compute-0-0-0
```

Outputs a configuration file for the VM host compute-0-0-0.

### 4.8.2. report host xen bridge

**rocks report host xen bridge**

Generates the Xen networking bridge configuration script for a host.

#### examples

```
$ rocks report host xen bridge
```

## 4.9. restore

### 4.9.1. restore host vm

**rocks restore host vm** {host...} {file}

Restore a VM on a physical node. This command restores a previously saved VM.

## arguments

host

A list of one or more VM host names.

file

The file name the saved VM state is stored in. If you don't supply this parameter, then the default file name is: `/<largest-partition-on-physical-host>/xen/disks/<vm-name%gt;.saved`. For example, on a physical node with the default partitioning, the file that contains the state for VM `compute-0-0-0` is: `/state/partition1/xen/disks/compute-0-0-0.saved`

## examples

```
# rocks restore host vm compute-0-0-0
```

Restore VM host `compute-0-0-0`.

## 4.10. resume

### 4.10.1. resume host vm

```
rocks resume host vm {host...}
```

Resume a paused VM slice on a physical node.

## arguments

host

A list of one or more VM host names.

## examples

```
# rocks resume host vm compute-0-0-0
```

Resume paused VM host `compute-0-0-0`.



## 4.11. save

### 4.11.1. save host vm

**rocks save host vm** {host...} {file}

Save a VM on a physical node. This command saves a currently running VM, then halts the VM. This saved state can be used to restart the VM with the command 'rocks restore host vm'.

#### arguments

host

A list of one or more VM host names.

file

The file name the saved VM state will be stored in. If you don't supply this parameter, then the default file name will be: /<largest-partition-on-physical-host>/xen/disks/<vm-name>.saved. For example, on a physical node with the default partitioning, the saved file for VM compute-0-0-0 will be named: /state/partition1/xen/disks/compute-0-0-0.saved

#### examples

```
# rocks save host vm compute-0-0-0
```

Save VM host compute-0-0-0.

## 4.12. set

### 4.12.1. set host vm

**rocks set host vm**

{host} [disk=*string*] [disksize=*string*] [mem=*string*] [physnode=*string*] [slice=*string*] [virt-type=*string*]

Change the VM configuration for a specific VM.

#### arguments

host

One or more VM host names.

**parameters**`[disk=string]`

A VM disk specification. More than one disk can be supplied. Each disk specification must be separated by a space.

`[disksize=string]`

The size of the VM disk.

`[mem=string]`

The amount of memory in megabytes to assign to this VM.

`[physnode=string]`

The physical machine this VM should run on.

`[slice=string]`

The slice ID for this VM.

`[virt-type=string]`

Set the virtualization type for this VM. This can be 'para' or 'hardware'.

**examples**

```
# rocks set host vm compute-0-0-0 mem=4096
```

Change the memory allocation for VM compute-0-0-0 to 4 GB.

## 4.13. start

### 4.13.1. start host vm

```
rocks start host vm {host...} [create=bool]
```

Boots a VM slice on a physical node.

**arguments**

host

A list of one or more VM host names.

**parameters**`[create=bool]`

If set, then output a configuration specification that will be used to create (install) a VM.

## examples

```
# rocks start host vm compute-0-0-0
```

Start VM host compute-0-0-0.

## 4.14. stop

### 4.14.1. stop host vm

```
rocks stop host vm {host...}
```

Boots a VM slice on a physical node.

## arguments

host

A list of one or more VM host names.

## examples

```
# rocks stop host vm compute-0-0-0
```

Stop VM host compute-0-0-0. This is equivalent to a 'hard power off', (i.e., pulling the power cord from a node).

# Appendix A. Rocks Copyright

Rocks(r)  
www.rocksclusters.org  
version 5.0 (V)

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## B.1. xen

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-- Keir Fraser (on behalf of the Xen team)

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## **Notes**

1. <http://cvs.rocksclusters.org>