Base Roll: Users Guide

ROCKS

Version 4.3 Edition

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Table of Contents

List of Tables

List of Figures

Preface

This document will eventually become the new Rocks™ users guide.

Chapter 1. Overview

Table 1-1. Summary

Name	base
Version	4.3
Maintained By	Rocks Group
Architecture	i386, x86_64, ia64
Compatible with Rocks™	4.3

Table 1-2. Roll Compatibility

Roll	Requires a	Optional b	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	
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. Administration Examples

2.1. Introduction to the Rocks Command Line

In Rocks 4.3 the Rocks command line was introduced to provide a more uniform interface to the underlying structures used to control system configuration and behaviour. Wherever possible, Rocks uses a SQL database (MySQL currently) to hold information about nodes, partitioning information, boot parameters and other information. Based on information in the database, various configuration files are rewritten. The re-generation of configuration files occurs everytime a node is added or deleted from the cluster. The re-generation of configuration files can also be forced. A large fraction of rocks commands manipulate data held in the configuration database. In general, the process of changing configuration is a two-step process:

1. Use rocks commands to change configuration in the database (e.g. `rocks set host`)

2. Rewrite configuration files using `rocks sync config`

It should be noted that step 1 above is usually called several times to update in the database and then step 2 is called to write individual confiuration files in the format that the native OS tools understand.

Rocks commands have arguments and parameters. Parameters are of the form "param=<value>" and may appear anywhere. Arguments must appear in the order defined by the command. To get help on any rocks command type "help" for the argument to the command. For example `rocks set host interface ip help`

2.2. Boot Order and PXE First

Prior to Rocks 4.3, the BIOS-defined boot order of a compute node *required* that a network boot (known as PXE) come after local hard disk. In particular the boot order in BIOS would be set as

```
1. CDROM
2. Hard Disk
3. On-board Network Device (PXE)
```

A user would have to intercept the boot sequence (often by hitting the F12 key on an attached keyboard) to force a network boot. Rocks also provided a small utility on each node (`/boot/kickstart/cluster-kickstart-pxe`) that would manipulate the two-bytes on the local hard disk to force BIOS to bypass booting from the local disk and try the next device on the boot list. When boot order was set as above, the node would pxe boot and therefore re-install.

The logic for this structure was that a frontend did not need to know the state of node (whether it had failed and should be reinstalled or had some other intermediate state). Also it is not required that a frontend by up for a node to reboot itself. Another practical issue arises for PXE booting large clusters. Since the PXE client is in NIC firmware, no assumptions about timeouts, retries or other elements that figure into robustness could be made. Large cluster reinstalls (or reboots) for a kernel the comes over PXE would often result in hung nodes because of the low level of

robustness of TFTP (the underlying protocol used to transfer initial kernel and ramdisk image for nodes booting over the network). For wholesale re-installation of large clusters, PXE does not scale well. For this, Rocks provides the installation kernel and initial ramdisk image on the local hard drive. The commmand `/boot/kickstart/cluster-kickstart` run on a local node will cause that node to re-install itself by using a local (hard disk) copy of the installation kernel and initial ramdisk.

The above boot order and behaviour continues to be supported in Rocks 4.3. That is, existing rocks clusters can be upgraded without requiring the cluster owner to change any BIOS setting.

2.3. Support for PXE First

Rocks 4.3 supports a network device first (or PXE first) BIOS-defined boot order. It is now *recommended* that a network boot (known as PXE) come before local hard disk. In particular the boot order in BIOS should be set as

```
1. CDROM
2. On-board Network Device (PXE)
3. Hard Disk
```

The default PXE "action" is to simply pass to the next device down on the BIOS boot list. In the usual case, this is to the local hard disk. Most of the time decision to boot or reinstall is still left to the local node and frontend does not need to know which state the node desires. If booting into re-installation (e.g. the node either did not shut down properly, or `/boot/kickstart/cluster-kickstart` was called locally) that will proceed as expected. However, it is possible to change this action on a per-node basis.

2.4. Forcing a Re-install at Next PXE Boot

Starting with Rocks 4.3, the frontend must be configured to tell a node to re-install at the next PXE boot. This action is controllable on a per-node basis. At the end of successful installation, the node requests the frontend to set its pxe boot to *os*. To re-install a node using PXE (e.g. compute-0-0), then do the following:

```
# rocks set host pxeboot compute-0-0 action=install
# ssh compute-0-0 "shutdown -r now"
```

If the boot order has not been set to pxe first, you can force a pxe boot with the local keyboard, or by calling `/boot/kickstart/cluster-kickstart-pxe` on the local node.

2.5. Inspecting and Changing PXE Behaviour

There are two parts to the Rocks database for modifying PXE behaviour: *pxeboot* and *pxeaction*. The pxeboot part determines which logical action should be performed. The base roll ships with three logical actions: "os", "install", and "memtest". The second table in the pxeaction table. The associates a logical action with specific tftp configuration. The pxeaction table supports a default configuration for an action and it supports a per-node override of the default configuration.

It is possible to have commands affect all nodes. In this case use '%' as the host wildcard. For example `rocks set host pxeboot % action=install` will cause ALL nodes to reinstall at next pxeboot.

For commands that take lists of hosts, it is possible to use an appliance type for the host(s) argument. `rocks list appliance` are the list of valid appliance types. To set the pxeaction of all compute appliances to be install, use `rocks set host pxeboot compute action=install`

The following illustrates how to inspect the current action of nodes and then the specifics of each action.

```
[root@vizzy ~]# rocks list host pxeboot
HOST          ACTION
vizzy:        os
compute-0-0:  os
compute-0-1:  os
compute-1-0:  os
compute-1-1:  install
compute-2-0:  os
compute-2-1:  os


[root@vizzy ~]# rocks list host pxeaction compute-1-1
ACTION           COMMAND        ARGS
install          kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0
install headless kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0 headless vnc
memtest          kernel memtest -------------------------------------------------
os               localboot 0    ---------------------------------------------
[root@vizzy ~]#
```

In the above, all nodes are set to pxeboot the "os", except for node compute-1-1. That node will call the pxeboot named "install". In the case the tftp configuration file contain the details arguments of the listed in the install action. The command `rocks list host pxeaction compute-1-1` shows the details of each logical action.

2.5.1. Changing a logical PXE action

It is possible to override the details of a logical action on a per-node basis. Suppose that we wanted to make the logical action of "install" for compute-1-1 to be headless and to set a flag `acpi=off`. Then the following will accomplish this using a Rocks add command.

```
[root@vizzy ~]# rocks add host pxeaction compute-1-1 action=install command="kernel vmlinuz" \
args="append ks initrd=initrd.img ramdisk_size=150000 lang= devfs=nomount pxe kssendmac selinux=0 he
```

To inspect that the change is indeed specific to just compute-1-1, then do the following

```
[root@vizzy ~]# rocks list host pxeaction compute-1-1
ACTION           COMMAND        ARGS
install          kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0 headless vnc acpi=off
install headless kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0 headless vnc
memtest          kernel memtest -----------------------------------------------
os               localboot 0    -----------------------------------------------

[root@vizzy ~]# rocks list host pxeaction compute-1-0
ACTION           COMMAND        ARGS
install          kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0
install headless kernel vmlinuz append ks initrd=initrd.img ramdisk_size=150000
                                lang= devfs=nomount pxe kssendmac selinux=0 headless vnc
memtest          kernel memtest -----------------------------------------------
os               localboot 0    -----------------------------------------------
```

In the above, compute-1-1 has a specific override for its install pxeaction. compute-1-0 still retains the default install action.

Manipulating the pxeaction does NOT update the actual tftp configuration file. You must use `rocks set pxeboot action=<action> hostname` to actually write the specific tftp configuration file

To remove a specific override of a pxeaction for a node use `rocks remove host pxeaction action=<action> hostname`

2.5.2. Running Memtest86

It is often useful to run the memory testing tool memtest86+ [1] to determine if memory is valid. The straightforward way to accomplish this in Rocks 4.3 is to apply the following procedure (in our example case for host compute-1-1)

1. `# rocks set host pxeboot compute-1-1 action=memtest`

2. Boot node compute-1-1 by power cycle or other means.

3. After compute-1-1 has successfully started the diagnostic, reset the pxeboot parameter # `rocks set host pxeboot compute-1-1 action=os`

2.6. Working with and Modifying Network Configuration

The Rocks database holds information that has been discovered about a host and in particular records network interface information including MAC addresses and local device modules. The Rocks command line has several tools to inspect and update entries in the database. Reinstallation of a node will apply the changes to a node. See the following section on Swapping Frontend Ethernet Interfaces.

For the following discussion, a frontend named "jeebs" will be used for illustation. To list the ethernet interfaces do the following:

```
# rocks list host interface jeebs

SUBNET  IFACE MAC               IP             NETMASK         GATEWAY        MODULE NAME
private eth0  00:0e:0c:a7:57:d7 10.1.1.1       255.0.0.0       ------------ e1000  jeebs
public  eth1  00:19:b9:21:b8:b6 172.19.119.241 255.255.255.0 172.19.119.1 tg3    jeebs.rocksclusters
```

This describes the two interfaces, eth0 and eth1. Suppose that it is desired to swap these two interfaces. That is is we would want to associate the mac address 00:0e:0c:a7:57:d7 with eth1. To do this we must also associate the correct module. The following will change the information only in the database. This uses the `rocks set host interface` group of commands.

```
# rocks set host interface mac jeebs iface=eth1 mac=00:0e:0c:a7:57:d7
# rocks set host interface module jeebs iface=eth1 module=e1000

# rocks set host interface mac jeebs iface=eth0 mac=00:19:b9:21:b8:b6
# rocks set host interface module jeebs iface=eth0 module=tg3
```

Then the updated database configuration is as follows

```
# rocks list host interface jeebs
SUBNET  IFACE MAC               IP             NETMASK         GATEWAY        MODULE NAME
private eth0  00:19:b9:21:b8:b6 10.1.1.1       255.0.0.0       ------------ tg3    jeebs
public  eth1  00:0e:0c:a7:57:d7 172.19.119.241 255.255.255.0 172.19.119.1 e1000  jeebs.rocksclusters
```

> After any such database change, always run `rocks sync config`. This will update service configuration files (like dhcpd). Reinstalling a node will apply these types of changes to the node.

2.6.1. Swapping Interfaces on the Frontend

The previous section described how to swap two interfaces in the database. For compute nodes it is easiest to simply reinstall nodes for the new configuration to be applied properly. For frontends, this is not possible and you should

apply the following procedure after you have updated information in the database. This will recreate the appropriate files.

Before performing this procedure, you must be logged into the frontend's console. Then, you must shutdown the frontend's network by executing:

```
# service network stop
```

```
# sed -i -e '/alias eth/d' -e '/^#/d' /etc/modprobe.conf
# dbreport ifcfg modules jeebs >> /etc/modprobe.conf
# dbreport ifcfg eth0 jeebs > /etc/sysconfig/network-scripts/ifcfg-eth0
# dbreport ifcfg eth1 jeebs > /etc/sysconfig/network-scripts/ifcfg-eth1

# shutdown -r now
```

Notes

1. http://www.memtest.org

Chapter 3. Command Reference

3.1. add

3.1.1. add appliance

rocks add appliance
{appliance} [compute=*bool*] [graph=*string*] [membership=*string*] [node=*string*] [public=*bool*] [short-name=*string*]

Add an appliance specification to the database.

arguments

appliance

> The appliance name (e.g., 'compute', 'frontend', 'nas').

parameters

[compute=*bool*]

> True means jobs can be scheduled on these types of appliances. The default is 'yes'.

[graph=*string*]

> The directory name of the graph XML files. The default is 'default'.

[membership=*string*]

> The full membership name of the appliance. This name will be displayed in the appliances menu by insert-ethers (e.g., 'NAS Appliance'). If not supplied, the membership name is set to the appliance name.

[node=*string*]

> The name of the root XML node (e.g., 'compute', 'nas', 'viz-tile'). If not supplied, the node name is set to the appliance name.

[public=*bool*]

> True means this appliance will be displayed by 'insert-ethers' in the Appliance menu. The default is 'yes'.

[short-name=*string*]

> The basename for the short host name (e.g., 'c', 'f', 'n').

examples

\# rocks add appliance nas membership="NAS Appliance" node=nas graph=default compute=no public=yes

\# rocks add appliance tile membership=Tile node=viz-tile graph=default compute=yes public=yes

3.1.2. add distribution

rocks add distribution {distribution}

Add a distribution specification to the database.

arguments

distribution

> Name of the new distribution.

examples

\# rocks add distribution rocks-dist

> Adds the distribution named "rocks-dist" into the database.

3.1.3. add host

rocks add host {host} [cpus=int] [membership=$string$] [rack=int] [rank=int]

Add an new host to the cluster.

arguments

host

> A single host name. If the hostname is of the standard form of basename-rack-rank the default values for the membership, rack, and rank parameters are taken from the hostname.

parameters

[cpus=int]

> Number of CPUs (cores) in the given host. If not provided the default of 1 CPU is inserted into the database.

[membership=*string*]

>   Appliance membership name. If not provided and the host name is of the standard form the membership is taken from the basename of the host.

[rack=*int*]

>   The number of the rack where the machine is located. The convention in Rocks is to start numbering at 0. If not provided and the host name is of the standard form the rack number is taken from the host name.

[rank=*int*]

>   The position of the machine in the rack. The convention in Rocks is to number from the bottom of the rack to the top starting at 0. If not provided and the host name is of the standard form the rank number is taken from the host name.

examples

rocks add host compute-0-1

>   Adds the host "compute-0-0" to the database with 1 CPU, a membership name of "compute", a rack number of 0, and rank of 1.

rocks add host frontend rack=0 rank=0 membership=Frontend

>   Adds the host "frontend" to the database whit 1 CPU, a membership name of "Frontend", a rack number of 0, and rank of 1.

related commands

add host interface

3.1.4. add host interface

rocks add host interface
{host} {iface} [gateway=*string*] [iface=*string*] [ip=*string*] [mac=*string*] [module=*string*] [name=*string*] [subnet=*string*]

Adds an interface to a host and sets the associated values

arguments

host

>   Host name of machine

iface

>   The interface name on the host (e.g., 'eth0', 'eth1')

parameters

[gateway=*string*]

The gateway to assign to the interface (e.g., '192.168.1.1')

[iface=*string*]

Can be used in place of the iface argument.

[ip=*string*]

The IP address to assign to the interface (e.g., '192.168.1.254')

[mac=*string*]

The MAC address of the interface (e.g., '00:11:22:33:44:55')

[module=*string*]

The device driver name (or module) of the interface (e.g., 'e1000')

[name=*string*]

The name to assign to the interface

[subnet=*string*]

The name of the subnet to assign to the interface (e.g., 'private')

examples

rocks add host interface compute-0-0 eth1 ip=192.168.1.2 subnet=private gateway=192.168.1.1 name=fast-0-0

rocks add host interface compute-0-0 iface=eth1 ip=192.168.1.2 subnet=private gateway=192.168.1.1 name=fast-0-0

same as above

related commands

set host interface gateway

set host interface iface

set host interface ip

set host interface mac

set host interface module

set host interface name

set host interface subnet

3.1.5. add host pxeaction

rocks add host pxeaction [host...] [action=*string*] [args=*string*] [command=*string*]

Add a pxeaction specification for a host.

arguments

[host]

>   List of hosts to add pxeaction definitions. If no hosts are listed, then the global definition for 'action=name' is
>   added.

parameters

[action=*string*]

>   Label name for the pxeaction. You can see the pxeaction label names by executing: 'rocks list host pxeaction
>   [host(s)]'.

[args=*string*]

>   The second line for a pxelinux definition (e.g., append ks initrd=initrd.img ramdisk_size=150000 lang=
>   devfs=nomount pxe kssendmac selinux=0)

[command=*string*]

>   The first line for a pxelinux definition (e.g., 'kernel vmlinuz' or 'localboot 0').

examples

rocks add pxeaction action=os command="localboot 0"

>   Add the global 'os' pxeaction

rocks add pxeaction compute-0-0 action=memtest command="kernel memtest"

>   Add the 'memtest' pxeaction for compute-0-0

3.1.6. add network

rocks add network {name} {subnet} {netmask} [netmask=*string*] [subnet=*string*]

Add a network to the database. By default both the "public" and "private" networks are already defined by Rocks.

arguments

name

>   Name of the new network.

subnet

>   The IP network address for the new network.

netmask

>   The IP network mask for the new network.

parameters

[netmask=*string*]

>   Can be used in place of the netmask argument.

[subnet=*string*]

>   Can be used in place of the subnet argument.

examples

rocks add network optiputer 192.168.1.0 255.255.255.0

>   Adds the optiputer network address of 192.168.1.0/255.255.255.0.

rocks add network optiputer subnet=192.168.1.0 netmask=255.255.255.0

>   Same as above.

3.1.7. add roll

rocks add roll [roll...] [clean=*bool*]

Add Roll ISO images to this machine's roll directory. This command copies all files in the ISOs to a directory under /home/install/rolls.

arguments

[roll]

> A list of Roll ISO images to add to /home/install/rolls. If no list is supplied, then if a roll is mounted on /mnt/cdrom, it will be copied into /home/install/rolls.

parameters

[clean=*bool*]

> If set the remove all files from any existing rolls of the same name, version, and archiecture before copying the contents of the Rolls onto the local disk. This parameter should not be set when adding multi-CD Rolls such as the OS Roll, but should be set when adding single Roll CDs such as the Grid Roll.

examples

rocks add roll clean=1 kernel*iso

> Adds the Kernel Roll to local Roll directory. Before the Roll is added the old Kernel Roll packages are removed from the Roll directory.

rocks add roll kernel*iso pvfs2*iso ganglia*iso

> Added the Kernel, PVFS, and Ganglia Rolls to the local Roll directory.

3.1.8. add var

rocks add var
 {service} {component} {value} [appliance=*string*] [component=*string*] [service=*string*] [value=*string*]

Add variables to the Rocks key/value database. Variables are defined as quad of (Appliance, Service, Component, Value). Within a node XML file, values can be retrieved as <var name="Service_Component"/>.

arguments

service

> Defines the service name. e.g., service=Kickstart.

component

> Defines the component name. e.g. component=PublicDNS.

value

> Defines the value for the variable.

parameters

[appliance=*string*]

> If supplied, restricts to the named appliance. See 'rocks list appliance' for a listing of appliances.

[component=*string*]

> Can be used in place of component argument.

[service=*string*]

> Can be used in place of service argument.

[value=*string*]

> Can be used in place of value argument.

examples

rocks add var service=Condor component=Master value=localhost

> Add the variable name <var name="Condor_Master"/> to 'localhost'.

rocks add var Condor Master localhost

> Same as above.

rocks add var service=Condor component=Master value=localhost appliance=compute

> Add the variable name <var name="Condor_Master"/> to 'localhost' and associate it with only compute appliances.

3.2. create

3.2.1. create mirror

rocks create mirror {path} [rollname=*string*] [version=*string*]

Create a Roll ISO image from the packages found in the repository located at 'URL'.

arguments

path

> The network location of the repository of packages.

parameters

[rollname=*string*]

> The base name for the created Roll. (default = 'updates').

[version=*string*]

> The version number of the created Roll. (default = the version of Rocks running on this machine).

examples

rocks create mirror http://mirrors.kernel.org/centos/4.5/updates/i386/RPMS rollname=updates version=4.5

> Will mirror all the packages found under the URL http://mirrors.kernel.org/centos/4.5/updates/i386/RPMS and will create a Roll ISO image named 'updates-4.5-0.i386.disk1.iso'.

3.2.2. create roll

rocks create roll {roll...}

Create a roll. You may specify either a single XML file to build one Roll or a list of ISO files to build a Meta Roll.

arguments

roll

> Either a list of Roll ISO files or the name of a single Roll XML description file. If a list of Roll ISO files to be merge together into a single Roll. Otherwise the single argument is assumed to be the name of the XML file generated by the top level Makefile in the Roll's source.

examples

rocks create roll roll-base.xml

> Creates the Rocks Base Roll from the roll-base.xml description file.

rocks create roll base*iso kernel*iso

> Create a composite Roll from a list of Roll ISOs.

3.2.3. create torrent

rocks create torrent {path} [time=*string*]

Create a torrent file for a regular file. This command is heavily used by rocks-dist in order to prepare the RPMS for the Avalanche Installer.

arguments

path

>   The pathname of the file or directory requiring torrent files.

parameters

[time=*string*]

>   The timestamp to be encoded within the torrent. If none is provided the current time is used.

examples

rocks create torrent kernel-2.6.9-42.0.2.EL.i686.rpm

>   Generates a torrent file named kernel-2.6.9-42.0.2.EL.i686.rpm.torrent in the current directory.

rocks create torrent rocks-dist/lan/i386/RedHat/RPMS

>   Generates torrent files for every file in the RPMS directory.

3.3. disable

3.3.1. disable roll

rocks disable roll [roll...] [version=*string*]

Disable an available roll. The roll must already be copied on the system using "rocks add roll".

arguments

[roll]

>   List of rolls. This should be the roll base name (e.g., base, hpc, kernel). If no rolls are listed, then all the available rolls are disabled.

parameters

[version=*string*]

>   The version number of the roll to be disabled. If no version number is supplied, then all versions of a roll will be disabled.

examples

rocks disable roll kernel

> Disable the kernel roll

rocks disable roll

> Disable all the available rolls

related commands

add roll

create roll

enable roll

list roll

3.4. dump

3.4.1. dump

rocks dump

The top level dump command is used to recursively call all the dump commands in the correct order. This is used to create the restore roll.

examples

$ rocks dump

> Recursively call all dump commands.

3.4.2. dump host

rocks dump host [host...]

Dump the host 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 compute-0-0

    Dump host compute-0-0 information.

$ rocks dump host compute-0-0 compute-0-1

    Dump host compute-0-0 and compute-0-1 information.

$ rocks dump host

    Dump all hosts.

3.4.3. dump host interface

rocks dump host interface [host...]

Dump the host interface 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 interface compute-0-0

    Dump the interfaces for compute-0-0.

$ rocks dump host interface compute-0-0 compute-0-1

    Dump the interfaces for compute-0-0 and compute-0-1.

$ rocks dump host interface

    Dump all interfaces.

related commands

add host interface

3.5. enable

3.5.1. enable roll

rocks enable roll [roll...]

Enable an available roll. The roll must already be copied on the system using the command "rocks add roll".

arguments

[roll]

   List of rolls. This should be the roll base name (e.g., base, hpc, kernel). If no rolls are listed, then all the available rolls are enabled.

examples

rocks enable roll kernel

   Enable the kernel roll

rocks enable roll

   Enable all the available rolls

related commands

add roll

create roll

disable roll

list roll

3.6. list

3.6.1. list appliance

rocks list appliance [appliance...]

Lists the appliances defined in the cluster database.

arguments

[appliance]

>   Optional list of appliance names.

examples

$ rocks list appliance

>   List all known appliances.

3.6.2. list appliance xml

rocks list appliance xml [appliance...]

Lists the XML profile for a given appliance type. This is useful for high level debugging but will be missing any host specific variables. It cannot be used to pass into 'rocks list host profile' to create a complete Kickstart/Jumpstart profile.

arguments

[appliance]

>   Optional list of appliance names.

examples

$ rocks list appliance xml compute

>   Lists the XML profile for a compute appliance.

$ rocks list appliance xml

>   Lists the XML profile for all appliance types.

3.6.3. list distribution

rocks list distribution [distribution...]

Lists the distributions defined in the cluster database.

arguments

[distribution]

> Optional list of distribution names.

examples

$ rocks list distribution

> List all known distribution definitions.

3.6.4. list help

rocks list help [subdir=*string*]

The Help Command print the usage of all the registered Commands.

parameters

[subdir=*string*]

> Relative of Python commands for listing help. This is used internally only.

examples

$ rocks list help

> List help for all commands

$ rocks list help subdir=list/host

> List help for all commands under list/host

3.6.5. list host

rocks list host [host...]

List the membership, CPU count and physical position info for a list of hosts.

arguments

[host]

> Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host compute-0-0

> List info for compute-0-0.

$ rocks list host

> List info for all known hosts.

3.6.6. list host appliance

rocks list host appliance [host...]

Lists the appliance assignments for hosts. For each host supplied on the command line, this command prints the hostname and appliance assignment for that host.

arguments

[host]

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

examples

$ rocks list host appliance compute-0-0

> List the appliance assignment for compute-0-0.

$ rocks list host appliance compute-0-0 compute-0-1

> List the appliance assignments for compute-0-0 and compute-0-1.

3.6.7. list host graph

rocks list host graph [host...] [arch=*string*] [basedir=*string*]

For each host, output a graphviz script to produce a diagram of the XML configuration graph. If no hosts are specified, a graph for every known host is listed.

arguments

[host]

> Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

parameters

[arch=*string*]

Optional. If specified, generate a graph for the specified CPU type. If not specified, then 'arch' defaults to this host's architecture.

[basedir=*string*]

Optional. If specified, the location of the XML node files.

examples

$ rocks list host graph compute-0-0

Generates a graph for compute-0-0

3.6.8. list host interface

rocks list host interface [host...]

Lists the interface definitions for hosts. For each host supplied on the command line, this command prints the hostname and interface definitions for that host.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host interface compute-0-0

List network interface info for compute-0-0.

$ rocks list host interface

List network interface info for all known hosts.

3.6.9. list host membership

rocks list host membership [host...]

Lists the membership assignments for hosts. For each host supplied on the command line, this command prints the hostname and membership assignment for that host.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host membership compute-0-0

List the membership assignment for compute-0-0.

$ rocks list host membership

List the membership assignment for all known hosts.

3.6.10. list host partition

rocks list host partition [host...]

Lists the partitions for hosts. For each host supplied on the command line, this command prints the hostname and partitions for that host.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host partition compute-0-0

List partition info for compute-0-0.

$ rocks list host partition

List partition info for known hosts.

3.6.11. list host profile

rocks list host profile [host...]

Outputs a XML wrapped Kickstart/Jumpstart profile for the given hosts. If not, profiles are listed for all hosts in the cluster. If input is fed from STDIN via a pipe, the argument list is ignored and XML is read from STDIN. This command is used for debugging the Rocks configuration graph.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

rocks list host profile compute-0-0

Generates a Kickstart/Jumpstart profile for compute-0-0.

rocks list host xml compute-0-0 | rocks list host profile

Does the same thing as above but reads XML from STDIN.

3.6.12. list host pxeaction

rocks list host pxeaction [host...]

Lists the set of PXE actions for hosts. Each PXE action is a label that points to a command string. The command string is placed into a host-specific pxelinux configuration file. Example labels are 'install' and 'os' which point to command strings used to install and boot hosts respectively.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host pxeaction compute-0-0

List the PXE actions available for compute-0-0.

$ rocks list host pxeaction

List the PXE actions available for all known hosts.

3.6.13. list host pxeboot

rocks list host pxeboot [host...]

Lists the current PXE action for hosts. For each host supplied on the command line, this command prints the hostname and PXE action for that host. The PXE action describes what the host will do the next time it is PXE booted.

arguments

[host]

>   Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

$ rocks list host pxeboot compute-0-0

>   List the current PXE action for compute-0-0.

$ rocks list host pxeboot

>   List the current PXE action for all known hosts.

3.6.14. list host sitexml

rocks list host sitexml [host...]

Lists the site XML file for hosts. For each host supplied on the command line, this command prints the site.xml file for that host which is used for host configuration.

arguments

[host]

>   Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

rocks list host sitexml compute-0-0

>   List the site XML file for compute-0-0.

rocks list host sitexml

>   List the site XML file for all known hosts.

3.6.15. list host xml

rocks list host xml [host...] [arch=$string$]

Lists the monolithic XML configuration file for hosts. For each host supplied on the command line, this command prints the hostname and XML file configuration for that host. This is the same XML configuration file that is sent back to a host when a host begins it's installation procedure.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

parameters

[arch=*string*]

Optional. If specified, generate a graph for the specified CPU type. If not specified, then 'arch' defaults to this host's architecture.

examples

$ rocks list host xml compute-0-0

List the XML configuration file for compute-0-0.

$ rocks list host xml

List the XML configuration files for all known hosts.

3.6.16. list license

rocks list license

List the Rocks copyright.

examples

$ rocks list license

List the Rocks copyright.

3.6.17. list membership

rocks list membership [membership...]

Lists the memberships defined in the cluster database.

arguments

[membership]

Optional. A list of membership names. If no membership names are supplied, all the known memberships are listed.

examples

$ rocks list membership

>   List all known membership definitions.

3.6.18. list network

rocks list network [network...]

List the defined networks for this system.

arguments

[network]

>   Zero, one or more network names. If no network names are supplied, info about all the known networks is listed.

examples

$ rocks list network private

>   List network info for the network named 'private'.

$ rocks list network

>   List info for all defined networks.

3.6.19. list node xml

rocks list node xml
{node} [addr=*string*] [arch=*string*] [basedir=*string*] [dist=*string*] [eval=*bool*] [gen=*string*] [graph=*string*] [host=s
check=*bool*] [roll=*string*]

Lists the XML configuration information for a host. The graph traversal for the XML output is rooted at the XML
node file specified by the 'node' argument. This command executes the first pre-processor pass on the configuration
graph, performs all variable substitutions, and runs all eval sections.

arguments

node

>   The XML node file that the graph traversal will begin. This should be the basename of the XML file (e.g.,
>   'compute' and not 'compute.xml').

parameters

[addr=*string*]

Primary address of host. If not supplied, then the loopback IP address is used.

[arch=*string*]

Traverse the graph with the 'arch' parameter set to the supplied value. If not specified, then 'arch' defaults to this host's architecture.

[basedir=*string*]

If specified, the location of the XML node files.

[dist=*string*]

Name of the distribution. If not supplied, then the distribution named 'rocks-dist' is used.

[eval=*bool*]

If set to 'no', then don't execute eval sections. If not supplied, then execute all eval sections.

[gen=*string*]

If set, the use the supplied argument as the program for the 2nd pass generator. If not supplied, then use 'kgen'.

[graph=*string*]

Name of the graph to traverse. If not supplied, then the graph named 'default' is traversed.

[host=*string*]

Primary name of host. If not supplied, then the name of this host is used.

[missing-check=*bool*]

If set to 'no', then disable errors regarding missing nodes. If not supplied, then print messages about missing nodes.

[roll=*string*]

If set, only expand nodes from the named roll. If not supplied, then the all rolls are used.

examples

$ rocks list node xml compute

Generate the XML graph starting at the XML node named 'compute.xml'.

3.6.20. list roll

rocks list roll [roll...]

List the status of available rolls.

arguments

[roll]

> List of rolls. This should be the roll base name (e.g., base, hpc, kernel). If no rolls are listed, then status for all the rolls are listed.

examples

$ rocks list roll kernel

> List the status of the kernel roll

$ rocks list roll

> List the status of all the available rolls

3.6.21. list roll command

rocks list roll command [roll...]

List the commands provided by a roll.

arguments

[roll]

> List of rolls. This should be the roll base names (e.g., base, hpc, kernel). If no rolls are listed, then commands for all the rolls are listed.

examples

$ rocks list roll command base

> Returns the the list of commands installed by the Rocks base Roll.

3.6.22. list var

rocks list var [appliance=*string*] [component=*string*] [service=*string*]

Lists variables in the Rocks key/value database. Variables are defined as a quad of (Appliance, Service, Component, Value). Within a node XML file, values can be retrieved as <var name="Service_Component"/>.

parameters

[appliance=*string*]

> If supplied, restricts listing to this appliance. Using appliance=global will list only global values.

[component=*string*]

>   If supplied, restricts listing to this component.

[service=*string*]

>   If supplied, restricts listing to this service.

examples

$ rocks list var

>   List all Rocks variables.

$ rocks list var service=Kickstart

>   List all Rocks variables associated with the 'Kickstart' service.

$ rocks list var service=Info component=RocksVersion

>   List the Rocks variable for Info_RocksVersion.

3.7. remove

3.7.1. remove appliance

rocks remove appliance {name}

Remove an appliance definition from the system. This can be called with just the appliance or it can be further qualified by supplying the root XML node name and/or the graph XML file name.

arguments

name

>   The name of the appliance.

examples

rocks remove appliance compute

>   Removes the compute appliance from the database.

3.7.2. remove distribution

rocks remove distribution {distribution}

Remove a distribution specification from the database.

arguments

distribution

> Distribution name.

examples

rocks remove distribution rocks-optiputer

> Removes the distribution named "rocks-optiputer" from the database.

3.7.3. remove host interface

rocks remove host interface {host} {iface} [iface=*string*]

Remove a network interface definition for a host.

arguments

host

> One or more named hosts.

iface

> Interface that should be removed. This may be a logical interface or the mac address of the interface.

parameters

[iface=*string*]

> Can be used in place of the iface argument.

examples

rocks remove host interface compute-0-0 eth1

> Removes the interface eth1 on host compute-0-0.

rocks remove host interface compute-0-0 compute-0-1 iface=eth1

> Removes the interface eth1 on hosts compute-0-0 and compute-0-1.

3.7.4. remove host partition

rocks remove host partition {host...} [partition=*string*]

Remove a partition definitions from a host.

arguments

host

> A list of one or more host names.

parameters

[partition=*string*]

> A single partition to remove from this host. If no partition is specified, then all partitions from the host are removed.

examples

rocks remove host partition compute-0-0

> Remove all partitions from compute-0-0.

rocks remove host partition compute-0-0 partition=/export

> Remove only the /export partition from compute-0-0.

3.7.5. remove host pxeaction

rocks remove host pxeaction {host...} [action=*string*]

Remove a pxeaction specification for a list of hosts.

arguments

host

> List of hosts to remove pxeaction definitions. If no hosts are listed, then the global definition that matches the 'action=name' is removed.

parameters

[action=*string*]

> The label name for the pxeaction. You can see the pxeaction label names by executing: 'rocks list host pxeaction'.

examples

\# rocks remove host pxeaction compute-0-0 action=os

> Remove the 'os' pxeaction for compute-0-0.

3.7.6. remove host pxeboot

rocks remove host pxeboot {host...}

Removes the PXE boot configuration for a host

arguments

host

> One or more named hosts.

examples

\# rocks remove host pxeboot compute-0-0

> Removes the PXE boot configuration for host compute-0-0.

\# rocks remove host pxeboot compute-0-0 compute-0-1

> Removes the PXE boot configuration for hosts compute-0-0 and compute-0-1.

3.7.7. remove network

rocks remove network {network...}

Remove network definition from the system. If there are still nodes defined in the database that are assigned to the network name you are trying to remove, the command will not remove the network definition and print a message saying it cannot remove the network.

arguments

network

> One or more network names.

examples

\# rocks remove network private

> Remove network info for the network named 'private'.

3.7.8. remove var

rocks remove var {service} {component} [appliance=*string*] [component=*string*] [service=*string*]

Removes variables in the Rocks key/value database. Variables are defined as a quad of (Appliance, Service, Component, Value). Within a node XML file, values can be retrieved as <var name="Service_Component"/>.

arguments

service

> The 'service' of the variable to remove.

component

> The 'component' of the variable to remove.

parameters

[appliance=*string*]

> If supplied, remove the Service_Component variable that is associated with this appliance.

[component=*string*]

> Can be used in place of component argument.

[service=*string*]

> Can be used in place of service argument.

examples

rocks remove var service=Condor component=Master

> Remove the variable Condor_Master from the database.

rocks remove var service=Condor component=Master appliance=compute

> Remove the variable Condor_Master that is associated with the compute appliance.

3.8. set

3.8.1. set host cpus

rocks set host cpus {host...} {cpus} [cpus=*string*]

Set the number of CPUs for a list of hosts.

arguments

host

> One or more host names.

cpus

> The number of CPUs to assign to each host.

parameters

[cpus=*string*]

> Can be used in place of the cpus argument.

examples

rocks set host cpus compute-0-0 2

> Sets the CPU value to 2 for compute-0-0.

rocks set host cpus compute-0-0 compute-0-1 4

> Sets the CPU value to 4 for compute-0-0 and compute-0-1.

rocks set host cpus compute-0-0 compute-0-1 cpus=4

> Same as above.

3.8.2. set host interface gateway

rocks set host interface gateway {host...} {iface} {gateway} [gateway=*string*] [iface=*string*]

Sets the gateway address for a logical interface on one or more hosts.

arguments

host

> One or more named hosts.

iface

> Interface that should be updated. This may be a logical interface or the mac address of the interface.

gateway

> The gateway address of the interface. Usually of the form nnn.nnn.nnn.nnn where n is a decimal digit. This format is not enforced. Use gateway=NULL to clear.

parameters

[gateway=*string*]

Can be used in place of the gateway argument.

[iface=*string*]

Can be used in place of the iface argument.

examples

rocks set host interface gateway compute-0-0 eth1 192.168.0.1

Sets the gateway Address for the eth1 device on host compute-0-0.

rocks set host interface gateway compute-0-0 eth1 ip=192.168.0.1

Same as above.

rocks set host interface gateway compute-0-0 iface=eth1 gateway=192.168.0.1

Same as above.

rocks set host interface gateway compute-0-0 iface=eth1 gateway=NULL

Clear the gateway entry for eth1 on host compute-0-0

related commands

add host

3.8.3. set host interface iface

rocks set host interface iface {host...} {mac} {iface} [iface=*string*] [mac=*string*]

Sets the logical interface of a mac address for particular hosts.

arguments

host

One or more named hosts.

mac

MAC address of the interface whose logical interface will be reassigned

iface

Logical interface.

parameters

[iface=*string*]

> Can be used in place of the iface argument.

[mac=*string*]

> Can be used in place of the mac argument.

examples

rocks set host interface iface compute-0-0 00:0e:0c:a7:5d:ff eth1

> Sets the logical interface of MAC address 00:0e:0c:a7:5d:ff to be eth1

rocks set host interface iface compute-0-0 iface=eth1 mac=00:0e:0c:a7:5d:ff

> Same as above.

related commands

add host

3.8.4. set host interface ip

rocks set host interface ip {host} {iface} {ip} [iface=*string*] [ip=*string*]

Sets the IP address for the named interface for one host.

arguments

host

> Host name.

iface

> Interface that should be updated. This may be a logical interface or the mac address of the interface.

ip

> The IP address of the interface. Usually of the form nnn.nnn.nnn.nnn where n is a decimal digit. This format is not enforced. Use IP=NULL to clear.

parameters

[iface=*string*]

> Can be used in place of the iface argument.

[ip=*string*]

Can be used in place of the ip argument.

examples

rocks set host interface ip compute-0-0 eth1 192.168.0.10

Sets the IP Address for the eth1 device on host compute-0-0.

rocks set host interface ip compute-0-0 iface=eth1 ip=192.168.0.10

Same as above.

related commands

add host

set host interface gateway

set host interface iface

set host interface ip

set host interface module

3.8.5. set host interface mac

rocks set host interface mac {host} {iface} {mac} [iface=*string*] [mac=*string*]

Sets the mac address for named interface on host.

arguments

host

Host name.

iface

Interface that should be updated. This may be a logical interface or the mac address of the interface.

mac

 The mac address of the interface. Usually of the form dd:dd:dd:dd:dd:dd where d is a hex digit. This format is not enforced. Use mac=NULL to clear the mac address.

parameters

[iface=*string*]

 Can be used in place of the iface argument.

[mac=*string*]

 Can be used in place of the mac argument.

examples

rocks set host interface mac compute-0-0 eth1 00:0e:0c:a7:5d:ff

 Sets the MAC Address for the eth1 device on host compute-0-0.

rocks set host interface mac compute-0-0 iface=eth1 mac=00:0e:0c:a7:5d:ff

 Same as above.

rocks set host interface mac compute-0-0 iface=eth1 mac=NULL

 clears the mac address from the database

related commands

add host

3.8.6. set host interface module

rocks set host interface module {host...} {iface} {module} [iface=*string*] [module=*string*]

Sets the device module for a named interface. On Linux this will get translated to an entry in /etc/modprobe.conf.

arguments

host

 One or more hosts.

iface

 Interface that should be updated. This may be a logical interface or the MAC address of the interface.

module

> The software device module of interface. Use module=NULL to clear.

parameters

[iface=*string*]

> Can be used in place of the iface argument.

[module=*string*]

> Can be used in place of the module argument.

examples

rocks set host interface module compute-0-0 eth1 e1000

> Sets the device module for eth1 to be e1000 on host compute-0-0.

rocks set host interface gateway compute-0-0 iface=eth1 module=e1000

> Same as above.

rocks set host interface gateway compute-0-0 iface=eth1 module=NULL

> Clear the module entry.

related commands

add host

3.8.7. set host interface name

rocks set host interface name {host} {iface} {name} [iface=*string*] [name=*string*]

Sets the logical name of a network interface on a particular host. This is usually a fully qualified domain name.

arguments

host

> Host name.

iface

> Interface that should be updated. This may be a logical interface or the MAC address of the interface.

name

> Name of this interface (e.g. hostname.external.net) This is usually of the form, hostname.domain, but is not enforced. Use name=NULL to clear.

parameters

[iface=*string*]

> Can be used in place of the iface argument.

[name=*string*]

> Can be used in place of the name argument.

examples

rocks set host interface name compute-0-0 eth1 c0-0.external.net

> Sets the name for the eth1 device on host compute-0-0 to c0-0.external.net

rocks set host interface name compute-0-0 iface=eth1 name=c0-0.external.net

> Same as above.

related commands

add host

3.8.8. set host interface subnet

rocks set host interface subnet {host...} {iface} {subnet} [iface=*string*] [subnet=*string*]

Sets the subnet for named interface on one of more hosts.

arguments

host

> One or more named hosts.

iface

> Interface that should be updated. This may be a logical interface or the MAC address of the interface.

subnet

> The subnet address of the interface. This is a named subnet and must be listable by the command 'rocks list subnet'.

parameters

[iface=*string*]

>   Can be used in place of the iface argument.

[subnet=*string*]

>   Can be used in place of the subnet argument.

examples

rocks set host interface subnet compute-0-0 eth1 public

>   Sets eth1 to be on the public subnet.

rocks set host interface mac compute-0-0 iface=eth1 subnet=public

>   Same as above.

related commands

add host

3.8.9. set host membership

rocks set host membership {host...} {membership} [membership=*string*]

Set the membership for hosts.

arguments

host

>   One or more host names.

membership

>   The membership to assign to each host.

parameters

[membership=*string*]

>   Can be used in place of the membership argument.

examples

rocks set host membership "NAS Appliance" nas-0-0

> Sets the membership to 'NAS Appliance' for nas-0-0.

rocks set host membership "NAS Appliance" membership=nas-0-0

> Same as above.

rocks set host membership Compute

> Sets the membership to 'Compute' for all known hosts.

3.8.10. set host pxeboot

rocks set host pxeboot {host...} [action=*string*]

Set a pxeaction for a host. This action defines what configuration is sent back to a host the next time it PXE boots.

arguments

host

> One or more host names.

parameters

[action=*string*]

> The label name for the pxeaction. For a list of pxeactions, execute: 'rocks list host pxeaction'. If no action is supplied, then only the configuration file for the list of hosts will be rewritten.

examples

rocks set host pxeboot compute-0-0 action=os

> Set the 'os' pxeaction for compute-0-0.

3.8.11. set host rack

rocks set host rack {host...} {rack} [rack=*string*]

Set the rack number for a list of hosts.

arguments

host

> One or more host names.

rack

>   The rack number to assign to each host.

parameters

[rack=*string*]

>   Can be used in place of rack argument.

examples

rocks set host rack compute-2-0 2

>   Set the rack number to 2 for compute-2-0.

rocks set host rack compute-0-0 compute-0-1 0

>   Set the rack number to 0 for compute-0-0 and compute-0-1.

rocks set host rack compute-0-0 compute-0-1 rack=0

>   Same as above.

3.8.12. set host rank

rocks set host rank {host...} {rank} [rank=*string*]

Set the rank number for a list of hosts.

arguments

host

>   One or more host names.

rank

>   The rank number to assign to each host.

parameters

[rank=*string*]

>   Can be used in place of rank argument.

examples

rocks set host rank compute-0-2 2

>   Set the rank number to 2 for compute-0-2.

rocks set host rank compute-0-0 compute-1-0 0

> Set the rank number to 0 for compute-0-0 and compute-1-0.

rocks set host rank compute-0-0 compute-1-0 rank=0

> Same as above.

3.8.13. set network netmask

rocks set network netmask {network...} {netmask} [netmask=*string*]

Sets the network mask for one or more named networks .

arguments

network

> One or more named networks that should have the defined netmask.

netmask

> Netmask that named networks should have.

parameters

[netmask=*string*]

> Can be used in place of netmask argument.

examples

rocks set network netmask optiputer 255.255.255.0

> Sets the netmask for the "optiputer" network to a class-c address space.

rocks set network netmask optiputer netmask=255.255.255.0

> Same as above.

rocks set network netmask optiputer cavewave 255.255.0.0

> Sets the netmask for the "optiputer" and "cavewave" networks to a class-b address space.

related commands

add network

set network subnet

3.8.14. set network subnet

rocks set network subnet {network...} {subnet} [subnet=*string*]

Sets the subnet for one or more named networks.

arguments

network

> One or more named networks that should have the defined subnet.

subnet

> Subnet that named networks should have.

parameters

[subnet=*string*]

> Can be used in place of subnet argument.

examples

rocks set network subnet optiputer 132.239.51.0

> Sets the "optiputer" subnet address to 132.239.51.0.

rocks set network subnet optiputer subnet=132.239.51.0

> Same as above.

rocks set network subnet optiputer cavewave 67.58.32.0

> Sets both the "optiputer" and "cavewave" subnet addresses to the same value of 67.58.32.0.

related commands

add network

set network netmask

3.8.15. set var

rocks set var

{service} {component} {value} [appliance=*string*] [component=*string*] [service=*string*] [value=*string*]

Set variables in the Rocks key/value database. Variables are defined as quad of (Appliance, Service, Component, Value). Within a node XML file, values can be retrieved as <var name="Service_Component"/>.

arguments

service

>   Defines the service name. e.g., service=Kickstart.

component

>   Defines the component name. e.g., component=PublicDNS.

value

>   Defines the value for the variable.

parameters

[appliance=*string*]

>   If supplied, restricts to the named appliance. See 'rocks list appliance' for a listing of appliances.

[component=*string*]

>   Can be used in place of component argument.

[service=*string*]

>   Can be used in place of service argument.

[value=*string*]

>   Can be used in place of value argument.

examples

rocks set var service=Condor component=Master value=localhost

>   Set the variable name <var name="Condor_Master"/> to 'localhost'.

rocks set var service=Condor component=Master value=localhost appliance=compute

>   Set the variable name <var name="Condor_Master"/> to 'localhost' and associate it with only compute appliances.

3.9. sync

3.9.1. sync config

rocks sync config

For each system configuration file controlled by Rocks, first rebuild the configuration file by extracting data from the database, then restart the relevant services.

examples

rocks sync config

> Rebuild all configuration files and restart relevant services.

3.9.2. sync users

rocks sync users

Update all user-related files (e.g., /etc/passwd, /etc/shadow, etc.) on all known hosts. Also, restart autofs on all known hosts.

examples

rocks sync users

> Send all user info to all known hosts.

Appendix A. Rocks™ Copyright and Trademark

A.1. Copyright Statement

```
                        Rocks(tm)
                  www.rocksclusters.org
                  version 4.3 (Mars Hill)
```

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Figure A-1. Rocks™ logo

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```
    The "Artistic License"

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library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
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  The "Library", below, refers to any such software library or work
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included without limitation in the term "modification".)

  "Source code" for a work means the preferred form of the work for
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    table of data to be supplied by an application program that uses
    the facility, other than as an argument passed when the facility
    is invoked, then you must make a good faith effort to ensure that,
    in the event an application does not supply such function or
    table, the facility still operates, and performs whatever part of
    its purpose remains meaningful.

    (For example, a function in a library to compute square roots has
    a purpose that is entirely well-defined independent of the

application. Therefore, Subsection 2d requires that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
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  4. You may copy and distribute the Library (or a portion or
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it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

  If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not

compelled to copy the source along with the object code.

  5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

  However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

  When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

  If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

  Otherwise, if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

  6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

  You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License. You must supply a copy of this License. If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License. Also, you must do one
of these things:

    a) Accompany the work with the complete corresponding
    machine-readable source code for the Library including whatever
    changes were used in the work (which must be distributed under
    Sections 1 and 2 above); and, if the work is an executable linked
    with the Library, with the complete machine-readable "work that

uses the Library", as object code and/or source code, so that the
user can modify the Library and then relink to produce a modified
executable containing the modified Library. (It is understood
that the user who changes the contents of definitions files in the
Library will not necessarily be able to recompile the application
to use the modified definitions.)

   b) Use a suitable shared library mechanism for linking with the
   Library. A suitable mechanism is one that (1) uses at run time a
   copy of the library already present on the user's computer system,
   rather than copying library functions into the executable, and (2)
   will operate properly with a modified version of the library, if
   the user installs one, as long as the modified version is
   interface-compatible with the version that the work was made with.

   c) Accompany the work with a written offer, valid for at
   least three years, to give the same user the materials
   specified in Subsection 6a, above, for a charge no more
   than the cost of performing this distribution.

   d) If distribution of the work is made by offering access to copy
   from a designated place, offer equivalent access to copy the above
   specified materials from the same place.

   e) Verify that the user has already received a copy of these
   materials or that you have already sent this user a copy.

  For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it. However, as a special exception,
the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

  It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system. Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

  7. You may place library facilities that are a work based on the
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   Sections above.

    b) Give prominent notice with the combined library of the fact
    that part of it is a work based on the Library, and explaining
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   table, the facility still operates, and performs whatever part of
   its purpose remains meaningful.

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   a purpose that is entirely well-defined independent of the
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   be optional: if the application does not supply it, the square
   root function must still compute square roots.)

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   If such an object file uses only numerical parameters, data
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functions (ten lines or less in length), then the use of the object
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