JumpStart Users Guide

Sun® rises over Rocks®

5.4.3 Edition

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Preface

The JumpStart Roll installs and configures the frontend to be able to JumpStart™ a Solaris™-based back-end machine.
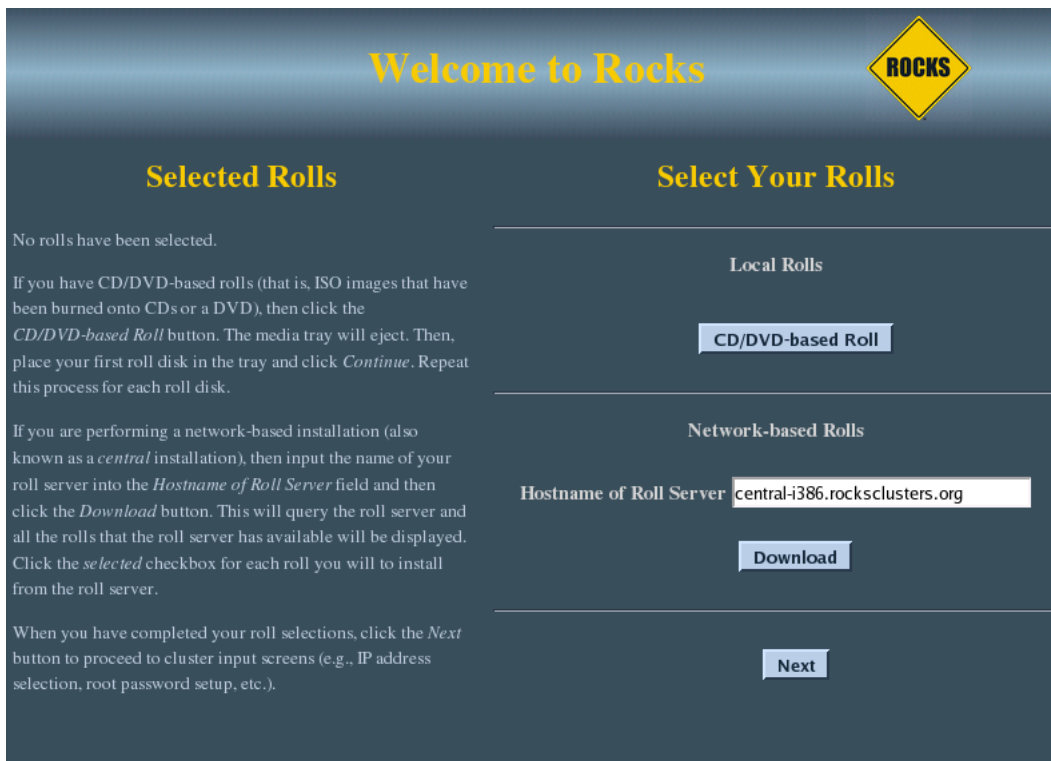
The JumpStart Roll supports 3 kinds of appliances.

- Compute Appliance
- NAS Appliance
- Solaris Development Appliance

Chapter 1. Installing the JumpStart Roll

The JumpStart Roll must be installed during the Frontend installation step of your cluster (refer to section 1.2 of the Rocks usersguide). While it is possible to install the JumpStart roll after the installation of the frontend, it is recommended that you add the roll during the installation.
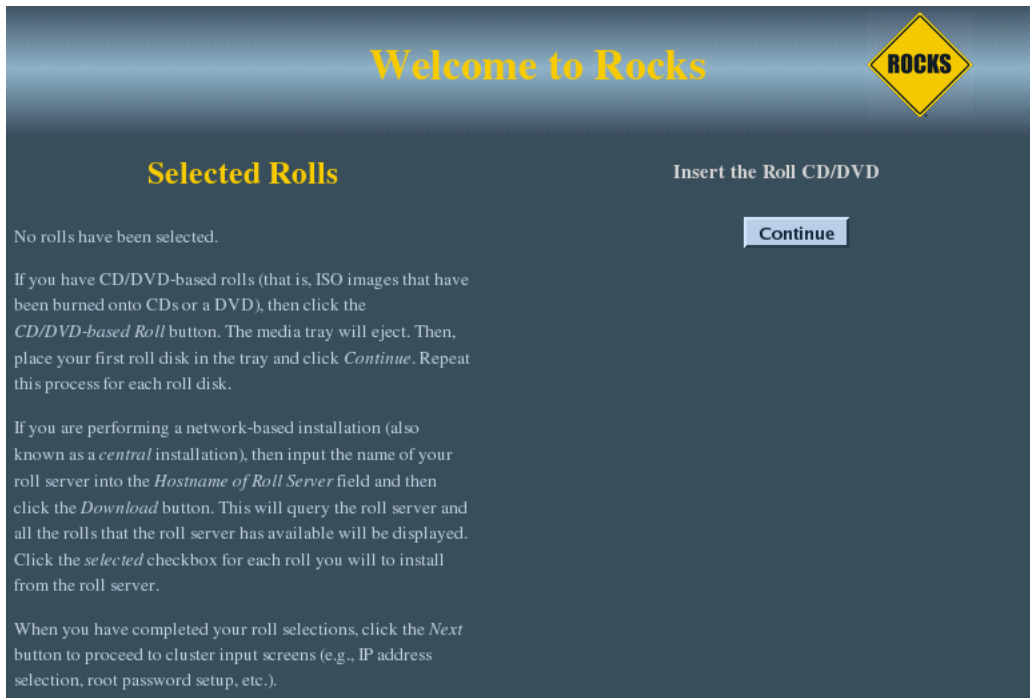
1.1. Installing the JumpStart Roll

The JumpStart Roll is added to a Frontend installation in exactly the same manner as any of the other rolls. Specifically, after, say the HPC Roll, is added, the installer will once return to the original web screen. If you're installing from a CD image, click on "CD/DVD Based Roll". If you're installing from a central server, enter the URL for the central server, and click on "Download".

Now insert the CD/DVD image, and click on "Continue".

Once the Roll shows up, select it and click on "Submit". It should then read the roll configuration from the disk and show up on the right side of the screen, as a "Selected Roll"

Welcome to Rocks

ROCKS

Selected Rolls

Selected	Roll Name	Version	Arch
☐	kernel	4.3	i386

Submit

No rolls have been selected.

If you have CD/DVD-based rolls (that is, ISO images that have been burned onto CDs or a DVD), then click the *CD/DVD-based Roll* button. The media tray will eject. Then, place your first roll disk in the tray and click *Continue*. Repeat this process for each roll disk.

If you are performing a network-based installation (also known as a *central* installation), then input the name of your roll server into the *Hostname of Roll Server* field and then click the *Download* button. This will query the roll server and all the rolls that the roll server has available will be displayed. Click the *selected* checkbox for each roll you will to install from the roll server.

When you have completed your roll selections, click the *Next* button to proceed to cluster input screens (e.g., IP address selection, root password setup, etc.).

Chapter 2. Using the JumpStart Roll

The JumpStart roll enables the frontend to jumpstart Solaris based backend nodes. Since such a feature is very similar to cross-kickstarting, there are a few additional steps that the administrator must follow in order to be able to jumpstart solaris nodes.

2.1. Installing Solaris Support

After your frontend is installed with the JumpStart roll, the administrator will need to add Solaris Support.

- On your frontend, create `/export/dvd/`
- Using your web browser/ftp client navigate to Rocks FTP site[1]
- Download the sunos rolls. This includes
  - base-5.4.3.sunos.iso —*Required*—Provides base of Rocks for Solaris
  - jumpstart-5.4.3.sunos.iso —*Required*—Provides Solaris jumpstart support
  - ganglia-5.4.3.sunos.iso — *Optional*—Download if you've installed ganglia on the frontend.
  - hpc-5.4.3.sunos.iso — *Optional*—Download if you've installed the HPC roll on the frontend

- Download the Solaris 10 update 9 iso image from the Solaris 10 Download Page[2].

  Oracle requires the user to agree to the Solaris 10 EULA before downloading the bits.
  - sol-10-u9-ga-x86-dvd.iso—*Required*—Provides Solaris 10u9 OS bits

  Download the Solaris Companion iso image from the Sun Freeware site[3].
  - sol-10-u9-companion-ga.iso—*Required*—Provides additional Solaris 10u9 OS bits

- Make sure you download Solaris 10 OS, x64/x86 version. SPARC is not supported.
- Assuming all the iso images are in `/export/dvd`, run the following commands

```
# cd /export/dvd
# rocks add roll *.iso
# rocks create soldist
```

2.2. Installing Solaris Backend Nodes

Once the frontend node has Solaris support installed, you can install Solaris based backend nodes using the same procedure that you'd use for installing Linux nodes.

- Run
```
# insert-ethers --os=sunos
```

- Choose the appropriate appliance that you'd like to install

- Boot up your node, and set it to boot from PXE

- Wait till the node is detected.

- Wait till the node requests the jumpstart configuration. (insert-ethers shows a (*) beside the discovered node to indicate that it was given the jumpstart configuration)

- Quit insert-ethers (F8)

Jumpstarting through Rocks supports only NFS based transport for installation. Since an NFS server is decidedly less scalable than an HTTP server with bittorrent support, there is a good chance that the server can become overwhelmed by reasonably few NFS clients hitting the server. It is not advisable to install more than 4 clients at a time, unless you have a really powerful NFS server.

Notes

1. ftp://ftp.rocksclusters.org/pub/rocks/rocks-5.4.3/sunos/

2. http://www.oracle.com/technetwork/server-storage/solaris/downloads/index.html

3. http://sunfreeware.com/companioncd.html

Chapter 3. Solaris Partitioning

This section describes the default partitioning scheme on Solaris and how to customize partitioning on a Solaris appliance.

3.1. Default Partitioning

The default partitioning scheme on Solaris is

Table 3-1. Zpool scheme on Solaris

Disk(s)	Pool	Size
Root Disk	rocks	24 GB

3.2. User Partitioning

Rocks supports user-specified partitioning on Solaris. User-specified partitioning on Solaris is very similar to user-specified partitioning on Linux. We use the concept of programmatic partitioning to specify partitioning on Solaris.

On Solaris, the user specified partitions should be specified in `/tmp/user_part_info`. This file must be created in the `<pre>` section of the jumpstart XML file. The contents of this file must conform to the jumpstart partitioning syntax.

Example 3-1. User-specific Partitioning

This example describes how to create a 90 GB root zfs pool on a compute node. There are a few assumptions made in this example. The root device is c1t0d0, and disk is large enough to accomadate a 90 GB root pool, 2 GB swap, and a 1 GB dump.

1. In `/export/rocks/install/site-profiles/5.4.3/nodes/` create the `extend-compute.xml` file.
   ```
   <?xml version="1.0" standalone="no"?>

   <jumpstart>

   <pre>
   cat &gt; /tmp/user_part_info &lt;&lt; "_feof_"
   usedisk c1t0d0
   fdisk c1t0d0 solaris all
   pool rocks 90G 2G 1G c1t0d0s0
   filesys c1t0d0s3 free unnamed
   _feof_
   </pre>

   </jumpstart>
   ```

2. Re-create the solaris distribution.
   ```
   # cd /export/rocks/install
   # rocks create soldist
   ```

3. Re-install the node in question, by setting it's bootaction to "install" and rebooting the node.
   ```
   # rocks set host boot compute-0-0 action=install
   # ssh compute-0-0 shutdown -g0 -i6 -y
   ```

3.2.1. More Information

The syntax for the profile keywords and values can be found at Oracle Solaris 10 9/10 Installation Guide: Custom JumpStart and Advanced Installations[1].

The default installation uses a ZFS root pool as the root device. Information about how to use this is available here[2].

There are certain limitations to using ZFS as the root pool. These limitations are listed here[3]

It is important to note that the root device chosen must be bootable by the bios. If, for any reason, Solaris cannot determine if device in question is bootable, it will halt at the end of the installation, and the administrator will have to reboot the node manually.

3.3. Templated Partitioning

Rocks on Solaris supports templated partitioning.

As mentioned in the previous section, the `/tmp/user_part_info` is used to create user-specific partitioning. This may be augmented with templated partitioning.

Templated partitioning is specified by the *rocks* keyword as the first word in the `/tmp/user_part_info` file.

Currently there are only two templates that are supported in Rocks.

- *force-default* : This keyword forces the default partitioning on the node. For more information about the default partitioning scheme refer to the Default Partitioning portion of this document.

Example 3-2. Forcing default partitioning

```
<?xml version="1.0" standalone="no"?>

<jumpstart>

<pre>
echo "rocks force-default" &gt; /tmp/user_part_info
</pre>

</jumpstart>
```

- *mirror* : This keyword forces the root pool to be mirrored on the first two bios disks discovered by Solaris.

  Example 3-3. Mirrored Root Pool

```
<?xml version="1.0" standalone="no"?>

<jumpstart>

<pre>
echo "rocks mirror" &gt; /tmp/user_part_info
</pre>

</jumpstart>
```

Notes

1. http://download.oracle.com/docs/cd/E18752_01/html/821-1911/preparecustom-24696.html

2. http://download.oracle.com/docs/cd/E18752_01/html/821-1911/gguec.html

3. http://download.oracle.com/docs/cd/E18752_01/html/821-1911/ggugd.html#ggudz

Chapter 4. Copyrights

4.1. Rocks Copyright