

Area51 Roll: Users Guide



Version 4.3 Edition



Area51 Roll: Users Guide :

Version 4.3 Edition

Published Jul 2007

Copyright © 2007 University of California

This document is subject to the Rocks License (see Appendix A: Rocks Copyright).

Table of Contents

Preface	i
1. Overview	1
2. Installing	2
2.1. On a New Server	2
2.2. On an Existing Server.....	2
3. Using	3
3.1. Tripwire	3
3.2. chkrootkit	6
4. FAQ	8
A. Rocks Copyright	11
B. Third Party Copyrights and Licenses	13
B.1. chkrootkit.....	13
B.2. tripwire.....	13

List of Tables

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

Preface

The Rocks Area51 Roll contains utilities and services used to analyze the integrity of the files and the kernel on your cluster.

The following software packages are included in the Area51 Roll:

- Tripwire¹
- chkrootkit²

Notes

1. <http://sourceforge.net/projects/tripwire/>
2. <http://www.chkrootkit.org/>

Chapter 1. Overview

Table 1-1. Summary

Name	area51
Version	4.3
Maintained By	Rocks Group
Architecture	i386, x86_64
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		

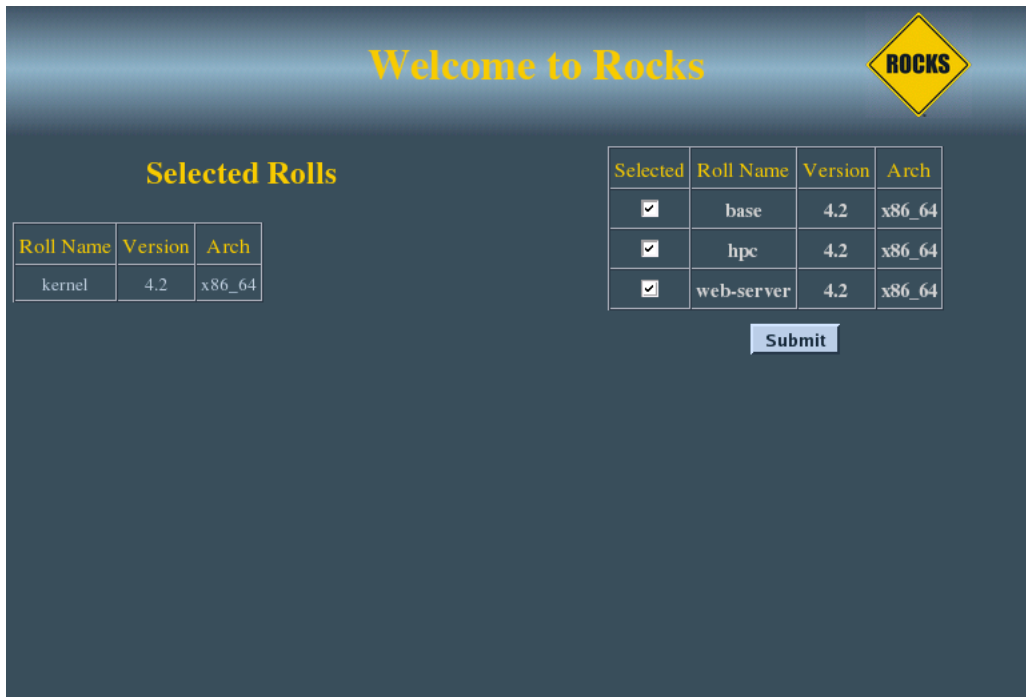
Notes:

- 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. Installing

2.1. On a New Server

The area51 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 area51 Roll from the list of available rolls when you see a screen similar to the one below.



2.2. On an Existing Server

The area51 Roll may also be added onto an existing server (or frontend). For sake of discussion, assume that you have an iso image of the roll called `area51.iso`. The following procedure will install the Roll, and after the server reboots the Roll should be fully installed and configured.

```
$ su - root
# mount -o loop area51.iso /mnt/cdrom
# cd /home/install
# rocks-dist --install copyroll
# umount /mnt/cdrom
# rocks-dist dist
# kroll area51 | bash
# init 6
```

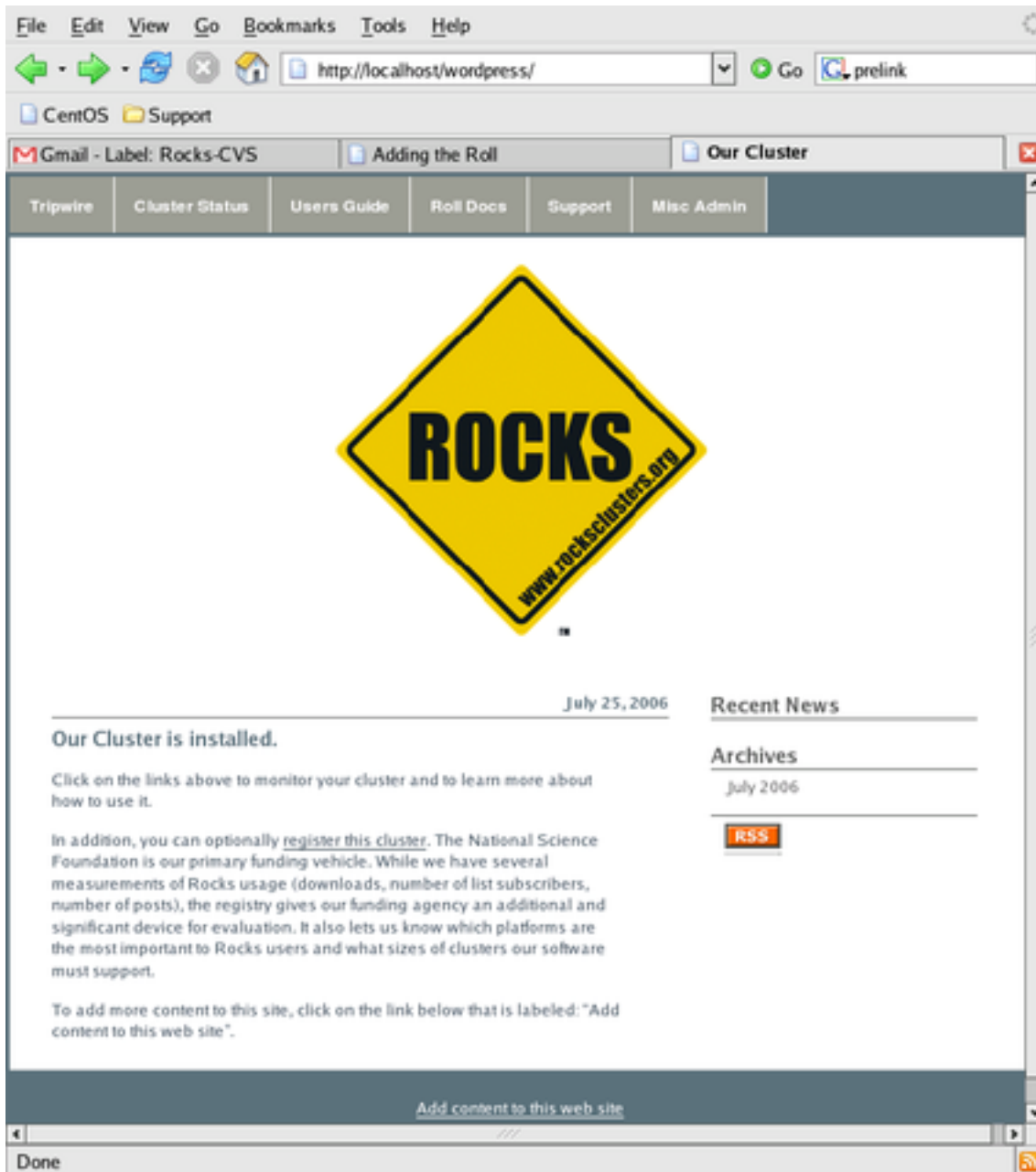
Chapter 3. Using

3.1. Tripwire

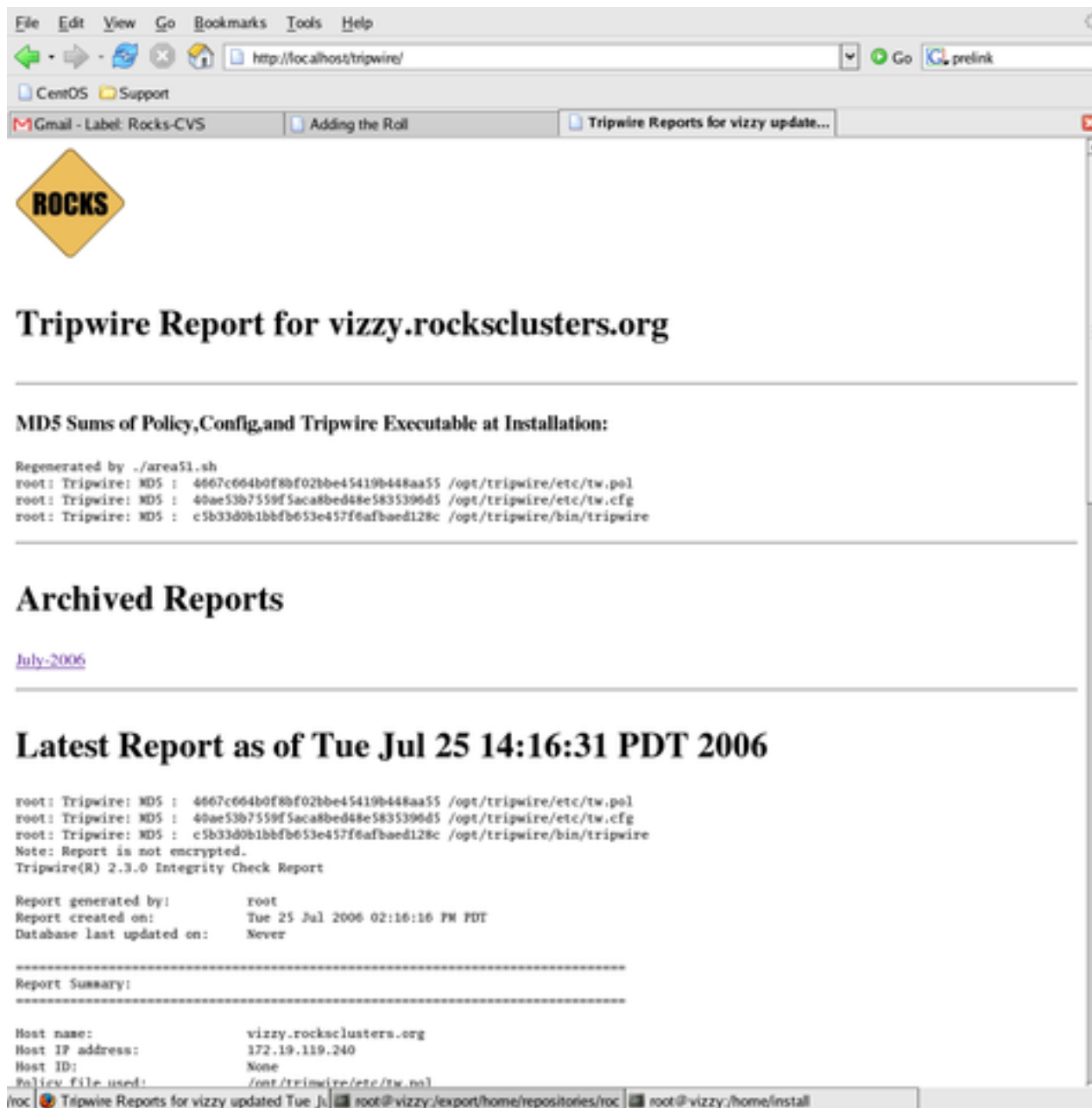
Tripwire is configured to automatically scan the files on your frontend daily. This is accomplished via `cron`. To test the tripwire cron script, execute:

```
# /etc/cron.daily/tripwire
```

A Tripwire tab on your cluster's home page will indicate that tripwire is installed.



When the tripwire cron job runs, clicking on the tab will result will bring up the most recent tripwire report and a set of monthly archives of previous reports



File Edit View Go Bookmarks Tools Help

http://localhost/tripwire/

CentOS Support

Gmail - Label: Rocks-CVS Adding the Roll Tripwire Reports for vizzy update...

ROCKS

Tripwire Report for vizzy.rocksclusters.org

MD5 Sums of Policy, Config, and Tripwire Executable at Installation:

Regenerated by ./area51.sh

```
root: Tripwire: MD5 : 4667c664b0f80f02bbe45419b448aa55 /opt/tripwire/etc/tw.pol
root: Tripwire: MD5 : 40ae53b7559f5aca8bed48e5835396d5 /opt/tripwire/etc/tw.cfg
root: Tripwire: MD5 : c5b33d0b1bbfb653e457f6afbaed128c /opt/tripwire/bin/tripwire
```

Archived Reports

[July-2006](#)

Latest Report as of Tue Jul 25 14:16:31 PDT 2006

```
root: Tripwire: MD5 : 4667c664b0f80f02bbe45419b448aa55 /opt/tripwire/etc/tw.pol
root: Tripwire: MD5 : 40ae53b7559f5aca8bed48e5835396d5 /opt/tripwire/etc/tw.cfg
root: Tripwire: MD5 : c5b33d0b1bbfb653e457f6afbaed128c /opt/tripwire/bin/tripwire
Note: Report is not encrypted.
Tripwire(R) 2.3.0 Integrity Check Report

Report generated by:      root
Report created on:       Tue 25 Jul 2006 02:16:16 PM PDT
Database last updated on: Never

-----
Report Summary:
-----

Host name:                vizzy.rocksclusters.org
Host IP address:          172.19.119.240
Host ID:                   None
Policy file used:         /opt/tripwire/etc/tw.pol
```

root@vizzy:/export/home/repositories/roc root@vizzy:/home/install

When this cron script runs successfully, tripwire sends mail to root (default). The cron script also creates a web page which shows the most recent tripwire report and web-archives of previous reports.

To view the mail message, execute mail, then hit return at the & prompt. You'll see a mail message that looks similar to:

```
[root@rocks22 root]# mail
Mail version 8.1 6/6/93.  Type ? for help.
"/var/spool/mail/root": 1 message 1 new
>N 1 root@rocks22.sdsc.ed Thu May 20 22:37 210/8552 "Tripwire: Daily repor"
&
Message 1:
```

```
From root@rocks22.sdsc.edu Thu May 20 22:37:42 2004
X-Original-To: root@rocks22.sdsc.edu
Delivered-To: root@rocks22.sdsc.edu
Date: Thu, 20 May 2004 22:37:41 GMT
From: root <root@rocks22.sdsc.edu>
To: root@rocks22.sdsc.edu
Subject: Tripwire: Daily report from rocks22.sdsc.edu
```

```
Parsing policy file: /opt/tripwire/etc/tw.pol
*** Processing Unix File System ***
Performing integrity check...
Wrote report file: /opt/tripwire/db/report/rocks22.sdsc.edu-20040520-223648.twr
```

Tripwire(R) 2.3.0 Integrity Check Report

```
Report generated by:      root
Report created on:       Thu 20 May 2004 10:36:48 PM GMT
Database last updated on: Never
```

```
=====
Report Summary:
=====
```

```
Host name:                rocks22.sdsc.edu
Host IP address:          127.0.0.1
Host ID:                  None
Policy file used:         /opt/tripwire/etc/tw.pol
Configuration file used:  /opt/tripwire/etc/tw.cfg
Database file used:       /opt/tripwire/db/rocks22.sdsc.edu.twd
Command line used:        /opt/tripwire/bin/tripwire --check --cfgfile /opt/
tripwire/etc/tw.cfg
```

3.1.1. Changing the Target Email Address

To have tripwire email its report to a different email address. Simply run the `/opt/tripwire/etc/tw-email-to -set address1 [address2]`. For example, say you want to email the tripwire reports to go to `wopr@wargames.org` and `root`.

```
/opt/tripwire/etc/tw-email-to -set wopr@wargames.org root@`hostname`
```

To view the set of addresses for the Tripwire Daily Report

```
/opt/tripwire/etc/tw-email-to
```

3.2. chkrootkit

To see if your frontend has been infected by a rootkit, simply run:

```
# /opt/chkrootkit/bin/chkrootkit
```

This will return output similar to:

```
ROOTDIR is '/'
Checking 'amd'... not found
Checking 'basename'... not infected
Checking 'biff'... not found
Checking 'chfn'... not infected
Checking 'chsh'... not infected
Checking 'cron'... not infected
Checking 'date'... not infected
Checking 'du'... not infected
Checking 'dirname'... not infected
Checking 'echo'... not infected
Checking 'egrep'... not infected
Checking 'env'... not infected
Checking 'find'... not infected
Checking 'fingerd'... not found
Checking 'gpm'... not infected
```

Make sure none of the tests report *INFECTED*.

For more information, login to the frontend and read `/opt/chkrootkit/README`.

Chapter 4. FAQ

1. How do I change the email addresses that receive the daily Tripwire report?

To have tripwire email its report to a different email address. Simply run the `/opt/tripwire/etc/tw-email-to -set address1 [address2]`. For example, say you want to email the tripwire reports to go to `wopr@wargames.org` and `root`.

```
/opt/tripwire/etc/tw-email-to -set wopr@wargames.org root@`hostname`
```

To view the set of addresses for the Tripwire Daily Report

```
/opt/tripwire/etc/tw-email-to
```

2. The MD5 Sums for My Policy/Config/Tripwire Executable Files at Installation are different than what my Latest Report tells me. How could this happen?

Rocks calculates MD5s Policy, Config, and Tripwire files after it initializes. If you have knowingly changed any of these, then the difference is OK. These might have changed if you reinitialized Tripwire interactively or in batch mode after initial installation. If you have NOT knowingly changed any of these items, then your computer may be at risk. Be very suspect of the Tripwire executable whose MD5 Sum has changed.

3. My Tripwire Report is suddenly many megabytes. What happened?

Newer versions of Enterprise Linux run a utility called `prelink`. Prelink is an optimization that modifies ELF binaries and shared libraries to speed up loading. Prelink is usually run as a cron job by the system. The Rocks Tripwire configuration runs this cron job before it creates its database. However, prelink may decide to relink already prelinked libraries. It is reasonable to use `rpm` to reverify all installed RPMS

```
# rpm -qa --verify
```

RPM is prelink-aware where Tripwire is not. If RPM reports very many fewer errors than Tripwire, then likely prelink ran and relinked. You should reinitialize tripwire.

4. Is tripwire compiled statically?

Yes. Ideally the tripwire executable should be on a physically read-only file system. This is not very practical. Compiling statically guards against changed shared libraries.

5. What version of Tripwire is Used.

Rocks uses the open source Tripwire for Linux Version 2.3.1-2 with community supplied patches to enable it to compile on the most recent version of kernel/c-libraries. Currently only amd64 and x86 version is compiled. This version will run properly on x86_64 hosts also.

6. How do I find out more about Tripwire and how it works?

Sourceforge Tripwire Homepage¹ is a good starting point.

7. I've checked all the problems that my Tripwire Report has flagged. How do I clear these for the next report?

As root, you need to re-initialize the Tripwire database. The Tripwire database is signed with a randomly generated key and the MD5 sum of this signature is reported each time the report runs. These MD5 sums should not change unless you re-initialize. To clear the flagged problems do

```
# cd /opt/tripwire/etc
# make initialize-batch
```

8. What is the password for the database so that I can selectively update Tripwire entries?

The default setup generates a random password for signing and then throws it away. Selective update requires an interactive initialization.

9. How do I setup Tripwire so that I can selectively update entries?

As root, you need to re-initialize the Tripwire database interactively with your self-selected site and local passphrases. You will first need to delete your site key and host keys then create a new one. Do the following and follow the on-screen directions.

```
# cd /opt/tripwire/etc
# /bin/rm *.key
# make initialize-interactive
# make check
```

Once you have initialized the database. Future Tripwire warnings can be addressed interactively with the following

```
# cd /opt/tripwire/etc
# make update
```

10. How do I add Files/Directories for Tripwire to Check?

The Tripwire Policy file (`/opt/tripwire/etc/twpol.txt`) is a monolithic text file that defines the files/directories to be Checked. Rocks builds this file in pieces from component files located in the directory `/opt/tripwire/etc/twpol-parts`. The Area51 roll creates files in the subdirectory `/opt/tripwire/etc/twpol-parts/base`. The `/opt/tripwire/etc/twpol-parts/addon` is where you should put new rules using the identical names of files in the base directory. You should the files in the base directory as a guide. Once you have added the files to watch you need to rebuild the tripwire database.

If you are using that basic setup provided by Rocks, then

```
# cd /opt/tripwire/etc
# make initialize-batch
```

If you have interactively setup Tripwire. Then

```
# cd /opt/tripwire/etc
# make updatedb
```

11. How should rolls add files for Tripwire to watch?

Rolls to should append to files in `/opt/tripwire/etc/twpol-parts/addon` using the files in `/opt/tripwire/etc/twpol-parts/base` as a template. For example, if an application Roll creates the directory `/opt/myapp` then it would be appropriate to add the following to `/opt/tripwire/etc/twpol-parts/base/appinfo` in post configuration section for your roll.

```
<post>
<file name="/opt/tripwire/etc/twpol-parts/base/appinfo" mode="append">
/opt/myapp -> $(SEC_CRIT) (recurse = 1) ;
</file>
</post>
```



Tripwire requires pathnames to be absolute pathnames

Notes

1. <http://sourceforge.net/projects/tripwire>

Appendix A. Rocks Copyright

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

Copyright (c) 2000 - 2007 The Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice unmodified and in its entirety, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising and press materials, printed or electronic, mentioning features or use of this software must display the following acknowledgement:

"This product includes software developed by the Rocks(tm) Cluster Group at the San Diego Supercomputer Center at the University of California, San Diego and its contributors."

4. Except as permitted for the purposes of acknowledgment in paragraph 3, neither the name or logo of this software nor the names of its authors may be used to endorse or promote products derived from this software without specific prior written permission. The name of the software includes the following terms, and any derivatives thereof: "Rocks", "Rocks Clusters", and "Avalanche Installer". For licensing of the associated name, interested parties should contact Technology Transfer & Intellectual Property Services, University of California, San Diego, 9500 Gilman Drive, Mail Code 0910, La Jolla, CA 92093-0910, Ph: (858) 534-5815, FAX: (858) 534-7345, E-MAIL:invent@ucsd.edu

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Appendix B. Third Party Copyrights and Licenses

This section enumerates the licenses from all the third party software components of this Roll. A "best effort" attempt has been made to insure the complete and current licenses are listed. In the case of errors or omissions please contact the maintainer of this Roll. For more information on the licenses of any components please consult with the original author(s) or see the Rocks™ CVS repository¹.

B.1. chkrootkit

Copyright 1996-2003 - Pangeia Informatica, All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

B.2. tripwire

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany 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; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code 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.

If distribution of executable or 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 counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed

through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING

OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Tripwire Trademark Information

The developer of the original code and/or files is Tripwire, Inc. Portions created by Tripwire, Inc. are copyright 2000 Tripwire, Inc. Tripwire is a registered trademark of Tripwire, Inc. All rights reserved.

This program is free software. The contents of this file are subject to the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version. You may redistribute it and/or modify it only in compliance with the GNU General Public License.

This program is distributed in the hope that it will be useful. However, this program is distributed "AS-IS" WITHOUT ANY WARRANTY; INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Please see the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Nothing in the GNU General Public License or any other license to use the code or files shall permit you to use Tripwire's trademarks, service marks, or other intellectual property without Tripwire's prior written consent.

If you have any questions, please contact Tripwire, Inc. at either info@tripwire.org or www.tripwire.org.

End of Tripwire Trademark Information

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) 19yy <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than 'show w' and 'show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

Notes

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