VERITAS Cluster Server 4.1

Release Notes

Linux

Maintenance Pack 2
Disclaimer

The information contained in this publication is subject to change without notice. VERITAS Software Corporation makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. VERITAS Software Corporation shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

VERITAS Legal Notice

Copyright © 2006 VERITAS Software Corporation. All rights reserved. VERITAS and the VERITAS Logo are trademarks or registered trademarks of VERITAS Software Corporation or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

VERITAS Software Corporation
350 Ellis Street
Mountain View, CA 94043
USA
Phone 650–527–8000 Fax 650–527–2901
www.veritas.com

Third-Party Legal Notices

Certain third-party software may be distributed, embedded, or bundled with this VERITAS product, or recommended for use in conjunction with VERITAS product installation and operation. Such third-party software is separately licensed by its copyright holder. See the Third-Party Legal Notice appendix in this document for the licenses that govern the use of the third-party software and for proprietary notices of the copyright holders.
This document provides important information regarding VERITAS Cluster Server (VCS) version 4.1 Maintenance Pack 2 (MP2) for Red Hat Enterprise Linux 4 and SUSE Linux Enterprise Server 9. Review this entire document before installing VCS.

Before installing any product, read the following VERITAS Technical Support TechNote for information on the latest supported kernels, service pack and errata updates, patches, and software issues regarding this release:

http://support.veritas.com/docs/277033

Features Introduced in VCS 4.1

The following features have been introduced since VCS version 4.1.

Web Console Features

- Support for modifying the system list
- Support for overriding static resource type attributes

Java Console Features

- Support for overriding static resource type attributes
- VCS Simulator Console for managing simulated clusters

NIC Bonding

The NIC agent can now monitor a bond, which supports the network interfaces (bond0, bond1, etc.) that the bonding driver exports. See the VERITAS Cluster Server Bundled Agents Reference Guide for more information.
CommandCentral Availability Cluster Monitor

VERITAS CommandCentral™ Availability runs a cluster monitor agent on VCS nodes to enable centralized management of clusters. VCS 4.1 includes packages for this cluster monitor agent in the directory `/opt/VRTSvcs/ccacm`. Previously, the agent was distributed only with CommandCentral Availability.

For information about installing and using CommandCentral Availability, see the VERITAS CommandCentral Availability 4.1 Installation Guide and the VERITAS CommandCentral Availability 4.1 Administrator’s Guide.

Output of had -version Command

*Change in Behavior:* VCS 4.1 changes the output format of `had -version`. The output format for VCS 4.1 is:

```
# /opt/VRTSvcs/bin/had -version
Engine Version 4.1
Join Version 4.1000
Build Date Thu Mar 17 09:41:00 2005
PSTAMP 4.1 03/17/05-09:41:00
```

HAD Diagnostics

When the VCS engine HAD core dumps, the core is written to the directory `/var/VRTSvcs/diag/had`, where the diagnostic information is stored. When HAD and GAB encounter heartbeat problems, VCS runs the script `/opt/VRTSvcs/bin/vcs_diag` to collect the diagnostic information.

The current working directory of VCS engine is `VCS_DIAG` whose default value is `$VCS_HOME/diag`. In earlier versions of VCS, the default directory of HAD was `VCS_HOME` whose default value was `/opt/VRTSvcs`.

Change to AutoStart Policy When HAD Restarts

*Change in Behavior:* If a service group is offline in the cluster and you restart the VCS engine on a node that is part of the group’s system list, then VCS will now initiate autostart policy of the group. Previously, when the HAD was restarted on any of the nodes, VCS did not initiate the autostart policy.
Changes to Bundled Agents

For details about bundled agents in the VCS 4.1 release, refer to the *VERITAS Cluster Server Bundled Agents Reference Guide*.

- New LVM2 agents: LVMLogical Volume, LVMVolumeGroup
- New CampusCluster Agent to support Fast Mirror Resync feature of VxVM
- Enhanced DNS agent to support secure DNS updates
- Enhanced NFS Agent
  - The type of resource is changed from None to OnOff.
- Enhanced Mount Agent to support layered, nested mounts
- Enhanced DiskGroup agent
  - To maintain control of a disk group resource, VCS requires the `noautoimport` flag of the disk group to be explicitly set to true. Previously, the DiskGroup agent took a service group offline if a disk group without `noautoimport` set to true was imported outside VCS.
  
  **Change in Behavior:** To avoid disruption to applications, the DiskGroup agent now changes the value of the `noautoimport` flag to true when a disk group resource is brought under VCS control. VxVM provides a new command option for changing the value of the `noautoimport` flag to false.

  VCS must be able to failover a service group when the disk group imported with a SCSI-3 Persistent Group Reservation (SCSI-3 PGR) loses disk connectivity. Previously, the DiskGroup agent kept the resources online even when the SCSI cable was pulled out.

  **Change in Behavior:** The DiskGroup agent now reports the resource to be online in such a scenario and allows you to configure the disk group resource to panic the system.

New Attribute

- Cluster Attribute
  - PanicOnNoMem

Removed Attribute

- Cluster Attribute
  - AllowNativeCliUsers
## VCS Agents

### Bundled Agents

The following agents are included with VCS 4.1. For information on any of the agents listed below, refer to the *VERITAS Cluster Server Bundled Agents Reference Guide*.

<table>
<thead>
<tr>
<th>Apache</th>
<th>Application</th>
<th>CampusCluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiskGroup</td>
<td>DiskReservation</td>
<td>DNS</td>
</tr>
<tr>
<td>ElifNone</td>
<td>FileName</td>
<td>FileOnOff</td>
</tr>
<tr>
<td>FileOnOnly</td>
<td>IP</td>
<td>IPMultiNIC</td>
</tr>
<tr>
<td>LVMLogicalVolume</td>
<td>LVMVolumeGroup</td>
<td>Mount</td>
</tr>
<tr>
<td>MultiNICA</td>
<td>NetBios</td>
<td>NFS</td>
</tr>
<tr>
<td>NIC</td>
<td>NotifierMngr</td>
<td>Phantom</td>
</tr>
<tr>
<td>Process</td>
<td>Proxy</td>
<td>Samba agents</td>
</tr>
<tr>
<td>Share</td>
<td>Volume</td>
<td>VRTSWebApp</td>
</tr>
</tbody>
</table>
Enterprise Agents

VCS enterprise agents must be purchased separately before use. Contact your VERITAS sales representative for details about these agents, additional agents under development, and agents available through VERITAS Consulting Services.

**Note** Before configuring an enterprise agent with VCS 4.1, verify that you have the latest version of the agent.

Supported Enterprise Agents

VCS enterprise agents for Linux are listed below. Refer to this table for supported application and operating system versions. VCS agents support a specified application version on Linux if the application vendor supports that version on Linux.

To verify the latest information on support for Oracle database versions, see the VERITAS Technical Support TechNote: [http://support.veritas.com/docs/277033](http://support.veritas.com/docs/277033).

<table>
<thead>
<tr>
<th>Supported VCS Agent</th>
<th>Agent version</th>
<th>VCS version</th>
<th>Application</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.0</td>
<td>2.2</td>
<td>4.0</td>
</tr>
<tr>
<td>DB2</td>
<td>4.1</td>
<td>p</td>
<td>p</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td>4.1</td>
<td>p</td>
<td>p</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

s – supported configuration    n – not supported    p – supported by previous version of agent
Installation Notes

The following section describes system requirements for VERITAS Cluster Server and provides information about installing VCS 4.1 and upgrading to 4.1 MP2.

Supported Hardware

The compatibility list contains information about supported hardware and is updated regularly. These lists are subject to change as testing of other systems takes place. Visit http://support.veritas.com for the latest information on supported hardware, or contact your VERITAS sales representative.

Note Before installing or upgrading VERITAS Cluster Server, review the current compatibility list to confirm the compatibility of your hardware and software.

Required Disk Space

Confirm that your system has enough free disk space to install VCS. The following tables show the approximate disk space usage by directory for the VERITAS Cluster Server packages.

<table>
<thead>
<tr>
<th>Packages</th>
<th>/</th>
<th>/opt</th>
<th>/usr</th>
<th>/var</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required VCS Packages</td>
<td>3 MB</td>
<td>143 MB</td>
<td>25 MB</td>
<td>168 MB</td>
</tr>
<tr>
<td>Optional VCS Packages</td>
<td>3 MB</td>
<td>39 MB</td>
<td>1 MB</td>
<td>7 MB</td>
</tr>
<tr>
<td>Required Infrastructure Packages</td>
<td>2 MB</td>
<td>59 MB</td>
<td>0 MB</td>
<td>1 MB</td>
</tr>
</tbody>
</table>

Supported Software

- VERITAS Volume Manager (VxVM) 4.1 MP2
- VERITAS File System (VxFS) 4.1 MP2
Supported Linux Operating Systems

VCS 4.1 MP2 operates on the following architectures and operating systems shown below. VERITAS supports only those kernel binaries distributed by Red Hat and SUSE.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Kernel</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux 4 (RHEL 4) Update 1</td>
<td>2.6.9-11.EL</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-11.ELsmp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-11.ELhugemem</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-11.ELhugemem</td>
<td>Intel IA64</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 4 (RHEL 4) Update 2</td>
<td>2.6.9-22.EL</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-22.smp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-22.hugemem</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.9-22.hugemem</td>
<td>Intel IA64</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 4 (RHEL 4) Update 3</td>
<td>linux-2.6.9-34.EL-up</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>linux-2.6.9-34.EL-smp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>linux-2.6.9-34.EL-hugemem</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>linux-2.6.9-34.EL-hugemem</td>
<td>Intel IA64</td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 9 (SLES 9) with SP1</td>
<td>2.6.5-7.139</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.139-smp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.139-bigsmp</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.145</td>
<td>Intel IA64</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.145-smp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.145-bigsmp</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 9 (SLES 9) with SP2</td>
<td>2.6.5-7.201</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.201-smp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.201-bigsmp</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.201-bigsmp</td>
<td>Intel IA64</td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 9 (SLES 9) with SP3</td>
<td>2.6.5-7.241</td>
<td>x86 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.241-smp</td>
<td>Intel Xeon (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.241-bigsmp</td>
<td>AMD Opteron (32-bit, 64-bit)</td>
</tr>
<tr>
<td></td>
<td>2.6.5-7.241-bigsmp</td>
<td>Intel IA64</td>
</tr>
</tbody>
</table>
Supported Linux Operating System Updates

VERITAS products will operate on subsequent kernel and patch releases provided the operating systems maintain kernel ABI (application binary interface) compatibility.

Information about the latest supported Red Hat erratas and updates and SUSE service packs is available in the following TechNote. Read this TechNote before installing any VERITAS product.

http://support.veritas.com/docs/277033

System Requirements

Requirements for Accessing the VCS Web Console

On all supported Linux platforms, an Internet browser is required to access the VCS Web Console. The following supported Internet browsers have been tested:

- Internet Explorer 5.0, 5.5, and 6.0
- Netscape 6.2 and 7.0

Requirements for Accessing the VCS Java Console

The VCS Java Console on Linux or Windows clients requires a minimum of Pentium II, 300MHz, 256MB RAM, and 800x600 display resolution. VERITAS recommends using at least Pentium III and 400MHz. The color depth of the monitor must be at least 8-bit (256 colors), and the graphics card must be able to render 2D images.

Obtaining License Keys for VCS

VCS is a licensed software product. For information on obtaining license keys for VCS, refer to the Getting Started Guide or the VERITAS Cluster Server Installation Guide available on the VERITAS 4.1 software discs.
Installing VCS for the First Time

Installing VERITAS Cluster Server 4.1 MP2 involves the following tasks:

✔ Installing VCS 4.1 using `installvcs` script (-installonly option)

Note that to upgrade to VCS 4.1 MP2, you must have VCS 4.1 GA installed. Refer to the 4.1 VERITAS Cluster Server Installation Guide for pre-installation instructions. Also review the 4.1 VERITAS Cluster Server Release Notes for important release information.

✔ Install VCS 4.1 MP2 using `installmp` script

✔ Configuring VCS using `installvcs` script (-configure option)

▼ To install the VERITAS Cluster Server software

1. Log in as superuser.

2. Install the VERITAS Cluster Server 4.1 GA software from the release CD as described in the VERITAS Cluster Server Installation Guide, but run the product installation script instead of the generic installer script. For example, to install VCS, enter the following command from the top-level directory of the mounted CD:

   ```bash
   # ./installvcs -installonly [-usersh]
   ```

   The -installonly option is required to perform the installation without configuring the software. The -usersh option is required if you are using the remote shell (RSH) rather than the secure shell (SSH) to install the software simultaneously on several systems.

   **Note** Provided that the remote shell (RSH) or secure shell (SSH) has been configured correctly, this command can be run on a single node of the cluster to install the software on all the cluster nodes.

3. Insert the disc containing the VCS 4.1 MP2 software into the CD-ROM drive, and mount the CD-ROM on a suitable mount point, for example:

   ```bash
   # mount -o ro /dev/cdrom /mnt/cdrom
   ```

4. Move to the top-level directory on the CD-ROM:

   ```bash
   # cd /mnt/cdrom
   ```

5. From this directory, enter the following command if you are installing on the local system only:

   ```bash
   # ./installmp
   ```
If you are using the secure shell (SSH) utilities to install on several systems, use this form of the command:

```
# ./installmp system_name1 system_name2 ...
```

If you are using the remote shell (RSH) utilities to install on several systems, additionally specify the `-usersh` option:

```
# ./installmp -usersh system_name1 system_name2 ...
```

6. After the initial system checks have completed successfully, press Enter to start the requirements checks for the upgrade.

**Note** All the VCS processes are stopped before uninstalling the RPMs. While stopping these processes, you may see messages such as: “GAB /sbin/gabconfig ERROR V-15-2-25022 unknown error.” You can safely ignore these messages.

7. After the requirement checks have completed successfully, press Enter to begin upgrading the packages.

8. If you are upgrading multiple systems, you can choose to upgrade the systems simultaneously.

9. After the upgrade of the packages is complete, press Enter.

10. Run the product installation script, this time specifying the `-configure` option to configure the software, for example:

```
# ./installvcs -configure [-usersh]
```

For help on how to respond to the installation prompts, see the VERITAS Cluster Server Installation Guide.
Upgrading VCS to Release 4.1 MP2

You can upgrade to 4.1 MP2 only if VERITAS Cluster Server 4.1 or 4.1 MP1 is installed and configured.

You can perform a rolling upgrade in the following phases:

✔ Select a group of one or more cluster nodes to upgrade and leave a group of one or more nodes running.

✔ Upgrade the selected group of nodes:
  ◆ Switch over the service group to the nodes that are running.
  ◆ Freeze service group operations and stop VCS on the cluster.
  ◆ Install the maintenance patch.
  ◆ Restart cluster services.
  ◆ Switch back the service group to the upgraded nodes.

✔ Upgrade the remaining nodes in the second group.

Note If you upgraded the operating system from RHEL4 U1 or RHEL4 U2 to one of the supported operating systems, or SLES9 SP1 to SLES9 SP2, then you must manually install VRTSperl package before starting the installmp script. Note that during the OS upgrade, the VRTSperl package is removed.

Upgrading a group of nodes

Let us consider a cluster of two nodes (north and south) where you want to upgrade VCS. The example upgrade demonstrates how to perform a rolling upgrade from VCS 4.1 to VCS 4.1 MP2 on north. Repeat the steps on south to completely upgrade the cluster.

▼ To upgrade the selected group of one or more nodes to VCS 4.1 MP2

1. Log in as superuser on one of the nodes where you want to upgrade VCS.

2. Verify that /opt/VRTS/bin is in your PATH so you can execute all product commands.

3. Switch over the service group to a node that is running.
   
   # hagrp -switch service_group -to south

4. Make the VCS configuration writable. On a node that you want to upgrade, type:
   
   # haconf -makerw
5. Freeze the service group operations. Perform the task on each node if you had selected a group of nodes to upgrade.
   
   ```bash
   # hasys -freeze -persistent north
   ```

6. Make the VCS configuration read-only.
   
   ```bash
   # haconf -dump -makero
   ```

7. Stop VCS. If you have a group of nodes, the command stops VCS on all nodes in the cluster.
   
   ```bash
   # /etc/init.d/vcs stop
   ```

8. Stop the VCS command server:
   
   ```bash
   # killall CmdServer
   ```

9. Stop GAB and LLT.
   
   ```bash
   # /etc/init.d/gab stop
   # /etc/init.d/llt stop
   ```

10. If necessary, upgrade your operating system.

    a. Upgrade your operating system and patch it to a kernel version. See “Supported Linux Operating Systems” on page 7.

    b. Shut down and reboot the system.

    c. Manually install the VRTSperl package before starting the installmp script. Note that during the OS upgrade, the VRTSperl package is removed.

11. Insert the disc containing the VCS 4.1 MP2 software into the disc drive, and mount the CD-ROM on a suitable mount point, for example:
    
    ```bash
    # mount -o ro /dev/cdrom /mnt/cdrom
    ```

12. Move to the top-level directory on the CD-ROM:
    
    ```bash
    # cd /mnt/cdrom
    ```

13. From this directory, enter the following command if you are installing on the local node only:
    
    ```bash
    # ./installmp
    ```

    If you are using the secure shell (SSH) utilities to install on several nodes, use this form of the command:
# ./installmp node_name1 node_name2 ...

If you are using the remote shell (RSH) utilities to install on several nodes, additionally specify the -usersh option:

# ./installmp -usersh node_name1 node_name2 ...

14. The installer checks that the nodes are ready for installation. At the conclusion of these initial checks, and before installing any RPMs, the installer:

◆ Creates a log called installmp\textit{date_time} on each node in the directory /var/tmp.

◆ Specifies the utilities it uses to communicate with the remote nodes; typically this is `ssh -x` and `scp`.

◆ lists the RPMs that it will replace on each node

◆ backs up the Maintenance Pack 2 (MP2) configuration files

After the installer has all the configuration information, it can replace the RPMs on the cluster nodes.

VERITAS Cluster Server processes must be stopped before adding patches. You are prompted:

Do you want to stop these processes and install patches on sysA? [y,n,q] (y)

Press Enter to continue.

\textbf{Note} All the VERITAS Cluster Server processes will be stopped before uninstalling the RPMs. While stopping these processes, you may see messages such as: “GAB /sbin/gabconfig ERROR V-15-2-25022 unknown error.” You can safely ignore these messages.

15. Choose whether to upgrade to the 4.1 MP2 RPMs consecutively or simultaneously.

16. After you choose the sequence of installing the RPMs, the installation process begins to uninstall the RPMs that will be replaced, indicating the total number of steps required, based on the number of nodes and the chosen configuration options. The installer copies the 4.1 MP2 RPMs to remote nodes before installing them.

Press Enter to continue.

The installer replaces VERITAS Cluster Server RPMs.

17. When installation is compete, note the locations of the installation summary, log and response files.

◆ /opt/VRTS/install/logs/installmpxxxxxxxxxxxx.summary

◆ /opt/VRTS/install/logs/installmpxxxxxxxxxxxx.log
Installation Notes

◆ /opt/VRTS/install/logs/installmpxxxxxxxxxx.response

The summary, the log, and the response files contain the date as part of their names.

18. Start LLT, GAB, and VCS.

# /etc/init.d/llt start
# /etc/init.d/gab start
# /etc/init.d/vcs start

19. Make the VCS configuration writable again from any node in the upgraded group.

# haconf -makerw

20. Unfreeze the service group operations. Perform this task on each node if you had upgraded a group of nodes.

# hasys -unfreeze -persistent north

21. Make the configuration read-only.

# haconf -dump -makero

22. Switch back the service group to the original node.

# hagrp -switch service_group -to north

23. After installation is complete, verify that the MP2 patch is installed.

On each node, type:

# rpm -q VRTSvcs

For example, the information displayed after a successful installation is:

VRTSvcs-4.1.20.00-MP2_dist

Where dist is the Linux distribution, RHEL4 or SLES9.
Removing VCS 4.1 MP2 Packages

Roll back of the MP2 packages to the 4.1 or 4.1 MP1 version of the packages is not supported. To restore a previous release on your node, you must completely remove 4.1 MP2, then reinstall VERITAS Cluster Server 4.1 and any other maintenance packs.

▼ To uninstall VCS 4.1 MP2

1. Backup current configuration files on each cluster node. For example:
   
   ```
   # mkdir -p /var/vcs41mp2-config-save/etc/VRTSvcs/conf/config
   # cp -p /etc/llttab /etc/llthosts /etc/gabtab /etc/vxfendg /etc/vxfenmode /var/vcs41mp2-config-save/etc/
   # cp -p /etc/VRTSvcs/conf/config/main.cf /var/vcs41mp2-config-save/etc/VRTSvcs/conf/config/
   ```
   
   Note that some of the files mentioned in the example may not exist.

2. Stop VCS along with all the resources. Then stop remaining resources manually.
   
   ```
   # /etc/init.d/vcs stop
   ```

3. Stop the VCS command server:
   
   ```
   # killall CmdServer
   ```

4. Uninstall VCS.
   
   ```
   # cd /opt/VRTS/install
   # ./uninstallvcs
   ```

5. Install VCS 4.1 using -installonly option.

6. Restore the VCS configuration on each cluster node:
   
   ```
   # cd /var/vcs41mp2-config-save/etc/vx
   ```

7. If vxfen was originally configured in enabled mode, type the following on all the nodes:
   
   ```
   # rm /etc/vxfenmode
   ```

8. Reboot all nodes.
Removing License Keys

You can remove unwanted license keys from your system using the following procedure.

▼ To remove license keys

1. Determine the license keys you have installed on a system. Enter:

   # /sbin/vxlicrep

   The output lists the license keys and information about their respective products.

2. Go to the directory containing the license key files and list them. Enter:

   # cd /etc/vx/licenses/lic
   # ls -a

3. Using the output from step 1, identify and delete unwanted license keys listed in step 2. Delete unwanted license keys by removing the license key file.

Network Console and Crash Dump Facility (Netdump)

VERITAS recommends installing and configuring the Netdump facility on all Red Hat and SUSE installations. The facility is not specifically for VERITAS products, but we recommend it as good systems administration practice.

For information on Netdump installations for Red Hat systems, refer to:
http://www.redhat.com/support/wpapers/redhat/netdump/

For information on Netdump installations for SUSE systems, refer to:
/usr/share/doc/packages/lkcdutils/README.SuSE
VCS Packages

The following packages are in the \pkgs directory of the VERITAS 4.1 software discs:

### Infrastructure Packages
- **VRTScpi**, VERITAS Common Product Installer
- **VRTSjre**, VERITAS Java Runtime Environment
- **VRTSperl**, VERITAS Perl
- **VRTSvlic**, VERITAS License Utilities
- **VRTSweb**, VERITAS Web GUI Engine

### Cluster Server Packages
- **VRTScscm**, VCS Cluster Manager (Java Console)
- **VRTScscw**, VCS Configuration Wizards
- **VRTScssim**, VCS Simulator
- **VRTScutil**, VERITAS Cluster Utilities
- **VRTSgab**, Group Membership and Atomic Broadcast
- **VRTSllt**, Low Latency Transport
- **VRTSvcs**, VERITAS Cluster Server
- **VRTSvcsag**, VCS Bundled Agents
- **VRTSvcsApache**, VCS Apache Agent
- **VRTSvcsdc**, VCS Documentation
- **VRTSvcsdr**, VERITAS SCSI-II DiskReserver module
- **VRTSvcsmsg**, VCS Message Catalogs
- **VRTSvcsmn**, VCS Manual Pages
- **VRTSvcsww**, Cluster Manager (Web Console)
- **VRTSvxffen**, VCS Fencing Driver
Installation Notes

Packages for Windows Clients
The following packages are in the \windows\WindowsInstallers directory of the VERITAS 4.1 software discs:
- WindowsClusterManager, Cluster Manager
- WindowsSimulator, VCS Simulator
- WindowsWebConsole, VCS Web Console

VCS 4.1 MP1 Packages
Installing VCS 4.1 MP1 replaces the following VCS 4.1 RPMs; it does not install all the VCS 4.1 RPMs.
- VRTSgab, Group Membership and Atomic Broadcast
- VRTSllt, Low Latency Transport
- VRTSvcs, VERITAS Cluster Server
- VRTSvcsdr, VERITAS SCSI-II DiskReserver module
- VRTSvxfen, VCS Fencing Driver

VCS 4.1 MP2 Packages
Installing VCS 4.1 MP2 replaces the following RPMs; it does not install all the VCS 4.1 RPMs.
- VRTSvcsag, VCS Bundled agents
- VRTSgab, Group Membership and Atomic Broadcast
- VRTSllt, Low Latency Transport
- VRTSvcs, VERITAS Cluster Server
- VRTSvcsdr, VERITAS SCSI-II DiskReserver module
- VRTSvxfen, VCS Fencing Driver
Software Limitations

The following limitations apply to VCS version 4.1.

Installing the IA-32 Execution Layer on IA64 Systems

The IA-32 Execution Layer (IA-32 EL) is a software package that enables IA-32 applications to run on Itanium-based systems. The IA-32 Execution Layer must be present on IA64 systems before you install VERITAS products. See VERITAS Storage Foundation and High Availability Solutions Getting Started Guide for more information on installation procedures.

Driver Requirements for DiskReservation Agent

The DiskReservation agent has a reserver module in the kernel mode that reserves disks persistently. Any driver that works correctly with the scsiutil utility shipped with the VRTSvcsdr package is supported. Refer to the manual page for scsiutil functionality.

Mount Agent

The Mount agent mounts a block device at only one mount point on a system. After a block device is mounted, the agent cannot mount another device at the same mount point.

Share Agent

To ensure proper monitoring by the Share agent, verify that the /var/lib/nfs/etab file is clear upon system reboot. Clients in the Share agent must be specified as fully qualified host names to ensure seamless failover.

Using Agents in NIS

Programs using networked services (for example, NIS, NFS, RPC, or a TCP socket connection to a remote host) can serve as agent entry points. If the host is disconnected from the network, these entry points may hang and possibly time-out. For example, if the host is configured to use NIS maps as a client and the network connection is severed, basic commands such as ps -ef may hang.
NFS Locking

Due to RHEL 4 Update 1 and SLES 9 SP1 issues, lock recovery is not yet supported. Refer to issue 73985 for RHEL 4 Update 1 issues and bugzilla id 64901 for SLES 9 SP1 issues. The same issues exist in RHEL 4 Update 2 and SLES 9 SP2.

System Reboot After Panic

If the VCS kernel module issues a system panic, a system reboot is required. The supported Linux kernels do not automatically halt (cpu) processing. Set the Linux “panic” kernel parameter to a value other than zero to forcibly reboot the system. Append the following two lines at the end of the /etc/sysctl.conf file:

```
# force a reboot after 60 seconds
kernel.panic = 60
```

Service Group Dependencies

No Failover for Some Instances of Parent Group

In service groups in which the group dependency is configured as parallel parent/failover child, online global, remote soft or firm, the parent group may not online on all nodes after a child group faults.

Online Local Firm Dependency Violation

If the parent group and the child group are online on node 1, and the child group faults, VCS begins to take the parent group offline. However, this occurs at the same time the child group is failing over to node 2. If the parent group fails to go completely offline and the child group goes online on node 2, a dependency violation occurs.

Online Remote Firm Dependency Violation

If the parent group is online on node 1 and the child group is online on node 2 and faults, the child group selects node 1 as its failover target. This scenario results in a dependency violation because the parent group fails to go offline on node 1.
System Names in VCS

The name of a system specified in the VCS configuration file, main.cf, must not use the fully qualified form; that is, it must not include periods. The name in main.cf must be consistent with the name used in /etc/hosts and /etc/llthosts. If the name listed in /etc/hosts is fully qualified, VCS uses only the first segment of the name. If you create the file /etc/VRTSvcs/conf/sysname such that it contains the system name to be used by main.cf, VCS uses it to verify the system name.

Undocumented Commands, Command Options, and Libraries

VCS contains undocumented commands and command options intended for VERITAS development use only. Undocumented commands are not supported by VERITAS.

Networking Agents Do Not Support IPv6 Protocol

The VCS 4.1 bundled IP, NIC, IPMultiNICA, and MultiNICA agents do not support the IPv6 enhanced IP protocol.

Cluster Manager and Wizards Do Not Support IPv6 Protocol

VCS Cluster Manager and Wizards fail to connect to the VCS engine if the /etc/hosts file contains IPv6 entries.

Workaround: Remove IPv6 entries from the /etc/hosts file.

Cluster Address for Global Cluster Requires Resolved Virtual IP

The Virtual IP address must have a DNS entry if virtual IP is used for heartbeat agents.

Volume Agent Clean May Forcibly Stop Volume Resources

When the attribute FaultOnMonitorTimeouts calls the Volume agent clean entry point after a monitor time-out, the vxvol -f stop command is also issued. This command forcibly stops all volumes, even if they are still mounted.
**VCS Does Not Provide a Bundled Agent for Volume Sets**

VCS 4.1 does not provide a bundled agent to detect Volume Manager volume sets. Problems with volumes and volume sets can only be detected at the DiskGroup and Mount resource levels.

**Workaround:** Set StartVolumes and StopVolumes attributes of the DiskGroup resource that contains volume set to 1. If a file system is created on the volume set, use a Mount resource to mount the volume set.

**Fire Drill Does Not Support Volume Sets**

The fire drill feature for testing fault readiness of a VCS configuration supports only regular Volume Manager volumes. Volume sets are not supported in this release.

**Systems in a Cluster Must Have Same System Locale Setting**

VCS 4.1 does not support clustering of systems with different system locales. All systems in a cluster must be set to the same locale.

**False Concurrency Violation When Using PidFiles to Monitor Application Resources**

The PID files created by an application contain the PIDs for the processes that are monitored by Application agent. These files continue to exist even after a node running the application crashes. On restarting the node, the operating system may assign the PIDs listed in the PID files to other processes running on the node.

Thus, if the Application agent monitors the resource using the PidFiles attribute only, the agent may discover the processes running and report a false concurrency violation. This could result in some processes being killed that are not under VCS control.

**Using the KDE Desktop**

Some menus and dialog boxes on Cluster Manager (Java Console) may appear misaligned or incorrectly sized on a KDE desktop. To ensure the proper appearance and functionality of the console on a KDE desktop, use the Sawfish window manager. You must explicitly select the Sawfish window manager even if it is supposed to appear as the default window manager on a KDE desktop.
Cluster Manager (Web Console)

Cluster Name Should Not Include Single or Double Quotes
If a cluster name includes single or double quotes, some cluster views and operations in the Web Console will not function correctly. **Workaround:** Verify that the ClusterName attribute for the cluster includes only valid characters.

Changes to UserStrGlobal for ClusterService May Disrupt Cross-Product Navigation
The Web Console uses the UserStrGlobal attribute of the ClusterService service group. Changes to this attribute may disrupt cross-product navigation through the Web Console. **Workaround:** Do not edit the default value of UserStrGlobal for the ClusterService service group.

Web Console for VCS 4.1 Linux Does Not Support Secured VCS 4.1 Clusters
The Web Console for VCS 4.1 on Linux is not designed to connect with post-4.0 VCS clusters that have the VERITAS Security Subsystem (VxSS) enabled.

Cluster Manager (Java Console)

Java Console for VCS 4.1 is Required
Cluster Manager (Java Console) from VCS versions earlier than 2.0 cannot be used to manage VCS 4.1 clusters. VERITAS recommends always using the latest version of Cluster Manager. See the *VERITAS Cluster Server Installation Guide* for instructions on upgrading to the VCS 4.1 version of Cluster Manager.
Known Issues

The following issues have been reported for VCS version 4.1.

Agent entry points time out

In specific situations, the entry points for VCS agents may time out. This may lead to the agents not sending heartbeats to the VCS engine.

**Workaround:** If the symptoms do not appear repeatedly, ignore the symptoms. VCS takes care of this situation by restarting the agent.

GAB Panics the Systems While VCS Gets Diagnostic Data

On receiving a SIGABRT signal from GAB, VCS engine forks off `vcs_diag` script. When VCS engine fails to heartbeat with GAB, often due to heavy load on the system, the `vcs_diag` script does a `sys req` to dump the stack trace of all processes in the system to collect diagnostic information. The dump of stack trace is intended to give useful information for finding out which processes puts heavy load. However, the dumping puts extra load on the system that causes GAB to panic the system in such heavy loads. See *VERITAS Cluster Server User’s Guide* for more information.

**Workaround:** Disable the `vcs_diag` script. To disable, rename the file

```
/opt/VRTSvs/bin/vcs_diag to /opt/VRTSvs/bin/vcs_diag.backup.
```

Network Interfaces Change Their Names After Reboot

On SUSE systems, network interfaces change their names after reboot even with

```
HOTPLUG_PCI_QUEUE_NIC_EVENTS=yes and MANDATORY_DEVICES="..." set.
```

**Workaround:** Use `PERSISTENT_NAME= ethX` where `X` is the interface number for all interfaces.

Problem in RHEL 4 Update 1 on 32-bit Operating Systems

There is a known problem in Red Hat Enterprise Linux 4 Update 1 on 32-bit systems that is unlikely to occur but which may result in a stack overflow. The issue was reported to Red Hat and is documented in Bugzilla incident 162257.
Service Group Failover

While the cluster service group is failing over, “Not Found (404)” error appears on the VCS Web Console.

AutoStart May Violate Limits and Prerequisites Load Policy

The load failover policy of Service Group Workload Management may be violated during AutoStart when all of the following conditions are met:

◆ More than one autostart group uses the same Prerequisites.
◆ One group, G2, is already online on a node outside of VCS control, and the other group, G1, is offline when VCS is started on the node.
◆ The offline group is probed before the online group is probed.

In this scenario, VCS may choose the node where group G2 is online as the AutoStart node for group G1 even though the Prerequisites load policy for group G1 is not satisfied on that node.

Workaround: Persistently freeze all groups that share the same Prerequisites before using hastop -force to stop the cluster or node where any such group is online. This workaround is not required if the cluster or node is stopped without the force option.

Common System Names in GCO Setup

If both local and remote systems have a common system name in a GCO setup, group operations cannot be performed on those systems using Java and Web consoles.

Workaround: Use command-line interface to perform group operations.

VCS Engine May Get Killed in a Large Cluster

In case of a cluster with many nodes and large configuration, VCS engine may get killed due to high memory usage.

Workaround: Set the cluster attribute LockMemory to NONE or CURRENT.
VCS Simulator Gives Erroneous Message

When the main.cf configuration file is read-write, simulator gives an erroneous message for the command hasim -stop. The correct message is:

```
VCS WARNING V-16-1-10028 Cluster configuration is writable.
Must do 'hasim -conf -dump -makero'
```

Unloading DiskRes Driver Requires a Reboot on RHEL4

On systems running RHEL4, you cannot unload the DiskRes driver. The node must be rebooted.

Performance Issues with LLT over UDP

Slow Performance of LLT over UDP if a Link Goes Down

If LLT is configured over UDP and a link goes down, then you may encounter severe degradation in the performance over the remaining link.

Workaround: On all nodes in the cluster, set the LLT window size to small values. The default value is 400. Setting it to 100 can bring the performance close to normal.

To set window limit add this line in /etc/llttab:

```
set-flow window:100
```

To change at runtime use lltconfig(1m)

```
$ lltconfig -F window:100
```

Slow Performance of LLT over UDP on SLES 9

LLT over UDP requires properly assigned IP addresses for the Ethernet interfaces used for the LLT private links. In this prerelease, using ifconfig to set up the IP addresses for Ethernet interfaces may not be reliable on SLES 9.

Workaround: The issue is not observed when IP addresses are set using YaST or YaST2.

Log Message When Running VCS Enterprise Agent For DB2

When the VCS enterprise agent for DB2 is run on a VCS system with ja_JP.eucJP locale, VCS logs the message “Failed to open file /opt/VRTSvcs/messages/ja/HAD.bmcmap.” The agent is functioning correctly, and this message can be safely ignored.
Issues Related to VERITAS Volume Manager

◆ While creating volumes, you must ensure that major number and minor number are the same across all the systems. Otherwise, a stale NFS file handle error displays if the NFS group fails over.
  **Workaround:** Reassign the minor number of volumes to make it uniform across all cluster systems. Refer to VERITAS Volume Manager documentation for details.

◆ If the PGR_TRAINING feature is not enabled, then a disk group imported with SCSI-3 Persistent Reservation does not fail over in response to system panic.

NFS Failover

If the NFS share is exported to the world (*) and the NFS server fails over, NFS client displays “Stale NFS file handle” error. To avoid this error, export NFS shares explicitly using FQDN hostnames.

Wizards Do Not Start if the /etc/hosts File Contains ipv6 Entries

If the /etc/hosts file contains ipv6 entries, VCS displays the following error when you try to start a VCS wizard:

*Error 16-12-6 Could not connect to VCS engine. Cannot proceed*

**Workaround:** Remove the ipv6 entries before running VCS wizards.

Unmount Fails While Taking Service Group Offline

A known issue in Red Hat Enterprise Linux 4 could cause unmount to fail. When an NFS client does some heavy I/O, unmounting a resource in the NFS service group may fail while taking the service group offline. Refer to bugzilla id 154387 for more information.
Known Issues

**Segmentation Fault Occurs if utf8 Encoding is Used**

The `halog` command results in a core dump if utf8 encoding is used.

For example, if you issue the command:

```
# $VCS_HOME/bin/halog -add "test debug msg" -dbg 1 -sys -msgid 10000 -encoding utf8 -parameters "test"
```

The following error occurs:

```
Unknown trailer
Segmentation fault (core dumped)
```

Make sure you specify the encoding as utf-8.

**Rebooting May Fail Due to Reservation Conflict**

If a shared disk is reserved by one node, the other node may not boot up. During reboot, when the VxVM is coming up, the VM tries to read the private region data for all disks it can see, including the one reserved by the DiskReservation on some other node. The read goes through Dynamic Multipathing, which propagates only the EIO. Consequently, the rest of VM does not realize that a RESERVATION_CONFLICT has occurred, and retries the private region read. The rebooted node comes up only after the VM has done all the retries.

**Workaround:** Use `vxdiskadm` utility to remove all disks from VM that the DiskReservation uses. Reboot each node on which you remove the disks.

**NIC Bonding Issues On RHEL 4 Update 1**

On RHEL 4 Update 1, you cannot load a bonding driver with a name different from its original name. For example, `modprobe -o bond0 bonding` will not work.

The kernel cannot load two modules with the same name, so any module parameters that are set will affect all the devices that the module handles. That is, the bonding policies and the value of the miimon parameter to the bonding driver cannot be set different for different bonds.

If any of the slaves of the bonds configured on the node cannot take miimon=0, you must load a bonding module with a non-zero value for the miimon parameter. In such a case, all the bonds will use the same non-zero value only. See the *VERITAS Cluster Server Bundled Agents Reference Guide* for details on when to set the miimon parameter to zero or non-zero.
**DiskReservation Might Fault Mount Resources**

When the DiskReservation resource is brought online, the agent also does a BLKRRPART ioctl on the disks. This causes the block subsystem to see new block devices. Consequently, the OS launches the block hotplug agent to handle the events. The hotplug agent, as part of its work, unmounts any stale entries.

Because the hotplug agents are asynchronous, it is difficult to find whether all the hotplug agents have finished processing. So, the DiskReservation resource goes ONLINE even while the hotplug agents are running, which is fine with SCSI reservation as the disks are reserved. However, when the DiskReservation resource goes ONLINE, a dependent Mount resource could also come up. And it is possible that the hotplug agent does its unmount after the Mount agent does its mount and a monitor cycle. If the Monitor entry point of the Mount resource is called after the unmount, VCS will never see the Mount resource as online. If the Monitor is called before the unmount, the resource goes ONLINE, and then in the next Monitor cycle, goes to FAULTED state.

**Workaround:** To avoid this, the DiskReservation agent is hard coded so that the Monitor entry point of the DiskReservation resource is called HOTPLUG_DELAY seconds after the Online entry point of the DiskReservation resource completes. HOTPLUG_DELAY is hardcoded to 5 seconds so that the first monitor happens 5 seconds after the DiskReservation resource is brought online.

If the hotplug agent cannot complete within the default HOTPLUG_DELAY time, set the OnlineRetryLimit and RestartLimit of the Mount type to 1.

When the unmount happens before the Monitor entry point is called, the OnlineRetryLimit setting ensures that the Mount agent does a mount again.

When the umount happens after the first Monitor, the RestartLimit setting ensures that the Mount agent does a mount again. However, the mount point may be unavailable for a maximum of MonitorInverval seconds.

**Note** Any module calling the ioctl on the disk will unmount the block devices.

**DB2 Resource May Not Failover**

When NIC cable is pulled out on a node where a DB2 resource is online, the DB2 resource may not failover.
SambaShare Resource Unable to Come Online on SLES9 SP1

When a SambaShare resource tries to come online, the SambaShare agent sends SIGHUP signal to the smbd process to reload the Samba configuration. When the smbd process receives the signal, the process fails to handle the signal and dies. Refer to bugzilla id 93803 for more information.


Timing Issues With AutoStart Policy

Consider a case where the service group is offline and engine is not running on node 1. If you restart the engine on node 1 after HAD is killed on node 2 and before the engine is restarted on node 2, then VCS does not initiate the autostart policy of the group.

Data Resynchronization Does Not Happen In CampusCluster

In a campus cluster scenario, when the primary site goes down, VCS fails over the service group to the secondary site. When the primary site joins back, the CampusCluster agent starts resynchronizing the data using Fast Mirror Resync (FMR) feature of VxVM. But the VM detects incorrect serial split brain and the synchronization is not started.

Workaround: Deport the diskgroup and manually reimport the diskgroup on the secondary site.

Problem In Failing Over the IP Resource

When a system panics, the IP address remains plumbed to the system for a while. In such a case, VCS may not succeed in failing over the IP resource to another system. This can be observed when a system panics during I/O Fencing.

Workaround: Increase the value of the OnlineRetryLimit attribute for the IP resource type.

Printing to File From the VCS Java Console Throws Exception

VCS Java Console throws an exception while printing to a file from a system that does not have a printer configured. Also, the content is not written to the file. Before printing, make sure at least one printer is configured on the system where the VCS Java Console is launched.
Warning Messages When Running installmp on SLES 9 i586

The installmp script throws warning messages on SLES 9 i586 systems during installation for few missing packages. The messages can be safely ignored.
### Fixed Issues and Software Enhancements

Fixed issues and software enhancement requests are referenced by VERITAS incident number and described briefly below.

#### Fixes and Enhancements in VCS 4.1 MP2

<table>
<thead>
<tr>
<th>Incident Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>495226</td>
<td>VCS does not fail over on disk path failure.</td>
</tr>
<tr>
<td>526987</td>
<td>The haifconfig command fails to identify the next available interface alias in certain situations.</td>
</tr>
<tr>
<td>494495</td>
<td>The hastatus command gives duplicate information.</td>
</tr>
<tr>
<td>519631</td>
<td>The topmost non-critical resource in a service group may not come online if the service group fails over. Limitation: If the top most resource in a is non-critical and in a faulted state, the resource may not come online when the group fails over.</td>
</tr>
<tr>
<td>518515</td>
<td>Opens on /llt/dev can panic the system if the driver is unloaded before closing the device.</td>
</tr>
<tr>
<td>512783</td>
<td>In an llt/dlpi configuration, pulling out cables results in a continuous stream of DL_UDERROR_IND errors.</td>
</tr>
<tr>
<td>350511</td>
<td>Pre existing split brain detected and node got out of the cluster.</td>
</tr>
</tbody>
</table>

#### Fixes and Enhancements in VCS 4.1 MP1

<table>
<thead>
<tr>
<th>Incident Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>496452</td>
<td>Fixed the order of startup and shutdown of VCS and vxfen.</td>
</tr>
<tr>
<td>495518</td>
<td>The installer now takes care if the previously installed vxfen is improperly shut down.</td>
</tr>
<tr>
<td>431481</td>
<td>LLT links now do not transition between ‘active’ and ‘in trouble’ mode flooding the /var/log/messages file.</td>
</tr>
<tr>
<td>424476</td>
<td>Indeterministic service thread cancellation would no longer leave agents in a hung state.</td>
</tr>
</tbody>
</table>
Changes for VERITAS Cluster Server Bundled Agents Reference Guide

The information presented here replaces the existing text in the guide.

On page 5, in the Clean Operation section, add a trailing quote to the command sample:

For ESE version 8, the agent uses the `db2gcf` program to kill a DB2 database partition with either the ESE single-partition instance configuration or the ESE multi-partition instance in SMP or MPP configuration. The command is:

```
su $DB2InstOwner -c "'$InstHome/sqllib/bin/db2gcf -k -i $DB2InstOwner -p $nodenum'
```

<table>
<thead>
<tr>
<th>Incident Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>423021</td>
<td>When I/O fencing is not configured, vxfentshdw no longer gives an incorrect report.</td>
</tr>
<tr>
<td>340476</td>
<td>GAB now reorders the membership delivery message before delivering any new messages.</td>
</tr>
<tr>
<td>277314</td>
<td>lltshow command no longer looks for /proc/ksyms.</td>
</tr>
</tbody>
</table>
Documentation

Documentation for VERITAS Cluster Server is available as Adobe Portable Document Format (PDF) files on the product disc. Documentation is also available in HTML format on the software disc included with your software purchase. Note that the packages for VCS documentation (VRTSvcsdc) and VCS manual pages (VRTSvcsmn) are optionally installable.

The following section lists the documents installed with this product.

VCS Documentation

The installation guide for VCS is in the directory cluster_server/docs. Release notes for VCS are in the directory /cluster_server/release_notes.

◆ vcs_install.pdf, Installation Guide
◆ vcs_notes.pdf, Release Notes

VERITAS recommends copying the release notes and installation guide from the software disc to the /opt/VRTS/docs directory so that they are available on your system for reference.

Additional documentation for VCS is in the VRTSvcsdc RPM:

◆ vcs_agent_dev.pdf, Agent Developer’s Guide
◆ vcs_bundled_agents.pdf, Bundled Agents Reference Guide
◆ vcs_users.pdf, User’s Guide

VERITAS Documentation Disc

Documentation is available in HTML format on the searchable VERITAS Documentation Disc included with your software purchase.

VERITAS Documentation Online

Visit the Web site for VERITAS Cluster Server for UNIX:

http://support.veritas.com/menu_ddProduct_CLUSTERSERVER.htm

to download VERITAS Cluster Server documentation from current and previous releases.
Hard-Copy Documentation Set

Copies of VERITAS software guides are available for purchase through the VERITAS Web Store at http://www.veritas.com/webstore.

The following guides for VCS 4.1 on Linux are available:

- Installation Guide
- User’s Guide
- Agent Developer’s Guide
- Bundled Agents Reference Guide
- Application Note: High Availability for VMware Virtual Machines

Manual Pages

The manual pages for VRTSvcs are installed in /opt/VRTS/man. Manual pages are divided into sections 1, 1m, 3n, and 4. Edit the man(1) configuration file /etc/man.config to view these pages.

▼ To edit the man(1) configuration file

**Note** If you use the man command to access manual pages, set LC_ALL to “C” in your shell to ensure that the pages are displayed correctly.

```bash
# export LC_ALL=C
```

See incident 82099 on the Red Hat support website for more information.

1. Add the following line to /etc/man.config:

   ```bash
   MANPATH /opt/VRTS/man
   ```

   where other man paths are specified in the configuration file.

2. Add new section numbers. Change the line:

   ```bash
   ```

   to

   ```bash
   ```
Getting Help

For technical assistance, visit http://support.veritas.com and select phone or email support. This site also provides access to resources such as TechNotes, product alerts, software downloads, hardware compatibility lists, and the VERITAS customer email notification service. Use the Knowledge Base Search feature to access additional product information, including current and past releases of product documentation.

Diagnostic tools are also available to assist in troubleshooting problems associated with the product. These tools are available on disc or can be downloaded from the VERITAS FTP site. See the README.VRTSspt file in the /support directory for details.

For information on purchasing product documentation, visit http://webstore.veritas.com.
Third-Party Legal Notices

Certain third-party software may be distributed, embedded, or bundled with this VERITAS product, or recommended for use in conjunction with VERITAS product installation and operation. Such third-party software is separately licensed by its copyright holder. This appendix contains the license agreements that govern the use of third-party software and its copyright holder’s proprietary notices. Use of the third-party software must be in accordance with its license terms. VERITAS makes no representation or warranty of any kind regarding such third-party software. VERITAS offers no support for such third-party software and shall have no liability associated with its use.

ACE (The Adaptive Communication Environment)

Douglas C. Schmidt and his research group at Washington University and University of California, Irvine and Vanderbilt University.

ACE™ is copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University. Copyright (c) 1993-2003, all rights reserved.

Copyright and Licensing Information for ACE™, TAO™, CIAO™, and CoSMIC™.

ACE™, TAO™, CIAO™, and CoSMIC™ (henceforth referred to as “DOC software”) are copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University. Copyright (c) 1993-2005, all rights reserved. Since DOC software is open-source, free software, you are free to use, modify, copy, and distribute--perpetually and irrevocably--the DOC software source code and object code produced from the source, as well as copy and distribute modified versions of this software. You must, however, include this copyright statement along with code built using DOC software.

You can use DOC software in proprietary software and are under no obligation to redistribute any of your source code that is built using DOC software. Note, however, that you may not do anything to the DOC software code, such as copyrighting it yourself or claiming authorship of the DOC software code, that will prevent DOC software from being distributed freely using an open-source development model. You needn’t inform anyone that you’re using DOC software in your software, though we encourage you to let us know so we can promote your project in the DOC software success stories.

DOC software is provided as is with no warranties of any kind, including the warranties of design, merchantability, and fitness for a particular purpose, noninfringement, or arising from a course of dealing, usage or trade practice. Moreover, DOC software is provided with no support and without any obligation on the part of Washington University, UC Irvine, Vanderbilt University, their employees, or students to assist in its use, correction, modification, or enhancement. A number of companies around the world provide commercial support for DOC software, however. DOC software is Y2K-compliant, as long as the underlying OS platform is Y2K-compliant.

Washington University, UC Irvine, Vanderbilt University, their employees, and students shall have no liability with respect to the infringement of copyrights, trade secrets or any patents by DOC software or any part thereof. Moreover, in no event will Washington University, UC Irvine, or Vanderbilt University, their employees, or students be liable for any lost revenue or profits or other special, indirect and consequential damages.

The ACE, TAO, CIAO, and CoSMIC web sites are maintained by the DOC Group at the Institute for Software Integrated Systems (ISIS) and the Center for Distributed Object Computing of Washington University, St. Louis for the development of open-source software as part of the open-source software community. By submitting comments, suggestions, code, code snippets, techniques (including that of usage), and algorithms, submitters acknowledge that they have the right to do so, that any such submissions are given freely and unreservedly, and that they waive any claims to copyright or ownership. In addition, submitters acknowledge that any such submission might become part of the copyright maintained on the overall body of code, which
comprises the DOC software. By making a submission, submitter agree to these terms. Furthermore, submitters acknowledge that the incorporation or modification of such submissions is entirely at the discretion of the moderators of the open-source DOC software projects or their designees.

The names ACE™, TAO™, CIAO™, and CoSMIC™, Washington University, UC Irvine, and Vanderbilt University, may not be used to endorse or promote products or services derived from this source without express written permission from Washington University, UC Irvine, or Vanderbilt University. Further, products or services derived from this source may not be called ACE™, TAO™, CIAO™, and CoSMIC™ nor may the name Washington University, UC Irvine, or Vanderbilt University appear in their names, without express written permission from Washington University, UC Irvine, and Vanderbilt University.

If you have any suggestions, additions, comments, or questions, please let me know.

Douglas C. Schmidt

Digital Encryption Standard (DES) - MIT

MIT and Dennis Ferguson

The following copyrights must appear in the programs and the copyrights and licenses must appear in the documentation:

Copyright (c) 1990 Dennis Ferguson. All rights reserved.

Commercial use is permitted only if products which are derived from or include this software are made available for purchase and/or use in Canada. Otherwise, redistribution and use in source and binary forms are permitted.


All Rights Reserved.

Export of this software from the United States of America may require a specific license from the United States Government. It is the responsibility of any person or organization contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T. makes no representations about the suitability of this software for any purpose. It is provided “as is” without express or implied warranty.

ICU

IBM

Copyright (c) 1995-2003 International Business Machines Corporation and others. All rights reserved.

ICU License - ICU 1.8.1 and later

COPYRIGHT AND PERMISSION NOTICE

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

JacORB

Jacob.org

GNU LIBRARY GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1991 Free Software Foundation, Inc.  675 Mass Ave, Cambridge, MA 02139, USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.
[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, 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 library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor’s protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, 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 companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone’s free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don’t assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them.

(We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a “work based on the library” and a “work that uses the library”. The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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

0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called “this License”). Each licensee is addressed as “you”.

A “library” means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The “Library”, below, refers to any such software library or work which has been distributed under these terms. A “work based on the Library” means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term “modification”.)
“Source code” for a work means the preferred form of the work for making modifications to it. For a library, 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 library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library’s complete 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 distribute a copy of this License along with the Library.

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 Library or any portion of it, thus forming a work based on the Library, 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) The modified work must itself be a software library. b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change. c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License. d) If a facility in the modified Library refers to a function or a 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 root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, 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 Library, 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 Library.

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

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you 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.

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 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 compile 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) 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. c) 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. d) 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 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.

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 Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things: a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the 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 where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library 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.

9. 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 Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library 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.

11. 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 Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library 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 Library.

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.
12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library 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.

13. The Free Software Foundation may publish revised and/or new versions of the Library 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 Library 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 Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, 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

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY “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 LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. 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 LIBRARY 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 LIBRARY (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 LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. 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. Copyright (C) <year> <name of author>

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

This library 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 Library General Public License for more details.

You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

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

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

Yoyodyne, Inc., hereby disclaims all copyright interest in the library ‘Frob’ (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990 Ty Coon, President of Vice

Java 2 Runtime Environment

Sun Microsystems, Inc.
Copyright 2005 Sun Microsystems, Inc.,
Binary Code License Agreement for the JAVATM 2 RUNTIME ENVIRONMENT (J2RE), STANDARD EDITION, VERSION 1.4.2_X

VERITAS Cluster Server Release Notes
SUN MICROSYSTEMS, INC. (“SUN”) IS WILLING TO LICENSE THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT AND SUPPLEMENTAL LICENSE TERMS (COLLECTIVELY “AGREEMENT”). PLEASE READ THE AGREEMENT CAREFULLY. BY DOWNLOADING OR INSTALLING THIS SOFTWARE, YOU ACCEPT THE TERMS OF THE AGREEMENT.

INDICATE ACCEPTANCE BY SELECTING THE “ACCEPT” BUTTON AT THE BOTTOM OF THE AGREEMENT. IF YOU ARE NOT WILLING TO BE BOUND BY ALL THE TERMS, SELECT THE “DECLINE” BUTTON AT THE BOTTOM OF THE AGREEMENT AND THE DOWNLOAD OR INSTALL PROCESS WILL NOT CONTINUE.

1. DEFINITIONS. “Software” means the identified above in binary form, any other machine readable materials (including, but not limited to, libraries, source files, header files, and data files), any updates or error corrections provided by Sun, and any user manuals, programming guides and other documentation provided to you by Sun under this Agreement. “Programs” Java applets and applications intended to run on the Java 2 Platform, Standard Edition (J2SE® platform) platform on Java-enabled general purpose desktop computers and servers.

2. LICENSE TO USE. Subject to the terms and conditions of this Agreement, including, but not limited to the Java Technology Restrictions of the Supplemental License Terms, Sun grants you a non-exclusive, non-transferable, limited license without license fees to reproduce and use internally Software complete and unmodified for the sole purpose of running Programs. Additional licenses for developers and/or publishers are granted in the Supplemental License Terms.

3. RESTRICTIONS. Software is confidential and copyrighted. Title to Software and all associated intellectual property rights is retained by Sun and/or its licensors. Unless enforcement is prohibited by applicable law, you may not modify, decompile, or reverse engineer Software. You acknowledge that Licensed Software is not designed or intended for use in the design, construction, operation or maintenance of any nuclear facility. Sun Microsystems, Inc. disclaims any express or implied warranty of fitness for such uses. No right, title or interest in or to any trademark, service mark, logo or trade name of Sun or its licensors is granted under this Agreement. Additional restrictions for developers and/or publishers licenses are set forth in the Supplemental License Terms.

4. LIMITED WARRANTY. Sun warrants to you that for a period of ninety (90) days from the date of purchase, as evidenced by a copy of the receipt, the media on which Software is furnished (if any) will be free of defects in materials and workmanship under normal use. Except for the foregoing, Software is provided “AS IS”. Your exclusive remedy and Sun’s entire liability under this limited warranty will be at Sun’s option to replace Software media or refund the fee paid for Software. Any implied on the Software are limited to 90 days. Some states do not allow limitations on duration of an implied warranty, so the above may not apply to you. This limited warranty gives you specific legal rights. You may have others, which vary from state to state.

5. DISCLAIMER OF WARRANTY. UNLESS SPECIFIED IN THIS AGREEMENT, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT THESE DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

6. LIMITATION OF LIABILITY. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In no event will Sun’s liability to you, whether in contract, tort (including negligence), or otherwise, exceed the amount paid by you for Software under this Agreement. The foregoing limitations will apply even if the above stated warranty fails of its essential purpose. Some states do not allow the exclusion of incidental or consequential damages, so some of the terms above may not be applicable to you.

7. SOFTWARE UPDATES FROM SUN. You acknowledge that at your request or consent optional features of the Software may download, install, and execute applets, applications, software extensions, and updated versions of the Software from Sun (“Software Updates”), which may require you to accept updated terms and conditions for installation. If additional terms and conditions are not presented on installation, the Software Updates will be considered part of the Software and subject to the terms and conditions of the Agreement.

8. SOFTWARE FROM SOURCES OTHER THAN SUN. acknowledge that, by your use of optional features of the Software and/or by requesting services that require use of the optional features of the Software, the Software may automatically download, install, and execute software applications from sources other than Sun (“Other Software”). Sun makes no representations of a relationship of any kind to licensors of Other Software. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE OTHER SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Some states do not allow the exclusion of incidental or consequential damages, so some of the terms above may not be applicable to you.

9. TERMINATION. This Agreement is effective until terminated. You may terminate this Agreement at any time by destroying all copies of Software. This Agreement will terminate immediately without notice from Sun if you fail to comply with any provision of this Agreement. Either party may terminate this Agreement immediately should any Software become, or in either party’s opinion be likely to become, the subject of a claim of infringement of any intellectual property right. Upon Termination, you must destroy all copies of Software.
10. EXPORT REGULATIONS. All Software and technical data delivered under this Agreement are subject to US export control laws and may be subject to export or import regulations in other countries. You agree to comply strictly with all such laws and regulations and acknowledge that you have the responsibility to obtain such licenses to export, re-export, or import as may be required after delivery to you.

11. TRADEMARKS AND LOGOS. You acknowledge and agree as between you and Sun that Sun owns the SUN, SOLARIS, JINI, FORTE, and iPLANET trademarks and all SUN, SOLARIS, JAVA, JINI, FORTE, and iPLANET-related trademarks, service marks, logos and other brand designations (“Sun Marks”), and you agree to comply with the Sun Trademark and Logo Usage Requirements currently located at http://www.sun.com/policies/trademarks. Any use you make of the Sun Marks inures to Sun’s benefit.

12. U.S. GOVERNMENT RESTRICTED RIGHTS. If Software is being acquired by or on behalf of the U.S. Government or by a U.S. Government prime contractor or subcontractor (at any tier), then the Government’s rights in Software and accompanying documentation will be as set forth in this Agreement; this is in accordance with 48 CFR 227.7201 through 227.7202-4 (for Department of Defense (DOD) acquisitions) and with 48 CFR 2.101 and 12.212 (for non-DOD acquisitions).

13. GOVERNING LAW. Any action related to this Agreement will be governed by California law and controlling U.S. federal law. No choice of law rules of any jurisdiction will apply.

14. SEVERABILITY. If any provision of this Agreement is held to be unenforceable, this Agreement will remain in effect with the provision omitted, unless omission would frustrate the intent of the parties, in which case this Agreement will immediately terminate.

15. INTEGRATION. This Agreement is the entire agreement between you and Sun relating to its subject matter. It supersedes all prior or contemporaneous oral or written communications, proposals, representations and warranties and prevails over any conflicting or additional terms of any quote, order, acknowledgment, or other communication between the parties relating to its subject matter during the term of this Agreement. No modification of this Agreement will be binding, unless in writing and signed by an authorized representative of each party.

SUPPLEMENTAL LICENSE TERMS
Third-Party Software Registry Conditions of Use Template
These Supplemental License Terms add to or modify the terms of the Binary Code License Agreement. Capitalized terms not defined in these Supplemental Terms shall have the same meanings ascribed to them in the Binary Code License Agreement. These Supplemental Terms shall supersede any inconsistent or conflicting terms in the Binary Code License Agreement, or in any license contained within the Software.

A. Software Internal Use and Development License Grant. Subject to the terms and conditions of this Agreement, including, but not limited to the Java Technology Restrictions of these Supplemental Terms, Sun grants you a non-exclusive, non-transferable, limited license without fees to reproduce internally and use internally the Software complete and unmodified (unless otherwise specified in the applicable README file) for the purpose of designing, developing, and testing your Programs.

B. License to Distribute Software. Subject to the terms and conditions of this Agreement, including, but not limited to the Java Technology Restrictions of these Supplemental Terms, Sun grants you a non-exclusive, non-transferable, limited license without fees to reproduce and distribute the Software, provided that (i) you distribute the Software complete and unmodified (unless otherwise specified in the applicable README file) and only bundled as part of, and for the sole purpose of running, your Programs, (ii) the Programs add significant and primary functionality to the Software, (iii) you do not distribute additional software intended to replace any component(s) of the Software (unless otherwise specified in the applicable README file), (iv) you do not remove or alter any proprietary legends or notices contained in the Software, (v) you only distribute the Software subject to a license agreement that protects Sun’s interests consistent with the terms contained in this Agreement, and (vi) you agree to defend and indemnify Sun and its licensors from and against any damages, costs, liabilities, settlement amounts and/or expenses (including attorneys’ fees) incurred in connection with any claim, lawsuit or action by any third party that arises or results from the use or distribution of any and all Programs and/or Software.

C. License to Distribute Redistributables. Subject to the terms and conditions of this Agreement, including but not limited to the Java Technology Restrictions of these Supplemental Terms, Sun grants you a non-exclusive, non-transferable, limited license without fees to reproduce and distribute those files specifically identified as redistributable in the Software “README” file (“Redistributables”) provided that: (i) you distribute the Redistributables complete and unmodified (unless otherwise specified in the applicable README file), and only bundled as part of Programs, (ii) you do not distribute additional software intended to supersede any component(s) of the Redistributables (unless otherwise specified in the applicable README file), (iii) you do not remove or alter any proprietary legends or notices contained in or on the Redistributables, (iv) you only distribute the Redistributables pursuant to a license agreement that protects Sun’s interests consistent with the terms contained in the Agreement, (v) you agree to defend and indemnify Sun and its licensors from and against any damages, costs, liabilities, settlement amounts and/or expenses (including attorneys’ fees) incurred in connection with any claim, lawsuit or action by any third party that arises or results from the use or distribution of any and all Redistributables and/or Software.

D. Java Technology Restrictions. You may not modify the Java Platform Interface (“JPI”, identified as classes contained within the “java” package or any subpackages of the “java” package), by creating additional classes within the JPI or otherwise causing the addition to or modification of the classes in the JPI. In the event that you create an additional class and associated API(s) which (i) extends the functionality of the Java platform, and (ii) is exposed to third party software developers for the purpose of developing additional software which invokes such additional API, you must promptly publish broadly an accurate
specification for such API for free use by all developers. You may not create, or authorize your licensees to create, additional classes, interfaces, or subpackages that are in any way identified as “java”, “javax”, “sun” or similar convention as specified by Sun in any naming convention designation.

E. Source Code. Software may contain source code that, unless expressly licensed for other purposes, is provided solely for reference purposes pursuant to the terms of this Agreement. Source code may not be redistributed unless expressly provided for in this Agreement.

F. Third Party Code. Additional copyright notices and license terms applicable to portions of the Software are set forth in the THIRDPARTYLICENSEREADME.txt file. In addition to any terms and conditions of any third party opensource/freeware license identified in the THIRDPARTYLICENSEREADME.txt file, the disclaimer of warranty and limitation of liability provisions in paragraphs 5 and 6 of the Binary Code License Agreement shall apply to all Software in this distribution.

For inquiries please contact: Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A.(LFI#135955/Form ID#011801)

cvslib from Java NetBeans

Netbeans.org

Sun Public License Notice

The contents of this file are subject to the Sun Public License Version 1.0 (the “License”). You may not use this file except in compliance with the License. A copy of the License is available at http://www.sun.com/ The Original Code is the CVS Client Library. The Initial Developer of the Original Code is Robert Greig. Portions created by Robert Greig are Copyright (C) 2000. All Rights Reserved. Contributor(s): Robert Greig. This product contains software that is publicly available in source code form (the “Public Software”). The NetBeans, Version 3.3.1, is available under the terms of the Sun Public License, which can be found at www.sun.com (the “Public License”). The license terms provided for the product you have licensed from VERITAS Software Corporation (or its affiliates) (“VERITAS”) may differ from the Public License and, to the extent the license terms differ, such terms are provided solely by VERITAS and not by the original author of the Public Software.

SUN PUBLIC LICENSE Version 1.0

1. Definitions.

1.0.1. “Commercial Use” means distribution or otherwise making the Covered Code available to a third party.

1.1. “Contributor” means each entity that creates or contributes to the creation of Modifications.

1.2. “Contributor Version” means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. “Covered Code” means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof and corresponding documentation released with the source code.

1.4. “Electronic Distribution Mechanism” means a mechanism generally accepted in the software development community for the electronic transfer of data.


1.6. “Initial Developer” means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. “Larger Work” means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. “License” means this document.

1.8.1. “Licensable” means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. “Modifications” means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. “Original Code” means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. “Patent Claims” means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.
1.11. “Source Code” means the preferred form of the Covered Code for making modifications to it, including all modules it
contains, plus any associated documentation, interface definition files, scripts used to control compilation and installation of an
Executable, or source code differential comparisons against either the Original Code or another well known, available Covered
Code of the Contributor’s choice. The Source Code can be in a compressed or archival form, provided the appropriate
decompression or de-archiving software is widely available for no charge.

1.12. “You” (or “Your”) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this
License or a future version of this License issued under Section 6.1. For legal entities, “You” includes any entity which controls, is
controlled by, or is under common control with You. For purposes of this definition, “control” means (a) the power, direct or
indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than
fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1 The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual
property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify,
display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part
of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Original Code, to make, have made, use, practice, sell, and
offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code
under the terms of this License.

(d) notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2)
separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination
of the Original Code with other software or devices.

2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive
license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify,
display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an
unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or
in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made,
and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of
Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the
Covered Code.

(d) notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the
Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of
Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the
Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications
made by that Contributor.

3. Distribution Obligations.

3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without
limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a
future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the
Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the
applicable version of this License or the recipients’ rights hereunder. However, You may include an additional document offering
the additional rights described in Section 3.5.

3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of
this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone
to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain
available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent
version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the
Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.
You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.


(a) Third Party Claims. If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.

If Contributor's Modifications include an application programming interface ("API") and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations.

Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License

3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions.
Sun Microsystems, Inc. (“Sun”) may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Sun. No one other than Sun has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.

If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must: (a) rename Your license so that the phrases “Sun,” “Sun Public License,” or “SPL” or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Sun Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

Covered Code is provided under this License on an “AS IS” basis, without warranty of any kind, either expressed or implied, including, without limitation, warranties that the Covered Code is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Code is with You. Should any Covered Code prove defective in any respect, You (not the initial developer or any other contributor) assume the cost of any necessary servicing, repair or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Code is authorized hereunder except under this disclaimer.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as “Participant”) alleging that:

(a) such Participant’s Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant’s Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used, sold, distributed, or had made, Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant’s Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall You, the initial developer, any other contributor, or any distributor of covered code, or any supplier of any of such parties, be liable to any person for any indirect, special, incidental, or consequential damages of any character including, without limitation, damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party’s negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.
10. U.S. GOVERNMENT END USERS.


11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys’ fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE. Initial Developer may designate portions of the Covered Code as “Multiple-Licensed.” “Multiple-Licensed” means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

Exhibit A -Sun Public License Notice.

The contents of this file are subject to the Sun Public License Version 1.0 (the License); you may not use this file except in compliance with the License. A copy of the License is available at

http://www.sun.com/

The Original Code is ___________________. The Initial Developer of the Original Code is ___________. Portions created by _____ are Copyright (C)_____. All Rights Reserved.

Contributor(s): ______________________________________.

Alternatively, the contents of this file may be used under the terms of the ____ license (the [____] License), in which case the provisions of [____] License are applicable instead of those above. If you wish to allow use of your version of this file only under the terms of the [____] License and not to allow others to use your version of this file under the SPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [____] License. If you do not delete the provisions above, a recipient may use your version of this file under either the SPL or the [____] License.

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

Net-SNMP

1. Carnegie Mellon University, The Regents of the University of California
3. Cambridge Broadband Ltd.
4. Sun Microsystems, Inc.
5. Sparta, Inc.
6. Cisco/BUPTNIC

License

Various copyrights apply to this package, listed in various separate parts below. Please make sure that you read all the parts. Up until 2001, the project was based at UC Davis, and the first part covers all code written during this time. From 2001 onwards, the project has been based at SourceForge, and Networks Associates Technology, Inc hold the copyright on behalf of the wider Net-SNMP community, covering all derivative work done since then. An additional copyright section has been added as Part 3 below also under a BSD license for the work contributed by Cambridge Broadband Ltd. to the project since 2001. An additional copyright section has been added as Part 4 below also under a BSD license for the work contributed by Sun Microsystems, Inc. to the project since 2003.

Code has been contributed to this project by many people over the years it has been in development, and a full list of contributors can be found in the README file under the THANKS section.

Part 1: CMU/UCD copyright notice: (BSD like)
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* 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.

* Neither the name of the Sun Microsystems, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS 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 COPYRIGHT HOLDERS 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.

Part 5: Sparta, Inc copyright notice (BSD)

Copyright (c) 2003-2004, Sparta, Inc
All rights reserved.

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

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* 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.

* Neither the name of Sparta, Inc nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS 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 COPYRIGHT HOLDERS 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.

Part 6: Cisco/BUPTNIC copyright notice (BSD)

Copyright (c) 2004, Cisco, Inc and Information Network Center of Beijing University of Posts and Telecommunications.
All rights reserved.

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

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* 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.

* Neither the name of Cisco, Inc, Beijing University of Posts and Telecommunications, nor the names of their contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS 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 COPYRIGHT HOLDERS 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.

OpenSSL

The OpenSSL Project
Copyright (c) 1998-2003 The OpenSSL Project. All rights reserved.
This is a copy of the current LICENSE file inside the CVS repository.

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit.

See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License
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.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment:
   "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
4. The names “OpenSSL Toolkit” and “OpenSSL Project” must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called “OpenSSL” nor may “OpenSSL” appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment:
   "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED 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 OpenSSL PROJECT OR ITS 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.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License
Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com).

The implementation was written so as to conform with Netscape's SSL.

This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

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 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.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
   "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"

The word "cryptographic" can be left out in the routines from the library being used are not cryptographic related:-).

4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement:
   "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
THIS SOFTWARE IS PROVIDED BY ERIC YOUNG "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 AUTHOR 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.

The license and distribution terms for any publicly available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license [including the GNU Public License.]

Perl

Perl.org


Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent notice in each changed file stating how and when you changed that file, and provided that you do at least ONE of the following:

   a. place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

   b. use the modified Package only within your corporation or organization.

   c. rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.

   d. make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable form, provided that you do at least ONE of the following:

   a. distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

   b. accompany the distribution with the machine-readable source of the Package with your modifications.

   c. give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

   d. make other distribution arrangements with the Copyright Holder.
5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided that you do not advertise this Package as a product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as output from the programs of this Package do not automatically fall under the copyright of this Package, but belong to whomever generated them, and may be sold commercially, and may be aggregated with this Package. If such scripts or library files are aggregated with this Package via the so-called “undump” or “unexec” methods of producing a binary executable image, then distribution of such an image shall neither be construed as a distribution of this Package nor shall it fall under the restrictions of Paragraphs 3 and 4, provided that you do not represent such an executable image as a Standard Version of this Package.

7. C subroutines (or comparably compiled subroutines in other languages) supplied by you and linked into this Package in order to emulate subroutines and variables of the language defined by this Package shall not be considered part of this Package, but are the equivalent of input as in Paragraph 6, provided these subroutines do not change the language in any way that would cause it to fail the regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always permitted provided that the use of this Package is embedded; that is, when no overt attempt is made to make this Package's interfaces visible to the end user of the commercial distribution. Such use shall not be construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

Perl Compatible Regular Expressions

Philip Hazel

Regular expression support is provided by the PCRE library package, which is open source software, written by Philip Hazel, and copyright by the University of Cambridge, England.

PCRE LICENSE

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

Written by: Philip Hazel <ph10@cam.ac.uk>
University of Cambridge Computing Service,
Copyright (c) 1997-2003 University of Cambridge

Permission is granted to anyone to use this software for any purpose on any computer system, and to redistribute it freely, subject to the following restrictions:

1. This software 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.

2. The origin of this software must not be misrepresented, either by explicit claim or by omission. In practice, this means that if you use PCRE in software that you distribute to others, commercially or otherwise, you must put a sentence like this “Regular expression support is provided by the PCRE library package, which is open source software, written by Philip Hazel, and copyright by the University of Cambridge, England,” somewhere reasonably visible in your documentation and in any relevant files or online help data or similar. A reference to the ftp site for the source, that is, to ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/ should also be given in the documentation. However, this condition is not intended to apply to whole chains of software. If package A includes PCRE, it must acknowledge it, but if package B is software that includes package A, the condition is not imposed on package B (unless it uses PCRE independently).

3. Altered versions must be plainly marked as such, and must not be misrepresented as being the original software.

4. If PCRE is embedded in any software that is released under the GNU General Purpose Licence (GPL), or Lesser General Purpose Licence (LGPL), then the terms of that licence shall supersede any condition above with which it is incompatible. The documentation for PCRE, supplied in the “doc” directory, is distributed under the same terms as the software itself.
STL Port

Boris Fomitchev
Copyright 1999,2000 Boris Fomitchev

Boris Fomitchev grants Licensee a nonexclusive, non-transferable, royalty-free license to use STLport and its documentation without fee.

By downloading, using, or copying STLport or any portion thereof, Licensee agrees to abide by the intellectual property laws and all other applicable laws of the United States of America, and to all of the terms and conditions of this Agreement.

Licensee shall maintain the following copyright and permission notices on STLport sources and its documentation unchanged:
Copyright 1999,2000 Boris Fomitchev

This material is provided “as is”, with absolutely no warranty expressed or implied. Any use is at your own risk. Permission to use or copy this software for any purpose is hereby granted without fee, provided the above notices are retained on all copies. Permission to modify the code and to distribute modified code is granted, provided the above notices are retained, and a notice that the code was modified is included with the above copyright notice.

The Licensee may distribute binaries compiled with STLport (whether original or modified) without any royalties or restrictions. The Licensee may distribute original or modified STLport sources, provided that:

• The conditions indicated in the above permission notice are met;
• The following copyright notices are retained when present, and conditions provided in accompanying permission notices are met:

Copyright 1994 Hewlett-Packard Company
Copyright 1997 Moscow Center for SPARC

Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Hewlett-Packard Company makes no representations about the suitability of this software for any purpose. It is provided “as is” without express or implied warranty.

Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Silicon Graphics makes no representations about the suitability of this software for any purpose. It is provided “as is” without express or implied warranty. Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Moscow Center for SPARC Technology makes no representations about the suitability of this software for any purpose. It is provided “as is” without express or implied warranty.

Strlcat.c

Todd Miller
Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com> 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.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED “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 AUTHOR 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.
Douglas C. Schmidt and his research group at Washington University and University of California, Irvine and Vanderbilt University.

TAO™ is copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University Copyright (c) 1993-2003, all rights reserved.

Copyright and Licensing Information for ACE™, TAO™, CIAO™, and CoSMIC™.

ACE™, TAO™, CIAO™, and CoSMIC™ (henceforth referred to as “DOC software”) are copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University, Copyright (c) 1993-2005, all rights reserved. Since DOC software is open-source, free software, you are free to use, modify, copy, and distribute--perpetually and irrevocably--the DOC software source code and object code produced from the source, as well as copy and distribute modified versions of this software. You must, however, include this copyright statement along with code built using DOC software.

You can use DOC software in proprietary software and are under no obligation to redistribute any of your source code that is built using DOC software. Note, however, that you may not do anything to the DOC software code, such as copyrighting it yourself or claiming authorship of the DOC software code, that will prevent DOC software from being distributed freely using an open-source development model. You needn’t inform anyone that you’re using DOC software in your software, though we encourage you to let us know so we can promote your project in the DOC software success stories.

DOC software is provided as is with no warranties of any kind, including the warranties of design, merchantability, and fitness for a particular purpose, noninfringement, or arising from a course of dealing, usage or trade practice. Moreover, DOC software is provided with no support and without any obligation on the part of Washington University, UC Irvine, Vanderbilt University, their employees, or students to assist in its use, correction, modification, or enhancement. A number of companies around the world provide commercial support for DOC software, however. DOC software is Y2K-compliant, as long as the underlying OS platform is Y2K-compliant.

Washington University, UC Irvine, Vanderbilt University, their employees, and students shall have no liability with respect to the infringement of copyrights, trade secrets or any patents by DOC software or any part thereof. Moreover, in no event will Washington University, UC Irvine, or Vanderbilt University, their employees, or students be liable for any lost revenue or profits or other special, indirect and consequential damages.

The ACE, TAO, CIAO, and CoSMIC web sites are maintained by the DOC Group at the Institute for Software Integrated Systems (ISIS) and the Center for Distributed Object Computing of Washington University, St. Louis for the development of open-source software as part of the open-source software community. By submitting comments, suggestions, code, code snippets, techniques (including that of usage), and algorithms, submitters acknowledge that they have the right to do so, that any such submissions are given freely and unreservedly, and that they waive any claims to copyright or ownership. In addition, submitters acknowledge that any such submission might become part of the copyright maintained on the overall body of code, which comprises the DOC software. By making a submission, submitter agree to these terms. Furthermore, submitters acknowledge that the incorporation or modification of such submissions is entirely at the discretion of the moderators of the open-source DOC software projects or their designees.

The names ACE™, TAO™, CIAO™, and CoSMIC™, Washington University, UC Irvine, and Vanderbilt University, may not be used to endorse or promote products or services derived from this source without express written permission from Washington University, UC Irvine, or Vanderbilt University. Further, products or services derived from this source may not be called ACE™, TAO™, CIAO™, and CoSMIC™ nor may the name Washington University, UC Irvine, or Vanderbilt University appear in their names, without express written permission from Washington University, UC Irvine, and Vanderbilt University.

If you have any suggestions, additions, comments, or questions, please let me know.

Douglas C. Schmidt

Tomcat

Apache Software Foundation

Portions of this program contain components from the Apache Software Foundation. These components are made available under the Apache License 2.0, a copy of which is provided herein.

Apache License, Version 2.0, January 2004
http://www.apache.org/licenses

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

“License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

“Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

VERITAS Cluster Server Release Notes
“Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

“You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License.

“Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

“Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

“Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

“Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

“Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.”

“Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

a. You must give any other recipients of the Work or Derivative Works a copy of this License; and

b. You must cause any modified files to carry prominent notices stating that You changed the files; and

c. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

d. If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets “[ ]” replaced with your own identifying information. (Don’t include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same “printed page” as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]
Licensed under the Apache License, Version 2.0 (the “License”); you may not use this file except in compliance with the License. You may obtain a copy of the License at
http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Xerces C++

Apache Software Foundation

Portions of this program contain components from the Apache Software Foundation. These components are made available under the Apache License 2.0, a copy of which is provided herein.

Apache License, Version 2.0, January 2004
http://www.apache.org/licenses

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

“License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

“Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

“Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

“You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License.

“Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

“Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.
“Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

“Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

“Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.”

“Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

a. You must give any other recipients of the Work or Derivative Works a copy of this License; and
b. You must cause any modified files to carry prominent notices stating that You changed the files; and
c. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
d. If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets “[]” replaced with your own identifying information. (Don’t include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same “printed page” as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]
Licensed under the Apache License, Version 2.0 (the “License”); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.