ClearCase and MultiSite Release Notes

Release 4.2

UNIX Edition

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IRIX 6
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800-024693-000

ClearCase and MultiSite Release Notes
Document Number 800-024693-000 July 2001
Rational Software Corporation 20 Maguire Road Lexington, Massachusetts 02421

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Patent

U.S. Patent Nos. 5,574,898 and 5,649,200 and 5,675,802. Additional patents pending.

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Technical Acknowledgments

This software and documentation is based in part on BSD Networking Software Release 2, licensed from the Regents of the University of California. We acknowledge the role of the Computer Systems Research Group and the Electrical Engineering and Computer Sciences Department of the University of California at Berkeley and the Other Contributors in its development.

This product includes software developed by Greg Stein <gstein@lyra.org> for use in the mod_dav module for Apache (http://www.webdav.org/mod_dav/).

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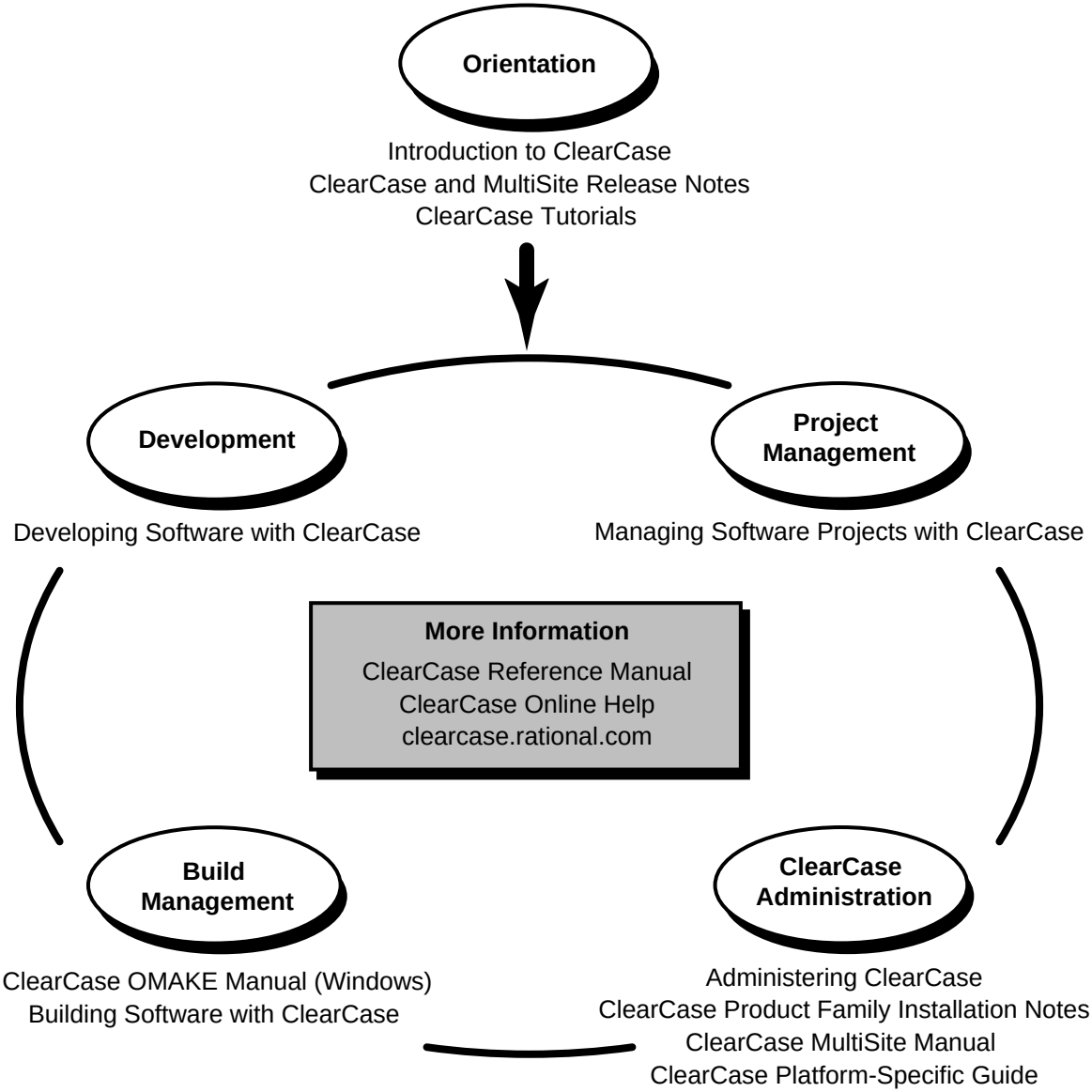
Preface

About This Manual

This document describes Release 4.2 of both Rational ClearCase configuration management software and Rational ClearCase MultiSite software for the UNIX operating system.

ClearCase Documentation Roadmap



Typographical Conventions

This manual uses the following typographical conventions:

- *ccase-home-dir* represents the directory into which the ClearCase Product Family has been installed. By default, this directory is **/usr/atria** on UNIX and **C:\Program Files\Rational\ClearCase** on Windows.
- *attache-home-dir* represents the directory into which ClearCase Attache has been installed. By default, this directory is **C:\Program Files\Rational\Attache**, except on Windows 3.*x*, where it is **C:\RATIONAL\ATTACHE**.
- **Bold** is used for names the user can enter; for example, all command names, file names, and branch names.
- *Italic* is used for variables, document titles, glossary terms, and emphasis.
- `A monospaced font` is used for examples. Where user input needs to be distinguished from program output, **bold** is used for user input.
- Nonprinting characters are in small caps and appear as follows: **<EOF>**, **<NL>**.
- Key names and key combinations are capitalized and appear as follows: SHIFT, CTRL+G.
- [ ] Brackets enclose optional items in format and syntax descriptions.
- { } Braces enclose a list from which you must choose an item in format and syntax descriptions.
- | A vertical bar separates items in a list of choices.
- ... In a syntax description, an ellipsis indicates you can repeat the preceding item or line one or more times. Otherwise, it can indicate omitted information.

  NOTE: In certain contexts, ClearCase recognizes "**...**" within a pathname as a wildcard, similar to "*" or "?". See the **wildcards_ccase** reference page for more information.
- If a command or option name has a short form, a "medial dot" (·) character indicates the shortest legal abbreviation. For example:

  lsc·heckout

  This means that you can truncate the command name to **lsc** or any of its intermediate spellings (**lsch**, **lsche**, **lschec**, and so on).

Online Documentation

The ClearCase graphical interface includes a Microsoft Windows-like help system.

There are three basic ways to access the online help system: the **Help** menu, the **Help** button, or the F1 key. **Help**>**Contents** provides access to the complete set of ClearCase online documentation. For help on a particular context, press F1. Use the **Help** button on various dialog boxes to get information specific to that dialog box.

ClearCase also provides access to full "reference pages" (detailed descriptions of ClearCase commands, utilities, and data structures) with the **cleartool man** subcommand. Without any argument, **cleartool man** displays the **cleartool** overview reference page. Specifying a command name as an argument gives information about using the specified command. For example:

```
% cleartool man                    (display the cleartool overview page)

% cleartool man man                (display the cleartool man reference page)

% cleartool man checkout           (display the cleartool checkout reference page)
```

ClearCase's **–help** command option or **help** command displays individual subcommand syntax. Without any argument, **cleartool help** displays the syntax for all **cleartool** commands. **help checkout** and **checkout –help** are equivalent.

```
% cleartool uncheckout –help
Usage: uncheckout | unco [-keep | -rm] [-cact | -cwork ] pname ...
```

Additionally, the online *ClearCase Tutorial* provides important information on setting up a user's environment, along with a step-by-step tour through ClearCase's most important features. To start the *ClearCase Tutorial* from the command line, type **hyperhelp cc_tut.hlp**.

Technical Support

If you have any problems with the software or documentation, please contact Rational Technical Support via telephone, fax, or electronic mail as described below. For information regarding support hours, languages spoken, or other support information, click the **Technical Support** link on the Rational Web site at **www.rational.com**.

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READ ME FIRST

1

This chapter describes important information in this release. Read it *before* you attempt to install Rational ClearCase or Rational ClearCase MultiSite.

NOTE: The term CPF stands for ClearCase Product Family and refers to the products ClearCase, Attache, and MultiSite. ClearGuide is not included in Release 4.2. The term 3.*x* refers to 3.2.1 and the term 4.*x* refers to 4.0, 4.1, and 4.2.

1.1 Supported Architectures

ClearCase and MultiSite Release 4.2 run on the platforms listed in Table 1.

Table 1 Supported Platforms for ClearCase and MultiSite Release 4.2 (Part 1 of 2)

Hardware platform	Operating system
Sun SPARCStation	Solaris 2.6 (32-bit), 7 (32- and 64-bit), 8 (32- and 64-bit)
HP 9000 Series 700 and Series 800	HP-UX 10.20, 10.20 ACE[1] (except diskless workstations), 11.0, 11.0 ACE[2] and 11.11 (32- and 64-bit support)
SGI IRIX (32- and 64-bit support)	IRIX 6.5.2, 6.5.3, 6.5.4, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, and 6.5.12 (all 32- and 64-bit support)
IBM RISC System/6000	AIX Release 4.3.2, 4.3.2.6, 4.3.3, 4.3.3.10
Compaq Alpha (formerly Digital Alpha)	Tru64 UNIX 4.0F, 4.0G, 5.0A, 5.1

Table 1 Supported Platforms for ClearCase and MultiSite Release 4.2 (Part 2 of 2)

Hardware platform	Operating system
IBM PC-compatibles	Red Hat Linux 6.2 (2.2.14-5.0 and 2.2.16-22 kernels) Red Hat Linux 7.0 (2.2.16-22 kernel) Red Hat Linux 7.1 (2.4.2-2 kernel) SCO UnixWare 7.1.0, 7.1.1 Sun Solaris Intel 2.6, 7, 8
Siemens	Reliant UNIX 5.44 C20, 5.44 C30, 5.44 C40, 5.45 A10, 5.45 A20

1. Supported HP-UX ACE releases are July 1997, April 1998, June 1998, June 1999, and December 1999 Workstation ACE, and April 1998, June 1998, June 1999, and December 1999 Networking ACE.
2. Supported HP-UX ACE release is November 1999 ACE.

For more information about differences in features and functionality by platform, see the *ClearCase Platform-Specific Guide*. To access the platform guide, go to ClearCase help and click **Help Topics**.

This release of ClearCase does not include support for the following architectures:

- SunOS 4.*x*
- HP-UX 9.*x* and 10.01
- Compaq Alpha 5.0
- DC/OSx 1.*x*
- SCO UnixWare 2.*x*
- NCR MP-RAS
- IBM RISC System/6000 AIX 5.1
- Compaq Tru64 5.1A
- Reliant Unix 5.45 B00

1.2 Supported Platforms for ClearCase Web Servers and Web Interface

The following platforms support a ClearCase Web server:

- Solaris SPARC
- HP-UX

- AIX
- Red Hat Linux

The following platforms support the ClearCase Web interface:

- AIXIRIX
- HP-UX
- IRIX
- Red Hat Linux
- Reliant UNIX
- Solaris Intel
- Solaris SPARC
- Tru64 UNIX
- UnixWare

1.3 Supported File Systems

Table 2 lists the file systems that ClearCase supports for view and VOB storage. If a file system does not appear on the list, it is not supported. Please inform Rational Technical Support or your sales representative of any concerns you have about this list.

For information on our support of NFS implementations, see *NFS Support*.

Table 2 Supported File Systems by Platform

Platform	**Supported file systems**
Solaris SPARC	UFS, VxFS (Veritas)
HP-UX	JFS, UFS, HFS, VxFS
IRIX	EFS, XFS
AIX	JFS
Tru64 UNIX	UFS, ADVFS
Red Hat Linux	UFS, EXT2
SCO UnixWare	UFS, VxFS

Table 2 Supported File Systems by Platform

Platform	Supported file systems
Solaris Intel	UFS, HSFS
Reliant UNIX	UFS, VxFS

The following file systems cannot be used with ClearCase on any platform:

- Andrew File System (AFS), DCE Distributed File System (DFS)
- Any memory-based file system (such as memFS, tmpFS, swapFS)

NFS Support

Third-party automounters are not supported on any platform.

For a given platform, we support the NFS implementations supported by the platform.

If you use non-ClearCase access, see *Administering ClearCase* for a description of the limitations associated with use of NFS and potential workarounds.

1.4 Hardware and Software Requirements

This section describes other software and hardware requirements for running ClearCase and MultiSite.

Minimum Hardware Requirements

- For ClearCase client hosts
  - 32 MB main memory
  - 300 MB disk space
- For ClearCase server hosts

- 64 MB memory
- 2 GB disk space
- 128 UNIX processes *(kernel parameter)*
- 600 UNIX file descriptors per host (not per process) *(kernel parameter)*

Basic Software Requirements

ClearCase requires the following software:

- The ClearCase HTML Diff Merge (**xcleardiff**) tool requires a Netscape Web browser (version 4.6 or later, but before 6.0); the browser must support the level of HTML used in the files to be compared or merged.
- The ClearCase Web interface requires
  - On the system acting as a ClearCase Web server, either a Netscape Enterprise 3.5.1 or later, or an Apache 1.3.6 or later Web server
  - On any system accessing ClearCase through the Web interface, a Web browser, either Netscape 4 (version 4.6 or later), or Internet Explorer 4.0.1 (SP 1) or later. Netscape 6 is not supported. (Note that it is not necessary to install ClearCase on such a system.)
- Use of the online manuals in PDF format requires an Adobe Acrobat Reader, version 3.0 or later.

Disk Space Requirements for the Release Area

The file system of the networkwide *release host* must have sufficient disk space to hold the release area:

Solaris SPARC	198 MB	Tru64 UNIX	166 MB
HP-UX 10	207 MB	Red Hat Linux	119 MB
HP-UX 11	200 MB	UnixWare	122 MB
IRIX (32-bit)	168 MB	Solaris Intel	106 MB
IRIX (64-bit)	169 MB	Reliant UNIX	136 MB
AIX	200 MB		

Exporting the Release Area

Setting up the export is architecture specific; see Table 3. For details, see the standard reference pages for these files and programs.

Table 3 Exporting the ClearCase Product Family Release Area

Architecture	Steps to export ClearCase product family release area	
Solaris SPARC, UnixWare, Reliant UNIX, Solaris Intel	1. Revise **/etc/dfs/dfstab**:	**share –F nfs /usr/ccase_rls** *options*
	2. Enter command:	**# /usr/sbin/shareall –F NFS**
HP-UX 10, HP-UX 11	1. Revise **/etc/exports**:	**/usr/ccase_rls** *options*
	2. Enter command:	**# /usr/sbin/exportfs –a** *other-options*
IRIX	1. Revise **/etc/exports:**	**/usr/ccase_rls** *options*
	2. Enter command:	**# /usr/etc/exportfs –a** *other-options*
AIX	1. Revise **/etc/exports**:	**/usr/ccase_rls** *options*
	2. Enter command:	**# /usr/sbin/exportfs –a** *other-options*
Tru64 UNIX	1. Revise **/etc/exports**:	**/usr/ccase_rls** *options*
Red Hat Linux	1. Revise **/etc/exports**:	**/ (rw)** - no command is necessary

Architecture Mnemonics and mount Commands

Table 4 provides the architecture mnemonic and sample CD-ROM **mount** commands for supported platforms. The architecture mnemonic is used as the name of root of the release area for each platform or set of platforms.

Table 4 Mounting the CD-ROM (Part 1 of 2)

Architecture	Mnemonic	Sample mount command
Solaris SPARC	**sun5**	Not necessary (if Volume Manager is in use)
HP-UX 10	**hp10_pa**	**mount –F cdfs –r /dev/dsk/c3d0s2 /cdrom**

Table 4 Mounting the CD-ROM (Part 2 of 2)

Architecture	Mnemonic	Sample mount command
HP-UX 11	**hp11_pa**[1]	**mount –F cdfs –r /dev/dsk/c3d0s2 /cdrom**
IRIX (32-bit)	**sgi5**	**mount –r –t iso9660 /dev/sc0d6l0 /cdrom**
IRIX (64-bit)	**sgi6**	
AIX	**aix4_power**	**mount –o ro –v cdrfs /dev/cd0 /cdrom**
Tru64 UNIX 4.0	**osf1_axp**	**mount –r –t cdfs /dev/rz4c /cdrom**
Tru64 UNIX 5.0A	**osf1_axp**	**mount –r –t cdfs /dev/disk/cdrom0c /cdrom**
Red Hat Linux	**rhat_x86**	**mount –r /dev/cdrom /mnt/cdrom**
UnixWare	**uw2_x86**	**mount –F cdfs –r /dev/cdrom/c1b0t6l0 /cdrom**[2]
Solaris Intel	**sol_x86**	not necessary (assuming Volume Manager is in use)
Reliant UNIX	**sni5**	**mount –F hs /dev/ios0/sdisk006s0 /cdrom**

1. When installing ClearCase on an individual host, you must use the appropriate release area for the architecture on your host. For example, if you have HP-UX 11 on your host, you must install from the hp11_pa release area.
2. Under UnixWare, the file name **c1b0t6l0** is “c-one-b-zero-t-six-el-zero”.

Disk Space Requirements for Individual Hosts

Table 5 shows the disk space requirement for each kind of installation. All the space must be contained in a single disk partition.

Table 5 Disk Space Requirements for ClearCase Product Family Releases (Part 1 of 3)

Platform	Type of installation	ClearCase	MultiSite[1]	Attache helper[1]
Solaris SPARC	Full copy	140 MB	6 MB	2 MB
	Standard	35 MB	2 MB	2 MB

Table 5 Disk Space Requirements for ClearCase Product Family Releases (Part 2 of 3)

Platform	Type of installation	ClearCase	MultiSite[1]	Attache helper[1]
HP-UX 10	Full copy	145 MB	6 MB	1 MB
	Standard	26 MB	2 MB	1 MB
HP-UX 11	Full copy	156 MB	7 MB	1 MB
	Standard	32 MB	2 MB	1 MB
IRIX 32-bit	Full copy	157 MB	6 MB	2 MB
	Standard	31 MB	1 MB	2 MB
IRIX 64-bit	Full copy	152 MB	6 MB	2 MB
	Standard	36 MB	2 MB	2 MB
AIX	Full copy	240 MB	6 MB	1 MB
	Standard	58 MB	2 MB	1 MB
Tru64 UNIX	Full copy	150 MB	6 MB	2 MB
	Standard	34 MB	1 MB	1 MB
Red Hat Linux	Full copy	94 MB	5 MB	2 MB
	Standard	17 MB	700 K	1 MB
UnixWare	Full copy	112 MB	6 MB	1 MB
	Standard	24 MB	2 MB	1 MB
Solaris Intel	Full copy	95 MB	6 MB	
	Standard	18 MB	700 K	
Reliant UNIX	Full copy	119 MB	6 MB	1 MB
	Standard	29 MB	2 MB	1 MB

Table 5 Disk Space Requirements for ClearCase Product Family Releases (Part 3 of 3)

Platform	Type of installation	ClearCase	MultiSite[1]	Attache helper[1]
All Platforms	Link	< 2 MB[2] (install of all ClearCase Product Family products)		
	Mounted	< 2 MB[2] (install of all ClearCase Product Family products)		

1. These disk requirements are only for the incremental installation of this product over ClearCase. Disk space requirements for any components shared with ClearCase are included in the ClearCase numbers.
2. Disk space requirements for Link and Mounted installations represent the space required for items loaded in the **/var/adm/atria** directory.

1.5 Platform-Specific Information Relating to Installation

This section provides information that varies from platform to platform. *ClearCase Product Family Installation Notes* specifically indicate when you will need this information and defines the terms used in this section.

Operating System Patches May Be Required

Typically, correct ClearCase operation depends on your having installed a number of required or recommended operating system patches. These are available from your hardware vendor. The operating system patches are cumulative. Therefore, if you install a more recent patch, it will include the fix required for ClearCase. See Table 6 for a list of patches recommended or required for all hosts on which ClearCase software will run. There may also be required layered packages, as listed in *Layered Software Packages* on page 14.

In addition to the patches listed below, which fix problems known to affect ClearCase functionality, you may require other OS vendor patches to keep your systems functioning properly. See *Web Sites of Operating System Vendors* on page 13 for information on where to obtain these patches.

ClearCase is guaranteed to be Y2K-compliant only on operating systems that are themselves Y2K-compliant.

MultiSite has no known dependencies on operating system patches.

Table 6 Operating System Patches (Part 1 of 4)

Patch number	Release	Purpose	Notes
Patches for Solaris SPARC			
105181-19 (or later)	2.6	kernel patch (includes **procfs** patch)	*Required for all ClearCase hosts.*
105778-01 (or later)	2.6	**specfs** (file system patch)	*Required for all ClearCase hosts.*
105780-05 or later)	2.6	**fifofs** (file system patch)	*Required for all ClearCase hosts.*
Patches for HP-UX 10 (Series 700 and 800)			
PHCO_20441	10.20	cumulative **libc** patch	Recommended for all ClearCase hosts.
PHCO_20061	10.20	fixes **mount** command	*Required for all ClearCase hosts.*
PHCO_16961	10.20	**Xcurses** library cumulative patch	*Required for all ClearCase hosts.*
PHNE_15202	10.20 (700)	cumulative streams patch	*Required for all ClearCase hosts.*
PHNE_19187	10.20 (800)		
PHNE_20839	10.20	cumulative **mux** and **pty** patch	Recommended for all ClearCase hosts.
PHNE_20091	10.20	cumulative NFS/NIS megapatch	Recommended for all ClearCase hosts. Check the prerequisites for these patches.
PHNE_19937	10.20 (700)	ARPA transport patch	Recommended for all ClearCase hosts.
PHNE_19936	10.20 (800)		
PHNE_20021	10.20	NFS kernel patch	Recommended for all ClearCase hosts.
PHKL_9270	10.20 (700)	fix for current pathname in process/thread	*Required for all ClearCase hosts.*
PHKL_9271	10.20 (800)		

Table 6 Operating System Patches (Part 2 of 4)

Patch number	Release	Purpose	Notes
PHKL_16750	10.20 (700)	NFS hangs, NFS write gathering, buffer cache cumulative patch, VxFS cumulative patch	*Required for all ClearCase hosts.*
PHKL_16751	10.20 (800)		
PHKL_17857	10.20 (700)	fix for mount/access of disk sections	*Required for all ClearCase hosts.*
PHKL_17858	10.20 (800)		*Required for all ClearCase hosts.*
PHKL_17573	10.20 (700)	Kernel Interaction (KI) NFS performance patch	Recommended for ClearCase hosts using Glance or Measureware performance tools.
PHKL_17574	10.20 (800)		
PHKL_18748	10.20 (700)	NFS **open**() patch	Recommended for all ClearCase hosts.
PHKL_18749	10.20 (800)		
PHSS_17225	10.*x*	**dld.sl(5**) cumulative patch	*Required for all ClearCase hosts.*
PHSS_17872	10.*x*	HP **aC++** run-time libraries (aCC A.01.21) (requires PHSS_17225)	*Required for all ClearCase hosts.*
Patches for HP-UX 11 (Series 700 and 800)			
PHNE_14620	11.0	RPC/XDR patch	*Required for all ClearCase hosts.*
PHKL_16074	11.0	Kernel Interaction (KI) NFS performance patch	Recommended for ClearCase hosts using Glance or Measureware performance tools.
PHKL_16983	11.0	NFS **open**() patch	Recommended for all ClearCase hosts.
PHCO_19182	11.0	10.20 **libc** compatibility patch	Recommended for all ClearCase hosts.
PHSS_16587	11.0	HP **aC++** run-time libraries (aCC A.03.13)	*Required for all ClearCase hosts.*
PHSS_20865	11.0	X/Motif2.1 Runtime patch	*Required for all ClearCase hosts.*
B.11.11.0102.1	11.11	Bundle of kernel header file patches	*Required for all ClearCase hosts.*
Patches for IRIX			
	None required		

Table 6 Operating System Patches (Part 3 of 4)

Patch number	Release	Purpose	Notes
Patches for AIX			
IX77879	4.3.2 or later	fix crash in NFS mount path	*Required for all ClearCase hosts.*
IX79570	4.3.2 or later	support for non-ClearCase access	*Required for all ClearCase hosts.*
IY05834	4.3.2 or later	performance fix required by NFS	*Required for all ClearCase hosts.*
IY11534	4.3.3 or later	fixes recursive **cp** on empty directories	Recommended for all ClearCase hosts.
Patches for Tru64 UNIX			
patch 268.00	4.0F	enables NFS V3 to work with non-ClearCase access	*Required for all ClearCase hosts when used as server for non-ClearCase access.*
Patches for Red Hat Linux			
	See *Red Hat Linux Software Version Numbers* on page 17		
Patch for UnixWare			
	None required		
Patches for Solaris Intel			
	None required		
Patches for Reliant UNIX			
EKSNAME: SIN4C204	5.44 C20	Streams patch	*Required for all ClearCase hosts.*
EKSNAME: SIN4C216	5.44 C20	**gethostbyname()** patch	*Required for all ClearCase hosts.*
EKSNAME: SIN4C224	5.44 C20	Sockets patch	*Required for all ClearCase hosts.*
EKSNAME: SIN4C232	5.44 C20	Networking patch	*Required for all ClearCase hosts.*

Table 6 Operating System Patches (Part 4 of 4)

Patch number	Release	Purpose	Notes
EKSNAME: SIN4C237	5.44 C20	NFS and VxFS patch	*Required for all ClearCase hosts.*
EKSNAME: SIN4C244	5.44 C20	**rpcbind** patch	*Required for all ClearCase hosts.*
EKSNAME: SIY4C202	5.44 C20	NFS patch	*Required for all ClearCase hosts.*
EKSNAME: SIY4C252	5.44 C20	VxFS patch	Recommended for all ClearCase hosts.
EKSNAME: SIY4C281	5.44 C20	TCP/IP patch	*Required for all ClearCase hosts.*
EKSNAME: SIY4C289	5.44 C20	UTS/VxFS patch	*Required for all ClearCase hosts.*
EKSNAME: SIN5A102	5.45 A10	VxFS patch	Recommended for all ClearCase hosts.
EKSNAME: SIN5A106	5.45 A10	TCP patch	*Required for all ClearCase hosts.*
EKSNAME: SIN5A112	5.45 A10	NFS patch	*Required for all ClearCase hosts.*
EKSNAME: SIY5A110	5.45 A10	TCP/IP patch	Recommended for all ClearCase hosts.
EKSNAME: SIY5A119	5.45 A10	VxFS patch	Recommended for all ClearCase hosts.

Web Sites of Operating System Vendors

You can find up-to-date information on operating system patches at the vendor Web sites listed in Table 7.

Table 7 Web Sites of Operating System Vendors

Vendor	URL
Sun	**sunsolve.sun.com**
Hewlett-Packard	**us-support.external.hp.com**
SGI	**www.sgi.com/support/patch_intro.html**
IBM[1]	**service.software.ibm.com/support/rs6000**
Compaq	**www.service.digital.com/patches/index.html**
Red Hat Linux	**www.redhat.com**
SCO	**www.sco.com/support/unixware7** (for UnixWare 7.0)
Siemens Nixdorf	**its.sni.de/lobs/its/its_cm/its_en.htm** (English) **its.sni.de/lobs/its/its_cm/its_de.htm** (German)

1. IBM suggests using the **fixdist(1)** utility to download patches.

Layered Software Packages

In some cases, correct ClearCase processing requires installation of a layered software package. Before installing ClearCase on a host, see Table 8 to determine whether you need to install any such packages.

Table 8 Layered Software Packages Required by ClearCase (Part 1 of 2)

Host type	Package name	Description
Solaris SPARC	SUNWsprot	SPARCompilers, bundled tools; includes default **make.rules** file
	SUNWbcp	Binary compatibility
	SUNWscpr	Source compatibility, root
	SUNWscpu	Source compatibility, user
	SUNWmfrun	Motif RunTime kit to run ClearCase GUIs

Table 8 Layered Software Packages Required by ClearCase (Part 2 of 2)

Host type	Package name	Description
HP-UX 10	Upgrade. **UPG-TLINK**	Compatibility links for file system
	X Window System: X11R5 (or later)	Window system
HP-UX 11	Upgrade. **UPG-TLINK**	Compatibility links for file system
	X Window System: X11R6 (or later)	Window system
IRIX 6	**nfs**	Network File System
	Development Environment Headers	Header files for software development. Get the name of the package for your version of IRIX 6 by using the following command: % **versions | grep -i "development environment headers"**
AIX	bos.net.nfs.client	NFS
Compaq Tru64 UNIX (formerly Digital UNIX)	OSFX11	Basic X Window System environment
	OSFCLINET	Basic Networking Services
	OSFNFS	NFS Utilities
Red Hat Linux	XFree	X Window System Kit
	KNFSD KNFSD-Clients	Both are part of the optional install package.
UnixWare	none	
Solaris Intel	SUNWsprot	Bundled tools: Includes default **make.rules** file
Reliant UNIX	CD-WIN-MI	Windows Kit
	CD-DEV-MI	Development Kit (includes C and C++ compilers)

1.6 ClearCase and MultiSite Patches Incorporated in This Release

ClearCase Release 4.2 and MultiSite Release 4.2 include all the patches listed in Table 9. If you are using a more recent patch on any of the patch streams listed, contact Rational Technical Support to see whether there is a corresponding patch for Release 4.2.

Table 9 ClearCase and MultiSite Patches Incorporated into This Release

Patch stream	Last patch incorporated into this release
ClearCase v3.2.1	**clearcase_p3.2.1-38** and earlier The following platform-specific patches are also included: **clearcase_p3.2.1-25** *(AIX only)* **clearcase_p3.2.1-27** *(IRIX 6.5.6, Reliant UNIX 5.45 A00, Tru64 UNIX 5.0)*
ClearCase v4.0	**clearcase_p4.0-20** and earlier
ClearCase v4.1	**clearcase _p4.1-10** and earlier
MultiSite v3.2.1	**multisite_p3.2.1-9** and earlier
MultiSite v4.0	**multisite_p4.0-3** and earlier
MultiSite v4.1	**multisite_p4.1-3** and earlier

1.7 Installation and Configuration Issues for Red Hat Linux Systems

This section discusses installation and configuration issues when installing Rational ClearCase 4.2 on Red Hat Linux.

See *Red Hat Linux-Specific Functionality* in the *ClearCase Platform-Specific Guide* for related information on Red Hat Linux functionality and Rational ClearCase. To locate the platform guide, start help for Rational ClearCase by typing **hyperhelp cc_main.hlp**. When the HyperHelp screen appears, click Help Topics to display a contents list that includes *ClearCase Platform-Specific Guide*.

Red Hat Linux Software Version Numbers

Table 10 lists the Linux software version numbers supported by this release of Rational ClearCase.

Table 10 Linux Software Version Numbers

Component	Red Hat 6.2 Linux	Red Hat 7.0 Linux	Red Hat 7.1 Linux
Supported Linux kernel	2.2.14-5.0, 2.2.16-22	2.2.16-22	2.4.2-2

Additional Installation Steps for Red Hat 7.1 Linux

This section presents information relevant to installing Rational ClearCase Release 4.2 on Red Hat 7.1 Linux, kernel 2.4.2.

Follow the instructions in the *ClearCase Product Family Installation Notes* to install the Release 4.2 software. This section describes installation steps presented after the standard installation selections.

1. `Do you want to relink the MVFS when install is complete (yes, no, quit, help) [no]:`

   Answer **no** to leave the MVFS as is. The MVFS is able to run only if the symbols used by the MVFS in the release area match the symbols in your running kernel.

   Answer **yes** to relink the MVFS module using those kernel sources, and set up the relinked module for use. The following question appears.

2. `Enter path to your top-level kernel source directory.`

   `Default is [/usr/src/linux]:`

   If your Linux kernel sources have been installed in a different directory, specify the directory here.

   For Linux 2.4.*x* kernels, the Linux kernel sources are not necessary, only the kernel header files are needed, and these only if you need to relink your MVFS module. However, the kernel headers should come from a configured and built kernel source tree reflecting the

running kernel. Also, the **.config** file created during kernel configuration must be present in the top-level kernel source directory.

MVFS Support for Red Hat 6.2 and 7.0 Linux

This section presents information relevant to installing Rational ClearCase Release 4.2 on Red Hat 6.2 and Red Hat 7.0 Linux.

Because of design features of the Linux 2.2.*x* kernel series, on which Red Hat 6.2 and Red Hat 7.0 Linux are based, you must patch and rebuild the kernel before running Rational ClearCase MVFS (multiversion file system). If the necessary patch is not installed, the MVFS fails to load and a diagnostic message is printed to the system log in **/var/log/messages**.

NOTE: Red Hat 7.1 Linux is based on the Linux 2.4.2 kernel. Design features have changed in the Linux 2.4.*x* kernel series so that it is not necessary to patch and rebuild the Linux kernel to enable MVFS support.

Before Rebuilding the Kernel

Rebuilding a Linux kernel is not always straightforward because of the variety of PC hardware and the variety of configurable options available under Linux. If you are not familiar with the process of building and rebooting the Linux kernel, we recommend that you try this before installing ClearCase. For more information on configuring and compiling the Linux kernel, see **http://www.linuxdoc.org/HOWTO/Kernel-HOWTO.html**. There is also useful information in the Linux release notes, which you can find in the **README** file in your top-level kernel source directory.

The next sections discuss the following tasks, which must be performed before you can run the MVFS on Red Hat 6.2 and 7.0 Linux:

1. Installing the Linux Kernel Sources, if these are not already installed on your system
2. Additional Installation Steps for Red Hat 6.2 or 7.0 Linux
3. Applying the Linux Kernel Patch for Red Hat 6.2 or 7.0 Linux, if you did not choose to have the ClearCase Release 4.2 install do this in the previous task
4. Configuring the Linux Kernel After Applying the Kernel Patch

Installing the Linux Kernel Sources

If you are running Red Hat 6.2 or 7.0, the Release 4.2 installation process expects that the Linux kernel sources are already loaded on your system.

If you do not have the Linux sources installed, follow these instructions:

1. Log on as **root** user.
2. Insert the Linux distribution in your CD drive. If necessary, mount the drive.

   - For Red Hat 6.2 (kernel version 2.2.14-5.0), insert Disk 2.
   - For Red Hat 7.0 (kernel version 2.2.16-22), insert Disk 3.

   NOTE: If you have installed a different Linux kernel version, you will need to install the corresponding Linux sources. You can find these at **www.redhat.com**.

   NOTE: The examples in the remainder of this section assume that you are using the default Red Hat 6.2 Linux distribution, which uses Linux kernel 2.2.14-5.0. If you are using a different version, substitute the corresponding kernel version number.
3. Change to the **SRPMS** directory on the CD-ROM (or to the directory where you downloaded the SRPMs).
4. Enter the following commands:

   ```
   # mkdir -p /usr/src/redhat/SOURCES
   # rpm -ivh kernel-2.2.14-5.0.src.rpm
   # mkdir -p /usr/src/redhat/BUILD
   # rpm -bp /usr/src/redhat/SPECS/kernel-2.2.14.spec
   ```
5. If you plan to use the default path specification (**/usr/src/linux**) for installing the MVFS and for applying the kernel patch (see the next sections *Additional Installation Steps for Red Hat 6.2 or 7.0 Linux* and *Applying the Linux Kernel Patch for Red Hat 6.2 or 7.0 Linux* for details), enter the following additional commands to create a symbolic link to the Linux kernel sources you just loaded:

   ```
   # cd /usr/src
   # ln -s /usr/src/redhat/BUILD/linux /usr/src/linux
   ```

Additional Installation Steps for Red Hat 6.2 or 7.0 Linux

Follow the instructions in the *ClearCase Product Family Installation Notes* to install the Release 4.2 software. This section describes installation steps for Red Hat 6.2 or 7.0 Linux that are presented after the standard installation selections.

1. `Do you want to patch your Linux sources (yes, no, quit, help) [yes]:`

   If you answer **yes**, the install process applies the kernel patch to the Linux source directory tree. In cases where you apply the patch and it has been installed previously, you will see an informational message, telling you the patch didn't install and asking if you want to continue the installation. Reply **yes** to continue the installation.

   If you answer **no**, the patch is not applied, but you must apply the patch yourself before you can load and run the MVFS.

   If you do not have Linux kernel sources installed, answer **no**.

2. `Do you want to relink the MVFS when install is complete (yes, no, quit, help) [no]:`

   Answer **no** to leave the MVFS as is. The MVFS is able to run only if the symbols used by the MVFS in the release area match the symbols in your running kernel.

   Answer **yes** to relink the MVFS module using those kernel sources, and set up the relinked module for use.

3. `Enter the path to your top-level kernel source directory.`

   `Default is [/usr/src/linux]:`

   This prompt appears when you have answered **yes** to either of the previous two questions. If your Linux kernel sources have been installed in a different directory, specify the directory here.

Applying the Linux Kernel Patch for Red Hat 6.2 or 7.0 Linux

This procedure tells you how to install the Linux kernel patch separately. The instructions apply for Red Hat 6.2 Linux and Red Hat 7.0 Linux. You do not need to follow this procedure if you chose to have the Release 4.2 install apply the Linux kernel patch as described in the previous section, *Additional Installation Steps for Red Hat 6.2 or 7.0 Linux*.

1. Copy the following patches to **/usr/src/linux** (or to the top-level Linux kernel source directory that you specified in Step 3 of Installing ClearCase 4.2:

- For Red Hat 6.2 Linux installations, copy the patches **remove-mvfs-configuration** and **linux-mvfs-4.2-patch-2.2.14.** If your kernel has been built for multiprocessor use, patches are in the directory **/usr/atria/etc/conf/rhat62.smp**. Otherwise, patches are in the directory **/usr/atria/etc/conf/rhat62.**

  For example:

  # cp /usr/atria/etc/conf/rhat62.smp/remove-mvfs-configuration /usr/src/linux/.
  # cp /usr/atria/etc/conf/rhat62.smp/linux-mvfs-patch-2.2.14 /usr/src/linux/.

- For Red Hat 7.0 Linux installations, copy the patches **remove-mvfs-configuration** and **linux-mvfs-4.2-patch-2.2.16**. If your kernel has been built for multiprocessor use, patches are in the directory **/usr/atria/etc/conf/rhat70.smp**. Otherwise, patches are in the directory **/usr/atria/etc/conf/rhat70.**

  For example:

  # cp /usr/atria/etc/conf/rhat70.smp/remove-mvfs-configuration /usr/src/linux/.
  # cp /usr/atria/etc/conf/rhat70.smp/linux-mvfs-4.2-patch-2.2.16 /usr/src/linux/.

2. Change to the **/usr/src/linux** directory (or to the top-level Linux kernel source directory that you specified in Step 3 of *Additional Installation Steps for Red Hat 6.2 or 7.0 Linux*):

   # cd /usr/src/linux

3. Depending on whether you are upgrading from ClearCase 4.1, and whether you are installing on Red Hat 6.2 Linux, or installing on Red Hat 7.0 Linux, issue one of the following commands to apply the Linux patch.

   - If you are upgrading from ClearCase 4.1 on Red Hat 6.2 Linux or Red Hat 7.0 Linux, type the following. Note that you do not need to rebuild your kernel after applying this patch:

     # patch -Np1 < remove-mvfs-configuration-patch

     This patch may need to be applied multiple times. When you no longer need to apply the **remove-mvfs-configuration-patch**, the following informational message appears:

```
patching file ‘Documentation/Configure.help’
Reversed (or previously applied) patch detected!  Skipping patch.
2 out of 2 hunks ignored -- saving rejects to Documentation/Configure.help.rej
patching file ‘fs/Config.in’
Reversed (or previously applied) patch detected!  Skipping patch.
1 out of 1 hunk ignored -- saving rejects to fs/Config.in.rej
patching file ‘fs/Makefile’
Reversed (or previously applied) patch detected!  Skipping patch.
2 out of 2 hunks ignored -- saving rejects to fs/Makefile.rej
#
```

- If you are installing ClearCase on Red Hat 6.2 Linux and not upgrading from ClearCase 4.1, type this command:

  # patch -Np1 < linux-mvfs-4.2-patch-2.2.14

- If you are installing ClearCase on Red Hat 7.0 Linux and not upgrading from ClearCase 4.1, type this command:

  # patch -Np1 < linux-mvfs-4.2-patch-2.2.16

Verify that no errors were reported.

If you have applied **linux-mvfs-4.2-patch-2.2.14** or **linux-mvfs-4.2-patch-2.2.16,** you must rebuild the Linux kernel after the kernel patch is applied. Go to the next section, *Configuring the Linux Kernel After Applying the Kernel Patch*, for directions for this procedure.

Configuring the Linux Kernel After Applying the Kernel Patch

1. If you built your own Red Hat 6.2 or 7.0 Linux kernel, your system will already have a **.config** file. In this case, we recommend that you back up the file because the process described in this step will overwrite it.

   a. Go to the directory **/usr/src/linux**

      # cd /usr/src/linux

   b. Create a configuration file by issuing the following command:

      # make menuconfig

   c. If you do not have a configuration file on your system, select **Load an alternate configuration file** from the **menuconfig** utility **Main** menu. Then select a file in the **/usr/src/linux/configs** directory that most closely matches your system configuration.

d. Return to the **Main** menu and select **Processor type and features**. On the **Processor type and features** menu, select **Enable CPU-specific (MMX/MMX2) optimization functions** if this option is available.

e. Return to the **Main** menu and select **Loadable module support**. On the **Loadable Module Support** menu, ensure that each of the following options is selected:

* **Enable loadable module support**
* **Set version information on all symbols for modules**
* **Kernel module loader**

f. Return to the **Main** menu and select **Filesystems**. On the **Filesystems** menu, select **Kernel automounter support** and **Network filesystems support**. On the **Network filesystems support** menu, select **NFS filesystem support** and **NFS Server support**.

g. Exit the **menuconfig** utility. When prompted, enter **Yes** to save the new **.config** file.

h. Run the following **make** command:

 # make dep

2. From your **/usr/src/linux** directory, create a compressed Linux kernel image. Type the following command:

 # make bzImage

The image is created in **/usr/src/linux/arch/i386/boot/bzImage.**

3. If you haven't built a Linux kernel before following this procedure, build a **.config** file with the following command:

 # make modules modules_install

4. Copy the kernel image to the boot directory by issuing the following command:

 # cp /usr/src/linux/arch/i386/boot/bzImage /boot/vmlinuz-mvfs

5. Also copy the **System.map** file to the boot directory:

 # cd /usr/src/linux
 # cp System.map /boot/System.map-*[version-string]*

where *version-string* is a version of the Linux kernel, for example, 2.2.14-5.0.

6. Change to the **/etc** directory and do the following:

a. Make a backup copy of **/etc/lilo.conf**.

b. Edit **/etc/lilo.conf.**

Here is a sample **lilo.conf** file that should look similar to the one installed on your system:

```
boot=/dev/sda
map=/boot/map
install=/boot/boot.b
prompt
timeout=50
linear
default=linux

image=/boot/vmlinux-2.2.14-5.0
label=linux
initrd=/boot/initrd-2.2.14-5.0.img
read-only
root=/dev/sdal
```

c. Create a second image statement that points to the Linux kernel you just built which incorporates the MVFS patch. Be sure to give this image a new label. For example:

```
image=/boot/vmlinuz-mvfs
      label=linux_mvfs
      initrd=/boot/initrd-2.2.14-5.0.img
      read-only
      root=/dev/sdal
```

In this example, the Linux kernel image with the MVFS patch is located at **/boot/vmlinuz-mvfs** and is labeled **linux_mvfs**.

d. Run **/sbin/lilo** to install the boot loader.

7. Reboot your system. After the BIOS runs, a boot message appears:

```
Boot:
```

You have five seconds to enter the label name you created for your rebuilt Linux kernel (**linux_mvfs** in the previous example.)

8. If you are unable to load the MVFS and there are messages in **/var/log/messages** regarding structure-size mismatches, this indicates an incompatibility between your Linux kernel and the MVFS. The incompatibility can occur if you have applied patches to your kernel that have changed certain system structures. In this case, you will need to either identify the

offending patch and back it out, or start all over again by reloading the Red Hat 6.2 Linux sources as outlined in the previous section, *Installing the Linux Kernel Sources*.

9. When you are satisfied with your rebuilt Linux kernel, you can change the default in **/etc/lilo.conf** to point to this new kernel image. To do this, change the line in **lilo.conf** that reads **default=linux** to point to the label associated with the rebuilt Linux kernel (**default=linux_mvfs** in the previous example.)

1.8 Upgrading from a Previous Release

If you have a version of ClearCase prior to Release 3.0 installed, you cannot upgrade directly to Release 4.2, but must upgrade to any one of the Release 3.*x* versions first.

To upgrade to Release 3.*x*, see the 3.*x ClearCase and MultiSite Release Notes*.

Upgrading to Release 4.2 does not require reformatting your VOBs, unless you are installing with the newer VOB format (schema 54). For more information on general VOB database structure, and for details on reformatting a VOB, see *Administering ClearCase*. Also, see the **reformatvob** reference page.

Upgrading to Release 4.2 from a release prior to 4.1 does require upgrading your storage locations; Release 4.1 added enhanced support for creating and managing storage locations. For details, see the section *Upgrading Storage Locations*.

General Issues with Upgrading

ClearCase Product Family Installation Notes provides information necessary to install the ClearCase family of products. Here is some general information to keep in mind about upgrading:

- Make sure that all views and VOBs are fully backed up. For information on backing up VOBs and views, see *Administering ClearCase*.
- You do not need to upgrade your license server or get new ClearCase licenses. Licenses work with any version of ClearCase product family software, and ClearCase Release 4.2 hosts can use a ClearCase license server running a 3.*x* version of the software.

- Be sure that VOB and view servers are upgraded before you upgrade client hosts; Release 4.*x* clients cannot access VOBs or views on hosts that are running a pre-3.*x* release of ClearCase.

- Updating your VOBs to use the latest VOB database schema—schema 54—requires that you reformat them. We recommend updating your VOB database schema only if your site clearly needs support for greater than 16 million records and VOB database file sizes greater than 2 GB.

  CAUTION: If you use MultiSite and update one or more replicas in a VOB family to the new format, you must update all other replicas in the family before the reformatted replicas exceed the database limit of the previous schema (53). If you do not, synchronization imports will fail at any replica that has not been updated.

- Make sure the **/var/adm/atria** directory is backed up.

- If you have added any files to or modified any files in *ccase-home-dir* (**/usr/atria**, by default), move them; if you do not, they will be lost when you install.

- Check *Operating System Patches* on page 10 to determine whether you need to install any recommended or required patches.

- You need not remove the previous version of ClearCase unless you want to change the location of your ClearCase installation directory.

  CAUTION: If you are upgrading from ClearCase 3.*x* and use the MultiSite synchronization scripts in directory *ccase-home-dir***/config/multisite**, you must move these scripts to another location before deinstalling. After installing Release 4.2, create the directory *ccase-home-dir***/config/multisite** and move the scripts into that directory. For information on switching to the new MultiSite scripts provided with Release 4.2, see *Converting to New MultiSite Scripts and New ClearCase Scheduler* on page 78.

See also *Known Issues Related to Installation* on page 34.

Evaluating This Release of ClearCase

The way in which you evaluate Release 4.2 depends on which release of ClearCase you are currently running.

If you are running a release prior to 4.*x* and you want to evaluate Release 4.2, you can install Release 4.2 on one or more test systems in your existing environment of servers, clients, views, and VOBs and configure the test systems to use your 4.*x* license server.

If you are running Release 3.*x* and you want to evaluate Release 4.2 without disrupting your existing environment, you can install Release 4.2 on one or more test systems and configure the test systems to use your 3.*x* license server. You must configure one of the test systems as a ClearCase registry server. Then configure the other test systems to use that server as their ClearCase registry server. After this, you can create your views and VOBs on the test systems.

Feature Compatibility Issues Across Releases

Even the simplest ClearCase operation invokes a communications chain that can involve several components. For example, the act of checking out a file element involves a client program (running on the developer's workstation), which acts through a particular view (located on that workstation or elsewhere) and uses a particular VOB (typically located on a dedicated VOB server host). If all the components in this operation are running the same ClearCase release, compatibility is guaranteed.

Table 11, Table 12, and Table 13 show the compatibility paths if all hosts are *not* running the same ClearCase release. (In these tables, "client" means "ClearCase client software.") In each table, a component in a row can use a component in a column if there is a "yes" at the intersection of the row and column. For example, the Table 11 shows that a 3.*x* view can use a 3.*x* VOB or a 4.*x* VOB, but a 4.*x* view cannot use a 3.*x* VOB.

Table 11 Compatibility: Views with VOBs

	3.*x* VOB	**4.*x* VOB**
3.*x* view	yes	yes
4.*x* view	no	yes

Table 12 Compatibility: Clients with VOBs

	3.*x* VOB	**4.*x* VOB**
3.*x* client	yes	yes
4.*x* client	no	yes

Table 13 Compatibility: Clients with Views

	3.*x* View	**4.*x* View**
3.*x* client	yes	yes
4.*x* client	no	yes

Specifically, these tables make two points:

- ClearCase 4.*x* clients can use only views and VOBs that reside on ClearCase 4.*x* hosts.
- ClearCase 3.*x* clients can use views and VOBs that reside on 3.*x* or 4.*x* hosts.

A ClearCase Release 4.2 client on UNIX can access a VOB on Windows NT using a snapshot view. However, the snapshot view storage directory and the VOB storage directory must be on servers running ClearCase 4.1 or later.

Release Information for Older Releases

If you are not upgrading from the most recent previous version of ClearCase, read the release notes for the intervening versions. These versions are located in the password-protected ClearCase Customer area of the Rational Software Web page; go to **clearcase.rational.com** and click **Documentation**.

NOTE: To enter the customer area, you must provide a user name and password, which is based on your ClearCase license ID and host ID. If you do not have this information, click **Cancel** in the **Username/Password** dialog box for instructions on how to get a user name and password. The release notes are available only to users of ClearCase Product Family products.

Upgrading Storage Locations

Prior to Release 4.1, view and VOB storage locations were supported only on Windows servers. Release 4.1 added enhanced support for creating and managing storage locations. To enable Release 4.2 clients to use storage locations set up in releases 3.2.1 and 4.0, you must upgrade those storage locations.

Upgrading a Storage Location from the Graphical User Interface

To upgrade a storage location:

1. On a Release 4.2 Windows server, start the ClearCase Server Storage Configuration Wizard from *ccase-home-dir***etc****SvrStor.exe**.
2. Select **Yes, start storage configuration now**. Click **OK**.
3. On the second page of the wizard, select the UNC path of the storage location that you want to upgrade, and click **Add**.

   The **Storage Location Attributes** dialog box appears.
4. Enter a name for the storage location. Click **OK**.
5. Click **Next** and then **Finish**.

Upgrading a Storage Location from the Command-Line Interface

To upgrade a storage location:

1. On a Release 4.2 Windows client, issue the **cleartool mkstgloc** command. Specify the path of the existing storage location and the name of the storage location. For example:

   cleartool mkstgloc –view upgraded_views \\saturn\bert\stgloc\vws

   ClearCase recognizes that you are upgrading an existing storage location and prompts:

   ```
   Advertise “old” Server Storage Location “\\saturn\bert\stgloc\vws”? [no]y
   ```
2. Enter **y** to have ClearCase register (advertise) the storage location with the new name.

Upgrading Storage Location for Interoperation Snapshot View Scenario

When you create a snapshot view, you can locate the view’s storage directory either under the snapshot view’s root directory or in a storage location. If you create a snapshot view on a ClearCase Release 4.2 client on UNIX, you can place the view’s storage directory in an existing storage location on a Windows server if you take the following steps:

1. Upgrade the Windows server to ClearCase Release 4.2.

2. Upgrade the existing (pre-4.1) storage location from an interface as described in *Upgrading a Storage Location from the Graphical User Interface* or *Upgrading a Storage Location from the Command-Line Interface*.

1.9 Upgrading from ClearCase LT

Rational ClearCase LT can be easily upgraded to full-featured Rational ClearCase. ClearCase includes a tool that helps automate the upgrade process, though a few manual steps may be required to upgrade certain configurations. The upgrade preserves all of your ClearCase VOB data.

The *Upgrading ClearCase LT to ClearCase* chapter in the *ClearCase Product Family Installation Notes* explains the upgrade process in detail and describes two common upgrade scenarios.

1.10 Upgrading from Release 4.1 to 4.2 for Red Hat Linux

This section describes considerations in upgrading from Rational ClearCase 4.1 to 4.2 on Red Hat Linux systems.

Configuration Patch

If you upgrade from Release 4.1 to Release 4.2 on a Red Hat 6.2 or 7.0 system, the installation procedure applies a patch, **remove-mvfs-configuration,** to the kernel sources. This patch backs out configuration changes made for ClearCase 4.1. The changes made remove the MVFS questions for the config options and remove the MVFS from the Makefile in **/usr/src/linux/fs**. If you applied the ClearCase 4.1 Linux kernel patch multiple times, you must apply the **remove-mvfs-configuration** patch an equal number of times. After installing the patch you do not have to rebuild the kernel. See *Applying the Linux Kernel Patch for Red Hat 6.2 or 7.0 Linux* on page 20 for more information.

Relinking the MVFS

If you have modified ClearCase kernel parameters by editing the **mvfs_param.c** file, or if you receive errors of the type `undefined symbol Iput-Rxxxx` when you try to start ClearCase, you must relink your MVFS kernel module.

To relink the MVFS kernel module:

1. If you have edited the MVFS parameters in **mvfs_param.c**, copy the modified files into **/var/adm/atria/mvfs**.

   # cd /var/adm/atria/mvfs

2. To relink the MVFS and copy it into **/lib/modules/fs** so it can be loaded, type:

   # make

This assumes you have minimally configured your kernel sources and run **make dep**.

To Rebuild the MVFS Module

➤ If you want to just rebuild the MVFS module, type this command:

 # make mvfs.o

To Install a Previously Built MVFS Module

➤ To install a previously built MVFS module, type this command:

 # make install

To Change the Location of the Kernel Sources in the Makefile

➤ If you want to change the location of the kernel source, you can edit the Makefile and set the environment variable **LINUX_KERNEL_DIR** to the new directory. Save the file and type this command:

 # make

➤ Alternatively, you can define **LINUX_KERNEL_DIR** on the **make** command line.

 # make LINUX_KERNEL_DIR=/usr/mydir/mykernelsources

1.11 MultiSite Compatibility with ClearCase

MultiSite is layered on ClearCase. To use MultiSite on a host running Release4.2 of ClearCase, you must be running Release 4.2 of MultiSite.

MultiSite Release 4.2

ClearCase MultiSite Release 4.2 is fully compatible with ClearCase Release 4.2 client and server hosts:

- A MultiSite 4.2 replicated VOB can reside on any ClearCase Release 4.2 server host.
- Any ClearCase Release 4.2 client program can access and modify any replicated VOB residing on a ClearCase Release 4.*x* server host. Other client-VOB access is the same as that documented in *Feature Compatibility Issues Across Releases* on page 27.
- Installing MultiSite 4.2 does not require you to reformat VOBs or views.

Compatibility Issues Across MultiSite Releases

The following sections describe compatibility restrictions and issues when different sites are running different MultiSite releases.

Replica Creation

There are compatibility restrictions on creating replicas. You *cannot* create a replica on a Release 3.2.1 host from a replica-creation packet created on a Release 4.*x* host. If you want to create a new VOB family with replicas on Release 3.2.1 and Release 4.*x* hosts, the VOB from which you export the replica-creation packet must be located on a host running Release 3.2.1.

Replica Synchronization

Existing replicas hosted on systems running ClearCase 4.*x* can synchronize with existing replicas on systems running ClearCase 3.2.1. See the information on feature levels in *ClearCase MultiSite Manual*.

Upgrading to New Schema Format

If you decide to update one or more replicas in a VOB family to use the latest VOB database schema format (schema 54), you do not have to update all other replicas in the VOB family at the same time. However, you must update all other replicas in the family before the reformatted replicas exceed the database limit of the previous schema (53). If you do not, synchronization imports will fail at any replica that has not been updated.

Enabling VOB Replicas for Interoperation

In Releases 4.1 and 4.2, VOBs are enabled for interoperation (MS-DOS text mode) by default. When you create a new VOB on a host running Release 4.1 or 4.2, the VOB is enabled for interoperation. However, when you create a new replica, the new replica gets the same text-mode property as the original VOB.

For example, you run **mkreplica –export** on a Release 4.0 host to replicate a VOB that is not enabled for interoperation, and then run **mkreplica –import** on a Release 4.2 host. The new VOB replica is not enabled for interoperation.

NOTE: When you replicate a VOB, the new replica has the same text-mode property as the original VOB, but changes to the text mode are not included in synchronization update packets.

1.12 ClearQuest Compatibility with ClearCase

ClearCase Release 4.2 can be integrated with Rational ClearQuest software in two different ways:

- If you are using ClearCase with the Unified Change Management (UCM) process, a UCM-ClearQuest integration is built in to this release; you can use it with ClearQuest Version 2001A.04.00 or later.
- If you are using base ClearCase (that is, not using the UCM process), you can integrate with ClearQuest 1.1 or later using the ClearCase-ClearQuest integration 1.0.

ClearQuest-enabled UCM with ClearQuest MultiSite is currently in beta test. If you would like to participate in this beta program, please contact your Rational account representative.

1.13 Known Issues Related to Installation

This section describes known installation issues.

Deinstalling ClearCase May Remove Web Interface Views

By default, views for Web interface users are created under the host data directory for ClearCase (**/var/adm/atria**). If ClearCase is deinstalled, the view directories are deleted, but the views remain registered. To avoid leaving entries for nonexistent views in the ClearCase registry, do one of the following:

- Remove any views created by Web interface users before removing ClearCase from a Web server used to provide access to the ClearCase Web interface.
- Use the **–view_storage** option in the **ccweb.conf** file to designate some other location for Web interface views.

Deinstalling Removes a Registry Database

ClearCase gives you the option to save some configuration information before you deinstall, but deinstalling Release 3.2.1 on the registry server host removes the **storage_path** registry database.

Workaround: On the registry server host, do not deinstall Release 3.*x* to upgrade to Release 4.*x*. Instead, allow ClearCase installation to make the necessary changes.

Installation Prompts for Registry Server

Previously, the installation program prompted you for the name of the backup registry server only if your system was the primary registry server, or if you were performing a remote installation.

Now, the program prompts you for the name of the backup registry server during all installations.

Cannot Use New VOB Schema Format with Link-Only or Mount Installations

If you install ClearCase using a **Link-Only** or **Mount** installation, you cannot install the new VOB schema (schema 54) on your system. This feature is only available when doing a **Standard** or **Full** installation on HP-UX 11 and Solaris 2.6 or later.

Problems with Link-Only Installations

Link-Only installations may create either of the following problems:

- Web server setup restriction

  If you set up a ClearCase Web server on a system that has ClearCase installed using the **Link-Only** method, you must enable **setuid** execution across an NFS network for the ClearCase Web server to function properly.

  We strongly recommend that you set up a ClearCase Web server only on a system that has ClearCase installed using either the **Standard** or **Full** installation.

- Installation appears to provide access to all software in release area

  On a host that has a **Link-Only** installation, you cannot tell which products have been installed by looking in *ccase-home-dir*. By definition, the **Link-Only** installation model provides access to all files in the networkwide release area, even if the product to which the files belong is not installed on your host. In other words, it may appear that you can run a certain program when, in fact, the software has not been installed.

Installation of UCM Integration with Rational ClearQuest

To use the UCM integration with ClearQuest, take into account the following issues with the compatibility and version support of the following elements:

- ClearCase version (client and server)
- ClearQuest version
- UCM schema package
- ClearQuest metaschema feature level

Consider the following points:

- The feature level of the metaschema for ClearQuest 2001.03.00 database is 3. The feature level for ClearQuest 2001A.04.00 database is 5.
- A ClearCase Release 4.2 client requires a ClearQuest 2001A.04.00 client, because the integration of UCM with ClearQuest uses new ClearQuest API calls.

Table 14 shows the compatibility of different releases of ClearCase and ClearQuest, the UCM package revision number, and the ClearQuest database feature level.

Table 14 Integration of UCM with Rational ClearQuest

ClearCase release	UCM package revision number	ClearQuest database feature level	UCM/CQ integration supported?
4.1	2.0	3	Yes
4.1	2.0	5	No
4.1	3.0	3	No
4.1	3.0	5	No
4.2	2.0	3	Yes
4.2	2.0	5	Yes
4.2	3.0	3	Yes
4.2	3.0	5	Yes

To upgrade to Release 4.2 from 4.1 and continue to use your integration of UCM with ClearQuest, you must perform Step #1 and Step #2. Step #3 and Step #4 are optional.

1. Install ClearQuest.
2. Install the ClearCase client (or both ClearQuest and ClearCase simultaneously).
3. Upgrade your UCM-enabled ClearQuest schema with the new version of the **UnifiedChangeManagement** package.
4. Upgrade your ClearQuest user database to the new version of the schema.

Recovering from an Unsuccessful Installation

You may encounter problems running **install_release** on previously installed systems. At a certain point, **install_release** attempts to shut down the running CPF product software on the system. This is done by running the shutdown script. In Release 4.*x*, this script is *ccase-home-dir***/etc/atria_start**.

There is a known problem with the shutdown script. When the installation is no longer intact, the script sometimes encounters an error and prevents **install_release** from completing the installation or deinstallation.

Workaround: Delete *ccase-home-dir***/etc/atria_start**, which lets the installation proceed as if it did not need to stop a current installation.

NOTE: If an installation continues to fail because CPF software is running, reboot the computer.

Job Scheduling Mechanism Changes Affect Installation

In Release 4.0, ClearCase provided a job scheduling service, which sends e-mail notifications and supports remote administration with access control. The scheduler relies on two new data repositories:

- A database of tasks (executable programs or scripts) available for scheduling
- A database of jobs, or scheduled tasks

If you are installing Release 4.2 directly from 3.*x*, read the rest of this section.

The scheduling service changes the scheduling mechanism used in releases prior to Release 4.0.

- The use of **cron(1)** to run periodic ClearCase jobs is obsolete. To schedule and manage jobs, use the **cleartool schedule** command.

- The scheduling directory used in previous releases, *ccase-home-dir***/config/cron**, is obsolete. As of Release 4.0, editable tasks reside in **/var/adm/atria/scheduler/tasks**, and standard (read-only) ClearCase tasks reside in *ccase-home-dir***/config/scheduler/tasks**.

NOTE: The **cron**-based mechanism for MultiSite jobs still works, but we strongly recommend that you use the new scheduling mechanism. See *Job Scheduling Mechanism Changes for MultiSite* on page 39.

A task must be defined in the task database before you can schedule the task. The task database is a text file, **/var/adm/atria/scheduler/tasks/task_registry**. The **root** user can add task definitions to the task database by editing this file using a text editor.

Tasks that you define can reside anywhere in the file system, but the recommended location is **/var/adm/atria/scheduler/tasks**. This directory contains a task, **ccase_local_day.sh**, that is intended for user-defined operations to be run daily. The directory contains another task, **ccase_local_wk.sh**, which is intended for user-defined tasks to be run weekly. The **root** user can customize these two tasks using a text editor or can create entirely new tasks.

The database of jobs is the file **/var/adm/atria/scheduler/db**. This is a binary file that you can read and edit only by using the **schedule** command.

When you upgrade from 3.*x*, ClearCase installation takes the following actions:

- Moves any existing customized **ccase_local.day** and **ccase_local.wk** scripts from the directory *ccase-home-dir***/config/cron** to the directory **/var/adm/atria/scheduler/tasks**.
- Deletes all ClearCase-installed standard scripts from the directory *ccase-home-dir***/config/cron**, regardless of any changes to those scripts since ClearCase installed them.
- Deletes the directory *ccase-home-dir***/config/cron** if it is now empty; otherwise, installs a **README** file in that directory warning that the directory will be deleted in a future release. If you have added any local scripts to the directory *ccase-home-dir***/config/cron**, you must move them to another directory. The recommended location is **/var/adm/atria/scheduler/tasks**.
- Removes all standard ClearCase jobs from the root **crontab**. Any local customization of execution times of these jobs are lost; you must reestablish your customization using the new ClearCase scheduler.
- Installs standard ClearCase tasks in the directory *ccase-home-dir***/config/scheduler/tasks**.

ClearCase also takes the following actions to initialize the task and job databases:

- Installs a template for an initial task database, which contains definitions for standard ClearCase tasks, as the file *ccase-home-dir***/config/scheduler/tasks/templates/task_registry**. The **albd_server** uses this template to create the first version of the actual task database, **/var/adm/atria/scheduler/tasks/task_registry**.
- Installs templates for two customized tasks, **ccase_local_day.sh** and **ccase_local_wk.sh**, in the directory *ccase-home-dir***/config/scheduler/tasks/templates**. The **albd_server** uses these

templates to create initial versions of these tasks in the directory **/var/adm/atria/scheduler/tasks** if they do not already exist in that directory.

- Installs an initial set of job definitions as the text file *ccase-home-dir***/config/scheduler/initial_schedule**. These job definitions rely on task definitions in the task registry template. The **albd_server** uses these job definitions to create the first version of the scheduler job database, **/var/adm/atria/scheduler/db**.

NOTE: Do not edit or delete any files in the directory tree whose root is *ccase-home-dir***/config/scheduler**. For more information, see the **schedule** reference page.

Job Scheduling Mechanism Changes for MultiSite

MultiSite installation for this release takes the following actions:

- Installs standard MultiSite tasks (the synchronization scripts **sync_export_list** and **sync_receive**) in the directory *ccase-home-dir***/config/scheduler/tasks**.
- Installs a sample set of MultiSite job definitions as the text file *ccase-home-dir***/config/scheduler/multisite.schedule**. These job definitions rely on task definitions in the task registry (**/var/adm/atria/scheduler/tasks/task_registry**).

The MultiSite installation does not delete any MultiSite jobs in the **root** user's **crontab** file.

If you are upgrading to MultiSite Release 4.2 and you want your existing export and import jobs to continue to work, do one of the following:

- Do not deinstall the previous release.
- Copy the existing scripts to a directory outside the ClearCase installation area. After installing Release 4.2, re-create the script directory and move the scripts there.

For information on converting to the new scripts and scheduling mechanism, see *Converting to New MultiSite Scripts and New ClearCase Scheduler* on page 78.

NOTE: Do not edit or delete any files in the directory tree whose root is *ccase-home-dir***/config/scheduler**.

For more information, see the **schedule** reference page.

ClearCase Client Computers Need Consistent Character Encoding

All ClearCase clients computers that access a common set of VOBs and views must use a single common character encoding system. If all computers are not configured this way, ClearCase operations may fail or produce confusing or unreadable output.

For example, the Japanese SJIS and Japanese EUC encoding systems are available. They both represent Japanese characters but are incompatible. For this reason, you cannot mix SJIS and EUC in ClearCase clients.

DDTS Integration Uses Wrong Environment Variable

The DDTS trigger scripts use the **CLEARCASE_PNAME** environment variable, but this EV is not set. Instead, the **CLEARCASE_PN** EV is set to the correct value.

Workaround: Set **CLEARCASE_PNAME** to **CLEARCASE_PN** at the beginning of each trigger that uses the EV.

ClearCase/DDTS Integration on Linux Needs Environment Variable Defined

If you want to use ClearCase on a Linux client, you must set the environment variable **BUGTRACK_RSH_COMMAND** for the integration to work successfully with a remote DDTS server.

Notice for expat XML parser

This product incorporates the expat XML parser 1.0 under the Mozilla 1.1 license available at **www.mozilla.org/MPL/MPL-1.1.txt**. The source code version of the expat XML parser is available at **www.jclark.com/xml/expat.html**.

What's New in ClearCase

2

This chapter summarizes significant new and changed features in Release 4.2 of Rational ClearCase.

For Release 4.2, the only new documentation provided (aside from this document and the *ClearCase Product Family Installation Notes*) is the *ClearCase Product Family Documentation Supplement*, which describes features new in Release 4.2.

2.1 Summary of Changes in This Release

ClearCase Release 4.2 introduces the following significant changes:

- *Changes to UCM Integration with ClearQuest*
- *New UCM Features*
- *ClearCase/ClearQuest Trigger for User Name and Password*
- *New "Merge All" Function in the Merge Manager*
- *File Importer Utility*
- *Automatic Checkout of DO Versions During Builds*
- *Additional Option for Selecting Snapshot View Storage Directory*
- *Integration with Sun Forte for Java*
- *Changes to ClearCase Commands*
- *Documentation Changes*

2.2 Changes to UCM Integration with ClearQuest

This section describes changes to the ClearQuest/UCM integration.

Enabling ClearQuest to Work with UCM

Release 4.2 adds ClearCase support for the new release of ClearQuest. To enable a ClearQuest schema to work with UCM, you must apply a new package, **AmStateTypes**, to the schema. For details, see the *ClearCase Product Family Documentation Supplement*.

Changing to Default for "Check Assignment Before Work On" Policy

In Release 4.2, the default setting for the **Check Assignment Before Work On** policy has been changed to **not set**. To enable this policy:

1. Display the project's property sheet.
2. Click the **ClearQuest** tab
3. Click the check box next to the **Check Assignment Before Work On** policy.
4. Click **OK**.

2.3 New UCM Features

Following are features new in UCM:

- Obsolete Objects in UCM Listings
- UCM Triggers
- Privileged Identities for the chproject Operation
- Changes to ClearQuest-Enabled UCM Using MultiSite

Obsolete Objects in UCM Listings

By default, UCM listing commands do not list obsolete objects. A new option, **–obsolete**, includes obsolete objects in the listing. See the reference pages for **lsactivity**, **lsbl**, **lscomp**, **lsproject**, and **lsstream** in *ClearCase Product Family Documentation Supplement*.

UCM Triggers

ClearCase Release 4.2 adds support for UCM triggers on the following UCM operations:

- **deliver**
- **mkactivity**
- **mkbl**
- **mkstream**
- **rebase**
- **setactivity**

For information on how to use the triggers on UCM operations in Release 4.2, see the chapter, *Using Triggers to Enforce Development Policies* in the *ClearCase Product Family Documentation Supplement*. See also the reference pages for **mktrtype**, **mktrigger**, and **rmtrigger** in the *ClearCase Product Family Documentation Supplement*.

If a client is running Release 4.1 or earlier, UCM triggers will not fire.

Privileged Identities for the chproject Operation

The **chproject** operation now requires a privileged identity. See the **chproject** reference page in *ClearCase Product Family Documentation Supplement* for details.

Changes to ClearQuest-Enabled UCM Using MultiSite

Rational ClearQuest Version 2001A.04.00 lets you use ClearQuest MultiSite to replicate ClearQuest databases. Note the following:

- This feature is in beta test. If you want to participate in this beta program, contact your Rational account representative.

➤ If you plan to link a UCM project with a replicated ClearQuest user database, see the chapter, *Setting Up a ClearQuest User Database* in the *ClearCase Product Family Documentation Supplement*.

2.4 ClearCase/ClearQuest Trigger for User Name and Password

The **checkin** trigger recalls the user name and password for the ClearQuest database you last used. If you change your password or connect to a different database, the trigger fails to connect to ClearQuest and the following error message appears:

```
ERROR: Failed to connect or login to ClearQuest. This may occur for various
reasons including using outdated login information saved in pname
Do you wish to reenter your user name and password? yes_no [yes]
```

If you enter **yes** (default), the last used name and password are cleared and you are prompted for new login information. If you enter **no**, the cached information is retained and you exit from the message.

2.5 New “Merge All” Function in the Merge Manager

The new function **Merge All** in the Merge Manager fixes a problem on all UNIX platforms, where invoking the Merge Manager from **xclearcase** or specifying find criteria through the command line options to **clearmrgman** did not find files that need merging. You had to reenter the find criteria using the **Find** wizard to find the results.

The Merge Manager now displays a list of files that need merging, based on user criteria. Previously, you had to select each file in the list and perform individual merges. The new **Merge All** function now lets you merge all the files in the list.

2.6 File Importer Utility

A new utility, **clearfsimport**, allows you to place source files under ClearCase version control without having to use one of the **clearexport** utilities. You can use it in UCM or base ClearCase.

For details, see the **clearfsimport** reference page in the *ClearCase Product Family Documentation Supplement*.

2.7 Automatic Checkout of DO Versions During Builds

You can use the new **–c** option for the **clearmake** command to guarantee that any versioned derived objects (DOs) referenced in a makefile are checked out before they are rebuilt or winked in. This option causes **clearmake** to examine each of the makefile's targets to verify that the target is visible in the view at the same path and is a checked-in, versioned DO. All such DOs are checked out before they are rebuilt or winked in.

If you define the environment variable **CCASE_AUTO_DO_CI**, the **clearmake** command checks in any checked-out versioned DOs associated with a target after that target is rebuilt or winked in. These checkins are not audited, and the build reference time prevents subsequent builds of the target in the same build session from seeing the results of these checkins. If the target creates sibling DOs, target group syntax must be used in the makefile so that all siblings are subject to this new behavior.

All checkouts are reserved. The checkouts are not audited. Checkin operations preserve the time stamp of the DO as if **checkin –ptime** were used. The feature is fully compatible with **checkout** or **checkin** triggers which fire normally when the event occurs.

For more information, see the reference page for **clearmake** in *ClearCase Product Family Documentation Supplement*.

2.8 Additional Option for Selecting Snapshot View Storage Directory

In Release 4.1, if you created a snapshot view that did not use a server storage location, you could only colocate view storage under the root of your snapshot view directory. This resulted from the withdrawal in Release 4.1 of support for the **mkview –vws** option. Release 4.2 restores this functionality, which enables you to specify a non-colocated storage directory that is not a server storage location. See the **mkview** reference page in the *ClearCase Product Family Documentation Supplement*.

2.9 Integration with Sun Forte for Java

This release integrates SCC-level ClearCase functionality with Sun Microsystems's Forte for Java on Sun Solaris (Versions 2.6, 7, and 8).

Users of the Java IDE initiate ClearCase actions using the file-system shortcut menus and a set of command icons on the Forte for Java main window toolbar. The following functions are available:

- **Check In**
- **Check Out**
- **Add to Source Control**
- **Undo Checkout**
- **Properties**
- **Compare to Predecessor**
- **Source Control History**
- **Version Tree Browser**
- **ClearCase Explorer**

ClearCase integrated help appears as a book in the Forte for Java online help, which you can access from the IDE **Help** menu. Context-sensitive help, invoked by pressing F1, is also available for the ClearCase commands.

2.10 Changes to ClearCase Commands

This section lists new commands and describes changes to existing commands.

New Commands

Table 15 lists new commands.

Table 15 New Commands in ClearCase 4.2

Command	Description
clearfsimport	An importer that can be run in UCM views.

New Options and Arguments

Table 16 lists new options and arguments.

Table 16 New Command Options in ClearCase 4.2

Command	New option/argument	Use
clearmake	**–c**	Guarantees that versioned derived objects (DOs) referenced in a makefile are checked out before they are rebuilt or winked in.
diffbl	**–predecessor** [**–activities**] [**–versions**] *baseline-selector*	Displays differences between two baselines or streams nongraphically.
	–graphical *baseline-selector1 baseline-selector2*	Displays differences between two baselines graphically.
	–graphical –predecessor *baseline-selector*	Displays differences between the specified baseline and its predecessor baseline graphically.
lsactivity **lsbl** **lscomp** **lsfolder** **lsproject** **lsstream**	**–obsolete**	Specifies that obsolete objects are to be included in the listing.
mktrigger	*ucm-object-selector*	Attaches a trigger to the specified UCM object.

Table 16 New Command Options in ClearCase 4.2

Command	New option/argument	Use
mktrtype	**–ucmobject**	Creates a trigger type that can be attached to individual UCM objects.
	–ucmobject –all	Creates a trigger type that can be attached to all project VOB objects.
	–component *component-selector*[,...]	Specifies components for the restriction list.
	–project *project-selector*[,...]	Specifies projects for the restriction list.
	–stream *stream-selector*[,...]	Specifies streams for the restriction list.
mkview	**–vws** *view-storage-pname*	Specifies the location for the view storage directory.
rmtrigger	*ucm-object-selector*	Removes a trigger from the specified UCM object.

Obsolete Commands

No commands have been made obsolete in this release.

2.11 Documentation Changes

For Release 4.2, the *ClearCase and MultiSite Release Notes* (this document) and the *ClearCase Product Family Installation Notes* are the only manuals that were updated. All new features in 4.2 are documented in the *ClearCase Product Family Documentation Supplement.*

The printed version of *ClearCase Product Family Documentation Supplement,* Release 4.2 (Document Number 800-024446-000, April 2001) is superseded by the version of the same manual that is installed as *ccase-home-dir***/doc/hlp/cpf_supplement.pdf** (Document Number 800-02446-000 (patch) June 2001). Please use this version of the document in place of the printed version.

What's New in MultiSite

3

This chapter summarizes new and changed features in this release of Rational ClearCase MultiSite.

For more information about the commands described in this chapter, see the reference pages in the *ClearCase MultiSite Manual*. For information about the feature level requirements for using these features, see *Guidelines for Using Feature Levels* on page 66.

3.1 lsepoch and chepoch Detect Missing Oplog Entries

The **lsepoch –actual** and **chepoch –actual** commands now detect whether the remote replica or the current replica is missing oplog entries. If oplog entries are missing, the command prints one of the following messages:

```
Your replica ("replica-name") has fewer oplog entries for itself than
"replica-selector" has for your replica.
To avoid permanent data loss, your VOB administrator must initiate the
documented replica restoration procedure.

The replica "replica-name" has more oplog entries for "replica-selector" than
"replica-selector" has for itself.
To avoid permanent data loss, its administrator must initiate the documented
replica restoration procedure.
```

3.2 New Configuration File for Synchronization Scripts

You can modify the behavior of the **sync_export_list** and **sync_receive** scripts by creating a file named **MSimport_export.conf** and setting values in it. On UNIX, create the file in the directory **/var/adm/atria/config**. On Windows, create the file in the directory *ccase-home-dir***var\config**.

The file can include the following export setting:

disable_export_locking = 1
: Disables use of the export lockfile, allowing multiple exports from a single replica to run simultaneously. Setting the value to **0** (default) enables use of the lockfile.

The file can include the following import settings:

disable_import_locking = 1
: Disables use of the import lockfile, allowing multiple imports to a single replica to run simultaneously. Setting the value to **0** (default) enables use of the lockfile.

  NOTE: Disabling import locking may cause import failures due to collisions. We recommend that you leave locking enabled unless there is frequent lockfile contention.

proactive_receipt_handler = 1
: Causes an active receipt handler to look for other packets that can be imported and attempt to import them. By default, a receipt handler imports only the packet for which it was invoked. Under high load conditions or when packet have been split because of maximum size restrictions, packets may arrive before a preceding packet has been completely processed. Enabling proactive mode causes the receipt handler to import packets that may otherwise be stranded because delivery was premature or out of order.

3.3 Change to Packet Names Generated by Synchronization Script

When you use the **–compress** option with the **sync_export_list** script, the names of the shipping order and update packet now contain up to 40 characters of both the exporting and importing replica names. This naming scheme helps to ensure unique packet names.

Also, the time stamp now appears before the replica names, so the packets are listed in time order when you list the files in a shipping bay.

Restrictions and Guidelines for ClearCase

4

This chapter provides guidelines for and restrictions on using Release 4.2 of Rational ClearCase.

For information about previous releases, see *Release Information for Older Releases* in Chapter 1, *READ ME FIRST*.

4.1 Guidelines for Using UCM

The following section describes restrictions on using Unified Change Management (UCM) at ClearCase Release 4.2.

When Setting Up a Project, Make Components Read-Only Initially

You cannot change an integration stream's configuration to use an earlier baseline of any components that are marked as modifiable by the stream's project.

This may be a problem when creating a new project if the set of foundation baselines is not known in advance. After a modifiable baseline has been added to a project, it is not possible to roll back to an earlier baseline later on if building or testing indicates this is necessary.

To work around this limitation, initially specify your components to be nonmodifiable when creating a new project. After verifying that the project builds and tests correctly, update the project policies to allow modifications to any/all components.

Using UCM in a MultiSite Environment

When you join a project in which the integration stream is not mastered by your current replica, you can create a development stream and view, but not an integration view. The Join Project Wizard displays a message that you will not be able to create an integration view, but when you click **Finish** the wizard attempts to create the integration view and then fails. If creation of the development view and stream succeeded, you can ignore the error.

Restrictions on Using the UCM-ClearQuest Integration

The UCM-ClearQuest integration is not supported on AIX 4.3.2 and Red Hat 7.1 platforms. ClearQuest does not support these operating systems for this release.

Notes on Using the UCM-ClearQuest Integration

The UCM process in ClearCase is enhanced for sites that have installed Rational ClearQuest by a very tight integration between the activity management provided by UCM and the change request management provided by ClearQuest. Use the following guidelines with the UCM-ClearQuest integration.

Transitioning a ClearQuest-Enabled Project After Delivery

If the **Do ClearQuest action after delivery** policy is enabled on a UCM project, delivery of a ClearQuest-enabled UCM activity may result in an attempt to transition the activity to a **Complete** state type.

If the activity record has a field that must be filled in before it can transition to the **Complete** state, the program displays an error. An example is the **Defect** record type in the default **UnifiedChangeManagement** schema, whose **Resolution** field must be non-empty before it can be resolved.

Workaround: Modify the **UCU_CQActAfterDeliver** global script to include code similar to that below, which fills in the **Resolution** field when the activity is delivered.

```
' Defect record type requires Resolution field to be non-empty
' If record type is "Defect" ...
If (entity.GetEntityDefName = "Defect") Then
     ' If Resolution field is empty...
     If (entity.GetFieldValue("Resolution").GetValue = "") Then
        ' Fill in required field
        Call entity.SetFieldValue ("Resolution", "Fixed")
     End If
End If
```

See the ClearQuest API documentation for information on editing entities.

Schema Requires Submitted State

If you are applying the UCM package to a custom ClearQuest schema (as opposed to using the out-of-the-box Unified Change Management schema), be aware that this package depends on the existence of a state whose name is **Submitted**. If your custom schema does not include a **Submitted** state, you can apply the package to your schema by using one of the following methods:

- Before applying the package, temporarily rename the state that is the target of the Submit action to **Submitted**. After applying the UCM package, you may rename it to its original name.
- Create a dummy state called **Submitted**, and assign its state type to **Complete**. If you do this, you must also create a dummy action whose target is the **Submitted** state. After applying the UCM package, you may delete the dummy state and action.

ClearQuest Script Error Text Not Reported

Using the UCM-ClearQuest integration, you can customize the **Check Before Deliver** ClearQuest Visual Basic policy script. However, if the script as customized contains an error that causes the Visual Basic interpreter to display an error exception, the **Deliver** dialog box reports this error like this:

```
An error occurred during the deliver.
Unexpected error in deliver.
```

It does not report the actual error exception text, which would enable the user to diagnose the problem script.

Workaround: To see the error exception text, use the **cleartool deliver** command.

Must Stop ClearQuest Server to See Schema Upgrade

If you are using the UCM-ClearQuest integration, and upgrade a ClearQuest user database to a new schema revision, to see the change on a client host connected to that user database, you must stop the ClearQuest server and do the following:

- On Windows NT or 2000 clients
  a. Start the Task Manager and click the **Processes** tab.
  b. From the list, select **CQINTS~2.EXE** or **CQINTSVR11.EXE**.
  c. Click **End Process**.
- On Windows 98 and Windows Me clients
  a. Press CTRL+ALT+DELETE.
  b. From the list, select **CQINTSVR11**.
  c. Click **End Task**.

On UNIX clients, enter **cqintsvr stop** on the command line.

Changes to UCM CustomQuery1 Do Not Appear in Dialog Box

When using the UCM-ClearQuest integration, the list of records displayed in the list on the **Add To Source**, **Check Out**, and **Check In** dialog boxes is generated by running the **UCMCustomQuery1** query, which can be customized. (Note that to see the effect of your changes, you must use the **File**>**Save** command to save the query edits.)

However, if you copied the **Public Queries UCMCustomQuery1** query into your **Personal Queries** folder and edited it there, the changes are not immediately visible. To see your changes, you must stop the integration server process.

- On Windows NT or 2000 clients
  a. Start the Task Manager and click the **Processes** tab.
  b. From the list, select **CQINTS~2.EXE** or **CQINTSVR11.EXE**.
  c. Click **End Process**.
- On Windows 98 and Windows Me clients

a. Press CTRL+ALT+DELETE.

b. From the list, select **CQINTSVR11**.

c. Click **End Task**.

After stopping the process on your computer, open the dialog box again. Further edits to **/PersonalQueries/UCMCustomQuery1** appear without your having to shut down the process again.

On UNIX clients, enter **cqintsvr stop** on the command line.

Cannot Import UCM-Enabled Records from ClearQuest Database

In general, you cannot import UCM-enabled records from a ClearQuest database; ClearCase cannot guarantee that UCM information that references an arbitrary ClearQuest database is correct. However, this restriction does not prevent data recovery in the event of a data loss. Records may be successfully imported into a ClearQuest database if all the following conditions are true:

- The records have been backed up from that database.
- The name of the database has not changed.
- The ClearCase UCM information in the record is still valid.

Changing Name of ClearQuest Record Type Causes Error

In the UCM-ClearQuest integration, if you change the name of the ClearQuest record type after activities have been linked to ClearQuest records of that record type, the integration displays an error message when you try to set one of those activities in a view. To change the name of a record type, do so before any activities are linked to records of that record type.

Opening Multiple Nested ClearQuest Forms May Cause Crash

The UCM-ClearQuest integration does not prevent you from opening a ClearQuest form, going to the form's **UnifiedChangeManagement** page, using the shortcut menu in the change set to open a ClearCase dialog box, and selecting **Activity Properties**, which opens a second ClearQuest form.

However, if you follow the above steps, the second ClearQuest form does not function correctly. In particular:

- The **Apply**, **Revert**, and **Cancel** buttons on the form have no text.

➤ If you attempt to go to the form's **UnifiedChangeManagement** page, and then close the form, you get this error:

```
Unable to load message ID 14090 from resources
```

ClearCase then crashes.

We recommend that you avoid using the above procedure to open a second ClearQuest form. Also, we recommend that you do not attempt to use duplicate copies of the same form.

Availability of Check Mastership Policy

The ClearQuest page of the UCM project Properties Browser has a check box for the policy **Check mastership before deliver**. This is supported only with the UCM 3.0 package revision. If you are using the 2.0 package revision, the check box is unavailable.

4.2 Notes on Using the Base ClearCase-ClearQuest Integration

This section provides guidelines for using base ClearCase and ClearQuest together.

Expediting Slow Logon to ClearQuest Web

To improve performance, a change was made to the way the trigger handles connections to ClearQuest Web, keeping open the same communication session for the duration of the trigger and possibly into the next trigger call. If logging on still seems slow or problematic, administrators can turn off this feature by changing the **$CFG::keepsession** global variable within the Perl trigger script to **FALSE**.

4.3 Restrictions on ClearCase Web Interface

The following restrictions apply to using the ClearCase Web Interface.

Restrictions on the Web Interface in a UCM Environment

If you are using the Web interface in a UCM environment, the following restrictions apply:

- You can only work on existing activities owned by you; you cannot create new UCM activities using the Web interface.
- You cannot deliver changes to an integration view.
- You cannot rebase your development stream.
- You cannot use the Web interface to view ClearQuest-enabled projects.

Interactive Triggers Fail When Accessed Through Web Interface

The ClearCase Web interface supports noninteractive triggers. Interactive triggers, such as those that attempt to read input or create a window, fail.

If a trigger attempts to read input using **clearprompt**, the ClearCase Web interface prints this error:

```
clearprompt is not supported in the Web interface
```

If a trigger attempts to read directly from standard input, it receives an error, because standard input does not specify a valid file descriptor.

In addition, any trigger failure in the Web interface context displays this error message:

```
Interactive triggers are not supported in the Web interface.
If the trigger was interactive, it may have failed for that reason.
```

Trigger script writers can detect whether a trigger is running in the Web interface context by checking for the environment variable **ATRIA_WEB_GUI**. It is set to **1** if you are running in the Web interface context.

Changes to Files Not Checked Out May Be Silently Overwritten

If you use the Web interface to download (rather than check out) a file to your Web view and then modify the file, your changes to the file are silently overwritten if you download the file again from within the same view. The program assumes that the only changes to be saved are those made to checked-out files.

Host Name Resolution Must Be Enabled on Web Interface Clients

The Java program used in the Web interface attempts to connect to the Web server to transfer files. Web browsers only allow Java programs to open connections to the server from which the programs were downloaded.

To enforce this rule, the Web browser on the Web interface client must be able to resolve the Web server's host name to an IP address. If you use a host name in a URL that cannot be resolved by the client host, the Java program cannot connect to the server. In this case, Web-interface file-transfer operations such as checkout, checkin, and download fail.

If the Web server is being accessed through a firewall by means of a proxy server, the proxy server being used must support DNS lookup outside the firewall.

ClearCase Web Interface Problem in Overriding Primary Group

When the ClearCase Web server on Windows logs in a client, it sets the primary group to the designated primary group in the client user's domain account. In Release 4.0, you could not override this group setting. As a result, sites that use domain mapping to allow user accounts in multiple domains to share VOBs could not access those VOBs through the ClearCase Web interface.

Workaround: Specify a configuration variable in the **ccweb.conf** file, and add a value to the registry that enables domain mapping.

Adding the Variable to the ccweb.conf file

To enable a single Web server to support one primary group override, add the **–primary_group** variable with a *groupname* value to the **ccweb.conf** file. The allowable values for *groupname* are the same as for the **CLEARCASE_PRIMARY_GROUP** environment variable. The **ccweb.conf** file must

be located in **/var/adm/atria/config.** If you need more than one primary group override, configure additional Web servers.

Setting the Registry

Typically, when domain mapping is used to allow users from multiple domains to access the same VOB, each user must create the **DomainMappingEnabled** value (set to **1**) in the **HKEY_CURRENT_USER\Software\Atria\ClearCase\CurrentVersion** registry key.

To enable domain mapping for a Web server, create the **DomainMappingEnabled** value in the **HKEY_LOCAL_MACHINES\Software\Atria\ClearCase\CurrentVersion** key on the Web server machine. The value must be of type DWORD and set to **1**.

If you log in directly to the machine instead of logging in through the Web interface, user values for **DomainMappingEnabled** override the machine value.

Netscape MOZILLA_HOME Environment Variable Must Be Set

When you use the ClearCase Web interface on a Netscape browser, the **MOZILLA_HOME** environment variable must be set to the Netscape Communicator installation directory. Otherwise, messages similar to the following may be displayed when you try to check out or download files.

```
Netscape:Error
Java reported the following error on startup:
java.lang.SecurityException: system classes were not signed.

Netscape: Error
# Error: Issuer certificate is invalid. (-8156)
# jar file: ./java/classes/java40.jar
# path:       ./java/classes/java40.jar
```

We recommend that you check the Netscape Web site, **www.netscape.com**, for more information on general Netscape requirements.

4.4 Problems Using Netscape 4.0 to Compare HTML Files

A bug in some versions of Netscape Navigator 4.0 may cause problems when using Diff Merge to compare HTML files.

Under some circumstances, Netscape opens a mail window, instead of a browser window, when you try to render HTML files for comparison using Diff Merge. This can happen when you have both a mail window and a browser window minimized on the desktop. When you are comparing two HTML files and click **Render HTML**, the Netscape browser opens correctly. If you minimize the browser window and select the browser or another file to render, the mail window may open instead of the browser window.

A different problem may occur if you close both the browser and mail windows and leave the Message Center open on the desktop. (The Message Center is a toolbar that can start, among other things, the browser and mailbox windows.) When you click **Render HTML**, Netscape attempts to open a new instance of Netscape rather than use the one that is running. As a result, you see multiple dialog boxes (some unreadable) from **xcompare** and a message from Netscape that it has found a lock file.

4.5 Internet Explorer 5 May Terminate Display of Web Pages

Internet Explorer 5 terminates the display of Web pages early if the response from the Netscape Web server is delayed. This may affect use of the ClearCase Web interface because accessing VOBs may delay the Web server's response. The Microsoft Knowledge Base article Q226550, which is available at **http://support.microsoft.com/support/kb/articles**, describes how to download a patch to fix this problem.

4.6 Build Issues

The following sections describe issues with using ClearCase build tools.

Express Builds and Compatibility Between Releases

This section describes the behavior that occurs when you use ClearCase 4.*x* views with express builds on ClearCase 3.*x* clients. For more information on express builds, see *Building Software with ClearCase*.

3.x Clients and 4.x Views

Builds on 3.*x* ClearCase clients always produce shareable DOs, even if you use a view configured for nonshareable DOs, because 3.*x* clients do not recognize express builds.

If the view contains nonshareable DOs, you may get errors if you try to access those DOs.

4.x Clients and 3.x Views

Creating or using a view located on a 3.*x* host from a 4.*x* client is not supported.

Incomplete Configuration Records for Nonshareable Derived Objects

ClearCase tries to maintain complete configuration records for a derived object, even if you delete one or more of the derived object's sub-DOs. For example, you build **foo**, which uses **bar.o**, and then delete **bar.o**. Even if the sub-DO does not exist, you can still use the **catcr –recurse** command on **foo** to see how it was built.

However, this may not be true for a nonshareable DO with shareable sub-DOs. If you delete one of the shareable sub-DOs, the config record for the nonshareable DO is incomplete.

There are two ways to build a nonshareable DO that uses a shareable sub-DO:

- Set your view's DO property to shareable DOs and build a sub-DO. Then, set your view's DO property to nonshareable DOs and build a DO that uses that shareable sub-DO.
- Set your view's DO property to nonshareable DOs, and build a DO that winks in a shareable sub-DO.

The DOs can be in the same or different VOBs.

When the **catcr**, **clearmake**, and **winkin** commands encounter a nonshareable DO with an incomplete config record, they behave in the following ways:

- **catcr** suggests a rebuild.
- **clearmake** rebuilds nonshareable DOs with missing sub-DOs.
- **winkin –recurse** run on nonshareable DOs with missing sub-DOs prints errors, but does not fail.

To avoid problems resulting from incomplete config records, do not manually delete sub-DOs of nonshareable derived objects. Also, if you use makefiles and build tools (for example, C++ compilers that update a repository) that appear to delete sub-DOs in the course of a build, use the workarounds documented in *Building Software with ClearCase*.

clearmake Cannot Evaluate Directory Changes During Config Lookup

When you list a directory as an explicit dependency of a target, **clearmake** does not rebuild the target if the directory version changes.

Do Not Share Purecaches Within ClearCase

If you use PureLink with ClearCase, we recommend that you not share purecaches inside ClearCase and that you not use the Purify options to write the instrumented versions elsewhere.

Sharing purecaches can cause interference among builds; although VOB pathnames for the purecaches appear to be the same, the contents of the purecaches may be different in different views.

4.7 Restrictions on UNIX Snapshot Views

The following sections describe restrictions when using ClearCase snapshot views on UNIX platforms.

All Files Must Be in Release 4.x VOBs

UNIX snapshot views cannot be used to access files in Release 3.*x* VOBs. All UNIX VOB servers must be upgraded to Release 4.*x* before you can use UNIX snapshot views to access VOBs on those servers.

Opening a File from a Snapshot View Using Version Tree Browser

Using the Version Tree Browser to open a file from within a snapshot view on a UNIX system creates a temporary file that contains the text for that version of the element. Although the name assigned to the temporary file is not the version-extended pathname of the element, it provides all the information contained within that version-extended pathname, including the version number and branch structure of the selected element version. For example, the temporary file name for an element **foo.c@@/main/11** would be *unique_id*_**foo.c_main_11**.

The temporary file is removed when the editor exits.

Version Tree Browser Starts Incorrect diff

The Version Tree Browser now displays an error message if you try to access a checked-out version that is eclipsed. Previously, accessing the checked-out version would appear to work but the version actually accessed was the version visible in the view (that is, the eclipsing version) instead of the checked-out version. The error message now states the following text instead of just the pathname of the checked-out version:

```
Cannot_generate_name_for_checkout_in_view:<view_tag>
```

4.8 Problems When Administrative VOBs Are Unavailable

Release 3.*x* introduced the concept of the administrative VOB, which is used by one or more other VOBs as a central repository of global type objects. See *Administering ClearCase* for a description of this feature.

ClearCase users may see errors when the administrative VOB is unavailable. Following are examples of situations when this may happen:

- A user attempts to attach a version label, using a label type that was previously created automatically, as a local copy of a global label type. The ClearCase **mklabel** command tries to contact the administrative VOB that contains the global label type. If that administrative VOB is unavailable, the **mklabel** command fails.

- A VOB backup script attempts to lock the entire VOB object of **/vobs/proj/proj** before copying data to tape. For each administrative VOB used by **/vobs/proj/proj**, the ClearCase **lock** command tries to contact the administrative VOB. If any administrative VOB is unavailable, the **lock** command fails, which causes the backup script to fail.

To disable the above checking for a particular ClearCase command (for example, to keep working while an administrative VOB is offline):

1. Become the root user.
2. Set the environment variable **CG_PROCFLAGS** to the value **no_process**.
3. Execute the command.

4.9 Guidelines for Using Feature Levels

Follow these guidelines to determine when and how to use feature levels:

- If you have no existing VOBs on server hosts on which you will be installing Release 4.*x*, feature levels are irrelevant, and you can skip the rest of this section.

- The primary purpose of feature levels is to manage VOBs that are replicated (using ClearCase MultiSite) across server machines that are not running the same ClearCase release. For instructions on using feature levels in this context, see *ClearCase Feature Levels* in *ClearCase MultiSite Manual*.

After you install Release 4.*x* on a host where a 3.*x* VOB resides, all 4.*x* functionality becomes available except the following:

- UCM, including element-type merge behavior (see the **mkeltype** reference page)

- The element types **xml**, **html**, **rose**, **ms_word** and their associated managers

- The following operations on global types:

  - **rename**

- **mkbrtype –replace**
- **mklbtype –replace**

- The following MultiSite features:
  - Adding a file or directory to source control and assigning mastership of all newly created branches to the current replica

    If the VOB family is at feature level 1, you can assign mastership of only the **main** branch of a new element to the current replica.
  - Nonmastered checkouts
  - Requesting mastership of a branch

For unreplicated VOBs, all Release 4.*x* features are available after you raise the 3.*x* VOB's feature level to **2**. For replicated VOBs, all Release 4.*x* features are available after you raise the VOB family's feature level to **2**.

See Chapter 7, *Setting Up VOBs* in *Administering ClearCase* for details on raising the feature level of an unreplicated VOB.

4.10 Restrictions on VOB Schema in Release 4.x

As of Release 4.0, there are a number of restrictions on the use of the larger VOBs created using the new extended VOB functionality (VOB schema 54):

- **reformatvob –rm** may not completely remove an old VOB database directory during the load phase of the reformat operation. If the reformat cannot be completed because there is not enough disk space on the host, remove the old VOB database directory manually. This directory has a name of the form *VOB-storage-directory***/db.reformat**. After you remove this directory, run **reformatvob –load**.

- **reformatvob** uses the **space** command to calculate the amount of space needed for a reformatting operation. This fails for large database files, although the failure does not cause the reformat itself to fail.

- The **space** command cannot successfully run the **stat()** routine on large database files. As a result, the **cleartool space –vob –generate** command can fail. This, in turn, can cause the **Standard ClearCase Daily Tasks** task, supported as part of new administration

functionality in Release 4.0, to fail. If you have a VOB with large database files, the failure of the **space** command is repeated nightly on scheduled jobs.

To avoid this problem, edit the scheduled job list so that it runs only on VOBs that do not have large database files.

4.11 4.x Converters Are Incompatible with Previous Releases

As of Release 4.0, the converter file format was changed. If you need to use the **clearexport** and **clearimport** utilities to migrate source files to ClearCase control, you must use a 4.*x* version of the converter executables.

4.12 If TZ Variable Is Set, ClearCase Uses It

If the **TZ** environment variable is set to a value different from the time maintained by the operating system, ClearCase uses the **TZ** time rather than the system time. In this case, file creation and change dates can be in error, and config specs may not work as expected.

4.13 Changes to Names of Trigger Environment Variables

In Release 1.1, a number of trigger environment variables were renamed. In Release 4.2, support for the old names was removed. Table 17 lists the old and new names.

Table 17 Old and New Names for Environment Variables (Part 1 of 2)

Old name	New name
CLEARCASE_ATTACH_LIST	CLEARCASE_ATTACH
CLEARCASE_ATTR_VAL	CLEARCASE_VAL
CLEARCASE_ATTR_VAL_TYPE	CLEARCASE_VTYPE
CLEARCASE_ATTYPE_NAME	CLEARCASE_ATTYPE

Table 17 Old and New Names for Environment Variables (Part 2 of 2)

Old name	New name
CLEARCASE_BRTYPE_NAME	CLEARCASE_BRTYPE
CLEARCASE_CHECKIN_FROM_PNAME	CLEARCASE_CI_FPN
CLEARCASE_ELTYPE_NAME	CLEARCASE_ELTYPE
CLEARCASE_FROM_VOB_PNAME	CLEARCASE_FVOB_PN
CLEARCASE_FROM_XPNAME	CLEARCASE_FXPN
CLEARCASE_HLINK_FROM_TEXT	CLEARCASE_FTEXT
CLEARCASE_HLINK_TO_TEXT	CLEARCASE_TTEXT
CLEARCASE_HLTYPE_NAME	CLEARCASE_HLTYPE
CLEARCASE_LBTYPE_NAME	CLEARCASE_LBTYPE
CLEARCASE_NEW_TYPE_NAME	CLEARCASE_NEW_TYPE
CLEARCASE_OBJ_IS_FROM	CLEARCASE_IS_FROM
CLEARCASE_OUT_PNAME	CLEARCASE_OUT_PN
CLEARCASE_PNAME	CLEARCASE_PN
CLEARCASE_TO_VOB_PNAME	CLEARCASE_TVOB_PN
CLEARCASE_TO_XPNAME	CLEARCASE_TXPN
CLEARCASE_TRTYPE_NAME	CLEARCASE_TRTYPE
CLEARCASE_VOB_PNAME	CLEARCASE_VOB_PN
CLEARCASE_XN_SUFFIX	CLEARCASE_XN_SFX
CLEARCASE_XPNAME	CLEARCASE_XPN

4.14 Change to Behavior of Keep checked out Check Box

If you selected this check box in previous releases, the view-private file that you added to source control would remain checked out. This behavior is consistent with that of the **cleartool mkelem**

command. As a result, you could lose the contents of this file before it was truly part of the VOB. This was most likely to happen if you canceled the checkout.

At Release 4.2, the file is checked in and checked out. You can continue working on the file, but its contents at element-creation time are preserved, even if you cancel the checkout.

4.15 Exit Confirmation Prompt Removed from xclearcase

In previous releases, a confirmation prompt appeared when you clicked **File**>**Exit** in **xclearcase**. In this release, the prompt was removed.

4.16 Verbose Mode Slows xclearcase Performance

If you want **xclearcase** to display the following annotations, select **display version** in the browser preferences dialog box.

```
checked out but eclipsed
eclipsed
eclipsed by checkout
checked out but removed
error on reference
view vob hard link
no config record
disputed checkout
```

NOTE: Selecting **display version** slows **xclearcase** performance, especially if **xclearcase** is working with larger directories.

4.17 Problem Using dtpad Editor on Systems Running CDE

The **dtpad** editor that is part of the Common Desktop Environment (CDE) is implemented as a client/server application. By default, one **dtpad** server process is spawned for each **dtsession**, and all subsequent **dtpad** invocations run in clients that connect to this server. The server

process, however, does not have any ClearCase view context, and thus cannot process VOB files properly.

Workaround: There are two possible workarounds for this problem:

- Invoke **dtpad** with the **–standalone** option. This forces the current invocation of the editor to run independently of the server process, and as such, it can run and retain the current view context.
- Before editing, start the **dtpad –server** process manually in a process set to a view. Subsequent invocations of **dtpad** then connect to this server. To edit files from a different view, stop and restart the server.

4.18 DDTS Integration Uses Wrong Environment Variable

The DDTS trigger scripts use the **CLEARCASE_PNAME** environment variable, but this environment variable is not set. Instead, the **CLEARCASE_PN** environment variable is set to the correct value.

The workaround is to set **CLEARCASE_PNAME** to **CLEARCASE_PN** at the beginning of each trigger that uses the environment variable.

4.19 MVFS Problem on Red Hat Linux 7.1 When VOBs are Remounted

CMBU00053536 added at 4.2 NR

Users who unmount and remount multiple VOBs or ClearCase administrators who stop and restart ClearCase with the **atria_start** script may encounter an error message of the form:

```
mount.mvfs: Too many open files
```

after an undetermined number of VOBs are remounted. This is a known problem that only occurs under Red Hat Linux 7.1. The work-around is to reboot the system.

4.20 Documentation Issues

The following sections describe problems in the ClearCase documentation.

Problems with Reference Pages

The following problems exist in the *ClearCase Reference Manual*.

Object-Creation Commands

The reference pages for object-creation commands (**chpool**, **cptype**, **mkattype**, **mkbrtype**, **mkeltype**, **mkhltype**, **mklbtype**, **mkpool**, and **mktrtype**) do not mention explicitly that the name specified for an object must not be a valid integer or real number. Be careful with object names that begin with **0x**, **0X**, or **0**, the standard prefixes for hexadecimal and octal integers.

clearexport_ffile

-l is an undocumented option for the **clearexport_ffile** command, which labels the imported version with the specified label. Existing instances of the specified label are replaced. To use the option, enter **–l** *label* after the **–s** option.

clearmake

In this release, **clearmake** is supported in ClearCase LT, but the **clearmake** reference page does not list ClearCase LT in the Applicability section.

config_ccase

The **config_ccase** reference page on UNIX systems does not mention the file **/var/adm/atria/config/admin.conf**, which allows or disallows remote administration of the host. Also, this reference page says that anyone can edit files in the **./config** directory. That may not be true for all files there, including **admin.conf**. You must be **root** to edit **admin.conf**.

config_spec

As of Release 4.0, the **config_spec** reference page does not document creation and use of config specs for UCM development.

rgy_backup

The instructions for changing the backup registry server host are incorrect. The correct instructions are as follows:

1. Modify the **rgy_hosts.conf** file on the intended backup registry server to include the host name of the backup registry server as the second line of the file.

2. Execute **rgy_backup** on the backup registry server. After you do this, the backup registry server will include current registry information, which it requires to assume the role of the primary registry server.

3. Modify the **rgy_hosts.conf** file on each client to be served by the backup registry server, so that the second line of the file contains the host name of the backup registry server.

rgy_switchover

The rgy_switchover reference page is incorrect in the following ways:

- It indicates that the **–backup** option accepts a list of hosts. This is incorrect. You can specify only one host.

- The Restrictions section says that you must be a root user to run **rgy_switchover**. This statement is untrue. You can be any user. The third example in the reference page is incorrect. Ignore this example.

- The page contains incorrect information about switching registry server hosts. See the chapter *Moving, Renaming, and Backing Up the ClearCase Registry* in *Administering ClearCase* for the correct procedure.

- **rgy_switchover** can only modify configuration information on hosts on which ClearCase is running. This means that it is not be able to inform the old primary registry server of the switchover if the switchover is prompted by failure of the primary server.

- The degraded mode referred to in the **rgy_switchover** reference page does not exist. If a primary server is unavailable, clients attempting to contact a server fail until the server becomes available or **rgy_switchover** is run.

softbench_ccase

The **softbench_ccase** reference page as shipped with Release 4.0 is incorrect in the following ways:

- It states that the ClearCase integration with SoftBench supports SoftBench 4.*x* and 5.*x*; Release 4.0 supports 5.*x* and 6.*x*, but does not support SoftBench 4.*x*.
- The description of the integration is accurate for the ClearCase integration with SoftBench 5.*x*, but not for 6.*x*. SoftBench functionality changed significantly at 6.*x*, causing the ClearCase integration user interface to also change.

Problems with Administering ClearCase Manual

The following problem exists in the *Administering ClearCase* manual.

The description of the job scheduler execution environment on page 379 of *Administering ClearCase* for Release 4.1 and later, is incorrect. The sentence that reads

"The standard input stream is closed."

should read

"The standard input stream is set to an empty file."

Problems with ClearCase Product Family Documentation Supplement

In this release, **clearmake** is supported in ClearCase LT, but the **clearmake** reference page does not list ClearCase LT in the Applicability section. Also, Chapter 1 of the *ClearCase Product Family Documentation Supplement* states incorrectly that the **clearmake** reference page does not apply to ClearCase LT.

The printed version of *ClearCase Product Family Documentation Supplement*, Release 4.2 (Document Number 800-024446-000, April 2001) is superseded by the version of the same manual that is installed as *ccase-home-dir***/doc/hlp/cpf_supplement.pdf**(Document Number 800-024446-000 (patch) June 2001).

Using xman to Display Man Pages

ClearCase and MultiSite reference pages are supplied in ASCII catman format in directories named **cat1**, **cat4**, and **cat5**. If you want to use **xman** to display ClearCase and MultiSite reference

pages, you must create symbolic links named **man1**, **man4**, and **man5** in *ccase-home-dir***/doc/man** that point to the cat directories. For example:

```
% cd /usr/atria/doc/man

% su
Password: xxxxxx

% ln -s cat1 man1
% ln -s cat4 man4
% ln -s cat5 man5
```

CAUTION: If you create **man** directories, do not run **cleartool man** as the **root** user. If you do, the **man** page is deleted.

Issues with Bristol HyperHelp

The ClearCase online documentation is displayed using Bristol HyperHelp. If your site already is using HyperHelp, make sure that *ccase-home-dir***/bin** appears in the path before any other reference to Bristol HyperHelp. Rational Software has extended HyperHelp to support special features in the ClearCase online documentation. The HyperHelp viewers supplied with ClearCase displays conventional HyperHelp files, but conventional HyperHelp viewers may not display ClearCase HyperHelp files.

HyperHelp does not work on ClearCase 4.x on Tru64 Unix

The following issues with Bristol HyperHelp occur when Release 4.x is installed on Compaq Tru64:

- Buttons, See Also and Examples do not work.
- After clicking on Help topics, you cannot select books or document in the contents tab.
- Clicking on the Find tab crashes HyperHelp.

Issues with Tutorials

Several issues exist with running tutorials.

Tutorials in a Mixed Environment

The ClearCase tutorials cannot be run on Windows client hosts that use UNIX servers. VOB creation is not supported across heterogeneous network configurations, and all ClearCase tutorials create private VOBs.

Segmentation Fault When Clicking Back Button in Tutorials

On UNIX systems, clicking the **Back** button or links in the base ClearCase Snapshot View tutorial to move back and forth between topics can cause a segmentation fault.

When using this tutorial on hosts running Sun OS 5.8, HPUX 10.20 and HPUX 11.00, segmentation faults occur randomly in Units 1, 3, 4 and 5. These segmentation faults often, but not always, occur when you click

- The **Back** button in the Help window to move back and forth between tutorial topics
- The link of the last topic in a tutorial unit when you intend to go to the next one
- A link in the tutorial topic when ClearCase windows and dialog boxes are open

When the segmentation faults occur, the tutorial window closes, and you must start the tutorial again.

Workaround: Restart the tutorial and resume at the place where the error occurred.

If you find that the tutorial is not working, we recommend that you run the tutorial cleanup script and start the tutorial again.

To start the cleanup script:

1. In a terminal window, type **hyperhelp cc_tut.hlp &**.
2. In *Unit 1: Setting up a VOB and snapshot view*, click **Unit 6: What's next?**
3. In *Unit 6: What's next?*, click **Removing data created during the tutorial**.
4. In the **Removing tutorial data** dialog box, click **SCRIPT: Remove tutorial view and VOB**.

5 Restrictions and Guidelines for MultiSite

This chapter contains release notes for Rational ClearCase MultiSite Release 4.2. For information about previous releases, see *Release Information for Older Releases* on page 28.

5.1 Change in Display of Packet Expiration Value

If you select the **Use Default Expiration** check box for a storage class, the value displayed in the **Packet Expiration** box is **-1**. To display the actual value, display the **-default** class. If you clear the **Use Default Expiration** check box, you must change the **Packet Expiration** value to a number equal to or greater than 0. Otherwise, the **Use Default Expiration** check box is selected when you click **OK**.

5.2 Specifying a Storage Location During Replica Creation

In this release, if you specify the **–stgloc** option in a **mkreplica –import** command, the command verifies that the storage location is on the new replica's host. If it is not, or if you specify the **–auto** option and no registered locations are on the new replica's host, the command prints an error message.

5.3 Export Retried if Object Modification Causes a Failure

In previous releases, if a synchronization export operation tried to access an element that was being modified by a user, the export failed. In this release, the export is retried several times if an error occurs because an element is being modified. You may see the following messages:

```
Database identifier (dbid) not found in database: 'dbid'.
...
Retrying this operation. If it succeeds, you may ignore the preceding 'dbid
not found' error message. If the error occurs again, try the export again.
```

5.4 Name Change in shipping_server Mail and Logs

The mail sent by the **shipping_server** and the error messages created in the Windows Event Viewer now contain the phrase `The Rational shipping server` instead of `The Atria shipping server`.

5.5 Converting to New MultiSite Scripts and New ClearCase Scheduler

ClearCase and MultiSite Release 4.0 contained new synchronization scripts and a new method for automating synchronization. If you are upgrading to Release 4.2 from Release 3.*x*, follow the steps in this section to convert from the pre-Release 4.0 scripts and automation mechanism to the new ones.

NOTE: If you did not deinstall your old release of MultiSite or if you preserved the old scripts, your existing jobs continue to work. However, we recommend that you switch to the scheduler-based method as soon as possible.

To convert from **cron**-based automation to scheduler automation, use the following procedure on each replica host:

1. Make sure you have permission to schedule jobs; you must be on the scheduler's ACL. See the **schedule** reference page.

2. List all import and export jobs and receipt handlers. Import and export jobs are typically defined in the **root** user's **crontab** file, and receipt handlers are defined in the file **/var/adm/atria/config/shipping.conf**.

3. Determine which new scripts and options you need to use by reading the **sync_export_list** and **sync_receive** reference pages. Table 18 compares the old and new scripts.

Table 18 Old and New MultiSite Scripts

Old script	New script
sync_sendall.sh	**sync_export_list –all –quiet 1**
sync_send.sh	**sync_export_list –quiet 1 –replicas** *replica-name@vob-tag*
sync_recv.sh, **logit.sh**	**sync_receive –quiet 1**
sync_recpt.sh	**sync_receive –quiet 1**

4. If you must continue using any scripts in *ccase-home-dir***/config/cron** (or any locally written scripts located in other directories), follow these steps:

   a. Copy the scripts into the directory **/var/adm/atria/scheduler/tasks**.

   b. Define tasks for the scripts (except receipt handler scripts) by editing the file **/var/adm/atria/scheduler/tasks/task_registry**. You must add the new tasks to the end of the file. For example, the following task is defined for the local script **sync_export_lex.pl**:

```
Task.Begin
    Task.Id:       110
    Task.Name:     "Sync Export Lexington"
    Task.Pathname: sync_export_lex.pl
Task.End
```

   Note that the Task.Id value must be unique.

5. Edit the file **/var/adm/atria/config/shipping.conf** and update the paths in the receipt handler entries.

6. Cancel all import and export jobs run by **cron**.

7. (Optional) Remove all scripts in the directory *ccase-home-dir*/**config/cron**. Remove from their original locations any scripts you copied into **/var/adm/atria/scheduler/tasks**. (Do not remove scripts from **/var/adm/atria/scheduler/tasks**.)

8. Schedule synchronization jobs:

   a. Enter the **cleartool schedule –edit –schedule** command.

   b. Modify the existing MultiSite definitions or create new job definitions. These definitions can use the **MultiSite Sync Export** task, the **MultiSite Sync Receive** task, or the tasks you defined in Step #b in Step #4.

      There are three preconfigured (and disabled) MultiSite jobs: **Daily MultiSite Export**, **Daily MultiSite Shipping Poll**, and **Daily MultiSite Receive**. To schedule any of these jobs, remove the line **Job.Schedule.LastDate**. You can also adjust **Job.Schedule.FirstStartTime**, **Job.Schedule.StartTimeRestartFrequency**, and **Job.NotifyInfo.Recipients** appropriately.

   c. Save and close the file, and type **yes** at the prompt `Replace the entire schedule?`

For more information, see the **schedule** reference page in the *ClearCase Reference Manual*.

5.6 Using UCM and MultiSite

The following restrictions apply to use of UCM and MultiSite:

- You cannot request mastership of branches in UCM VOBs.
- If a UCM component is replicated, its associated UCM project VOB (PVOB) must be replicated.
- You must synchronize a UCM component and its associated PVOB at the same time.
- ClearQuest-enabled UCM projects can be replicated and synchronized. In addition to using ClearCase MultiSite to replicate and synchronize UCM project and component VOBs, you can use ClearQuest MultiSite (in beta release) to replicate and synchronize associated ClearQuest user databases. You must synchronize a UCM PVOB and its associated ClearQuest user database at the same time.

5.7 Limitation on Use of Magnetic Tape for Packet Transport

Although **mkreplica –export** and **syncreplica –export** can divide logical packets into several physical packets, do not try to place more than one physical packet on a tape. This limitation exists because **mkreplica** and **syncreplica** always write physical packets at the beginning of the tape. This problem has been reported in CPF change request #CMBU00017624 (old #19829).

5.8 Warning on Receipt of Packet from Earlier MultiSite Version

The packet protocol for MultiSite Releases 4.0, 4.1, and 4.2 is Version 3.0, and MultiSite Releases 3.2.1 and 3.2 are at Version 1.2. When a Release 4.*x* **multitool** reads a packet with the older protocol, it prints this message:

```
multitool: Warning: Version mismatch, software:3.0, packet:1.2
```

This message does not indicate a problem. It means one of the following things:

- The feature level of the VOB family is lower than the feature level of the receiving replica.
- The feature level of the VOB family is the same as the feature level of the sending and receiving replicas. However, when the sending replica created the update packet, it had not yet received a packet containing the information about the new VOB family feature level.

5.9 Do Not Use MultiSite to Clone a VOB

Do not use MultiSite to create multiple copies of a VOB in a single ClearCase region. Because the VOB UUID is identical for all replicas in a VOB family, and is stored in many structures within a VOB, there is no way to make the copy of the VOB unique. Creating and using multiple copies of a VOB in a single region causes **clearmake** and views to exhibit unpredictable behavior, may cause data loss, and is not supported by Rational Software.

5.10 Synchronization Error When Database Limit Is Exceeded

ClearCase Releases 4.0, 4.1, and 4.2 include support for a new VOB database schema. If you update one or more replicated VOBs in a family to the new schema (version 54), you do not have to update the other replicas in the VOB family immediately. However, you must update all replicas before one of the updated replicas exceeds the database limit of the previous schema (version 53). If you do not, replicas that have not been updated will not be able to import synchronization update packets from the updated replica.

When this type of import failure occurs, **syncreplica** output includes a VOB database error, and an error is written to the **db** log.

The **syncreplica** output includes an error like the following:

```
multitool: Error: Error from VOB database: ''\\vob.setup''.
```

The **db** log includes an error like the following:

```
09/20/96 10:40:49 db_server(19528): Error: DBMS error in "../db__lock.c" line
79
*** db_VISTA database error -909 - file record limit exceeded
09/20/96 10:40:49 db_server(19528): Error: DBMS error
09/20/96 10:40:49 db_server(19528): Error: db_VISTA error -909
```

To fix this problem, you must convert all replicas in the family to schema version 54. To display the schema version for a VOB replica, use the **cleartool describe vob:***vob-tag* command. To display the schema version of the ClearCase release installed on your computer, use the **cleartool –ver** command.

5.11 Limitation on Editing Mastership Request ACL

In this release, you do not have to be logged on to a VOB server host to edit the mastership request ACL for a replica on that host. However, if you are not already on the ACL, both of the following conditions must be true in order for you to edit the ACL:

- You must be the VOB owner or privileged user.
- You must be logged on to a host in the same domain as the VOB server host.

6 Status of ClearCase Software Change Requests

Noteworthy problems found in or resolved in Release 4.2 of Rational ClearCase are listed in the file **cc_issues.htm**.

You can find this file in two places:

- On your ClearCase CD, in the directory **Rational/doc/***platform*, where *platform* is an architecture mnemonic like **ux** (for UNIX computers) or **nt** (for Windows computers).
- In the directory *ccase-home-dir***/install/** after you've installed the product.

Note that any problems relating to installation or setup of ClearCase are noted in the section *Known Issues Related to Installation* in Chapter 1, *READ ME FIRST*.

7 Status of MultiSite Software Change Requests

Noteworthy problems found in or resolved in Release 4.2 of Rational ClearCase MultiSite are listed in the file **ms_issues.html**.

You can find this file:

- On your ClearCase CD, in the directory **Rational/doc/***platform*, where *platform* is an architecture mnemonic like **ux** (for UNIX computers) or **nt** (for Windows computers).
- In the directory *ccase-home-dir***/install/** after you've installed the product.

Note that any problems relating to installation or setup of MultiSite are noted in the section *Known Issues Related to Installation* in Chapter 1, *READ ME FIRST*.