



IBM Rational ClearCase
Version 9.1

Migration Guide

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Introduction

Use this document to help you migrate to 64-bit IBM Rational ClearCase 9.1 from an earlier 32-bit Rational ClearCase release. It explains some of the differences that you might encounter between the two versions. Some items provide solutions or workarounds for you to consider.

Rational ClearCase 9.1 can be installed on Windows platforms on x86_64 hardware and Linux platforms on x86_64 and linux_ppc64le hardware. See the System Requirements document for a list of the operating systems supported by Rational ClearCase 9.1.

Note: There is a separate document to help you migrate to 64-bit IBM Rational ClearQuest 9.1.

Compatibility/Interoperation

Rational ClearCase supports compatibility with the multi-host deployment of Rational ClearCase. There is interoperation between hosts running:

- IBM Rational ClearCase 9.0.2.x and IBM Rational ClearCase 9.1
- IBM Rational ClearCase 9.0.1.x and IBM Rational ClearCase 9.1
- IBM Rational ClearCase 8.0.1.x and IBM Rational ClearCase 9.1

An example of interoperation possibilities: Interoperations between Rational ClearCase 9.0.x VOB servers and Rational ClearCase 9.1 clients.

Migration

If you already have a 64-bit version of ClearCase installed, you do not need to uninstall it, you can simply update to version 9.1. If you have a 32-bit version of ClearCase or ClearQuest installed, it requires on each host that you do the following:

1. Uninstall the existing 32-bit versions of ClearCase and ClearQuest and save the configuration data (the Rational.preserve directory).
2. Install ClearCase 9.1 and ClearQuest 9.1, and then restore/convert the configuration data. See [About the Rational.preserve folder](#).

Note that VOB, view databases, and ClearQuest databases are compatible on-disk, so that no reformat is needed when migrating. For example, ClearCase 9.1 is fully compatible with ClearCase 9.0.2. If the machine you are migrating from is a VOB server, the VOBs do not need to be reformatted as a 32-bit VOB can run just fine on a machine running ClearCase 9.1 64-bit.

For MultiSite, each replica host can be migrated from IBM Rational ClearCase MultiSite to IBM Rational ClearCase 9.1 on its own schedule.

- The MultiSite replication between 32-bit ClearCase and 64-bit ClearCase is supported in both directions.

General migration steps

Review the following information before you migrate to 64-bit IBM Rational ClearCase 9.1 from 32-bit IBM Rational ClearCase. Where possible, ways to account for changes because of the new 64-bit product, or workarounds to situations are provided for your consideration.

- [Before you uninstall IBM Rational ClearCase \(32-bit\)](#)
- [Uninstall IBM Rational ClearCase \(32-bit\)](#)
- [Before you install IBM Rational ClearCase 9.1](#)
- [Install IBM Rational ClearCase 9.1](#)
- [Configure and test IBM Rational ClearCase 9.1 before rolling out](#)
- [Post-installation information](#)
- [Support](#)

Before you uninstall IBM Rational ClearCase (32-bit)

Before you go through the process to migrate to 64-bit IBM Rational ClearCase, you must uninstall all these products if you have them installed:

- IBM Rational ClearCase
- IBM Rational ClearCase MultiSite
- IBM Rational ClearCase Remote Client
- IBM ClearTeam Explorer Extension
- IBM Rational ClearQuest

Before uninstalling these products, consider the following situations.

Back up your files

Before you uninstall Rational ClearCase (and any other related products), back up your files. Make sure that you back up any customization that you want to save before you begin the migration process. For example:

- On Windows and Linux, back up your scheduler tasks.
- On Linux, back up the shipping.conf file (or you could back up the `/var/adm/rational/clearcase/config` directory).

Use whatever method that you normally use to back up your files. Store your backups in a place outside the path of your ClearCase installation.

For non-Windows platforms only and if applicable: If you plan to migrate your CCRC WAN servers to Rational ClearCase 9.1, back up the ccweb directory before uninstalling ClearCase.

1. Stop the ClearCase services.
`/opt/rational/clearcase/etc/clearcase stop`
2. Back up the `/var/adm/rational/clearcase/ccweb` directory.
After the install of ClearCase 9.1, this ccweb directory should be automatically copied to `/var/adm/rational/clearcase/ccweb` directory.

What to do if the machine is a ClearCase registry server

If the machine is a registry server, before you do the uninstallation, back up the rgy directory:

- On Linux, back up: `/var/adm/rational/clearcase/rgy`
- On Windows, back up: `C:\Program Files (x86)\IBM\RationalSDLC\clearcase\var\rgy`

The rgy directory should be preserved in the Rational.preserve folder. However, since it contains critical information about view and VOB locations, it is a good practice to have a second copy. Store the backed-up rgy directory in a place outside the path of your ClearCase installation.

Note: Before you do the backup, stop the ClearCase services:

- On Linux: `/opt/ibm/RationalSDLC/clearcase/etc/clearcase stop`
- On the Windows Control Panel, select **ClearCase > Services Startup > Stop ClearCase**

About MultiSite

If you use MultiSite and you are migrating from IBM Rational ClearCase 9.0.1.10 or earlier, or from IBM Rational ClearCase 9.0.2.2 or earlier, you must process all packets in your shipping bays before migrating to IBM Rational ClearCase 9.1, see [Recreate your MultiSite shipping server settings](#).

Preserving your MVFS tunable parameters, Windows

To retain your multiversion file system (MVFS) parameters for ClearCase on Windows and then be able to import them to Rational ClearCase 9.1, you must edit the Windows Registry as follows. Note that this is necessary only if you have configured these parameter values. If you accepted the default values without any changes, you do not have to do this task.

Important: You should back up your entire Windows Registry before you do this. Consult with Microsoft Windows documentation on how to edit the Windows Registry.

Before uninstalling your current version of ClearCase

1. Exit any open instance of ClearCase; for example, ClearTeam Explorer, cleartool.
2. Use the Windows Registry Editor to export your `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\mvfs\Parameters` key to a .reg file.
Be sure to save this file in a location on your system that will not be removed or overwritten during the uninstallation of ClearCase and installation of ClearCase 9.1.

After installing IBM Rational ClearCase 9.1

1. Use the Windows Registry Editor to import the saved .reg file.
2. Reboot the system.
The saved MVFS parameter settings are now imported to the registry.

Preserving your MVFS tunable parameters, Linux

To retain your multiversion file system (MVFS) parameters for ClearCase on Linux and then be able to use them in IBM Rational ClearCase 9.1, you must use the `tar` command to create an archive of the files as follows. Note that this is necessary only if you have configured these parameter values. If you accepted the default values without any changes, you do not have to do this task.

Before uninstalling your current version of ClearCase

1. Navigate to the directory `/var/adm/rational/clearcase`
2. If the subdirectory `mvfsconfig` contains any files, which indicates that parameters have been modified, save a copy of the subdirectory.
Be sure to save it in a location on your system that will not be removed or overwritten during the uninstallation of ClearCase and installation of IBM Rational ClearCase 9.1

```
tar cvf /var/tmp/mvfsconfig_save.tar mvfsconfig
```

After installing Rational ClearCase 9.1

1. Stop ClearCase if it is running.

```
/opt/rational/clearcase/etc/clearcase stop
```
2. Navigate to the directory `/var/adm/rational/clearcase` and extract the saved files into the `mvfsconfig` subdirectory.

```
tar xvf /var/tmp/mvfsconfig_save.tar
```
3. Start ClearCase.

```
/opt/rational/clearcase/etc/clearcase start
```

The saved parameter values will now be used by ClearCase services.

Base ClearCase/ClearQuest perl integration not supported

IBM Rational ClearCase 9.1 will not support the Base ClearCase/ClearQuest perl integration, and the `cmi_migrate.pl` script will no longer contain references to the Base ClearCase/ClearQuest perl integration.

You should move from the perl integration to CMI before installing ClearCase 9.1

Uninstall IBM Rational ClearCase (32-bit)

Before you can migrate to 64-bit IBM Rational ClearCase, you must uninstall all these products if they are installed on your system:

- IBM Rational ClearCase
- IBM Rational ClearCase MultiSite
- IBM Rational ClearCase Remote Client
- IBM ClearTeam Explorer Extension
- IBM Rational ClearQuest
(ClearCase and ClearQuest share components.)

Use IBM Installation Manager to uninstall these products. How to uninstall ClearCase is covered in its online help. Also, review [About the Rational.preserve folder](#) before you uninstall ClearCase, and [What to do if the machine is a ClearCase registry server](#).

About the Rational.preserve folder

During the uninstallation, ClearCase will preserve some files (for example, install setup data, location to install, license servers, registry servers, WAS/IHS setup information) in a folder called Rational.preserve. These files are typically used on a subsequent installation to configure your environment to its previously installed parameters.

- On Linux, Rational.preserve is saved in /tmp
- On Windows, Rational.preserve is saved in C:\ProgramData\IBM

Look at `Rational.preserve\clearcase\config` to see if you have customized any of the files in the config directory to determine if there are any customizations that were not automatically copied to the IBM Rational ClearCase 9.1 installation.

Some information to be aware of:

- If you do not select the **Use preserved settings** option during the installation, the Rational.preserve directory will be renamed during the installation. The new name will have the date and time appended to the name, such as Rational.preserve_20200714_0850793.
- You can leave the Rational.preserve directory as is. You might find it useful as a reference for your settings in IBM Rational ClearCase 9.1.
- For an example of how you might use the information in the Rational.preserve folder, see [CMI integration data](#).

Before you install IBM Rational ClearCase 9.1

Before you install 64-bit IBM Rational ClearCase 9.1, consider these matters.

[Rational.preserve folder](#)

See [About the Rational.preserve folder](#).

Install IBM Rational ClearCase 9.1

ClearCase 9.1 can be installed on Windows and Linux platforms on x86_64 hardware. See the System Requirements document for a list of the operating systems supported by IBM Rational ClearCase 9.1.

Use IBM Installation Manager, version 1.8.6 or later fix packs, or version 1.9.1 or later fix packs to install IBM Rational ClearCase. How to install ClearCase is covered in the online help. As well, check the release notes for ClearCase 9.1 for any late-breaking information about installing the product.

Note: During the installation of IBM Rational ClearCase 9.1, if you want to restore the settings from your previous ClearCase installation, such as your Registry settings, select the **Use preserved settings** option in Installation Manager.

Configure and test IBM Rational ClearCase 9.1 before rolling out

After you install IBM Rational ClearCase, you must configure and consider the following matters to enable full functionality of the product for use by your organization. Do this before you roll out ClearCase for your users.

Restore the rgy directory (if the machine was a registry server)

If you installed ClearCase 9.1 on the same machine that used to be the Registry server and you selected the **Use preserved settings** option, then the Registry files should have been automatically restored. If they were not restored to the rgy directory, use the following steps to do so:

Note: These instructions assume that you backed up the rgy directory before you uninstalled ClearCase. See [What to do if the machine is a ClearCase registry server](#).

1. After the IBM Rational ClearCase 9.1 installation, you should stop the ClearCase 9.1 services prior to restoring the rgy directory:
 - On Linux: `/opt/rational/clearcase/etc/clearcase stop`
 - On the Windows Control Panel, select **ClearCase > Services Startup > Stop ClearCase**
2. Restore the rgy directory:
 - On Linux:
 - a. Rename the rgy directory (for example, "rgy_original").
 - b. Make a new, empty "rgy" directory.
 - c. Copy the content from the previously backed-up rgy directory, either from Rational.preserve or from your previously backed-up copy of the rgy directory to the new `/var/adm/rational/clearcase/rgy` directory.
 - On Windows, in `C:\Program Files\IBM\RationalSDLC\clearcase\var`:
 - a. Rename the rgy folder (for example, "rgy_original")
 - b. Make a new empty "rgy" folder
 - c. Copy the content from the previously backed-up rgy folder `C:\Program Files (x86)\IBM\RationalSDLC\clearcase\var\rgy` from before ClearCase was uninstalled) to the new `C:\Program Files\IBM\RationalSDLC\clearcase\var\rgy` folder
3. After restoring the rgy directory, start the ClearCase services:
 - On Linux: `/opt/rational/clearcase/etc/clearcase start`
 - On the Windows Control Panel, select **ClearCase > Services Startup > Start ClearCase**

Note: If you select the **Ignore preserved settings** option, this action results in the renaming of the Rational.preserve folder by appending a time stamp to its name.

Recreate your MultiSite shipping server settings

If you are migrating from IBM Rational ClearCase 9.0.1.10 or earlier, or from IBM Rational ClearCase 9.0.2.2 or earlier, you must process all packets in your shipping bays before migrating to IBM Rational ClearCase 9.1. During this processing, other replica sites must pause sending new packets to the host being migrated. The uninstallation handles custom storage classes differently on Windows and Linux, see the following discussion of each platform. Note the following:

- You must select the **Use preserved settings** option when installing ClearCase 9.1.
- In addition, after you install ClearCase, you must recreate your customized MultiSite shipping server settings (for instance, the path to the receipt-handler, if you are using one).

On **Windows**, the default shipping bays and custom shipping bays under `\ibm\RationalSDLC\clearcase` (or `clearquest`) are copied to the `Rational.preserve` folder during uninstallation. The installation will modify the value of the `HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Atria\ClearCase\CurrentVersion\MultiSite\StorageClass\-default` Windows registry keys `ReturnBay` and `StorageBay` with the correct paths to those bays in the ClearCase installation directory. However, it will not update the Windows registry keys for custom storage classes. It will recreate any custom shipping bays you might have had under `ibm\RationalSDLC\clearcase` or `ibm\RationalSDLC\clearquest` and will move the contents from `Rational.preserve` to the new default and custom bays. If you are migrating from IBM Rational ClearCase 9.0.1.10 or earlier, or from IBM Rational ClearCase 9.0.2.2 or earlier, you must discard these old packets and `shipping_orders` and regenerate them. Use the MultiSite control panel applet to update the shipping bay paths for custom storage classes.

On **Linux**, only the default bay is copied to the `Rational.preserve` folder during uninstallation. Any non-empty directory trees for custom storage classes under `/ibm/RationalSDLC/clearcase` (or `clearquest`) will remain in the partial directory tree of the previous installation, as will the `shipping.conf` file. If the custom shipping bays are empty, the uninstallation process will remove them. On the installation of IBM Rational ClearCase 9.1, the preserved contents of the default shipping bays are copied to the new bays. If you are migrating from ClearCase 9.0.1.10 or earlier, or from ClearCase 9.0.2.2 or earlier, you must discard these old packets and `shipping_orders` and regenerate them. You will need to recreate the shipping bay directory structure and update the `shipping.conf` file for custom storage classes.

Perl 5.26

Perl has been updated in IBM Rational ClearCase 9.1 to version 5.26. IBM Rational ClearCase 9.0.x was at Perl version 5.16. Perl scripts from earlier ClearCase releases might need to be modified to work in ClearCase 9.1 because Perl scripts from earlier ClearCase releases might rely on Perl 5.16 syntax that is no longer supported in Perl 5.26.

To assist customers that use Perl 5.16 with ClearCase and are migrating to IBM Rational ClearCase 9.1, there is a script available to help you find these incompatible syntaxes. Contact IBM Support for the `perl26_compat_check.pl` script and for their assistance with how to run it to adjust your Perl scripts to be able to use them with IBM Rational ClearCase 9.1.

Note the following changes in Perl 5.26:

- Perl variables no longer can contain non-graphical ASCII control characters. For example, a Perl script might contain the literal character `\x0F` to denote the `$OSNAME`. That would now yield a syntactical error of the form:

```
"Unrecognized character \x0F; marked by <-- HERE after if $<--  
HERE near column 32 at ..."
```

To fix the issue, you need to use the text "`^O`" to replace the Control-O non-graphical ASCII control character.

For the list of special Perl variables and full description, see

<https://perldoc.perl.org/perl5240delta.html#ASCII-characters-in-variable-names-must-now-be-all-visible> and <https://perldoc.perl.org/perlvar.html>.

- Perl `@INC` no longer contains `'.'` Perl's `@INC` is the array of directories that Perl uses to locate and load modules. A Perl script that needs to load a module from the current directory must now be modified to account for this. For more details, see [https://metacpan.org/pod/perl5260delta#Removal-of-the-current-directory-\(%22.%22\)-from-@INC](https://metacpan.org/pod/perl5260delta#Removal-of-the-current-directory-(%22.%22)-from-@INC).

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- "\C is no longer supported in regex; marked by <-- HERE in m/%s/"
Using \C in a Perl regular expression yields this error. For more details, see <https://perldoc.perl.org/perldiag.html>.

- "Unescaped left brace in regex is illegal here in regex; marked by <-- HERE in ..."
This is an example of stricter checking of good syntax by Perl. The following example shows how the example can be fixed:

```
} elsif(m!\s*//{{NO_DEPENDENCIES}}!) {
```

by escaping each left and right brace:

```
} elsif(m!\s*//\{\{NO_DEPENDENCIES\}\}\E!) {
```

or by using the \Q\E escape sequence:

```
} elsif(m!\s*//\Q{{NO_DEPENDENCIES}}\E!) {
```

For more details, see <https://metacpan.org/pod/perl5260delta#Incompatible-Changes>.

- Carp.pm is no longer part of the CGI module and "fatalsToBrowser" is no longer defined. Scripts using or requiring Carp.pm must no longer include it from CGI. For example:

```
use CGI::Carp qw(fatalsToBrowser);  
or  
use CGI::Carp;
```

changes to:
use Carp;

For more details, see <https://metacpan.org/pod/CGI#CGI.pm-HAS-BEEN-REMOVED-FROM-THE-PERL-CORE>.

- The Inline::Java ratlperl module on Windows no longer supports the JNI (Java Native Interface) extension. Only client/server mode is supported.

CMI integration data

What if my VOB is configured with CMI integration data to an IBM Rational ClearQuest environment?

- In changing from IBM Rational ClearCase 9.0.x to IBM Rational ClearCase 9.1, you might need to import the IBM Rational ClearQuest Web Server certificate. Use one of the following methods:
 - To import the certificate, see [technote 541765](#); or
 - Copy the certificate from the Rational.preserve directory.

Example for Linux:

```
sudo cp /tmp/Rational.preserve/clearcase/cert/cacert.pem  
/var/adm/rational/clearcase/config
```

Post-installation information

MultiSite and CMI should function without any configuration or environment changes when running a mixed environment with some replica servers running 32-bit IBM Rational ClearCase and other replica servers running 64-bit IBM Rational ClearCase. If you use MultiSite, see [Recreate your MultiSite shipping server settings](#).

Support

For technical support, go to the IBM Support portal at <https://www.ibm.com/support/home/>.