HCL DevOps Code ClearCase
Version 11.0.0

Migration Guide

Contents

Introduction

Use this document to help you migrate to 64-bit HCL DevOps Code ClearCase 11.0.0 from an earlier 32-bit ClearCase release. It explains differences that you might encounter between the two versions. Some items provide solutions or workarounds for you to consider.

Note: If you have a 64-bit version of ClearCase installed, then follow the upgrade process mentioned in HCL DevOps Code ClearCase 11.0.0 Update Guide.

HCL DevOps Code ClearCase 11.0.0 can be installed on the following platforms:

- Windows platforms on x86_64 hardware
- Linux platforms on x86_64, ppc64le, and s390x hardware
  Note: The Red Hat (RH) clone platforms (Rocky Linux, Alma Linux, Centos) are not supported. For more information, see Rational ClearCase Limited Vendor Support Policy.
- UNIX platforms: Oracle Solaris SPARC, Oracle Solaris x86_64, IBM AIX, and HP-UX

For a list of the operating systems supported by HCL DevOps Code ClearCase 11.0.0, use the System Requirements document.

Note: There is a separate document to help you migrate from 32-bit IBM® Rational® ClearQuest® to 64-bit IBM® Rational® ClearQuest. For more information, see ClearQuest version 10.0.1 migration guide or ClearQuest version 10.0.3 migration guide. There is a separate document to help you update from previous version of HCL Compass to 64-bit HCL Compass. For more information, see Compass 2.2.3 Update Guide.

HCL DevOps Code ClearCase 11.0.0 requires Java 11. Java 8 is no longer supported. If you do not have a JRE already, you can obtain one from a variety of Java websites such as Adoptium at https://adoptium.net.

Compatibility/Interoperation

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

- ClearCase 10.0.1.x and HCL DevOps Code ClearCase 11.0.0
- ClearCase 10.0.0.x and HCL DevOps Code ClearCase 11.0.0
- ClearCase 9.1.0.x and HCL DevOps Code ClearCase 11.0.0
- ClearCase 9.0.2.x and HCL DevOps Code ClearCase 11.0.0
- ClearCase 9.0.1.x and HCL DevOps Code ClearCase 11.0.0

An example of interoperation possibilities: Interoperations between ClearCase 9.1.*x* VOB servers and HCL DevOps Code ClearCase 11.0.0 clients.

Migration

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, if applicable, ClearQuest, and save the configuration data (the `Rational.preserve` directory).
2. Install HCL DevOps Code ClearCase 11.0.0 and, if applicable, Compass 2.2.4, 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, HCL DevOps Code ClearCase 11.0.0 is fully compatible with ClearCase 9.1. 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 64-bit HCL DevOps Code ClearCase 11.0.0.

For DevOps Code ClearCase MultiSite, each replica host can be migrated from ClearCase MultiSite 9.0.x to HCL DevOps Code ClearCase 11.0.0 on its own schedule. The MultiSite replication between 32-bit ClearCase and 64-bit ClearCase is supported in both directions.

Licensing

Run-time licensing differences

HCL DevOps Code ClearCase 11.0.0 uses different licenses than IBM Rational ClearCase. HCL DevOps Code ClearCase 11.0.0 only supports ClearCase (Atria) licensing.

To supply licenses for HCL DevOps Code ClearCase 11.0.0, you must deploy a license server and install license strings into its configuration.

To support continued operation of both IBM Rational ClearCase and HCL DevOps Code ClearCase during your migration, there are several options for license server configurations:

1. If you use IBM Common Licensing for your 32-bit ClearCase deployment, you must leave your 32-bit systems configured to use your existing IBM Common License server.
2. If you use ClearCase (Atria) licensing for your 32-bit ClearCase deployment, you have two options:
   a. You can continue to run your existing IBM Rational ClearCase license server and install a separate server for HCL DevOps Code ClearCase. Provide the new server's licensing identity to the HCL sales team when requesting license strings. Configure your HCL DevOps Code ClearCase clients to use the new server.
   b. You can upgrade your existing IBM Rational ClearCase license server to HCL DevOps Code ClearCase 11.0.0 and install both your existing IBM license strings and your new HCL license strings. Provide the server's licensing identity to the HCL sales team when requesting license strings. Configure your HCL DevOps Code ClearCase clients to use the new server.
   Note: If your license server has both IBM (ClearCase) and HCL (HCLClearCase) license strings installed, they will not be shared. HCL DevOps Code ClearCase clients will only draw from the HCLClearCase license pool. IBM Rational ClearCase clients will only draw from the ClearCase license pool. The same behavior applies for HCLMultiSite and MultiSite licenses.

Each user will need an appropriate license on all the hosts they use for an operation. 32-bit IBM Rational ClearCase clients require an IBM ClearCase license. 64-bit HCL DevOps Code ClearCase clients require an HCL ClearCase license. Some ClearCase operations use multiple hosts (separate client and view_server hosts), in which case both hosts must have a license available for the user. For example, if your view_server is running on an IBM Rational ClearCase host, and the client is running on an HCL DevOps Code ClearCase client, then an operation in the view requires both IBM and HCL licenses.

General migration steps

Review the following information before you migrate to 64-bit HCL DevOps Code ClearCase 11.0.0 from 32-bit 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 ClearCase (32-bit)
- Uninstall ClearCase (32-bit)
- Before you install HCL DevOps Code ClearCase
- Install HCL DevOps Code ClearCase
- Configure and test HCL DevOps Code ClearCase 11.0.0
- Post Installation information
- Documentation
- Support

Before you uninstall ClearCase (32-bit)

Before you go through the process to migrate to 64-bit 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 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/UNIX, back up your scheduler tasks.
- On Linux/UNIX, 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 HCL DevOps Code ClearCase 11.0.0, back up the ccweb directory before uninstalling ClearCase.

Note: The CCRC WAN server is not supported in the 64-bit Core ClearCase UNIX platforms (Solaris SPARC, Solaris x86_64, AIX, and HP-UX).

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 HCL DevOps Code ClearCase 11.0.0, this `ccweb` directory should be automatically copied to `/var/adm/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/UNIX, 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/UNIX: `/opt/ibm/RationalSDLC/clearcase/etc/clearcase stop`
- On the Windows Control Panel, select **ClearCase > Services Startup > Stop ClearCase**

About DevOps Code ClearCase MultiSite

If you use MultiSite, then before migrating to HCL DevOps Code ClearCase 11.0.0, you must process all packets in your shipping bays. During this processing, other replica sites must pause sending new packets to the host being updated, see Recreate your MultiSite shipping server settings.

Preserving your MVFS tunable parameters, Windows

To retain your multi-version file system (MVFS) parameters for ClearCase on Windows and then be able to import them to HCL DevOps Code ClearCase 11.0.0, 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\Paramet ers` 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 HCL DevOps Code ClearCase 11.0.0.

Later, you must restart ClearCase. For more information, see page 15.

Preserving your MVFS tunable parameters, Linux/UNIX

To retain your multi-version file system (MVFS) parameters for ClearCase on Linux/UNIX and then be able to use them in HCL DevOps Code ClearCase 11.0.0, 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 HCL DevOps Code ClearCase 11.0.0
   `tar cvf /var/tmp/mvfsconfig_save.tar mvfsconfig`

Later, you must restart ClearCase. For more information, see page 15.

Stop all Jenkins processes during uninstall of ClearCase

Note: During migrating from ClearCase 10.0.1 to HCL DevOps Code ClearCase 11.0.0, stop all Jenkins processes during the uninstall phase to avoid the uninstall error.
To upgrade Jenkins jobs:

1. Before upgrading or uninstalling ClearCase, the Jenkins instance which has jobs configured using the clearcase-jenkins plugin should be stopped.

2. Uninstall the cmapi-jenkins.hpi dependency plugin as the cmapi-jenkins.hpi file or IBM Rational ClearCase CM API dependency plugin is no longer required once the cc_11.0.0 version of the clearcase-jenkins plugin is installed.
3. Install the new clearcase-jenkins.hpi file from the ClearCase 11.0.0 release into your Jenkins instance. For more information, see the product help.
4. Reboot the Jenkins instance once upgraded to a newer version.
   Notes:
   - The remote agents should have the clearcase-jenkins.jar file in the same file path as the agent.jar/remoting.jar file.
   - All the remote agents and the controller node should have ClearCase installed, for the integration to work.
5. After upgrading to the ClearCase 11.0.0 version, edit the existing jobs, which are using the CC_10.0.1 version of the plugin and have opted for the **Create baseline** option in the UI. Enter the new component selector in the UI and click **Save**. The baselines will now be created on the component specified.

Notes:

- If you want to use Dynamic and Snapshot views, then the remote agents/controller, where the view is to be created should be in the same registry region as the VOB server.
- If you want to use Automatic views, the remote agent should be connected using JNLP. Currently, SSH-connected remote agents are not supported for Automatic views. However, for other view types, SSH-connected remote agents are supported.
- The machine hosting the Jenkins instance should have Java 11 installed and JAVA_HOME pointing to it as the 11.0.0 Jenkins integration plugin is compiled with Java 11, so it will not be supporting older versions.

Uninstall ClearCase (32-bit)

Before you can migrate to 64-bit 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/UNIX, 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 HCL DevOps Code ClearCase 11.0.0 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_20240714_0850793.
- You can leave the Rational.preserve directory as is. You might find it useful as a reference for your settings in HCL DevOps Code ClearCase 11.0.0.
- For an example of how you might use the information in the Rational.preserve folder, see CMI integration data.

Before you install HCL DevOps Code ClearCase 11.0.0

Before you install 64-bit HCL DevOps Code ClearCase 11.0.0, consider these matters.

Rational.preserve folder

See About the Rational.preserve folder.

Java Runtime Environment (JRE) requirement

Note: 64-bit Core ClearCase UNIX platforms (Solaris SPARC, Solaris x86_64, AIX, and HP-UX) and Linux on ppc64le and s390x do not include any Java -based components.

For the ClearCase installation on Windows and Linux x86_64, you must have a 64-bit Java Runtime Environment (JRE) specifically for Java 11 installed before you install ClearCase. During the installation of ClearCase, you must supply the path to the java executable in your JRE installation. ClearCase does not ship with its own JRE, but instead uses a JRE that is already installed on your system. If you do not have a JRE already, you can obtain one from a variety of Java websites such as Adoptium.

Tip: For the initial installation of a JRE, install it in a folder of your choice with a folder name that does not identify the version number for the Java. As an example, use a folder name like "jre" instead of " jdk-11.0.12+7-jre." Later, when you want to install a new updated Java (as an example, jdk-11.0.19+7-jre), install the updated Java into the same file system location as the initial Java. Then no reconfiguration of ClearCase will be needed because of a new JRE.

Important: For ClearCase on Windows, you must unpack the JRE locally. Running the JRE from a network location is not supported. During the installation process for ClearCase, you must enter the path to your JRE.

Symbolic links on Linux/UNIX for backward compatibility

To ease the transition to DevOps Code ClearCase, we maintain the following paths on Linux/Unix with symlinks so that your scripts will continue to work without modification.

For IBM and HCL DevOps Code ClearCase

/opt/rational/clearcase -> <installdir>

/opt/rational/common -> <installdir>/common

For HCL DevOps Code ClearCase

/opt/hcl/ccm/versionvault -> <installdir>

/opt/hcl/ccm/common -> <installdir>/common

We have a new symlink for DevOps Code ClearCase so that /opt/devops/code/clearcase will always exist even if you pick a different installation directory.

/opt/devops/code/clearcase -> <installdir>

For example, these symbolic links will help the transition to the new default installation directory because cleartool will still exist as /opt/rational/clearcase/bin/cleartool and ratlperl will still exist as /opt/rational/common/bin/ratlperl.

If using the default install locations, the links will look as follows.

- /opt/rational/common -> /opt/devops/code/clearcase/common
- /opt/rational/clearcase -> /opt/devops/code/clearcase
- /opt/hcl/ccm/common -> /opt/devops/code/clearcase/common
- /opt/hcl/ccm/versionvault -> /opt/devops/code/clearcase
- /usr/atria -> /opt/devops/code/clearcase
- /var/adm/atria -> /var/adm/clearcase
- /var/adm/rational/clearcase -> /var/adm/clearcase
- /var/adm/hcl/versionvault -> /var/adm/clearcase

Install HCL DevOps Code ClearCase 11.0.0 (32-bit to 64-bit)

For HCL DevOps Code ClearCase 11.0.0, the Core ClearCase UNIX platforms are supported for 64-bit.

For a list of the operating systems supported by HCL DevOps Code ClearCase 11.0.0, use the System Requirements document.

Note: Once HCL DevOps Code ClearCase 11.0.0 has been installed, it can be updated normally using the standard update process.

Update IBM Installation Manager (IM) to version 1.9.1 or later fix pack, or version 1.9.2 or later fix pack. IM version 1.8.x is no longer supported. Installation Manager should also be updated to the 64-bit version. For guidance on how to reinstall Installation Manager, see Reinstalling Installation Manager in wizard mode.

How to install ClearCase is covered in the online help. Also, check the release notes for HCL DevOps Code ClearCase 11.0.0 for any late-breaking information about installing the product.

Note: During the installation of HCL DevOps Code ClearCase 11.0.0, 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 HCL DevOps Code ClearCase 11.0.0

After you install HCL DevOps Code 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 deploy HCL DevOps Code ClearCase for your users.

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

If you installed HCL DevOps Code ClearCase 11.0.0 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 HCL DevOps Code ClearCase 11.0.0 installation, you should stop the HCL DevOps Code ClearCase 11.0.0 services prior to restoring the rgy directory:
   - On UNIX: `/opt/devops/code/clearcase/etc/clearcase stop`
   - On Linux: `# systemctl stop clearcase`
   - On the Windows Control Panel, select **ClearCase > Services Startup > Stop ClearCase**
2. Restore the rgy directory:
   - On Linux/UNIX:
     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/clearcase/rgy` directory.
   - On Windows, in `C:\Program Files\DevOps\Code\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\DevOps\Code\ClearCase\var\rgy` folder
3. After restoring the rgy directory, start the ClearCase services:
   - On UNIX: `/opt/devops/code/clearcase/etc/clearcase start`
   - On Linux: `# systemctl start clearcase`
   - 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.

Restoring your MVFS tunable parameters

If you have preserved MVFS tunable parameters on page 9, then you need to restart ClearCase.

Restarting ClearCase on Windows

1. Import the saved .reg file using the Windows Registry Editor. The saved MVFS parameter settings are now imported to the registry. However, the MVFS parameter settings will not be read and put into use until the MVFS filesystem is restarted.
2. Stop and restart all ClearCase services or only the MVFS using one of the following methods:
   a. Reboot the system.
   b. Stop and restart ClearCase from the ClearCase Control Panel.
      i. Exit any open instance of ClearCase. For example, ClearCase Explorer, cleartool, or a command prompt in the M: drive.
      ii. Launch the ClearCase Control Panel, and select the Services Startup tab.
      iii. Stop ClearCase, then start ClearCase. This will stop all ClearCase services (albd, lockmgr, cccredmgr, and MVFS). If any process is running, which will prevent the MVFS from stopping, you will see a pop-up listing the processes. Take action to cleanly stop those applications, and then use the **Refresh** button at the bottom of this pop-up to refresh the list, and then use the **Close** button when the list is empty.
   c. Stop and restart the MVFS from a command prompt running as Administrator.
      i. Exit any open instance of ClearCase; for example, ClearCase Explorer, cleartool, or a command prompt in the M: drive.
      ii. Stop the MVFS, which also requires that the cccredmgr service be stopped.
      ```
      net stop cccredmgr
      net stop mvfs
      net start mvfs
      net start cccredmgr
      ```
      If any process is running, which will prevent the MVFS from stopping, you will see these messages:
      ```
      The DevOps Code ClearCase Multi-Version FS for NT10.0
      x86_64 service is stopping........
      The DevOps Code ClearCase Multi-Version FS for NT10.0
      x86_64 service could not be stopped.
      ```

      Take action to identify any processes referencing MVFS resources and cleanly stop those applications.
      iii. Try again to stop and restart `cccredmgr` and `mvfs`.

Restarting ClearCase on Linux/Solaris

1. Stop ClearCase if it is running.
   ```
   /opt/devops/code/clearcase/etc/clearcase stop
   ```

   On Linux, use `# systemctl stop clearcase`

2. Navigate to the directory `/var/adm/clearcase/rgy` and extract the saved files into the `mvfsconfig` subdirectory.
   ```
   tar xvf /var/tmp/mvfsconfig_save.tar
   ```

3. Start ClearCase.
   ```
   /opt/devops/code/clearcase/etc/clearcase start
   ```
   On Linux, use `# systemctl start clearcase`

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

Recreate your DevOps Code ClearCase MultiSite shipping server settings

Before migrating to HCL DevOps Code ClearCase 11.0.0, you must process all packets in your shipping bays. 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 HCL DevOps Code ClearCase 11.0.0.
- 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 that are stored in the ClearCase installation directory 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 stored in the ClearCase installation directory and will move the contents from Rational.preserve to the new default and custom 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. Use the MultiSite control panel applet to update the shipping bay paths for custom storage classes.

On **Linux/UNIX**, only the default bay is copied to the Rational.preserve folder during uninstallation. Any non-empty directory trees for custom storage classes stored in the ClearCase installation directory 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 installing ClearCase 11.0.0, 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 5.26.3

If you are upgrading to HCL DevOps Code ClearCase 11.0.0 from ClearCase 9.0.2.x or any earlier versions, you should be aware that Perl has been updated. Perl made some incompatible changes, which might affect scripts you have written in Perl and its use with ClearCase.

Perl has been upgraded in ClearCase 9.1.0 to version 5.26.3. ClearCase 9.0.*x* was at Perl version 5.16. Perl scripts from earlier ClearCase releases might need to be modified to work in HCL DevOps Code ClearCase 11.0.0 because Perl scripts from earlier ClearCase releases might rely on Perl 5.16 syntax that is no longer supported in Perl 5.26.3.

To assist customers that use Perl 5.16 with ClearCase and are migrating to HCL DevOps Code ClearCase 11.0.0, there is a script available to help you find these incompatible syntaxes. Contact HCL 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 HCL DevOps Code ClearCase 11.0.0.

Note the following changes in Perl 5.26.3:

- Perl variables no longer can contain non-graphical ASCII control characters. For example, a Perl script might contain the literal character `0XF` 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.

- `"\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

If your VOB is configured with CMI integration data to an IBM Rational ClearQuest environment:

- In changing from ClearCase 9.0.2.*x* to HCL DevOps Code ClearCase 11.0.0, 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/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 ClearCase and other replica servers running 64-bit ClearCase. If you use MultiSite, see Recreate your MultiSite shipping server settings.

Documentation

The online help for HCL DevOps Code ClearCase 11.0.0 is published on https://help.hcltechsw.com/devops/code/clearcase/11.0.0/index.html.

The help is also available from within the installed product.

Support

For technical support, contact HCL Software Customer Support at https://support.hcltechsw.com/csm and in addition to providing details for your issue, also provide the following information:

- Your name, company name, telephone number, and email address
- Your operating system, version number, and any service packs or patches that you have applied
- Product name and release number
- Your Support Ticket Number (if you are following up on a previously reported problem)

For blogs, forums, and more for HCL DevOps Code ClearCase, go to the HCL Software website at https://www.hcltechsw.com/wps/portal.