

READ ME FIRST

Release Notes CodeCenter Version 4.2.1

Table of Contents

- [Supported Platforms](#)
- [Supported Compilers](#)
- [Memory, Swap Space, and Disk Requirements](#)
- [New Features](#)
 - [Online Documentation](#)
 - [Object Code Instrumentation Capability Removed](#)
 - [Support for Sun's Debugging Information](#)
- [New SUN Platform Support](#)
 - [64-bit Support on Solaris 2.7](#)
- [New HP Platform Support](#)
- [Installation](#)
- [Licensing Information](#)
- [Finding the Host ID of the License Server on HP](#)
- [Solaris 2.x Machines Require Patches](#)
- [Obtaining Sun Patches](#)
- [HP-UX 10.x Machines Require Patches](#)
- [Obtaining HP Patches](#)

- CenterLine Automated Help System
 - Calling Technical Support
 - Workgroup IDs
 - Product Version Number
 - Invoking CodeCenter
 - For More Information
 - Accessing Online Documentation
 - Using the Tutorial
 - Using pdm on the HP Platform
 - Installing end.o and pxdb
 - CodeCenter Directory Structure
-

These Release Notes describes CodeCenter Version 4.2.1. We released Version 4.2.1 to introduce CodeCenter to newer operating system versions, and to provide bug fixes to the previous release.

These Release Notes list CodeCenter's supported platforms and space requirements, gives an overview of new features and installation instructions, tells you how to invoke CodeCenter, and points to more information in hardcopy and online. These Release Notes also contain a section about using the *CodeCenter Tutorial* on the Solaris 2 platform and an overview of the CodeCenter directory structure.

Supported Platforms

This version of CodeCenter supports

- HP 9000 Series 700 workstations -OR- HP Series 800 PA 1.1 workstations running HP-UX 9.x through HP-UX 10.20.
- Sun-4(tm)/SPARCstations(tm) and UltraSPARC machines running SunOS 4.1.x or Solaris 2.3 - 2.7.

NOTE -- Refer to Solaris 2.x Machines Require Patches for information about Sun patches that should be installed on Solaris 2.3 or Solaris 2.4 platforms. Refer to HP-UX 10.x Machines Require Patches section for information on required HP patches.

The process debugging mode (**pdm**) used in this version of CodeCenter is based on GNU **gdb** Version 4.12 for the Solaris 2.x operating system and Version 4.13 for the SunOS 4.x and HP-UX operating systems.

To license its software, this version of CodeCenter uses FLEXlm, Version 5.0a, except that CenterLine-C (**clcc**) uses FLEXlm, version 2.4c.

Supported Compilers

For a list of the compilers supported on your platform, please refer to the [CodeCenter Platform Guide](#) related to this release.

Memory, Swap Space, and Disk Requirements

These are CodeCenter's requirements for memory, disk space, and swap space:

	Minimum Megabytes	Recommended Megabytes
Random-Access Memory (RAM)	16	24-32
Disk Space	52	---
Swap Space	48	3 times RAM *

* - Actual swap space depends on the size of your application.

New Features

This release was primarily created to incorporate bug fixes for all platform versions of CodeCenter and to provide additional support for some of the latest operating system versions for SUN and HP platforms. (see [Platform Support](#) sections for details).

The following describes the major new features and changes found in CodeCenter Version 4.2.1.

Online Documentation

With the introduction of CodeCenter Version 4.2.1 comes a new format of the online documentation, replacing the current *DynaText* Viewer. CenterLine has replaced the original *DynaText* Viewer with **Adobe Acrobat Reader** for SunOS, Solaris and HP systems.

If you don't have a copy of **Adobe Acrobat Reader** for your particular system, the CodeCenter Version 4.2.1 installation process will automatically install a copy of **Adobe Acrobat Reader** for those platform releases of CodeCenter being installed. For example, if you install the Solaris and HP versions of CodeCenter, you will automatically obtain a Solaris and HP version of **Adobe Acrobat Reader**.

The documentation files used with the *DynaText* Viewer have also been replaced. All documentation files used with **Adobe Acrobat Reader** are in **PDF** file format. This means that practically any platform outside of SUN and HP systems can view these documentation files as long as that platform

has a **PDF** file viewer.

The online documentation files in **PDF** format can be found in:

.../docs

To open **Adobe Acrobat Reader** from within CodeCenter, select **Manual Browser** from the **Browsers** menu on any primary window or click the "?" button in the **Main Window**. **Adobe Acrobat Reader** may take some time to initialize. As it does so, start-up messages are displayed in the **Run Window**. You can also open the **Adobe Acrobat Reader** window outside of CodeCenter by issuing the following command from a shell:

.../bin/cldoc2 &

All future releases of CodeCenter following CodeCenter Version 4.2.1 will use **Adobe Acrobat Reader** and **PDF** documentation file format.

Once installed, you will find the following pieces of CodeCenter documentation available within **Adobe Acrobat Reader**:

- *Getting Started with CodeCenter*
An overview of CodeCenter's features.
- *CodeCenter Tutorial*
A more extensive step-by-step introduction to CodeCenter and its features.
- *CodeCenter User's Guide*
A task-based description of CodeCenter, explaining how to use the graphical user interface to load, manage, run and debug programs within CodeCenter. An appendix to the online *User's Guide* contains *Frequently Asked Questions: Answers to some of the questions most often asked of CenterLine Technical Support*.
- *CodeCenter Reference Guide*
A complete reference for CodeCenter, containing an alphabetical listing and description of CodeCenter commands, functions, and informational topics. Appendices to the online *CodeCenter Reference* include **About The CodeCenter Releases** (formerly called *About This Release*) and **CodeCenter Version 4.2.1 Platform Guide** containing platform-specific information about CodeCenter. Both of these documents, as well as *Platform Guides* related to other versions of CodeCenter, can also be found on the main **CodeCenter page** on CenterLine's website.
- *CenterLine-C Programmer's Guide*
Information about the CenterLine-C compiler, including usage instructions and specific switches and flags.

Installing CodeCenter version 4.2.1 on top of an installation containing earlier releases of ObjectCenter, TestCenter or QC/Replay will not remove the original *DynaText* viewer or corresponding online documentation files that came with those products. Users with this configuration can still, therefore, access online documentation manuals for these other CenterLine products by issuing the `.../bin/cldoc &` command from a shell while simultaneously using **Adobe Acrobat Reader** for the CodeCenter Version 4.2.1 product documentation.

NOTE: Adobe Acrobat Reader is not only a new addition to CodeCenter Version 4.2.1 but is also a new addition to ObjectCenter Version 2.2.1, TestCenter Version 2.1.1 and QC/Replay Version 2.6. Thus, **Adobe Acrobat Reader** can provide simultaneous documentation for any CenterLine product which uses **Adobe Acrobat Reader** as a replacement for *DynaText* if they are all installed in the same location.

Users who wish to have a hardcopy version of the documentation can print out any of the supplied manuals via **Adobe Acrobat Reader**.

Object Code Instrumentation Capability Removed

One main difference between this release of CodeCenter and previous releases is that we have removed the ability to instrument object code for debugging and run-time error detection. You can still load and debug regular (non-instrumented) object files as well as detect run-time errors by loading source files instead of instrumented object code into CodeCenter's interpreter (i.e. CDM workspace). If you have any questions or concerns related to the CenterLine's decision to remove instrumentation ability from CodeCenter, please contact CenterLine's Technical Support group at (781) 444-8000 or via email at support@centerline.com.

Support for Sun's Debugging Information

CenterLine has now added support for Sun's debugging information, such that CodeCenter users who use Sun's C compiler instead of the CenterLine-C compiler (**clcc**) no longer need to use the `-xs` switch during compilation and linking in order to have CodeCenter's **pdm** work properly. In earlier releases, the `-xs` switch was necessary when debugging fully built executables within CodeCenter's **pdm** if the executable was built using Sun's C compiler instead of CenterLine's.

New SUN Platform Support

This release adds support for the following:

- The Solaris 2.7 operating system

64-bit Support on Solaris 2.7

With the introduction of Solaris 2.7, comes 64-bit technology. CodeCenter Version 4.2.1 and the CenterLine-C compiler (**clcc**) are products that can operate on a Solaris 2.7 system since they are "64-bit-aware". Meaning they will compile and interpret C programs running on a 64-bit aware operating

system, such as Solaris 2.7. But these products have not been enhanced to provide any special 64-bit support.

If you have any 64-bit related questions/issues when using CodeCenter Version 4.2.1 on Solaris 2.7, please direct all inquiries to CenterLine Technical Support at (781) 444-8000 or via email at info@centerline.com.

New HP Platform Support

There is no new HP platform support within this release. CodeCenter version 4.2.1 supports all the same releases of HP-UX that version 4.2.0 supported, namely HP-UX 9.x through 10.20.

Installation

Install CodeCenter according to the instructions in the manual *Installing and Managing CenterLine Products*. When you install CodeCenter, the installation script installs the product in a directory called **c_4.0.0** under the **CenterLine** directory. If you have other CenterLine products, all the products can be installed under a single **CenterLine** directory. See [CodeCenter Directory Structure](#) for a description of the contents of the **CenterLine** directory.

When installing updates of CodeCenter or other CenterLine products, note that the installation may update *any* file in the **CenterLine** directory.

NOTE If you do not want to overwrite an existing version of CodeCenter, install the newer version in a separate **CenterLine** directory.

If you are installing an evaluation copy of CodeCenter, refer to the instructions in *Installing CenterLine Evaluations*. As those instructions note, do **not** attempt to start **lmgrd**, if you are installing an evaluation copy of CodeCenter.

Licensing Information

CodeCenter Version 4.2.1 is licensed via **FLEXlm(tm) Version 5.0a**. Earlier releases of CodeCenter were licensed via **FLEXlm(tm) Version 2.40c**. Set up your licenses according to the instructions in *Installing and Managing CenterLine Products*.

Finding the Host ID of the License Server on HP

To grant you a license, CenterLine needs to know the host ID of the machine on which each license server daemon will run. The host ID is encrypted in the license password on your *Product License Sheet*. The output of the **/etc/lanscan** command distributed with some HP-UX operating systems no longer works with CodeCenter Version 4.2.1 in providing an accurate host ID for HP-UX licenses servers. So users wishing to use an HP-UX system for their license server must determine the host ID required for the license password through the **lmhostid** command.

If you have already installed CodeCenter or have an evaluation copy of a CenterLine product installed, invoke the command by entering:

/path-to/pa-hpux8/admin/lmhostid

where *path-to* is the path to your existing CenterLine directory.

When you know the host ID of the server, contact the CenterLine Passwords group at (781) 444-8000 or through email at passwords@centerline.com to obtain a new *Product License Sheet*.

If this is a new installation, proceed with the installation as described in *Installing and Managing CenterLine Products*. Respond "no" when the **install.sh** script prompts:

Do you wish to enter licensing information now?

When the installation completes, you can use the **lmhostid** command to determine the host ID of your license server. Contact the CenterLine Password group to obtain a *Product License Sheet*, and then invoke the **cladmin** command to enter the licensing information when you receive the *License Sheet*. The **cladmin** command is located in the directory: **CenterLine/admin**.

NOTE: Although we do not provide a copy of CodeCenter for IBM AIX systems, CenterLine provides a copy of **FLEXlm Licensing Software** for AIX systems with every release of CodeCenter. As such, users are welcomed to use an AIX system as the license server and/or file server (i.e. the system where the non-AIX product binaries are physically installed) even if the product itself must be invoked via a network mount and not directly on that system. Like HP-UX license servers, the host ID of an AIX system is also determined through the **lmhostid** command. The licensing daemons, **lmhostid** command, and other licensing utilities for AIX systems are located in the **CenterLine/powerpc-aix/admin** directory found within every CodeCenter installation.

**Solaris 2.x
Machines
Require
Patches**

There is a bug in the linker on Solaris 2.3 that corrupts the debugging information that CodeCetner uses. There are also bugs in the Solaris 2.3 X server that affect CodeCenter. We recommend that you install the following patches on workstations running Solaris 2.3:

- Sun Patch-ID# 101409 (Jumbo linker patch)
- Sun Patch-ID# 101362 (Xsun server jumbo patch)

In addition, we recommend that you install the following patches to properly support threaded debugging:

On Solaris 2.3:

- Sun Patch-ID# 101318
- Sun Patch-ID# 102110

On Solaris 2.4:

- Sun Patch-ID# 101945

On Solaris 2.6, the system include file `/usr/include/stream.h` contains a declaration that causes CenterLine's C compiler, `clcc`, to issue the following error diagnostic:

`"/usr/include/sys/stream.h", line 255: sorry not implemented: bit-field as member of union`

To fix this problem, CenterLine has provided a context diff file named **`misc/sol26/stream.dif`** (**`MISC/SOL26/STREAM.DIF`** on some platforms) on the CodeCenter Version 4.2.0 CD-ROM. Use this file with the **`patch(1)`** utility, as follows:

```
% su
# cd /usr/include/sys
# /usr/bin/patch < path-to-cd/misc/sol26/stream.dif
```

After running **`patch`**, the original version of **`stream.h`** will be saved in **`stream.h.orig`**.

If you do not have access to the CodeCenter Version 4.2.0 CD-ROM, CenterLine does provide the **`stream.dif`** file in the form of a CodeCenter patch. To obtain this patch, contact CenterLine's Technical Support group at (781) 444-8000 or via email at support@centerline.com.

Obtaining Sun Patches

Use the **`showrev -p`** command to find out which patches you have installed. Note that the full patch number has a two-digit suffix that is incremented when new versions of the patch are released, for example 101362-17.

To obtain patches from Sun, contact Sun Technical Support at 1-800-872-4786.

HP-UX 10.x Machines Require Patches

We recommend you install the following patches on workstations running HP-UX 10.10:

- libcurses library patch
- 10.10 10.20 patch of `milli.a`
- ANSI C compiler cumulative patch (if you will be using the HP C compiler)

- ld(1) cumulative patch

We recommend you install the following patches on workstations running HP-UX 10.20:

- libcurses library patch
- ANSI C compiler cumulative patch (if you will be using the HP C compiler)
- ld(1) cumulative patch

On HP 10.20, you will likely encounter warnings and errors that "long long" is not supported; These errors are issued by **CC**, **clcc**, and ObjectCenter and CodeCenter's **cdm** when loading source files, because ObjectCenter and CodeCenter do not support the "**long long**" type. To fix this problem, we recommend that you edit the following system include file:

/usr/include/sys/_inttypes.h

We have provided a context diff file named **misc/hp10/inttypes.dif** (**MISC/HP10/INTTYPES.DIF** on some platforms) on the CodeCenter Version 4.2.0 CD-ROM. Use this file with the **patch(1)** utility, as follows:

```
% su
# cd /usr/include/sys
# /usr/bin/patch < path-to-cd/misc/hp10/inttypes.dif
```

After running patch, the original version of **_inttypes.h** will be saved in **_inttypes.h.orig**.

If you do not have access to the CodeCenter Version 4.2.0 CD-ROM, CenterLine does provide the **inttypes.dif** file in the form of a CodeCenter patch. To obtain the patch, contact CenterLine's Technical Support group at (781) 444-8000 or via email at support@centerline.com.

Obtaining HP Patches

To obtain patches from HP, visit their website at <http://us-support.external.hp.com>. We regret that we cannot give you the direct patch numbers, because HP rennumbers their patches often.

CenterLine Automated Help System

CenterLine's Technical Support group has disabled their Automated Help System to make way for an automated technical support area on CenterLine's website. This area was set up to help with licensing or installation issues, amongst other technical help relative to all CenterLine products. Be sure to refer to CenterLine's website (www.centerline.com) for details, or send an email to support@centerline.com for further technical assistance.

Calling Technical Support

CenterLine's Technical Support group can be contacted by calling 617-621-0060 or through email at support@centerline.com.

Before calling Technical Support, we suggest that you try to find the answers to your issues via the product manuals or through CenterLine's website (www.centerline.com).

If you still need to contact Technical Support, you will be asked for your **Workgroup ID** and **product version number**.

Workgroup IDs

A **Workgroup ID** identifies the set of users who are sharing a group of licenses (similar to an account number for the specific pool of licenses being used in a given installation). You can get your Workgroup ID, as well as support telephone numbers and email addresses, from the file:

CenterLine/configs/support_defs

Product Version Number

To find your product version number, you can do one of two things:

- invoke the **CenterLine/admin/cladmin** command and select option 3
- run the command **CenterLine/bin/clver**

To determine which version number of the license manager, **lmgrd**, is shipped with your product, use the command:

CenterLine/arch-os/admin/lmgrd -v

If CodeCenter is running, you can use one of the following ways to find your **Workgroup ID** and **product version number**:

- In the Main Window, display the **CodeCenter** menu and select the **About CodeCenter** item.
- Scroll back to the beginning of the Workspace where the startup banner lists the information.
- Issue the **printopt workgroup_id** and **printopt version_number** commands in the Workspace.

Invoking CodeCenter

To invoke CodeCenter, use the **codecenter** command.

For More Information

To get more information about CodeCenter, refer to the "CodeCenter Documentation" section in *About The CodeCenter Releases* (formerly called *About This Release*), which lists all hardcopy and online documentation and describes the information each piece of documentation contains.

Platform-specific information can be found within the [CodeCenter Version 4.2.1 Platform Guide](#) located on the main [CodeCenter Page](#) of CenterLine's website.

Accessing Online Documentation

With this release of CodeCenter comes a newer form of the online documentation. Prior releases of CodeCenter used the *DynaText* viewer. For details related to this new online documentation, see the [Online Documentation](#) section under the [New Features](#) section above.

Using the Tutorial

To use the CodeCenter Tutorial on Solaris 2 platforms, you must set the following environment variables:

```
setenv OPENWINHOME /usr/openwin
setenv LD_LIBRARY_PATH \
/usr/openwin/lib:/usr/lib:$LD_LIBRARY_PATH
```

The tutorial assumes the X11 header files are installed in **/usr/include**. If they are not, contact your system administrator to put a copy or symbolic link to the location of the X11 header files into **/usr/include**, or add **-Ipathname** to the **CL_INCS** line in the tutorial Makefile, where *pathname* is the path to the directory containing the X11 header files.

If you use the X11R5 libraries instead of the openwin libraries, you must explicitly load **-lnsl** and **-lsocket** into the Workspace to run the tutorial. These dependencies are not automatically included in the X11R5 libraries, whereas they are included in the openwin libraries.

Using pdm on the HP Platform

On the HP 9000 Series 700 platform, you may experience problems linking your application and debugging it with **pdm** if two components distributed with **xdb**, the HP debugger, are not installed on your system.

On HP-UX 10.x, to debug the shared libraries that an executable depends on, **pdm** requires that the file **/opt/langtools/lib/end.o** be linked into the executable.

On HP-UX 9.x, **pdm** will require that the file **/usr/lib/end.o** be linked into the executable. HP relocated this file once HP-UX 10.x was built.

The **clcc** compiler links the **end.o** file in automatically when you compile with **-g**. If **end.o** is not available, you may receive a message like one of the following from the linker (or **clcc**):

```
/bin/ld: Can't open /usr/lib/end.o
```

```
-OR-
```

/bin/ld: Can't open /opt/langtools/lib/end.o

-OR-

(clcc:) end.o not found, so link not possible

Without **end.o**, you will not be able to debug shared libraries with **pdm**. **pdm** will issue a message such as:

- On HP-UX 9.x:

warning: Can't access shared libraries. /usr/lib/end.o is required but is not linked into <path>/test.

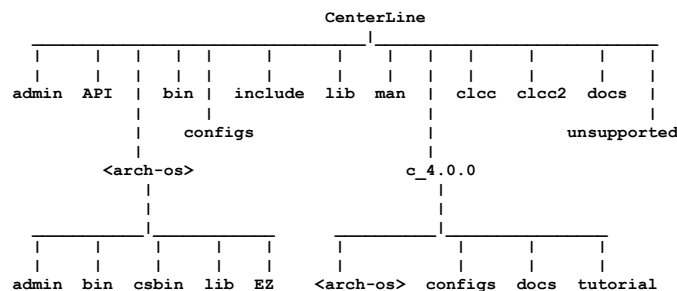
- On HP-UX 10.x:

warning: Can't access shared libraries. /opt/langtools/lib/end.o is required but is not linked into the <path>/test.

In addition, if the HP **xdb** preprocessor, **/usr/bin/pxdb** (on HP-UX 9.x) and/or **/opt/langtools/bin/pxdb** (on HP-UX 10.x), is not available when your application is linked, debugging information required by **pdm** may be corrupted. Execution may stop at the wrong line when you set breakpoints, and using **step** or **next** from a breakpoint may cause the application to hang.

CodeCenter Directory Structure

When you install CodeCenter, the installation script installs the product in a directory called **c_4.0.0** under the **CenterLine** directory.



CenterLine/ : Directory to contain all CenterLine products.

- **admin/** : Directory containing the CenterLine installation and management scripts such as **cladmin**.
- **API/** : Directory containing information about CenterLine's programming interface (API) for integrating tools into our programming environment.
- **<arch-os>/** : Platform specific directories (**sparc-sunos4**, **sparc-**

solaris2, pa-hpux8, powerpc-aix, etc.) for commands and libraries common to all CenterLine products.

- **admin/** : Commands for starting and managing the CenterLine license daemons such as **lmgrd**, **lmdown**, **lmrread**, etc. You can run your license server on any supported CenterLine platform, regardless of whether the current product is supported on that platform.
- **bin/** : Executables common to several CenterLine products.
- **csbin/** : Wrapper programs for common compiler names.
- **lib/** : Libraries common to several CenterLine products.
- **EZ/** : Directory containing information and binaries for CenterLine's EZSTART utility for importing programs into the CenterLine environment.
- **bin/** : CenterLine commands (such as **codecenter**, **ctutor**, **cldoc2**, and **license_status**).
- **configs/** : Configuration and licensing files (such as **license.dat**, **license.opt**, and **support_defs**).
- **docs/** : Directory containing files for the Adobe Acrobat Reader Manual Browser.
- **man/** : Directory containing the manual pages for the product.
 - **man1/** : Contains descriptions of user commands.
 - **man3/** : Contains descriptions of library routines.
 - **man5/** : Contains descriptions of files.
- **c_4.0.0** : Directory containing the CodeCenter product.
 - **<arch-os>/** : Directory containing platform-specific files. The **bin** directory contains binaries, the **docs** directory contains the platform guide, and the **lib** directory contains application defaults and bitmaps for the GUI.
 - **configs/** : Configuration files for CodeCenter.
 - **tutorial/** : Source files and a make file to use with the CodeCenter tutorial.

- **clcc/** : Directory containing executables, header files, and libraries for CenterLine's C compiler.
- **unsupported/** : Contains unsupported tools.