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# READ ME FIRST

## Release Bulletin CenterLine-C++ Version 2.1.1

This Release Bulletin describes CenterLine-C++ Version 2.1.1. We released Version 2.1.1 to introduce CenterLine-C++ to the Solaris 2.4 operating system and the Sun SPARC 5 workstation, to add support for the Sun SPARCCompiler C Version 3.0.1, and to provide bug fixes to the previous release. This release also introduces a new delivery mechanism for online documentation.

This Release Bulletin lists CenterLine-C++'s supported platforms and space requirements, gives an overview of new features and installation instructions, tells you how to invoke CenterLine-C++, and points to more information in hardcopy and online. This Release Bulletin also contains a section about using the *CenterLine-C++ Tutorial* on the Solaris 2 platform and an overview of the CenterLine-C++ directory structure.

### Supported platforms

This version of CenterLine-C++ supports

- HP 9000 Series 700 workstations running HP-UX 9.01, 9.03, and 9.05, and HP Series 800 PA 1.1 workstations running HP-UX 9.0.
- Sun-4™/SPARCstations™ running SunOS 4.1.1, 4.1.2 or 4.1.3 (Solaris™ 1.0) or Solaris 2.3 or 2.4.

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<b>NOTE</b>	Please refer to page 3 for information about Sun patches that should be installed on Solaris 2.3 or Solaris 2.4 platforms.
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The process debugging mode (**pdm**) used in this version of CenterLine-C++ 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 CenterLine-C++ uses FLEXlm, Version 2.40c.

**Supported compilers**

For a list of the compilers supported on your platform, please refer to your *Platform Guide*, which is available online as an appendix to the online *CenterLine-C++ Reference*, and in this file:

**CenterLine/clc++/arch/docs/platform\_guide\_2.1.1**

where **CenterLine** is the directory where your CenterLine product is installed, and *arch* is a platform-specific directory, such as **pa-hpux8**, **sparc-sunos4**, or **sparc-solaris2**.

**Memory, swap space, and disk requirements**

These are CenterLine-C++'s requirements for memory, disk space, and swap space:

	Minimum megabytes	Recommended megabytes
Random-Access Memory (RAM)	16	24-32
Disk space	44	—
Swap space	48	3 times RAM <sup>a</sup>

a. Actual swap space depends on the size of your application.

**New features**

This section lists new features in this release. For a description of all new features added since Version 2.0.0, see *About This Release*, which is available as an appendix to the *CenterLine-C++ Reference* and in this file:

**CenterLine/clc++/docs/about\_release\_2.1.1****New Sun platform support**

This release adds support for the following:

- The Solaris 2.4 operating system
- The Sun SPARCCompiler C Version 3.0.1
- Sun SPARC 5 workstations running SunOS 4.1.3\_U1 or Solaris 2.3 or 2.4

**Online documentation**

We now provide online access to the Reference section of the *CenterLine-C++ Programmer's Guide and Reference* in the DynaText™ viewer from Electronic Book Technologies. DynaText is a powerful viewer whose features include full-text search and hypertext navigation. For more information about the online documentation, refer to 'Accessing online documentation' on page 6.

**Default backend for C++ compilation**

CenterLine-C++ uses the CenterLine-C compiler, **clcc**, as the default backend C compiler in CenterLine's C++ compilation system. If you want to change the backend C compiler, set the environment variable **ccC** to the pathname of the C compiler you choose, for example

```
% setenv ccC path/CenterLine/bin/clcc
or
% setenv ccC /usr/bin/cc
```

**HP clcc compiler**

CenterLine's C compiler, **clcc**, is now available on the HP platform. Some of the **clcc** command-line switches differ from those used with the HP **cc** compiler. Please refer to the HP *Platform Guide* in the Manual Browser for a list of commonly-used HP **cc** switches and their **clcc** equivalents.

**Installation**

Install CenterLine-C++ according to the instructions in the manual *Installing and Managing CenterLine Products*. When you install CenterLine-C++, the installation script installs the product in a directory called **clc++** under the CenterLine directory. If you have other CenterLine products, all the products can be installed under a single CenterLine directory. See 'CenterLine-C++ directory structure' on page 10 for a description of the contents of the CenterLine directory.

When installing updates of CenterLine-C++ 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 CenterLine-C++, install the newer version in a separate CenterLine directory.

**Solaris 2.x machines require patches**

There is a bug in the linker in Solaris 2.3 that corrupts the debugging information that CenterLine-C++ uses. There are also bugs in the Solaris 2.3 X server that affect CenterLine-C++. 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

### **OpenWindows 3.0 requirements**

If you are running with OpenWindows 3.0 or earlier, and/or your site is running an OpenWindows X Server, you may experience problems using the *DynaText* viewer.

On systems running SunOS 4.x and either OpenWindows 3.0 or the OpenWindows **xnews** server, we recommend that you install the following patches:

- Sun Patch-ID# 100444-58
- Sun Patch-ID# 100512-04

### **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. You can also obtain the following patches from CenterLine: 101362-17, 101409-03, 100444-58, and 100512-04. Contact Technical Support for more information.

### **Cut and paste requirement**

For both SunOS4.x and Solaris 2.x systems, if you want to paste text from your desktop into *DynaText* text fields, you must have the **X11R5 nls** directory installed in **/usr/lib/X11/nls** in your environment. If the **nls** directory does not exist at that location, you can set the environment variable **\$XNLSPATH** to its actual location.

### **CenterLine Automated Help System**

CenterLine's Technical Support group has created a service, CenterLine Automated Help System, to assist you with licensing and installation problems.

The CenterLine Automated Help System provides information via email in the form of documents corresponding to particular errors or problems.

For more information, send email to **help@centerline.com** and type the words **get help** as the subject heading:

To: **help@centerline.com**

Subject: **get help**

The Automated Help will email information to the **reply** address on your incoming mail.

## Calling Technical Support

Before calling Technical Support, we suggest that you try the CenterLine Automated Help System for installation and licensing problems.

If you still need to contact Technical Support, you may 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. 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, invoke the **CenterLine/admin/cladmin** command and select option **3**.

To determine which version number of the license manager, **lmgrd**, is shipped with your product, use the **CenterLine/arch-os/admin/lmgrd -v** command.

If CenterLine-C++ 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 **CenterLine-C++** menu and select the **About CenterLine-C++** item.
- Scroll back to the beginning of the Workspace where the startup banner lists the information.

## Invoking CenterLine-C++

To invoke CenterLine-C++, use the **centerline-c++** command.

**For more information**

To get more information about CenterLine-C++, refer to the "CenterLine-C++ Documentation" section in *About This Release*, which lists all hardcopy and online documentation and describes the information each piece of documentation contains. *About This Release* is available as an appendix to the online *Reference* and in this file:

**CenterLine/clc++/docs/about\_release\_2.1.1**

where **CenterLine** is the directory where your CenterLine product is installed.

Information that applies only to your platform is in a platform-specific directory.

On the HP platform, the directory is:

**CenterLine/clc++/pa-hpux8/docs**

On Sun SunOS 4.x, the directory is:

**CenterLine/clc++/sparc-sunos4/docs**

On Sun Solaris 2, the directory is:

**CenterLine/clc++/sparc-solaris2/docs**

Among the files in this platform-specific directory is a list of existing bugs (**bugs.open**) and a list of bugs fixed since the last version of CenterLine-C++ (**bugs.fixed**). The file **bugs.open** includes corrections to the documentation. Please refer to this list before calling Technical Support.

**Accessing online documentation**

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

In the left panel of the Library window are one or more collections of books. Click on the name of a collection to display the names of the books in that collection in the Books panel. Open a specific book by double-clicking on its name or by selecting its name and clicking the Open button.

To open a specific *Reference* entry from within CenterLine-C++, issue the **man** command in the Workspace with the name of the command or topic.

Use one of the Search Forms available from the Search menu in each Book window to search within a book. You can search on words, patterns, and phrases, and you can conduct Boolean, context, or proximity searches.

Known bugs in the *DynaText* viewer are listed in this file:

**CenterLine/clc++/arch/docs/bugs.open**

For more information about using *DynaText*, select the **doc\_info** collection in the *DynaText* Library window. For a description of the **cldoc** command, see the UNIX manual page.

### Setting up the annotation facility in online documentation

If you plan to use the annotation facility in the online documentation provided with CenterLine-C++ Version 2.1.1, edit the **CenterLine/doc/ebtrc** file to add pointers to the locations where the annotations should be stored.

Annotations can be *public* or *private*, so you need to add locations for both types of annotations. Each user's private annotations can reside in the user's home directory, but public annotations should be stored in a location that is accessible to, and writable by, all.

The following sample **ebtrc** file shows the format of the lines that must be added:

```
# .ebtrc configuration file
#####
X_DIR          $CENTERLINE_EBT_XDIR
DATA_DIR       $CENTERLINE_EBT_DATA
#
COLLECTION     $CENTERLINE_COLLECTIONS
DTEXT_AUTH     $TEST_AUTH_SERVER
#
# The following line specifies the location of
# private annotations.
PRIVATE_DIR    $HOME/cldocpriv
#
# Edit the following line to point to the location
# for all public annotations. Directory must be
# writable by all.
PUBLIC_DIR     path_to/cldocpub
```

If you do not add these lines to the **CenterLine/doc/ebtrc** file, annotations will be located in **/tmp/annots**, as the default.

### **Saving annotations across versions**

When you install a new version of CenterLine-C++ with updated documentation, annotations may not point to the correct location in the new version of the book. Annotations are stored in a user- and book-specific directory:

*dir\_name/annots/user\_name/book\_name*

where *dir\_name* is the public or private directory specified in the **ebtrc** file.

When you create an annotation, the **index.cat** file in this directory is updated with information including the name, location, and type of the new annotation. The text of the annotation is stored in a text file whose name is formed by taking the first eight characters of the annotation name and adding a numeric suffix to distinguish between non-unique leaf names.

If you want to reuse your annotations, first move your existing annotations to a temporary directory. Recreate the **index.cat** file by creating new annotations in the book, then copy the existing annotation text files to the new filenames.

### **Using the tutorial**

To use the CenterLine-C++ 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.

To debug the shared libraries that an executable depends on, pdm requires that the file **/usr/lib/end.o** be linked into the executable. The **clcc** compiler links this file in automatically when you compile with **-g**. If **/usr/lib/end.o** is not available, you may receive a message like the following from the linker:

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

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

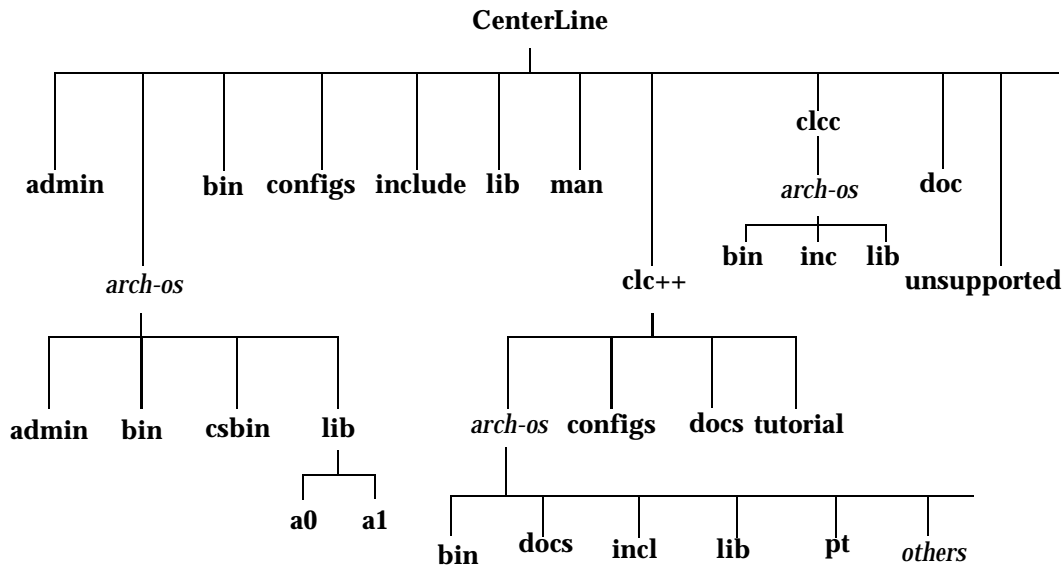
```
warning: Can't access shared libraries. /usr/lib/end.o  
is required but is not linked into <path>/test.
```

In addition, if the HP **xdb** preprocessor, **/usr/bin/pxdb**, 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.

We provide a copy of **end.o** and **pxdb** in the file **MISC/HP\_PXDB.TAR** on your CenterLine-C++ CD-ROM. For more information, extract this file into your **/tmp** directory and refer to the README file. If your copy of CenterLine-C++ was distributed on tape, contact Technical Support for instructions on obtaining the files by ftp.

**CenterLine-C++  
directory structure**

When you install CenterLine-C++, the installation script installs the product in a directory called **clc++** under the **CenterLine** directory.



**Figure 1** The CenterLine-C++ Directory Structure

**Table 1** Contents of the CenterLine directory

Directory	Summary of Contents
<b>CenterLine/</b>	Directory to contain all CenterLine products.
<b>admin/</b>	Directory containing the CenterLine installation and management scripts such as <b>RUN_ME</b> and <b>cladmin</b> .
<b>arch-os/</b>	Platform-specific directories ( <b>sparc-sunos4</b> , <b>sparc-solaris2</b> , <b>pa-hpux8</b> etc.) for commands and libraries common to all CenterLine products.
<b>admin/</b>	Commands for starting and managing the CenterLine license daemons such as <b>lmgrd</b> , <b>lmdown</b> , <b>lmreread</b> . You can run your license server on any supported CenterLine platform, regardless of whether the current product is supported on that platform.

**Table 1** Contents of the CenterLine directory (Continued)

Directory	Summary of Contents
<b>bin/</b>	Executables common to several CenterLine products.
<b>csbin/</b>	Wrapper programs for common compiler names.
<b>lib/</b>	Libraries common to several CenterLine products. K&R C versions of the C++ library, <b>libC</b> , are installed in <b>lib/a0</b> , and ANSI C versions are in <b>lib/a1</b> .
<b>bin/</b>	CenterLine commands (such as <b>centerline-c++</b> , <b>c++examples</b> , and <b>license_status</b> ).
<b>configs/</b>	Configuration and licensing files (such as <b>license.dat</b> , <b>license.opt</b> , and <b>support-defs</b> ).
<b>doc/</b>	Directory containing files for the <i>DynaText</i> Manual Browser.
<b>man/</b>	Directory containing manual pages for the product.
<b>man1/</b>	Contains descriptions of user commands.
<b>man3/</b>	Contains descriptions of library routines.
<b>man5/</b>	Contains descriptions of files.
<b>clc++</b>	Directory containing the CenterLine-C++ product.
<b>arch-os/</b>	Directory containing platform-specific files. The <b>bin</b> directory contains binaries, the <b>docs</b> directory contains the <b>bugs.open</b> and <b>bugs.fixed</b> files, the <b>incl</b> directory contains C++ header files, the <b>lib</b> directory contains application defaults and bitmaps for the GUI, and the <b>pt</b> directory contains template repository tools. The directory also contains components of the compilation system such as <b>clpp</b> , <b>c++filt</b> , <b>ptlink</b> , and <b>ptcomp</b> , and links to C++ libraries.
<b>configs/</b>	Configuration files for CenterLine-C++.
<b>tutorial/</b>	Source files and a makefile to use with the CenterLine-C++ tutorial.
<b>clcc/</b>	Directory containing executables, header files, and libraries for CenterLine's C compiler.
<b>unsupported/</b>	Contains unsupported tools.

