Think Class Library 2.0 CodeWarrior Port Package

Version 1.9.1 • 26 December 1995
Produced Marty Wachter

Based on work by Eric Scouten

Note

This document was produced using Microsoft Word and the TrueType fonts Palatino, Helvetica, Courier, and Zapf Dingbats. There are two versions of this document: `**README.word` which is a Microsoft Word 5 document, and `**README.standalone` which is a combined application/document created with Print2Pict.

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About the TCL Port Package

Introduction

This document describes the TCL 2.0 CodeWarrior Port Package, a set of files which will enable you to compile the Think Class Library version 2.0 with the Metrowerks CodeWarrior IDE. Read this document carefully **before** using the package.

This package will be updated regularly as new versions of the Metrowerks compilers become available and as new bug fixes or features are incorporated. The most recent version should always be available for FTP on the site daemon.ncsa.uiuc.edu in the directory /pub/TCL/contributors/Marty_Wachter. Notification of these updates will be posted to the Internet newsgroup comp.sys.mac.oop.tcl and comp.sys.mac.programmer.codewarrior.

This package **does not include** the Think Class Library itself, in either original or modified form. You must purchase a copy of Symantec C++ for Macintosh, version 8.0, in order to use the TCL.

Note
Additional information may be contained in a file named *README.extra in the root folder of the package.

Package Requirements

To make effective use of the CodeWarrior Port Package, you need the following items:

n   Symantec C++ Subscription for Macintosh release **4**

n   Metrowerks CodeWarrior Gold **8**

n   At least 30MB disk space available on your hard drive.

n   A 680x0 Macintosh with at least 8MB of RAM, or a PowerPC Macintosh with at least 16MB of RAM.

n   An unmodified copy of the Think Class Library, version 2.0.6 from your Symantec C++ Subscription for Macintosh Release 4 CD. It can be found at the following locattion:

Symantec C++ v8 Release 4/Latest Symantec Tools/Power Mac & 68K Development/Sym C++ for Power Mac/THINK Class Library 2.0

NOTE: This port MAY work on an updated copy of the TCL to 2.0.6, I haven't tested it.

The following items **will not** be useful:

- n Think C or Symantec C++, version 6.0 or earlier. (Use the 1.7 version of the port kit for TCL 2.0.3 and SC++ version 7.0)

- n Think Class Library, version 1.1.3 or earlier. (If you are using TCL 1.1.3, you may wish to investigate the PTR-TCL package provided by Jon Wätte on common FTP sites.)

- n The free updater provided by Symantec to upgrade Symantec C++ from version 6.0 to version 7.0. The updater does not include the TCL version 2.0.

Overview

Using the TCL CodeWarrior Port Package entails the following steps:

- n Converting the Think Class Library to a form usable by the Metrowerks IDE.

- n Converting your source code to a form usable by the Metrowerks IDE.

The following chapters of this document describe these steps in detail. You should also review the chapter entitled, "Using the Modified TCL," which describes the differences between the standard TCL used for the Symantec compiler and the modified TCL used for the Metrowerks compilers.

For More Information

If you have questions about using the TCL CodeWarrior Port Package, you may contact me at the following addresses:

Internet   mrw@welchgate.welch.jhu.edu

Please note that this package is provided **free of charge.** Although I an generally available (and interested) to talk about this package and any related topic, I amfrom time to time be unable to respond to requests for support of the package due to other commitments.

Creating the Modified TCL Source Code

In this stage, you will create a second copy of the Think Class Library source code on your hard drive. You should keep two copies of the TCL source code on your drive: the original source for use when compiling with Symantec's compiler, and the modified source for use with CodeWarrior. (The TCL source and precompiled headers take approximately 6MB.)

v   **W A R N I N G**
It is absolutely important that you begin with the **unmodified** source code from the TCL 2.0.6. If you have modified the TCL yourself, make a copy of your changes and reinstall the TCL from your Symantec C++ master disks. Then update the TCL source with the updater files provided by Symantec to version 2.0.6. (If later versions of the TCL are released, **do not** use these versions either.)

Converting the updated TCL requires the following steps:

n   Take your **NEW** Think Class Library 2.0 folder and place this folder **outside** the CodeWarrior folder (and outside the Symantec C++ folder as well.)

n   Copy the header file **THINK.h** from your Symantec C++ folder to your CodeWarrior folder. If you maintain separate folders for 68K and PPC compilers, copy the header to both folders. (**THINK.h** can be found in the path **:Symantec C++ for Power Macintosh:TMacintosh Libraries:THINK #includes**.)

n   Copy the header file **SANE.h** from your Symantec C++ folder to your CodeWarrior folder. If you maintain separate folders for 68K and PPC compilers, copy the header to the 68K compiler folder only. **Rename** the header to **ThinkSANE.h**. (SANE.h can be found in the path **Symantec C++ for Power Macintosh:TMacintosh Libraries:THINK #includes**.)

n   Open the MultiDiff application. Select "Apply Diff…" from the File menu. A standard open box will appear. Select the file ***TCL source.diff** . You will be prompted for the top folder to apply the patches to. Select the folder which contains the copy of the TCL you just made. Note that the changes are made **in place;** thus it is important to make a copy of the TCL prior to applying the patches.

n   Wait. There is no way to stop the patcher once it's running. It will take several minutes to make the changes. (On a PowerMac 6100/60 it takes about 4 minutes.)

*   Place your **NEW** Think Class Library 2.0 folder inside the "MacOS Support" folder located in your "Metrowerks CodeWarrior" folder. This allows you to use the

provided TCL stationary files without resetting the location of your TCL Library files each time you create a new TCL project.

If you are making use of the Visual Architect, you must perform the following additional steps:

n Make a copy of the Visual Architect Macro Files folder. Place this folder **outside** the CodeWarrior compiler folder (and outside the Symantec C++ folder as well.) This will be your backup copy of the macro files.

n Open the MultiDiff application. Select "Apply Diff..." from the File menu. A standard open box will appear. Select the file ***VA macros.diff**. You will be prompted for the top folder to apply the patches to. Select the **original copy** of the Visual Architect Macro Files folder. (This is necessary so that future projects built with VA will pick up the changes.) Note that the changes are made **in place;** thus it is important to make a copy of the TCL prior to applying the patches.

n Wait. This patch should only take a minute or two.

Previous Users of the TCL Port Package

If you have been using previous versions of the TCL port package, there are a few changes that you will need to be aware of. This version of the TCL port package is designed to be used **only** with CodeWarrior CW/8 and takes advantage of several new features in this version of the compiler. You will need to follow these steps to adapt your code for this version of the port package:

n Build a new version of the modified TCL as described in the previous steps.

n Add the file **CW TCLHeaders.pch** to your CodeWarrior project (both 68K and PowerPC projects, if applicable). This will cause the precompiled headers to be automatically generated whenever necessary.

n Check for newly undefined symbols. The CW/8 release includes a new version of Apple's Universal Headers. Several symbols were renamed in this version of the headers. (This note is not specific to the TCL port package.)

n If you use templates (especially if you used the Template Munger), you may need to make a few minor adjustments to your code. Support for the macro substitution for templates has been removed. Your existing code should compile essentially "as is:" the old `TCL_NO_TEMPLATES` macro is now undefined (and thus false). You may need to add explicit class declarations (`class CList<CMyClass>;`) to force CodeWarrior to generate certain template instantiations; this is similar to Symantec's `#pragma template CList<CMyClass>` statement.

Converting Your Application
Source Code

Creating a Project File

You will find it easiest to start from the project stationery files which were included with the port package. These projects loosely follow the segmentation in the sample TCL project files provided by Symantec.

Building a New Project File

If you choose to create your own project file, you will need to be aware of a few considerations. The virtual function tables generated by the TCL tend to be rather large. For small TCL projects, you will be able to compile "as is." If you have more than a few of your own classes, you will need to turn on "Far virtual function tables" in the Preferences Language panel.

To create the list of source files, you may simply include all of the files in the modified TCL source directory. Please note the following differences between the CodeWarrior projects and Symantec C++ projects:

Removed Source Files

```
CSaver.cpp
CStack.cp
PutObject1.cpp
BRLib.π
```

Added Source Files

```
BRClaInf.cpp
BRPriStr.cpp
UException.cp
UDebugging.cp
```

Project Preferences

You will need to set a few special project preferences for working with the modified TCL. These are:

- n **Prefix file** (Language panel): CW TCLHeaders-68Kor CW TCLHeaders-PPC

- n **Access paths** (Access paths panel): Add folder where modified TCL is housed

- n **Treat #include <...> as #include "..."** (Access paths panel): Must be checked if using Visual Architect files

Changes in Coding Technique

This section describes some differences between the Symantec C++ version of the TCL and the modified TCL for CodeWarrior.

C++ Templates

The Metrowerks implementation of templates has some subtle differences from Symantec's implementation. Symantec C++ relies on two pragmas to control the instantiation of templates: `#pragma template_access` and `#pragma template`. These pragmas are not recognized (and not necessary) with CodeWarrior.

For the most part, CodeWarrior will automatically generate the template instantiations that you need for your code if you make the template definition (.tem file) available where the template is actually used. In those cases where it does not (or where you wish to have the templates compiled separately), you may force a template instantiation by adding an explicit reference (`class my_template<my_class>;`).

If you have been using prior versions of the TCL port package, you can now remove the ".tm.h" files which were generated by Template Munger and the associated macros in your source files. The `TCL_NO_TEMPLATES` macro is no longer defined.

Exception Handling

This version uses the CodeWarrior native exception mechanism.

This version of the port package does not support the PowerPlant exceptions. You may have to make some modifications to use BEL exceptions.

Testing the Port

Before you email me saying that there is a problem with the port, **PLEASE** try the following test after creating the port ed TCL code:

- n Create a copy of the "AEStarter" project from your SC++ **8** disks.
- n Create a new TCL project using the supplied stationary files.
- n Add the AEStarter source files and resource file to the new project.
- * The AEStarter project should compile, link, and run without modification. If it doesn't, go back and create the port again.

Version History

Version 1.0, released 9 May 1994:

- n Port package for CodeWarrior DR/2.

Version 1.2, released 26 May 1994:

- n Updated for CodeWarrior DR/3.
- n Replaced Bedrock exception library with PowerPlant exception library.
- n Improved documentation.
- n Skipped version 1.1 to avoid confusion with the TCL of the same name.

Version 1.2.1, released 27 May 1994:

- n Quick fix to include a missing file (which wasn't really missing, anyway).

Version 1.3, released 30 May 1994:

- n Updated for TCL version 2.0.2.
- n Included Template Munger application.

Version 1.4, released 21 June 1994:

- n Checked for compatibility with CodeWarrior DR/3.5.
- n Included template macro files with the patch file (as was the case in version 1.2 of the port package).
- n Corrected bugs with object I/O and CStream.
- n Tested with Visual Architect classes and functions. Added diffs for the VA macros.

Version 1.5, released 29 June 1994:

- n Updated for TCL version 2.0.3.
- n Fixed problems with diffs files in 1.4.

Version 1.5.1, released 17 July 1994:

- n Updated for compatibility with CodeWarrior CW/4. (Minimal changes.)
- n Fixed casting bug in CApplication.cp.
- n Improved drawing of popup menus on PowerPC builds.

Version 1.5.2, released 10 September 1994:

- n In project files included with version 1.5.1, some segments were incorrectly marked as purgeable. Fixed.
- n Updated contact address.

Version 1.5.3, released 11 October 1994:

- n Updated for compatibility with CodeWarrior CW/4.5. Fixed a problem with source file alloc.cp generating "illegal function overloading" errors. (Don't ask how!)
- n Fixed problem with CSaver template reference to GetObject.

Version 1.6 released 30 November 1994:

- n Updated for compatibility with CodeWarrior CW/5.
- n Uses templates instead of macro substitutions. Template Munger application removed.
- n Uses automatic precompiled headers (.pch).
- n Uses the new Universal Headers, version 2.0.

Version 1.6.1 released 10 January 1995:

- Minor tweaks: rebuilt diffs file for the Art Class demo and provided a CW TCLHeaders.c file for those who don't wish to use the precompiled headers feature.

Version 1.7 released 16 March 1995:

- Updated for compatibility with CodeWarrior CW/5.5
- Included a diff file and project files for the "NewClassDemo" TCL Demo project.
- Marty takes over the port kit (mrw@welchgate.welch.jhu.edu)

Version 1.8 released 1 June 1995:

- Updated for compatibility with CodeWarrior CW/6
- Updated for TCL 2.0.6

Version 1.8.1 released 20 June 1995:

- Removed the need for "pascal.h"
- Replaced prototypes with macro code by Jamie Jouris in "TCLClassInfo.h"
- Diff file now works for users who upgraded to TCL 2.0.6 using SC++7.0 or SC++ 8.0

Version 1.9 released 26 September 1995:

- Uses CW native exceptions
- Removed the ANSI library requirements
- Added inline short functions to "Golbal.h" for TCLMin() and TCLMax()
- * Updated for compatibility with CodeWarrior CW/7 IDE

Version 1.9.1 released 26 December 1995:

- Support for CodeWarrior 8
- Can now precompile TCL headers! Makes compile, link, run very fast!
- Fixedtemplate definitions in the CStream template classes
- * Added missing CStream.tem include in CBitMapPane.cp
- * Added a virtual function to CException.h to fix a bug in native exception handling

Acknowledgments

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