# **CERTI Compilation HOWTO**

Guide for the compilation of CERTI from Source!!

This notes has been written for compiling CERTI on Windows, but the steps are roughly the same on other platform if you replace Windows version of software (and screen shots) with their Linux (or your favourite system) counterpart.

#### 1/ Tools for the development of CERTI

CERTI compilation requires a working C++ compiler and some development tools, you may have them already installed on your system or you may download & install the missing tools. All used tools are Open Source softwares.

- CMake
  http://www.cmake.org/HTML/Download.html
- Flex/Bison
  - On Linux
    - Fedora: yum install flex bison
    - Debian/Ubuntu: apt-get install flex bison
  - On Windows <u>http://gnuwin32.sourceforge.net/packages/bison.htm</u> <u>http://gnuwin32.sourceforge.net/packages/flex.htm</u>
    - m4 : bison needs the installation of this software http://gnuwin32.sourceforge.net/packages/m4.htm
- (optional) NSIS for building an Installer: <u>http://nsis.sourceforge.net/Main\_Page</u>
- (optional) libxml2
  - On Linux
    - Fedora: yum install libxml2-devel
    - Debian/Ubuntu: apt-get install libxml2-devel
  - for Windows http://www.zlatkovic.com/libxml.en.html

## 2/ Download the Source Package

Take a look at <u>http://download.savannah.gnu.org/releases/certi/</u> for getting the last package. Unzip it! Adventurous people may try beta snapshot (at your own risk): <u>http://download.savannah.gnu.org/releases/certi/beta</u>

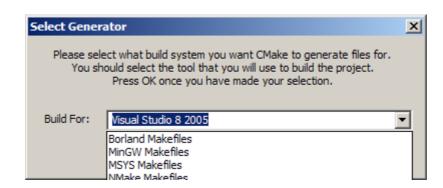
## <u>3/ Configure the source tree</u>

## Launch CMake-GUI :

Enter the folder for the source code (here  $\certi$ , created during the previous step) Enter the folder for building the programs (here  $\tempo$ )

| <u> CMake 2.4 - patch</u> | 7                |   |  |  |              | _ 0         | x |
|---------------------------|------------------|---|--|--|--------------|-------------|---|
| Where is the source c     | ode: D:\DVP      | Cert\CertiSav\certi   |  | Browse   |              |             |   |
| Where to build the bin    | aries: D:\DVP    | Cert\CertiSav\temr  | 0  | Browse   | 🔲 Show Advar | nced Values |   |
| - Cache Values            |                  |   | _  |  |              |             | _ |
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|                           |                  |   |  |  |              |             |   |
| 1                         |                  |   |  |  |              |             |   |
|                           | Right click<br>F | t on a cache value<br>Press Configure to ι<br>Press ΟΚ to gen | for additional optic<br>update and display<br>ierate selected bu | ons (delete, ignore,<br>) new values in red<br>ild files and exit. | and help).   |             |   |
|                           | Configure        | OK  | Cancel   | Delete Cache   | Help         |             |   |
| billard documentation dir | ectory           |   |  |  |              |             |   |

Hit Configure button



Choose the appropriate Generator:

| Select Generator  | × |
|---|---|
| Please select what build system you want CMake to generate f<br>You should select the tool that you will use to build the proj<br>Press OK once you have made your selection. |   |
| Build For: Visual Studio 8 2005   | • |
| OK Cancel   |   |

| 🝌 CMake 2.4 - patch 7  |                               |  |  |
|--|-------------------------------|--|--|
| Where is the source code: D:\DVP Cert\CertiSav\certi   | Browse                        |  |  |
| 📃 Show Advanced Values   |                               |  |  |
| Where to build the binaries: D:\DVP Cert\CertiSav\tempo  | Browse                        |  |  |
| Cache Values   |                               |  |  |
| BUILD_API_DOC  | OFF 🗕                         |  |  |
| BUILD_SHARED   | ON                            |  |  |
| CMAKE_BACKWARDS_COMPATIBILITY  | 2.4                           |  |  |
| CMAKE_INSTALL_PREFIX   | C:/Program Files/CERTI        |  |  |
| EXECUTABLE_OUTPUT_PATH   |                               |  |  |
| HAVE_DLFCN_H   | HAVE_DLFCN_H-NOTFOUND         |  |  |
| HAVE_INTTYPES_H  | HAVE_INTTYPES_H-NOTFOUND      |  |  |
| HAVE_MEMORY_H  | HAVE_MEMORY_H-NOTFOUND        |  |  |
| HAVE_STDINT_H  | HAVE_STDINT_H-NOTFOUND        |  |  |
| HAVE_STDLIB_H  | HAVE_STDLIB_H-NOTFOUND        |  |  |
| HAVE_STRINGS_H   | HAVE_STRINGS_H-NOTFOUND       |  |  |
| HAVE_STRING_H  | HAVE_STRING_H-NOTFOUND        |  |  |
| HAVE_SYS_SELECT_H  | HAVE_SYS_SELECT_H-NOTFOUND    |  |  |
| HAVE_SYS_SOCKET_H  | HAVE_SYS_SOCKET_H-NOTFOUND    |  |  |
| HAVE_SYS_STAT_H  | HAVE_SYS_STAT_H-NOTFOUND      |  |  |
| HAVE_SYS_TYPES_H   | HAVE_SYS_TYPES_H-NOTFOUND     |  |  |
| HAVE_UNISTD_H  | HAVE_UNISTD_H-NOTFOUND        |  |  |
| LEX_PROGRAM  | C:/WINDOWS/system32/flex.exe  |  |  |
| LIBRARY_OUTPUT_PATH  |                               |  |  |
| YACC_PROGRAM   | C:/WINDOWS/system32/bison.exe |  |  |
| Right click on a cache value for additio<br>Press Configure to update an<br>Press OK to generate sel | nd display new values in red. |  |  |
| Configure OK Ca  | ncel Delete Cache Help        |  |  |
| A yacc-compatible parser generator   |                               |  |  |

Verify the the paths for the different tools (flex, bison..) before hitting "Configure" again

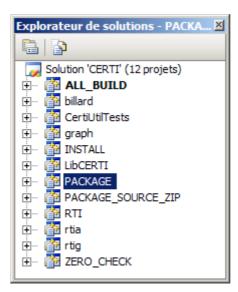
Repeat "Configure" until you get a valid OK box .

| 🛕 CMake 2.4 - patch 7   |                               |
|---|-------------------------------|
| Where is the source code: D:\DVP Cert\CertiSav\certi  | Browse                        |
| · · · · · · · · · · · · · · · · · · ·   | Show Advanced Values          |
| Where to build the binaries: D:\DVP Cert\CertiSav\tempo   | Browse                        |
| Cache Values  |                               |
| BUILD_API_DOC   | OFF 🗾                         |
| BUILD_SHARED  | ON                            |
| CMAKE_BACKWARDS_COMPATIBILITY   | 2.4                           |
| CMAKE_INSTALL_PREFIX  | C:/Program Files/CERTI        |
| EXECUTABLE_OUTPUT_PATH  |                               |
| HAVE_DLFCN_H  | HAVE_DLFCN_H-NOTFOUND         |
| HAVE_INTTYPES_H   | HAVE_INTTYPES_H-NOTFOUND      |
| HAVE_MEMORY_H   | HAVE_MEMORY_H-NOTFOUND        |
| HAVE_STDINT_H   | HAVE_STDINT_H-NOTFOUND        |
| HAVE_STDLIB_H   | HAVE_STDLIB_H-NOTFOUND        |
| HAVE_STRINGS_H  | HAVE_STRINGS_H-NOTFOUND       |
| HAVE_STRING_H   | HAVE_STRING_H-NOTFOUND        |
| HAVE_SYS_SELECT_H   | HAVE_SYS_SELECT_H-NOTFOUND    |
| HAVE_SYS_SOCKET_H   | HAVE_SYS_SOCKET_H-NOTFOUND    |
| HAVE_SYS_STAT_H   | HAVE_SYS_STAT_H-NOTFOUND      |
| HAVE_SYS_TYPES_H  | HAVE_SYS_TYPES_H-NOTFOUND     |
| HAVE_UNISTD_H   | HAVE_UNISTD_H-NOTFOUND        |
| LEX_PROGRAM   | C:/WINDOWS/system32/flex.exe  |
| LIBRARY_OUTPUT_PATH   |                               |
| YACC_PROGRAM  | C:/WINDOWS/system32/bison.exe |
| Right click on a cache value for additi<br>Press Configure to update ar<br>Press OK to generate sel | nd display new values in red. |
|   | ncel Delete Cache Help        |
| Configuring done  |                               |

You should get a BUILD folder (named tempo in our example) which looks like that:

| D:\DVP Cert\CertiSav\tempo               |                  |                                       |                      |                      |                      | _ 🗆                      | × |
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| Fichier Edition Affichage Favoris        | Outils ?         |                                       |                      |                      |                      |                          | 7 |
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| CertiSav                                 |                  | ibrti 🔁                               |                      | Dossier de fichiers  | 05/02/2008 14:05     |                          |   |
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| E C base                                 |                  | RTIG                                  |                      | Dossier de fichiers  | 05/02/2008 14:05     |                          |   |
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|  |                  | ALL_BUILD.vcproj.cmake                | 23 Ko                | Fichier CMAKE        | 05/02/2008 14:05     |                          |   |
| E CMakeFiles                             |                  | CERTI.sln                             | 20 Ko                | Microsoft Visual Stu | 05/02/2008 14:05     |                          |   |
| ⊡ ⊡ doc                                  |                  | 📼 cmake_install.cmake                 | 4 Ko                 | Fichier CMAKE        | 05/02/2008 14:05     |                          |   |
| E indude                                 |                  | CMakeCache.txt                        | 15 Ko                | Document texte       | 05/02/2008 14:05     |                          | - |
| E 🛅 libCERTI                             |                  | h config.h                            | 4 Ko                 | C/C++ Header         | 05/02/2008 14:02     |                          |   |
|  |                  | CPackConfig.cmake                     | 5 Ko                 | Fichier CMAKE        | 05/02/2008 14:02     |                          |   |
|  |                  | CPackSourceConfig.cmake               | 5 Ko                 | Fichier CMAKE        | 05/02/2008 14:02     |                          |   |
|  |                  | INSTALL.vcproj                        | 23 Ko                | VC++Project          | 05/02/2008 14:05     |                          |   |
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|  | <u> </u>         | mmwCFRTI env csh                      |                      | Fichier CSH          | 05/02/2008 14:02     |                          | 1 |
| aille :19,1 Ko Type:Microsoft Visual Stu | dio Solution Ver | rsion: Visual Studio 2005 Date de mod | fication : 05/02/200 | 8 14:05              | 19                   | ,1 Ko 😔 Poste de travail |   |

Launch CERTI.sln (here Visual C++ 2005 version)



Build all... Take a look at your folder ...

| 🗿 D:\DVP Cert\CertiSav\tempo\debug             |                        |           |                         |                      |                            |
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| 🖂 🧰 CertiSav                                   | billard.exe            | 164 Ko    | Application             | 04/02/2008 15:45     |                            |
| Generations                                    | CertiUtilTests.exe     | 38 Ko     | Application             | 04/02/2008 15:45     |                            |
| E C base                                       | Ttia.exe               | 308 Ko    | Application             | 04/02/2008 15:45     |                            |
| 🖂 🛄 base                                       | rtig.exe               | 328 Ko    | Application             | 04/02/2008 15:45     |                            |
| CVS  | RTIG.log               | 3 Ko      | Document texte          | 04/02/2008 15:49     |                            |
|  | 🔄 🕋 Test.xml           | 1 Ko      | Document XML            | 29/05/2005 23:20     |                            |
| include  | CERTI.exp              | 495 Ko    | Exports Library File    | 04/02/2008 15:44     |                            |
|  | 1 RTI.exp              | 32 Ko     | Exports Library File    | 04/02/2008 15:44     |                            |
|  | S CERTI.dll            | 1 492 Ko  | Extension de l'applic   | 04/02/2008 15:44     |                            |
|  | 🔊 RTI.dll              | 244 Ko    | Extension de l'applic   | 04/02/2008 15:44     |                            |
|  | RTIA_1160_Test.fed     | 1 Ko      | Fichier FED             | 04/02/2008 15:49     |                            |
|  | RTIA_2248_Test.fed     | 1 Ko      | Fichier FED             | 04/02/2008 15:48     |                            |
| ⊡ test   | RTIA_3336_Test.fed     | 1 Ko      | Fichier FED             | 04/02/2008 15:48     |                            |
| ⊡ installed                                    | RTIA_3504_Test.fed     | 1 Ko      | Fichier FED             | 04/02/2008 15:49     |                            |
|  | Test.fed               | 1 Ko      | Fichier FED             | 27/10/2003 11:48     |                            |
| ⊡ Lempo  ⊡ ALL BUILD.dir                       |                        | 788 Ko    | Incremental Linker File | 04/02/2008 15:45     |                            |
| CMakeFiles                                     | CERTI.ilk              | 18 796 Ko | Incremental Linker File | 04/02/2008 15:44     | -                          |
|  | CertiUtilTests.ilk     | 376 Ko    | Incremental Linker File | 04/02/2008 15:45     |                            |
| U debug<br>⊡ doc                               | RTI.ilk                | 1 413 Ko  | Incremental Linker File | 04/02/2008 15:44     |                            |
| ± 🛄 doc<br>€ 🧰 include                         | @rtia.ilk              | 1 275 Ko  | Incremental Linker File | 04/02/2008 15:45     |                            |
| ± incude<br>€ ibCERTI                          | @rtig.ilk              | 1 212 Ko  | Incremental Linker File | 04/02/2008 15:45     |                            |
|  | CERTI.lib              | 796 Ko    | Object File Library     | 04/02/2008 15:44     |                            |
| E 🛅 libRTI                                     | graph.lib              | 3 Ko      | Object File Library     | 04/02/2008 15:43     |                            |
| E C RTIA                                       | RTI.lib                | 53 Ko     | Object File Library     | 04/02/2008 15:44     |                            |
| E C RTIG                                       | j 🍯 billard.pdb        | 1 188 Ko  | Program Debug Dat       |                      |                            |
|  | 🗾 👰 certi.ndb          |           | Program Debug Dat       | 04/02/2008 15:44     |                            |
| 8 objet(s) (Espace disque disponible : 104 Go) |                        |           |                         | 4                    | 43,7 Mo 😔 Poste de travail |

4) Check the test out

- open a windows command prompt before running RTIG
- open another windows command prompt before running the billard program.
- Don't forget the parameters : -n 1 fTest FTest.fed

| C:\WINDOWS\system32\cmd.exe - rtig  |   |
|---|---|
| D:\DUP Cert\CertiSav\base\debug>rtig<br>Updating : CERTI_HOME=rtig\<br>CERTI RTIG 3.2.6cvs - Copyright 2002-2006 ONERA<br>This is free software ; see the source for copying conditions. There is NO<br>warranty ; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  |   |
| CERTI RTIG up and running<br>New federation: Test<br>Looking for FOM file<br>Trying Test.fed opened.  |   |
| <pre>(FED  (federation "Test")  (FEDversion "v1.3")  (federate "fed" "Public")  (spaces      (space "Geo" (id 1)          (dimension "X" (id 1))          (dimension "X" (id 2))))  (objects      (class "ObjectRoot" (id 1)          (attribute "privilegeToDelete" (id 1) reliable timestamp)          (class "Bille" (id 3)          (attribute "PositionX" (id 2) reliable timestamp)          (attribute "PositionX" (id 3) reliable timestamp)          (class "Boule" (id 4)</pre> |   |
| TCP Socket(RecevoirTCP) : No error<br>RTIG dropping client connection 1860.<br>TCP Socket 1860 : total = 358267b sent<br>TCP Socket 1860 : total = 889984b received<br>UDP Socket 1904 : total = 0b sent<br>UDP Socket 1904 : total = 0b received   | - |