Building Trilinos Using CMake

Trilinos User Group Meeting

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What is this thing you call CMake?

- Open-source cross-platform build / test / distribution system.
  - Win32
  - Mac OSX
  - Unix / Linux
- Used Extensively Within Sandia
  - VTK/Titan
  - ParaView
  - ThreatView

CMake Outside Sandia

- KDE4 - the next version of the powerful Open Source desktop, application suite and development platform will be built using CMake, which together with Qt4 will make it possible to run KDE4 not only on Linux/UNIX, but also Mac OS X and Windows.

Libraries [edit]

- eXtensible Data Model and Format (XDMF)
- Grass roots DiCoM (GDCM)
- Vision-something-Libraries (VXL)
- Vispack - C++ library developed for processing volumes images and surfaces
- Teem - libraries for representing, processing, and visualizing scientific raster data
- BIAS - The Basic Image AlgorithmS C++ Library
- GoLib - general c++ library
- cmkSQL - an abstract SQL Library
- AtomicHF - Package to solve Hartree-Fock equations for a spherical system using Numerov algorithm
- XVT - A software development environment for easily building cross-platform GUI applications in C or C++.
- The Half-Life 2 SDK in CMake
- The aften Open Source A/52 encoder

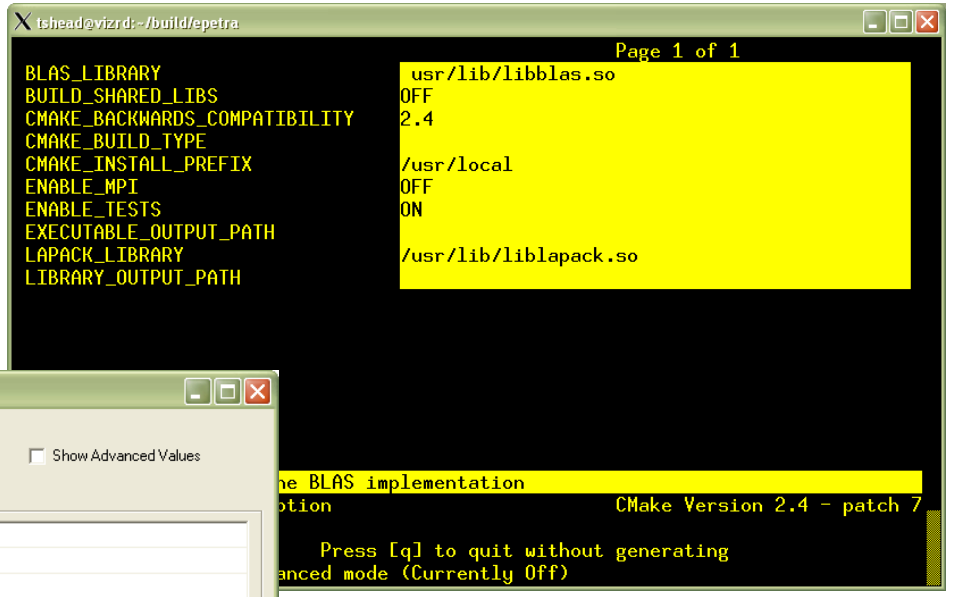
Toolkits [edit]

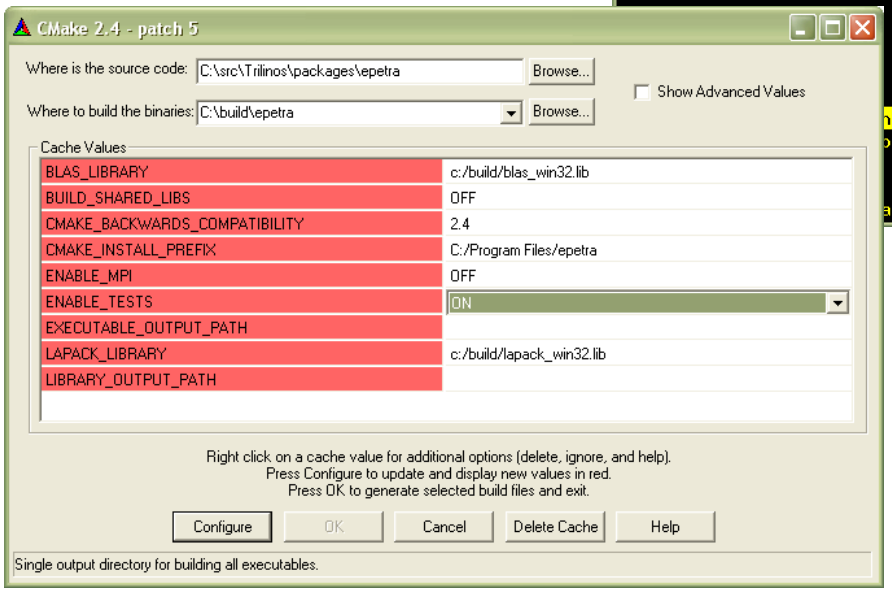
- Visualization Toolkit VTK
- Insight Segmentation and Registration Toolkit ITK
- DICOM ToolKit (DCMTK)
- Medical Imaging ToolKit
- MITK -Medical Imaging Interaction Toolkit
- AA+ - A class framework for Computational Astronomy
- Fltk - cross-platform C++ GUI toolkit for UNIX®/Linux® (X11), Microsoft® Windows®, and MacOS® X
- FlInventor - 3D toolkit
- ORCA - open-source framework for developing component-based robotic systems
- KWWidgets - A free, cross-platform and open-license scientific-visualization GUI Toolkit.
- IGSTK - Image Guided Surgery Toolkit

Source: http://www.cmake.org/Wiki/CMake_Projects

Multiple Front-Ends

- Command-line
- Curses
- Graphical (Win32)





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Multiple Back-Ends

- Borland Makefiles
- KDevelop 3
- MinGW Makefiles
- MSYS Makefiles
- NMake Makefiles
- Unix Makefiles
- Visual Studio 6
- Visual Studio 7
- Visual Studio 7 .NET 2003
- Visual Studio 8 2005
- Visual Studio 8 2005 Win64
- Watcom WMake
- XCode

Regression Testing with CTest

- Tests integrated with the build system
- Tests can be enabled/disabled based on configuration
- Tests can be submitted to a Dashboard Server
  - Nightly Builds
  - Continuous Builds
  - Experimental Builds
- Ex: VTK Dashboard
- Ex: Epetra Dashboard

Installation

- Install target
- Compatible with downstream distribution
  - Builtin prefix support
  - Builtin DESTDIR support

Binary Packaging with CPack

- Self-extracting Tar/gzip packages (Unix)
- Tar/gzip packages (Unix)
- Tar/bzip2 packages (Unix)
- ZIP compressed packages (Unix / Win32)
- NSIS graphical installers (Win32)
- PackageMaker installers (Mac OSX)
- X11 Bundles (Mac OSX)
- Debian Packages (CMake 2.6.0)
- RPM Packages (CMake 2.6.0)

Downloads

- Binary
  - Win32
  - MacOS Universal
  - Linux i386
  - SunOS Sparc
  - IRIX64 64
  - IRIX64 n32
  - HPUX 9000/785
  - AIX PowerPC
- Source
  - Minimum dependencies: C++ compiler
  - Optional dependencies: Curses, Qt (CMake 2.6)

Fabulous Demo Here!

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