



Getting Started With Insight

(Developer Instructions)

WARNING: This document is intended for new ITK developers only. If you simply want to use ITK in your project then you don't need the instructions in this document, please follow instead the instructions in the ITK Software Guide (<http://www.itk.org/ItkSoftwareGuide.pdf>) or in the Tutorial sessions (<http://www.itk.org/HTML/Tutorials.htm>). These other documents will help you to get a pleasant and efficient introduction to ITK.

Subscribing to the Mailing List

To subscribe to the insight-developers mailing list use the following web page:

<http://www.itk.org/mailman/listinfo/insight-developers>

To subscribe to the insight-users mailing list use the following web page:

<http://www.itk.org/mailman/listinfo/insight-users>

Requests to subscribe to the developers mailing list are currently limited to members of the consortium. As such all requests must be approved, if you would like to allow a grad student etc to be on the list just send email to bill.hoffman@kitware.com.

Using CVS

You can obtain CVS from the web site <http://cvshome.org/> For Unix you will need to build and install CVS. For windows you need to put cvs.exe patch.exe and the dll file into your system32 directory under WinNT or Windows. CVS is also included with cygwin <http://sources.redhat.com/cygwin/>.

Obtaining A New CVS User Account

This is only needed for new developers that are intended to commit code into the repository and therefore need write access. Any other user should simply checkout the code using an anonymous username as stated in the Download HTML page.

To obtain a CVS login name and password please go to the following link

<https://www.kitware.com/Admin/SendPassword.cgi>

You will find a form with five fields to be filled in. They include: UserName, E-Mail, Password, PasswordRepeat, and a Comment. The UserName and Password can be arbitrarily chosen by the new user, but the UserName is subject to be changed by the CVS administrator if it is not appropriate. The user will be notified in that case. This web page will send the password encrypted in order to preserve security. In the Comment field you should clearly specify the

reasons why you need write access to the repository, and that the repository you are interested is the one for **Insight**.

Note: **only** proven trusted individuals can be given write access.

Get A Copy of Insight

To check out a copy of the current development version of ITK use the following two commands. You will first need to have a login name and password provided to you. The first command verifies your identity and the second command will check out a copy of the tree onto your current directory. So make sure you execute these commands in the directory you want insight to appear. Once you have checked out insight you do not need to execute them again unless you move to a different machine or completely erase your insight tree.

```
cvs -d :pserver:YourLoginName@www.itk.org:/cvsroot/Insight login
```

```
cvs -d :pserver:YourLoginName@www.itk.org:/cvsroot/Insight checkout Insight
```

Add a New File or Directory to Insight

To add a new file or directory to the CVS repository use the following commands. The -kb flag should be used for any binary files such as pdf, Word, tiff, etc. Please do not add a directory without first checking with other developers.

```
cvs add directoryName  
cvs add fileName  
cvs add -kb binaryFileName
```

Commit a Change to the Repository

Once a file has been added or edited, you must commit it before others will be able to retrieve it. When a commit is done you must specify a comment indicating why the change was made. You should prefix the change with one of the following indicators.

- **BUG:** - a change made to fix a run-time issue
(crash, segmentation fault, exception or incorrect result).
- **COMP:** - a fix for a compilation issue, error or warning.
- **ENH:** - new functionality added to the project.
- **PERF:** - a performance improvement.
- **STYLE:** - a change that does not impact the logic or execution of the code
(improve coding style, comments and documentation).

Commit messages lacking indicators from the list above will be refused by the CVS server.

The cvs command to commit the change is:

```
cvs commit -m "BUG: fixed core dump when passed float data" filename
```

you can also use the syntax below which omits the -m flag. In this case cvs will start up an editor for you to enter a comment on why you made the change.

```
cvs commit filename
```

Update Your Copy of Insight

To bring your copy of Insight up to date with the repository use the following command.

```
cvs update -d
```

Determining What Files Have Changed in the Repository

You can determine what files you have edited and also what files have changed since your last update by using update with the -n flag. This will show you what files you have modified with a "M" (modified), what files have changed in the repository since your last update "P" (patch) or "U" (updated), and what files have conflicts with changes you have made "C".

```
cvs -n update
```

See Your Changes to a File

To see the changes that you have made to a file in the insight you can use the diff command. The first version shows you the changes between your current copy of the file and the version you last updated from. The second version shows the changes between your current version and the most recent copy in the repository. The third version shows changes in all directories.

```
cvs diff filename  
cvs diff -rHEAD filename  
cvs diff
```

Additional Information on a File

To see the change history of a file you can use the cvs log command as:

```
cvs log filename
```

To see the current status of a file

```
cvs status filename
```

to see who last edited each line of a file and when use:

```
cvs annotate filename
```

Installing and Compiling itk

This section provides the basic instructions for compiling itk on Window and Unix.

If you have problems or questions during compilation, please send a detail description to the itk mail list: insight-developers@public.kitware.com

ITK uses CMake for its build system. To build ITK, you will first have to compile and install CMake, or download pre-compiled binaries. Instructions on obtaining and building CMake can be found here: <http://www.cmake.org>.

With ITK, it is easy to create installations/libraries for multiple platforms. This is implemented by locating source separate from object files. This separation also helps simplify and centralize CVS interactions.

So, at the same level as the Insight directory, create directories for the object files for each platform you will be compiling for. Examples might include:

```
~/src/Insight (the source code checked out from the CVS repository)
~/src/Insight-VC++/
~/src/Insight-Cygwin/
~/src/Insight-Sun/
```

Platform specific instructions are below:

Windows: VC++

This process will have you create a program that you will run that will in-turn create workspace and project files, specialized for your directory structure, that will create the library files and several test programs.

1. Run CmakeSetup
2. In the CMakeSetup dialog ,
 - specify Insight directory using the browse button (e.g., E:/src/Insight)
 - Specify your object directory as the destination directory (e.g., E:/src/Insight-VC++)

This creates a directory structure under the destination directory and fills that directory structure with appropriate .dsp and .dsw files.
3. Open the top-level itk workspace file in the destination director
e.g., E:/src/Insight-VC++/itk.dsw
4. Build the ALL_BUILD project for Release or Debug

Unix /Cgywin Out of Source Build

On Unix/Linux systems CMake comes with a graphical user-interface built on curses called ccmake. There are also FLTK and other versions available for those so inclined. The instructions that follow are for ccmake.

To build in a directory other than the source code directory that you checked out with cvs, you will need gnu make (gmake), as most standard make programs will not work. For linux and cygwin gmake is the default. For other Unix systems, you will have to build gmake from source. Once you have gmake on your system, the instructions for

building itk are as follows: (NOTE: Platform should be replaced with Cygwin, Sun-CC, Sun-gcc, SGI-CC, or some name descriptive of the type of build.)

```
> mkdir Insight-Platform (same level as Insight directory)
> cd Insight-Platform
> cmake ../Insight
> make
```

Unix/Cgywin In Source Build

```
> cd Insight
> cmake
> make
```

The Insight Web Site

The insight web site can be found at <http://www.itk.org>. There is also a searchable frequently asked questions at <http://www.itk.org/HTML/FAQ.htm>. If you check new web pages into the CVS repository and would like to make them visible on the web site you can use <http://www.itk.org/cgi-bin/Update-InsightHTML.sh>.