

▼ □ CS 454 Haskell Lab Installation

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▼ □ Introduction

- □ This document describes how Haskell language and related software was installed on Windows XP lab machines at Willamette University in support of the CS 454 (Functional Programming) course for Spring of 2005. (The original installation was made for the Collins 411 lab; some revisions may be made for the wider-audience Collins 407 lab.)
 - □ A wide variety of compilers, interpreters, libraries and other tools are available for exploring the Haskell language, but many of these tools are associated with on-going academic research and teaching efforts which do not have the resources or top-level organization to create smoothly integrated installation packages which fit all needs. This document is therefore intended to describe procedures for installing a selected subset of available tools in some detail, in order to facilitate re-creation of the set-up at different labs or in different times during the semester and to facilitate student installation of software on home machines.
 - □ Some choices made during the installation are optional, arbitrary or conventional, whereas others are more crucial to correct operation (and in some cases some safe guesses have been made): I will try to indicate where other choices might be made and where unexpected dependencies might lurk. (I have also made a graphical overview of dependencies between packages to accompany this document.)
 - □ This guide assumes a recent Windows XP installation (as in the Collins 411 lab) as the base: installation on Macintosh and unix/linux systems will necessarily be different, but these notes should at least help steer the way.
 - □ I have cut a CD-ROM with all the relevant downloads (plus some extras: be careful about versions of Hugs and GHC); I can pass this around for people's use at home.
 - ▼ □ The rest of this document provides:
 - □ • a summary list of installed software or modifications;
 - □ • some notes about other software which was not installed, but is potentially useful for the course;
 - □ • some general considerations about installation procedures;
 - □ • step-by-step instructions for downloading and installing;
 - □ • some notes on testing the installation to make sure it works;
 - □ • and a more detailed description of the software installed, with notes on authorship, licensing, versions and availability.
 - □ For questions about this document, these procedures or the software packages, contact Fritz Ruehr at WU local extension x6165 or as fruehr@willamette.edu.
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▼ □ Summary list of installed software or modifications

- □ • *Haskell folder creation*
- □ • *Hugs interpreter package installation*
- □ • *Wordpad default modifications*

- • *WinHugs tool configuration*
- • *Hood library installation*
- • *Haskore music library installation*
- • *Fran graphics installation*
- • *Vital visual tool installation*
- • *GHC compiler installation*
- • *wxHaskell and wxWidgets libraries*
- • *JCreator editor installation*
- • *Windows short-cuts*
- • *browser bookmarks*
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▼ **Some other software possibilities**

- The following programs and tools might be desirable, but didn't fit well with these installation plans for various reasons (version incompatibilities, trouble installing, etc.)—they are mentioned here for completeness and future reference
- *latest version of GHC* (6.2.2 or 6.2.4): the former is not (easily) compatible with wxHaskell, the latter is not quite available yet (as of mid-January 2005)
- *the Pan graphics tools*: requires an installation of Microsoft Visual C++ compiler (licensing issues unclear)
- *the SOE Graphics and GraphicsLib libraries* for Windows graphics in Hugs: require an earlier version of Hugs
- *Haskell tools for JCreator 3.5*: does not work yet with the 3.5 version (perhaps it could be done by hand, though)
- *the Helium learning environment*: doesn't yet support classes, plus problems with LVMPATH environment variable on installation
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▼ **General considerations**

- user identity issues (staff versus student, etc.)
- file associations
- no spaces in file names
- forward versus back slashes
- other pathery issues and environment variables
- conveniences: shortcuts, bookmarks
- it may be helpful to create a temporary directory on the desktop to store the installers: this can be deleted later
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▼ **Step-by-step installation instructions**

- ▼ *Haskell folder creation*

- create a folder with the name "Haskell" (no quotes) as a sub-directory on the C drive (i.e., C:\Haskell). This will be the place where most of the software is installed: it helps localize the installation and aids students in finding things. Other locations and names are possible, but some utilities may depend on the fact that there are no spaces in file paths, so try to avoid, e.g., C:\Program Files.
- ▼ *Hugs interpreter package installation*
 - create a "Hugs" sub-folder inside the Haskell folder (C:\Haskell\Hugs)
 - download the msi package for the November 2003 version of Hugs (actually updated in Feb 2004) from the download page at <http://cvs.haskell.org/Hugs/pages/downloading.htm>
 - run the installer to put the installation into the Hugs sub-folder
 - add the install directory (C:\Haskell\Hugs) to the PATH environment variable (**and, to be safe, re-start the computer**)
- ▼ *Wordpad default modifications*
 - set Wordpad to be the default editor for text files: this requires opening a sample text file using "Open With" (found by right-clicking the file), then "Choose Program", then checking a box to save this choice for the future ("Always use selected program ...")
- ▼ *WinHugs tool configuration*
 - configure WinHugs to use Wordpad as its default editor: choose the options button on the left of an open WinHugs window (the icon has a check mark and a pencil), then set the "E" editor option to "C:\WINNT\ServicePackFiles\i386\wordpad.exe"
 - configure the WinHugs tool as the default for files with a ".hs" or ".lhs" extension: follow the same procedure using "Open with" above, but on sample files with these extensions (look in the demos sub-folder of the Hugs directory)
- ▼ *Hood library installation*
 - create a directory for the Hood installation at C:\Haskell\Hugs\libraries\Debug\Hood
 - get the "Main.hs" file and the documentation file (fulldoc.htm) for Hood from <http://www.haskell.org/hood/downloading.htm> and put them in the Hood directory
 - note: the "Observe.lhs" file described on the Hood page comes with the already installed Hugs libraries
- ▼ *Haskore music library installation*
 - create a Music sub-directory in the Hugs libraries folder (C:\Haskell\Hugs\libraries\Music)
 - download the Haskore library from <http://haskell.org/haskore/>
 - unzip this file
 - drop the entire Src directory from the zip archive into the Music directory
 - change the Hugs path to include Haskore (???) (haven't tested this yet)

- download the HasChorus library from <http://meltin.net/hacks/haskell/>
- unzip and un-tar the file
- put the resulting files and folders into the Music folder (C:\Haskell\Hugs\libraries\Music)
- ▼ *Fran graphics installation*
 - create a Fran sub-folder in the Hugs library directory (C:\Haskell\Hugs\libraries\Fran)
 - get the latest Fran distribution (bullet point 2 in the "Notes" list at <http://www.conal.net/fran/>)
 - unpack and install the files into the Fran sub-folder created earlier
 - add "C:\Haskell\Hugs\libraries\Fran" to the WinHugs path variable (Hugs tool as well ???) to ensure that the library is included on your search path
 - copy the file "SpriteLib.dll" from the Fran directory into "C:\Haskell\Hugs" (so that it is in the same directory as the Hugs executables)
 - get the zipped tutorial file from <http://www.conal.net/fran/tutorialArticle.zip> (the "zip file" link in paragraph 2 of the Fran page)
 - create a Fran docs folder in the Haskell directory (C:\Haskell\Hugs\Fran docs);
unzip the tutorial and install in the Fran docs folder
- ▼ *Vital visual tool installation*
 - create a Vital sub-folder in the Haskell directory (C:\Haskell\Vital)
 - download the Vital jar file from <http://www.cs.kent.ac.uk/projects/vital/install/index.html> (to the Vital directory)
 - unpack the jar file by going to the Windows command line (Start menu; run; cmd), getting to the correct directory (cd C:\Haskell\Vital) and executing the jar program with these arguments: `jar -xf bundle-2004-05-05.jar`
 - (on the lab machines, you need to use C:\j2ssdk1.4.2_04\bin\jar.exe\jar.exe instead of just jar, since that is where the jar executable is stored)
 - remove the jar file, if desired
 - to run Vital you need to run a java command on the vital.Vital file in the install directory: this can either be done from the command line (ugly, since you need to specify either the java directory on the java command, i.e., C:\j2ssdk1.4.2_04\bin\jar.exe\java.exe) or using a batch file: I will post a copy of the batch file to the course website
 - (optionally: install the batch file in the Vital directory, or perhaps one level up in the Haskell directory)
- ▼ *GHC compiler installation*
 - create a GHC sub-folder in the Haskell directory (C:\Haskell\ghc)

- get the msi installer file for the **6.2.1 (note!)** version of GHC from the download page at http://www.haskell.org/ghc/download_ghc_621.html#windows
- use a custom installation to place ghc in the right directory
- add the following directory to the PATH environment variable: C:\Haskell\ghc\bin (and, to be safe, re-start the machine)
- add a short-cut to the ghci tool from the ghc/bin sub-directory to the Haskell directory for convenience
- ▼ *wxHaskell and wxWidgets libraries*
 - create a wxHaskell sub-folder in the Haskell directory (C:\Haskell\wxHaskell)
 - get the Windows installer file from the wxHaskell download page <http://wxhaskell.sourceforge.net/download.html>
 - unzip the file into the wxHaskell directory
 - run the wxhaskell-0.8\bin\wxhaskell-register.bat file to install
- *JCreator editor installation*
- *Windows short-cuts*
- *browser bookmarks*
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- **Testing the installation**
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- ▼ **Software package references**
 - ▶ *Hugs interpreter*
 - ▶ *GHC compiler*
 - ▶ *Wordpad text editor*
 - ▶ *Hood debugging library*
 - ▶ *Haskore music library*
 - ▶ *Fran graphics library*
 - ▶ *Vital visual Haskell tool*
 - ▶ *JCreator programmers' editor*
 - ▶ *Haskell-for-JCreator tools*
 - ▶ *wxHaskell and wxWidgets libraries*