ITC 2007 – Examination Track: Usage

Installation instructions

1) Install JDK 6

Install Java SE Development Kit 6 Update 4 (or higher). You can download it from:

http://java.sun.com/javase/downloads/index.jsp (JDK 6 Update 4)

Do not install the JDK into a directory with spaces. Directory with spaces cannot be handled by the run scripts. The JDK installation will also install the latest JRE.
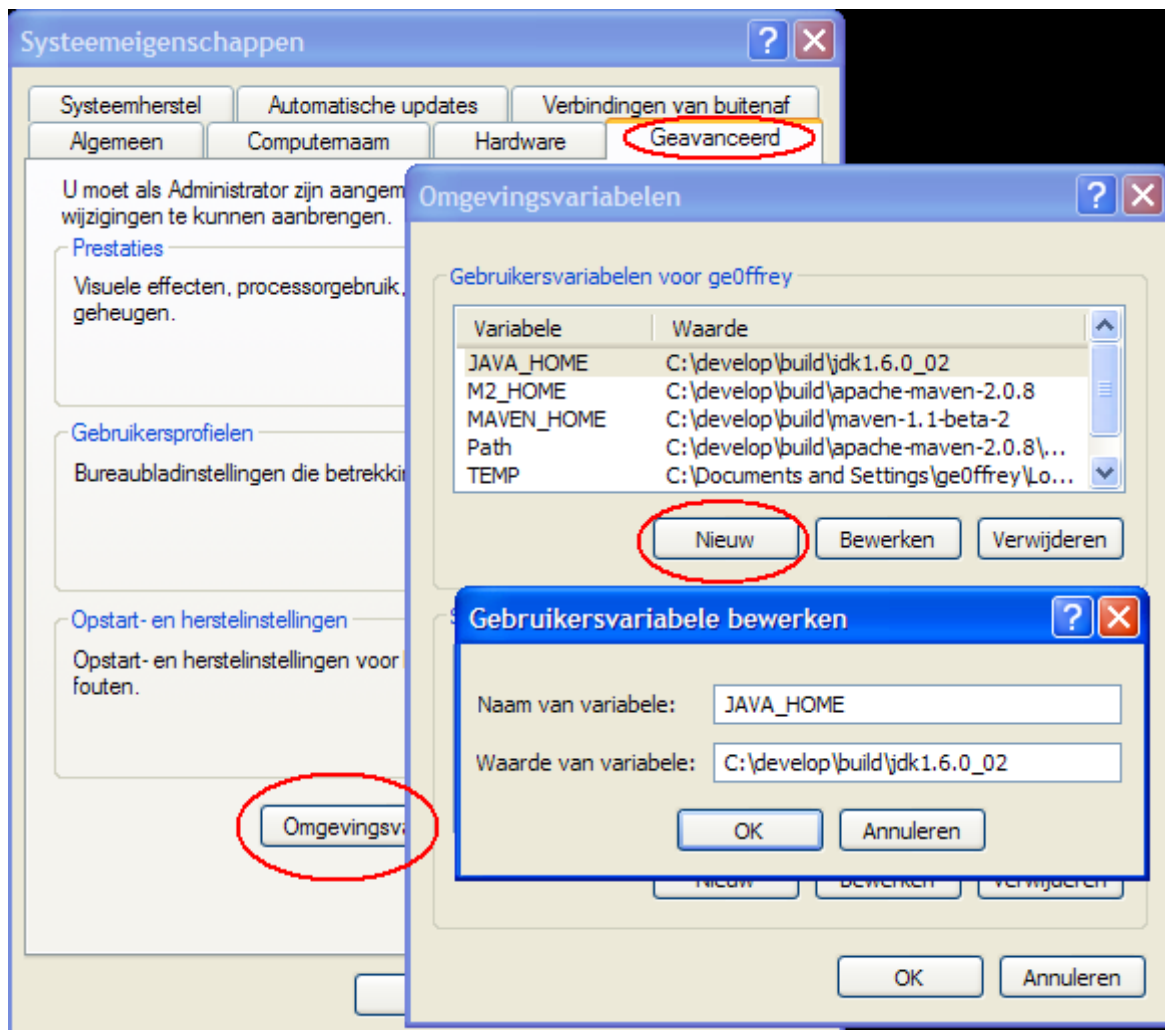
The JRE alone (a normal java runtime) doesn't suffice, because it doesn't the support the -server flag for higher optimization (slower initialization, more memory hungry but a 50% performance gain).

JDK 5 doesn't suffice, because JDK 6 has a 30% performance gain.

2) Set JAVA_HOME environment variable

Windows XP

Open menu **Control panel**, menu item **System properties**, tab **Advanced**, button **Environment variables**, button **New** and add a variable with the name **JAVA_HOME** and the value of the path to the JDK installation directory. For example:

It's been tested on Windows XP SP2.

Linux

Export an environment variable to the path of the JDK installation directory, for example:

```
export JAVA_HOME=/usr/lib/jvm/java-6-sun
```

Use Sun's JDK (which is will be completely open sourced with JDK 7), don't use an inferior alternative.

It's been tested on Ubuntu 7.04 and Ubuntu 7.10.

Mac

Mac doesn't have a decent release of JDK 6 yet. Although it might run in JDK 5, it will do so at a very serious performance cost.

3) On windows: install Cygwin

Download and install Cygwin (a linux emulator) from:

http://www.cygwin.com/

Alternatively, you can probably easily transform the .sh scripts into .bat scripts.

Running the solver

Adding or removing input files

You can add or remove exam files under the directory:

```
<zip_directory>/data/itc2007/examination/input
```

After running the solver you will find the sln files under the directory:

```
<zip_directory>/data/itc2007/examination/output
```

Running the solver from command line

Open the command shell (either linux shell or cygwin shell) and navigate to the directory where you unzipped the zip file (<zip_directory>). Make sure that that directory doesn't contain any space.

Run the script runExamination.sh and supply an argument with the maximum seconds spend per solution. For example if the benchmarking machine has 429 seconds to spend:

```
./runExamination.sh 429
```

Run this command only from the directory in which the script is set.

Running the GUI

In the same directory, run:

```
./runGuiExamination.sh
```

In this mode, you cannot set the maximum seconds spend per solution. However you'll get a visual overview of the examination and a break down of the solution score:

| Room | 0 {C260} | 1 {C100} | 2 {C129} |

83 {D180|S1}

291 {D180|S2}

5:04:2005 09:30:00

164 {D180|S48}

170 {D150

Constraint scores

Rule id	Constraint type	# occurences	Score total
frontLoad	NEGATIVE_SOFT	49	245
mixedDurations	NEGATIVE_SOFT	74	740
periodPenalty	NEGATIVE_SOFT	4	200
periodSpread	NEGATIVE_SOFT	1267	3.776
roomPenalty	NEGATIVE_SOFT	40	2.000
twoExamsInARow	NEGATIVE_SOFT	28	252

5:04:2005

348 {D130

603 {D180|S8}

Score = -7.213

Constraint scores

Building from source

Read the manual, it contains instructions to build from source:

http://users.telenet.be/geoffrey/tmp/solver/manual/html_single/

This allows you to play around with the solver configuration and find even better and faster configurations.