Java Decompiler HOW−TO

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This document will help you to de−compile the Java class programs. This documents gives a list of decompilers which can reverse engineer the Java class files and generate the Java source code files. Thie is very helpful if you do not have the Java source code file and have only the Java class files. The information in this document applies to all the operating sytems where Java language/Java VM runs.

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1. Introduction

(The latest version of this document is at http://www.milkywaygalaxy.freeservers.com. You may want to check there for changes).

Java compiler compiles the Java source code files (*.java) into binaries files (*.class). You would use the Java de−compiler to convert java class files into source code files (*.java).

Java de−compiler is very useful especially if you have *.class files and you do not have access to the source code. Some vendors do not ship the source code for java class files, in which case you use the java decompiler to look at the source code.

See also the "javap" command from Sun Microsystems. This command is available as soon as you install the JDK from Sun Microsystems. At unix prompt type −

```
bash$ javap -help
```

```
bash$ javap −c  <filename>.class
```

The following are the list of Java decompilers available −

- Free "Jad" Java Decompiler at http://www.geocities.com/SiliconValley/Bridge/8617/jad.html#general and at http://www.geocities.com/SiliconValley/Bridge/8617/jad.html#gui
- List of Decompilers, disassemblers and obfuscators are at http://dmoz.org/Computers/Programming/Languages/Java
- Free "Mocha" Java Decompiler at http://www.brouhaha.com/~eric/computers and download at http://www.brouhaha.com/~eric/computers/mocha−b1.zip
- "DeCafe Pro" from DeCafe, France at http://decafe.hypermart.net/index.htm
- "SourceTech Java decompiler" from Source Tech corp at http://www.srctec.com and at http://members.tripod.com/~SourceTec/jasmine.htm
- "SourceAgain" from Ahpah corp at http://www.ahpah.com
- "Class Cracker" from Mayon Software, Australia at http://www.tip.net.au/~mayon/classcracker/ccorder.html and at http://www.pcug.org.au/~mayon
- "IceBreaker" from BreakerTech corp, U.K. at http://www.breakertech.com and at http://www.breakertech.com/breaker/ice/ice.html#download
- "NMI Java decompiler" from NMI at http://njcv.htmlplanet.com and at http://njcv.htmlplanet.com/njcv.html
- Google http://directory.google.com/Top/Computers/Programming/Languages/Java/Development_Tools/Translators/Decompilers_and_Disassemblers/?tc=1

2. How can I trust Java Decompiler ??!!

For 100% assurance you need a **SCIENTIFIC** way to validate and trust the Java Decompiler program. The method described in this section will enable the decompiler program to be accepted as "trust−worthy" and reliable.

In order to verify that the decompiler program is regenerating the Java source−code properly, use the following technique −

Generate the class file from the generated source code using the compiler −

```
bash$ mv myprogram.class myprogram_orig.class
bash$ javac myprogram.java
```

Now use the unix 'diff' command to compare the two class files −

```
bash$ diff myprogram.class myprogram_orig.class
```

Both these files **MUST BE IDENTICAL**. This verifies that decompiler program is working perfectly. On DOS or Windows 95 you may want to use the free Cygnus Cygwin 'diff' or 'MKS' utilities.

This step gives 100% guarantee and 100% quality assurance and life term or long term **WARRANTY** on decompiler programs.

It is strongly recommended that you do these steps every time you run decompiler programs.

3. Related URLs

Visit following locators which are related to Java −

- http://www.linuxdoc.org/HOWTO/Enterprise−Java−for−Linux−HOWTO.html
- http://www.linuxdoc.org/HOWTO/Java−CGI−HOWTO.html
- http://www.linuxdoc.org/HOWTO/JavaStation−HOWTO/index.html
- Vim color text editor for Java, C++, C
- Beautifier HOWTO for Java and C++ programs
- C++ Programming HOWTO has support for Java like String objects
- Linux goodies main site is at http://www.milkywaygalaxy.freeservers.com Mirror sites are at − http://aldev0.webjump.com, angelfire, geocities, virtualave, 50megs, theglobe, NBCi, Terrashare, Fortunecity, Freewebsites, Tripod, Spree, Escalix, Httpcity, Freeservers.

4. Other Formats of this Document

This document is published in 14 different formats namely − DVI, Postscript, Latex, Adobe Acrobat PDF, LyX, GNU−info, HTML, RTF(Rich Text Format), Plain−text, Unix man pages, single HTML file, SGML (Linuxdoc format), SGML (Docbook format), MS WinHelp format.

This howto document is located at −

- http://www.linuxdoc.org and click on HOWTOs and search for howto document name using CTRL+f or ALT+f within the web−browser.

You can also find this document at the following mirrors sites −

- http://www.caldera.com/LDP/HOWTO
- http://www.linux.ucla.edu/LDP
- http://www.cc.gatech.edu/linux/LDP
- http://www.redhat.com/mirrors/LDP
- Other mirror sites near you (network−address−wise) can be found at http://www.linuxdoc.org/mirrors.html select a site and go to directory

/LDP/HOWTO/xxxxx−HOWTO.html

- You can get this HOWTO document as a single file tar ball in HTML, DVI, Postscript or SGML formats from − ftp://www.linuxdoc.org/pub/Linux/docs/HOWTO/other−formats/ and http://www.linuxdoc.org/docs.html#howto
- Plain text format is in: ftp://www.linuxdoc.org/pub/Linux/docs/HOWTO and http://www.linuxdoc.org/docs.html#howto
- Single HTML file format is in: http://www.linuxdoc.org/docs.html#howto

  Single HTML file can be created with command (see man sgml2html) − sgml2html −split 0 xxxxhowto.sgml
- Translations to other languages like French, German, Spanish, Chinese, Japanese are in ftp://www.linuxdoc.org/pub/Linux/docs/HOWTO and http://www.linuxdoc.org/docs.html#howto Any help from you to translate to other languages is welcome.

The document is written using a tool called "SGML−Tools" which can be got from − http://www.sgmltools.org Compiling the source you will get the following commands like

- sgml2html xxxxhowto.sgml (to generate html file)
- sgml2html −split 0 xxxxhowto.sgml (to generate a single page html file)
- sgml2rtf xxxxhowto.sgml (to generate RTF file)
- sgml2latex xxxxhowto.sgml (to generate latex file)

4.1 Acrobat PDF format

PDF file can be generated from postscript file using either acrobat **distill** or **Ghostscript**. And postscript file is generated from DVI which in turn is generated from LaTex file. You can download distill software from http://www.adobe.com. Given below is a sample session:

```
bash$ man sgml2latex
bash$ sgml2latex filename.sgml
bash$ man dvips
bash$ dvips -o filename.ps filename.dvi
bash$ distill filename.ps
bash$ man ghostscript
bash$ man ps2pdf
bash$ ps2pdf input.ps output.pdf
bash$ acroread output.pdf &
```

Or you can use Ghostscript command **ps2pdf**. ps2pdf is a work−alike for nearly all the functionality of Adobe's Acrobat Distiller product: it converts PostScript files to Portable Document Format (PDF) files. **ps2pdf** is implemented as a very small command script (batch file) that invokes Ghostscript, selecting a special "output device" called **pdfwrite**. In order to use ps2pdf, the pdfwrite device must be included in the makefile when Ghostscript was compiled; see the documentation on building Ghostscript for details.

4.2 Convert Linuxdoc to Docbook format

This document is written in linuxdoc SGML format. The Docbook SGML format supercedes the linuxdoc format and has lot more features than linuxdoc. The linuxdoc is very simple and is easy to use. To convert linuxdoc SGML file to Docbook SGML use the program **ld2db.sh** and some perl scripts. The ld2db output is not 100% clean and you need to use the **clean_ld2db.pl** perl script. You may need to manually correct few lines in the document.

- Download ld2db program from http://www.dcs.gla.ac.uk/~rrt/docbook.html or from Milkyway Galaxy site
- Download the cleanup_ld2db.pl perl script from from Milkyway Galaxy site

The ld2db.sh is not 100% clean, you will get lots of errors when you run

```
bash$ ld2db.sh file-linuxdoc.sgml db.sgml
bash$ cleanup.pl db.sgml > db_clean.sgml
bash$ gvim db_clean.sgml
bash$ docbook2html db.sgml
```

And you may have to manually edit some of the minor errors after running the perl script. For e.g. you may need to put closing tag < /Para> for each < Listitem>

4.3 Convert to MS WinHelp format

You can convert the SGML howto document to Microsoft Windows Help file, first convert the sgml to html using:

```
bash$ sgml2html xxxxhowto.sgml     (to generate html file)
bash$ sgml2html -split 0   xxxxhowto.sgml (to generate a single page html file)
```

Then use the tool HtmlToHlp. You can also use sgml2rtf and then use the RTF files for generating winhelp files.

4.4 Reading various formats

In order to view the document in dvi format, use the xdvi program. The xdvi program is located in tetex−xdvi*.rpm package in Redhat Linux which can be located through ControlPanel | Applications | Publishing | TeX menu buttons. To read dvi document give the command −

```
xdvi -geometry 80x90 howto.dvi
man xdvi
```

And resize the window with mouse. To navigate use Arrow keys, Page Up, Page Down keys, also you can use 'f', 'd', 'u', 'c', 'l', 'r', 'p', 'n' letter keys to move up, down, center, next page, previous page etc. To turn off expert menu press 'x'.

You can read postscript file using the program 'gv' (ghostview) or 'ghostscript'. The ghostscript program is in ghostscript*.rpm package and gv program is in gv*.rpm package in Redhat Linux which can be located through ControlPanel | Applications | Graphics menu buttons. The gv program is much more user friendly than ghostscript. Also ghostscript and gv are available on other platforms like OS/2, Windows 95 and NT, you view this document even on those platforms.

- Get ghostscript for Windows 95, OS/2, and for all OSes from http://www.cs.wisc.edu/~ghost

To read postscript document give the command −

```
gv howto.ps
ghostscript howto.ps
```

You can read HTML format document using Netscape Navigator, Microsoft Internet explorer, Redhat Baron Web browser or any of the 10 other web browsers.

You can read the latex, LyX output using LyX a X−Windows front end to latex.

5. Copyright

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