# Gnat-3.05 for NetBSD-1.1/i386

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## 1 What's this stuff

This is the README file for the port of GNAT to NetBSD-1.1/i386. GNAT is an Ada front-end for GCC, which supports the Ada95 standard. The binary package for NetBSD is in fact and Ada and C compiler, based on gcc-2.7.2.

*Important note*: This is not a 'supported version' built by the GNAT core team. So, any noise relating to the port should be addressed directly to the 'porter' —see title for e-mail address. Beggining with port of gnat-3.03, NetBSD does also have Ada tasking, based in MIT (Provenzano's) pthreads. It has been tested, and most things work. There are some bugs, though. If you want to help to find them, just drop me a line.

This file tells you:

- Section 2: How to install the binary package for NetBSD (and where to get it).
- Section 4: How this port has been made, compiling the GNAT source.
- Section 3: Where to look for documentation.

I just hope you find it useful...

## 2 Installing gnat-3.05 from binaries

This is for binaries of gnat-3.05 for NetBSD/i386-1.1. You can get the tared, compressed file from:

- ftp://ftp.gsyc.inf.uc3m.es/ pub/NetBSD/ports/gnat-3.05-i386-unknown-netbsd1.1.tar.gz
- ftp://cs.nyu.edu/ pub/gnat/gnat-3.05-i386-unknown-netbsd1.1.tar.gz

The following recipe assumes you have the tar.gz file as */mix/share/distrib/gnat/gnat-3.05-i386-unknown-netbsd1.0.tar.gz*).

1. cd /
2. tar xvzf /mix/share/distrib/gnat/gnat-3.05-i386-unknown-netbsd1.1.tar.gz

Once you have done that, you have gnat installed. Now, before using it, you have to set paths and the like. To do so, just source the proper env-vals (from a csh):

```
% source /usr/local/install/gnat-3.05/env-vals
```

If you want to install gnat in other place, different from `/usr/local/install/gnat-3.05`, you'll have to figure out how to set a proper env-vals. Have a look at the one provided.

# 3 Where to find documentation

Try out the doc directory in the binary distribution. There you can find:

- gnatinfo.txt: How to use gnat, and some rationale about it.
- gnatdoc1.ps: Well, the name says almost everything...
- features: What does current version of gnat do.

You can also browse ftp://cs.nyu.edu/pub/gnat, where there is info not only about Gnat use and development, but also about Ada95 and related topics.

A lot of info about Ada is also available on the Web. Try out http://lglwww.epfl.ch/Ada.

# 4 Building up the thing from sources

## 4.1 Tools and sources

These is where you can get the tools and sources mentioned here:

- gnat-3.04 for NetBSD from ftp://ftp.gsyc.inf.uc3m.es/pub/NetBSD/ports/gnat-3.04-i386-unknown-netbsd1.1.tar.gz
- gnat-3.05 sources from ftp://cs.nyu.edu/pub/gnat/gnat-3.05-src.tar.gz
- Patches for gnat-3.05 to compile in NetBSD-1.1/i386 from ftp://ftp.gsyc.inf.uc3m.es/pub/NetBSD/ports/gnat-3.05-src-i386-unknown-netbsd1.1.diff.gz
- gcc-2.7.2 from ftp://prep.ai.mit.edu/pub/gnu/gcc-2.7.2.tar.gz
- `pthreads-1_60_beta5` for NetBSD from `ftp://ftp.gsyc.inf.uc3m.es/pub/NetBSD/ports/pthreads-1_60_beta5-i386-unknown-netbsd1.1.tar.gz`
- GNU make from ftp://prep.ai.mit.edu/pub/gnu/make

## 4.2 Building the whole thing

First of all, I install gnat-3.04, and set up some variables:

```
setenv GCC gcc-2.7.2
setenv OLD_GNAT gnat-3.04
setenv NEW_GNAT gnat-3.05
setenv NEW_GNAT_VERS $NEW_GNAT
setenv DIR_TEST /usr/local/test/gnat
setenv DIR_INSTALL /usr/local/install
setenv DIR_DISTRIB /mix/share/distrib/gnat
setenv OLD_GNAT_INSTALL $DIR_INSTALL/$OLD_GNAT
setenv NEW_GNAT_INSTALL $DIR_INSTALL/$NEW_GNAT_VERS
setenv NEW_GNAT_TEST $DIR_TEST/$NEW_GNAT_VERS
setenv NEW_GNAT_SRC $DIR_TEST/$NEW_GNAT-src
setenv NEW_GCC_DISTRIB \
  $DIR_DISTRIB/$GCC.tar.gz
setenv NEW_GNAT_DISTRIB \
  $DIR_DISTRIB/$NEW_GNAT/$NEW_GNAT-src.tar.gz
setenv NEW_GNAT_PKG /usr/local/test/pkg_dir/$NEW_GNAT_VERS
source $OLD_GNAT_INSTALL/env-vals
setenv LOG_FILE /var/tmp/$NEW_GNAT.log
unlimit
setenv PTHREADS pthreads-1_60_beta5
```

I untar both $GCCand$NEW_GNAT:

```
mkdir $NEW_GNAT_PKG
mkdir $DIR_TEST
cd $DIR_TEST
tar xvzf $NEW_GCC_DISTRIB >>&! $LOG_FILE
mv $GCC $NEW_GNAT_VERS
tar xvzf $NEW_GNAT_DISTRIB >>&! $LOG_FILE
zcat $DIR_DISTRIB/gnat-3.05-src-netbsd.diff | patch -p0

cd $NEW_GNAT_TEST
patch -N -p0 < $NEW_GNAT_SRC/src/gcc-272.dif
```

Then, I copy the ada directory of $NEW_GNAT into the gcc distribution, and touch some files:

```
cp -rf $NEW_GNAT_SRC/src/ada $NEW_GNAT_TEST/
cd $NEW_GNAT_TEST/ada
touch treeprs.ads a-[es]info.h nmake.ad[bs]
```

Now, configure and make:

```
cd $NEW_GNAT_TEST
./configure --prefix=$NEW_GNAT_INSTALL \
    --target=i386-unknown-netbsd1.1 --host=i386-unknown-netbsd1.1
# Delete every reference to optimization (-O) from Makefile and
# ada/Makefile
```

```
make CC=gcc LANGUAGES="c ada" >>&! $LOG_FILE
make CC=gcc LANGUAGES="c ada" bootstrap >>&! $LOG_FILE
make CC=gcc gnatlib_and_tools >>&! $LOG_FILE
mkdir $NEW_GNAT_INSTALL
make CC=gcc LANGUAGES="c ada" install >>&! $LOG_FILE
```

Let's put some useful files in the install directory (GNU's make-3.70, a proper gcc, a file for helping with configuration, etc.):

```
cp ./xgcc $NEW_GNAT_INSTALL/bin/gcc
cp $OLD_GNAT_INSTALL/bin/make $NEW_GNAT_INSTALL/bin/make
cat >! $NEW_GNAT_INSTALL/env-vals
# to be run from a csh as "source env-vals" before using GNAT
#
unlimit
setenv PATH /usr/local/install/gnat-3.05/bin:$PATH
setenv GCC_EXEC_PREFIX /usr/local/install/gnat-3.05/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2/
setenv ADA_INCLUDE_PATH /usr/local/install/gnat-3.05/adainclude
setenv ADA_OBJECTS_PATH /usr/local/install/gnat-3.05/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2/adalib
setenv LIBRARY_PATH /usr/local/install/gnat-3.05/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2/adalib
setenv C_INCLUDE_PATH /usr/local/install/gnat-3.05/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2/include
^D
```

We need a proper version of pthread:

```
cp $DIR_INSTALL/$PTHREADS/lib/libpthread.a $NEW_GNAT_INSTALL/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2/adalib/libpthread.a
```

Also, let's make leaner software

```
cd $NEW_GNAT_INSTALL/bin
strip gcc gnatbind gnatbl gnatchp gnatf gnatk8 gnatmake
cd $NEW_GNAT_INSTALL/lib/gcc-lib/i386-unknown-netbsd1.1/2.7.2
strip cc1 cpp gnat1
```

I also copy some examples:

```
mkdir $NEW_GNAT_INSTALL/examples
cp $NEW_GNAT_SRC/examples/* $NEW_GNAT_INSTALL/examples
```

## 5 Comments, etc.

If you have any coment, question, etc. about the port of gnat to NetBSD-1.1/i386, please let me know. My address is in the title of this file.