

The Napier88 Release 2.0 Installation Guide

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1 Introduction

This guide describes how to install Napier88 Release 2.0 on a Sun SPARC or DEC Alpha. See [MBC+93] for the definition of the Napier88 language, and [KBC+94] for a description of the Napier88 Standard Library.

`Courier` font denotes text to be typed as it appears.

Italic Bold Courier font denotes text to be adapted to the local installation.

Some parts of the installation will require root access. For assistance with installation problems mail `napier@dcs.st-andrews.ac.uk`.

The release provides two versions of the populated stable store. One contains the entire programming environment, including the Napier88 compiler. The other contains the Napier88 compiler only. The latter, which is considerably smaller, may be used if only the compiler is required.

2 Downloading

Connect to the *ftp* server:

```
ftp ftp-fide.dcs.st-andrews.ac.uk  
  
username: anonymous  
password: john_napier@somewhere.edu
```

Set binary mode:

```
binary
```

Go to the release directory:

```
cd pub/Napier88/release2.0
```

Download the release file:

```
get napier88.rel2.0.tar.gz
```

Download the store files:

```
get stores/stablestore.full.gz  
get stores/stablestore.compiler.gz
```

If the compiler-only version, `stablestore.compiler`, will not be required then it need not be downloaded.

Other *ftp* clients such as *Fetch* may be used as normal.

3 DEC Alpha Only

The kernel may need to be configured to support memory mapped files. For details send mail to:

```
napier@dcs.st-andrews.ac.uk
```

4 Installing

4.1 Extract the Release

Uncompress the release and store files:

```
gunzip napier88.rel2.0.tar.gz
gunzip stablestore.full.gz
gunzip stablestore.compiler.gz      (if downloaded)
```

gunzip is available by *ftp* from `prep.ai.mit.edu/pub/gnu`.

Extract the release directory:

```
tar -xf napier88.rel2.0.tar
```

This creates a directory `napier88.rel2.0`.

4.2 Define Shell Variables

Define a shell variable with the full path of the release directory in its intended final position:

```
setenv NPRDIR /langs/napier88.rel2.0
```

Define a shell variable with the full path of the persistent store directory in its intended final position. This can be within the release directory or somewhere completely different.

```
setenv NPRSTORE /user/data/sstore.john
```

If this directory does not already exist, create it:

```
mkdir $NPRSTORE
```

Define a shell variable with the desired local heap size in Mbytes. It is recommended that this does not exceed a quarter of the physical memory. If the variable is not set a default of 8 Mbytes will be used.

```
setenv NPRHEAP 6
```

4.3 Install the Release

Move the release directory to its destination:

```
mv napier88.rel2.0 $NPRDIR
```

Copy the files in the directory `cmd` to any directory outside the release directory. These files contain release-independent scripts for running the Napier88 system.

```
cp $NPRDIR/cmd/* /usr/local/bin
```

Intending Napier users should add the directory chosen to their search path if it is not already in their path.

Move the store files to the directory `stores`.

```
mv stablestore* $NPRDIR/stores
```

Copy the chosen persistent store file to its destination:

```
cp $NPRDIR/stores/stablestore.full $NPRSTORE/stablestore
or cp $NPRDIR/stores/stablestore.compiler $NPRSTORE/stablestore
```

Set the persistent store lockfile for the local machine:

```
nprsethost -n
```

4.4 Update Network Software

Find out which machine is the NIS server for the local machine:

```
ypwhich -m services
```

The rest of the steps in this section will probably require root access. On the NIS server, add the following line to the file `/etc/services`:

```
napier88      8109/tcp      # napier88 remote access
```

On the local machine, add the following line to the file `/etc/inetd.conf`. *user* should be either *root* or some user whose default file creation permissions allow read and write by users running the Napier88 system.

```
napier88  stream  tcp  nowait  user  $NPRDIR/exec/listener  listener
```

On the local machine, find the process id of the *inet* daemon and reconfigure it by sending it a HUP signal:

```
ps auxw | grep inetd | grep -v grep
kill -HUP id of resulting process
```

5 Registering a Napier88 System

Napier88 Release 2.0 is Copyright © University of St Andrews 1994 and is subject to a licence fee. If you have a licence for an earlier release of Napier88, however, Release 2.0 is free. You are required to sign a release agreement. A copy of the agreement is in the file:

```
$NPRDIR/registration/agreement.ps
```

The software includes host machine authorisation and will not run on unregistered machines. The licence fee covers the use of any number of machines at one site. A machine registration form is in the file:

```
$NPRDIR/registration/registration.ps
```

To register, sign two copies of the release agreement and fill in the host registration form. Send them, with the licence fee as specified in the release agreement if applicable, to the following address:

Napier88 Registration
Persistent Programming Group

Division of Computer Science
University of St Andrews
North Haugh
St Andrews
Fife KY16 9SS
Scotland

Payments should be made out to **The University of St Andrews**. One of the copies of the release agreement will be returned to you, counter-signed.

You will receive authorisation codes for the registered machines by electronic mail. To register your machines use the command `nprregisterhost`. It takes as a command line argument either the authorisation code for a single machine, or the name of a file containing multiple authorisation codes.

If you already have an earlier release of Napier88 you can use the existing list of authorisation codes with Release 2.0. However, please still send the signed copies of the release agreement. To install the existing authorisation codes:

```
cat $OLDNPRDIR/exec/PSKEYS >> $NPRDIR/exec/PSKEYS
```

Subsequently, new machines may be registered by sending a further copy of the registration page of the release agreement, or by sending the required information by email to the address given in Section 1.

6 Creating New Stores

To create a new persistent store for a user, first set the shell variable to the new store directory:

```
setenv NPRSTORE /user/data/mystore
```

Create it if necessary. Copy the appropriate store file into the directory:

```
cp $NPRDIR/stores/stablestore.full $NPRSTORE/stablestore  
or cp $NPRDIR/stores/stablestore.compiler $NPRSTORE/stablestore
```

Set the persistent store lockfile for the local machine:

```
nprsethost -n
```

7 Troubleshooting

When the programming environment is run from an xterm, it starts inside the xterm window instead of creating a new one.

Add the line

```
unset WINDOWID
```

at the beginning of `$NPRDIR/bin/npr`.

8 Release Contents

The release contains the following directories:

bin this contains the commands required to use the Napier88 system:

```
napier88
npc
npr
nprcompact
nprformat
nprgc
nprregisterhost
nprsethost
nprstats
nps
```

cmd this contains release-independent commands required to use the Napier88 system:

```
napier88
npc
npr
nprcompact
nprformat
nprgc
nprregisterhost
nprsethost
nprstats
nps
```

exec this contains the executable programs used by the commands in *bin*:

for \$ARCH = sun4 and alpha:

```
$ARCH_gcstore
$ARCH_interpreter
$ARCH_mksstore
$ARCH_sstorecompact
$ARCH_sstorelockhost
$ARCH_stats
```

```
listener
```

napierprogs this contains compiled Napier88 programs:

```
clearHashTable.out
npcompile.out
npsavetypes.out
startProgrammingEnv.out
```

registration this contains the release agreement and registration forms:

```
agreement.ps
registration.ps
```

9 References

- [KBC+94] Kirby, G.N.C., Brown, A.L., Connor, R.C.H., Cutts, Q.I., Dearle, A., Moore, V.S., Morrison, R. & Munro, D.S. "The Napier88 Standard Library Reference Manual Version 2.2". University of St Andrews Technical Report CS/94/7 (1994).
- [MBC+93] Morrison, R., Brown, A.L., Connor, R.C.H., Cutts, Q.I., Dearle, A., Kirby, G.N.C. & Munro, D.S. "The Napier88 Reference Manual (Release 2.0)". University of St Andrews Technical Report CS/93/15 (1993).

These documents are available via *ftp* from the site:

`ftp-fide.dcs.st-andrews.ac.uk/pub/persistence.papers`

or via *World Wide Web* from the URL:

`http://www-fide.dcs.st-andrews.ac.uk:8080/Publications.html`