Building NetBSD on Linux

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Known for its portability, it might come at no surprise that NetBSD (and pkgsrc as well) is also easy to cross build on other platforms and even other hosts. Building NetBSD on Linux can be very convenient, as it's far easier to get access to high-performance Linux powered machines than to NetBSD ones. So let's go through the process and build a NetBSD/amd64 release on a Debian host, using an unprivileged user account.

First, we will need to install some development packages on the host machine:

```
apt-get install build-essential zlib1g-dev flex
```

Then, we can download and extract source sets for the NetBSD version we want to build. At the time of writing, latest NetBSD release is 6.1.4:

```
wget ftp://ftp.netbsd.org/pub/NetBSD/NetBSD-6.1.4/source/sets/gnusrc.tgz

wget ftp://ftp.netbsd.org/pub/NetBSD/NetBSD-6.1.4/source/sets/sharesrc.tgz

wget ftp://ftp.netbsd.org/pub/NetBSD/NetBSD-6.1.4/source/sets/src.tgz

wget ftp://ftp.netbsd.org/pub/NetBSD/NetBSD-6.1.4/source/sets/syssrc.tgz
```

```
for file in *.tgz

do

        tar xfz $file

done
```

We can now build the cross compiler:

```
cd usr/src
```

```
./build.sh -U -u -m amd64 tools
```

Compilation results:

```
===> Summary of results:
         build.sh command:    ./build.sh -U -u -m amd64 tools
         build.sh started:    Thu Aug 28 21:49:19 UTC 2014
         NetBSD version:      6.1.4
         MACHINE:             amd64
         MACHINE_ARCH:        x86_64
         Build platform:      Linux 3.2.0-4-amd64 x86_64
         HOST_SH:             /bin/sh
         No $TOOLDIR/bin/nbmake, needs building.
         Bootstrapping nbmake
         TOOLDIR path:        /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-x86_64
         DESTDIR path:        /home/admin/usr/src/obj/destdir.amd64
         RELEASEDIR path:     /home/admin/usr/src/obj/releasedir
         Created /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-x86_64/bin/nbmake
         Updated makewrapper: /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-x86_64/bin/nbmake-amd64
         Tools built to /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-x86_64
         build.sh ended:      Thu Aug 28 21:56:48 UTC 2014
```

Here is more information about configuration options used in those examples:

```
 -U         Set MKUNPRIVED=yes; build without requiring root privileges,
            install from an UNPRIVED build with proper file permissions.
   -u        Set MKUPDATE=yes; do not run "make cleandir" first.
            Without this, everything is rebuilt, including the tools.
```

```
    -m mach        Set MACHINE to mach; not required if NetBSD native.
```

Once our toolchain is ready, we can now build NetBSD itself:

```
./build.sh -U -u -m amd64 release
```

Compilation results:

```
===> Summary of results:
         build.sh command:    ./build.sh -U -u -m amd64 release
         build.sh started:    Thu Aug 28 21:57:54 UTC 2014
         NetBSD version:      6.1.4
         MACHINE:             amd64
         MACHINE_ARCH:        x86_64
         Build platform:      Linux 3.2.0-4-amd64 x86_64
         HOST_SH:             /bin/sh
         TOOLDIR path:        /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-x86_64
         DESTDIR path:        /home/admin/usr/src/obj/destdir.amd64
         RELEASEDIR path:     /home/admin/usr/src/obj/releasedir
         Updated makewrapper: /home/admin/usr/src/obj/tooldir.Linux-3.2.0-4-amd64-
x86_64/bin/nbmake-amd64
         Successful make release
         build.sh ended:      Thu Aug 28 23:21:28 UTC 2014
```

From there, building an ISO image takes only a few seconds:

```
./build.sh -U -u -m amd64 iso-image
```