

# Compiling pxelinux and memdisk on FreeBSD

Building pxelinux and memdisk on FreeBSD is not as straight forward as on Linux. A fair amount of additional handwork is involved.

But don't worry, all steps required to master this task are outlined below.

The requirement to build pxelinux came while implementing a FreeBSD-hosted network bootstrap environment, where I wanted to use it as primary boot loader.

Of course I could have taken pxelinux from an existing Linux distro's binary package. I couldn't resist the challenge however...

## #1 Prerequisites

These prerequisite tools need to be installed first: nasm and gmake

It's easiest you install them from the ports:

```
#cd /usr/ports/devel/gmake
#make clean build install && make clean
#cd /usr/ports/devel/nasm
#make clean build install && make clean
```

## #2 Get the source

Since pxelinux and memdisk are part of syslinux, you need to fetch a current syslinux [release tarball](#) to a temporary directory and extract it.

```
#cd /tmp
#wget http://www.kernel.org/pub/linux/utils/boot/syslinux/syslinux-3.36.tar.bz2
#tar -xjpvf syslinux-3.36.tar.bz2
```

## #3 Apply source code patch

Now you could run 'gmake' within the source directory, this would however yield a linker error.

Let's fix this first.

```
#cd syslinux-3.36
#find . -type f -exec grep -le 'elf_i386' {} ; | xargs perl -i -p -e 's/elf_i386/elf_i386_fbsd/g;'
```

## #4 Building pxelinux and memdisk

Now let's head on to building pxelinux and memdisk, the two components needed in particular.

```
#gmake pxelinux.bin
#cd memdisk; gmake; cd ..
```

They should compile cleanly so the next step would be copying them to your tftpd boot directory, which is /var/tftpd for me.

```
#cp pxelinux.bin /var/tftpd/pxelinux
```

```
#cp memdisk/memdisk /var/tftpd/memdisk
```

## **#5 Conclusion**

pxelinux and memdisk can now be used in a pxe bootstrap environment (see also [Convert FreeBSD ISO image for PXE bootstrap](#)).

There still remain some compile time issues with syslinux itself. This is why running 'gmake' within the source directory yet fails due to unresolved include file dependencies.

I didn't tamper with them because I was only interested in getting pxelinux and memdisk to run in the first place. Also I couldn't think of a practical reason in using syslinux on FreeBSD so I spared me these efforts.