Creating a Mirror for FreeBSD-Distfiles

Andreas Fehlner

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1 Introducing the Problem

You have a computer lab or even a big network with lots of FreeBSD machines. Some of those are needed for different tasks and so it could be that they have different versions of FreeBSD installed (for example 4.9 and 5.2). This makes you unable to use **g4u** (www.feyrer.de/g4u/) or diskless systems.
Each of these machines need (from time to time) several files from the ports collection.
Examples:

- Installation of new programs
- Uprading the the installed programs from the ports collection

That's why you can save a lot of time and bandwith (after the first 'big fetch' the changes are quite small), when you have a local mirror of all the distfiles from which all local machines can download their necessary files.

Besides many persons (or their computers) need the same files, for example mozilla, XFree86, mplayer, KDE or Gnome or other common dependencies. Because of that, I think the creation of a mirror is useful, in order not to have to download the same files or packages twice or more times.

This article describes the necessary steps to configure such a local mirror. After reading this article, you should be able to setup a FTP-Server in your local network, on which all distfiles(gzip'd sources of the programs in the ports collection) are available. Additionally this server updates its distfile mirror automatically without the need for manual intervention. When this mirror is up and running, computers from the local network will first try to fetch their neede files from that machine and only in the unlikely event that they aren't available, these files will be fetched from an outside source.

2 Requirements

- **cvsup**: net/cvsup
- **fastest_cvsup**: sysutils/fastest_cvsup
- a FTP server e.g.
  - **ftpd**: base-system
  - **pure-ftpd**: ftp/pure-ftpd
- **portsclean**: sysutils/portupgrade

3 Setting the directory for the distfiles

If you don't want to use the standard location (/usr/ports/distfiles/) for the distfiles, you will have to to change some configuration files.
Some reasons for changing the default directory:

- Large diskspace consumption (about 15GB)
- frequent changes
- etc.

If you also want to use these distfiles locally on the server as well, you must reset the variable "DISTDIR" for the users, who should be able to install new programs.

Das Setzen der jeweiligen Variable ist von Shell zu Shell unterschiedlich.
Das Folgende ist ein Beispiel für die C-Shell.

entweder jedesmal manuell durch
```
erde# setenv DISTDIR /share1/dist_mirror/distfiles/
```

oder automatisch durch setzen der Umgebungsvariable im configfile der shell
e.g. */root/.cshrc*
```
erde# echo "setenv DISTDIR /share1/dist_mirror/distfiles/" > /root/.cshrc
```

4 Mirror Configuration

4.1 CVSup Configuration

The most famous method to keep your ports collection up to date is bye using **cvsup** (net/cvsup).
First you have to configure CVSup.

1. As root, copy the sample ports-supfile to */usr/local/etc/distmirror/*
   ```
   erde# cp /usr/share/examples/cvsup/ports-supfile /usr/local/etc/distmirror/
   ```

2. Edit /usr/local/etc/distmirror/ports-supfile
   `erde# vi /usr/local/etc/distmirror/ports-supfile`

   - Change 'CHANGE_THIS.FreeBSD.org' to 'cvsup2.de.FreeBSD.org' or another CVSup server
   - If you don't require all the distfiles (e.g. chinese or arabic language support), it is recommend to comment out the entry 'ports-all' (insert '#' before it) and at all desired ports delete '#'.

     Then then file could have the following lookout.

     ---

     *default host=cvsup4.de.freebsd.org
     *default base=/usr
     *default prefix=/usr
     *default release=cvs tag=.
     *default delete use-rel-suffix

     *default compress

     ports-base
     ports-archivers
     ports-astro
     ports-audio
     ports-benchmarks
     ports-biology
     ...
     #ports-french
     ...

For more Information on using **cvsup**, take a look at the FreeBSD-Handbook (/usr/share/doc/de/books/handbook/) or http://www.cvsup.org.

4.2 Skripte

4.2.1 upd_ports.sh

This script is used to search the fastest CVSup server in user specified country (e.g de) and downloading the changes in the port tree. Copy the following script to e.g. /usr/local/etc/distmirror/upd_port.

```
#!/bin/csh
## upd_ports.sh
if SERVER=‘/usr/local/bin/fastest_cvsup -q -c de‘; then
cvsup -z -h $SERVER /usr/local/etc/distmirror/ports-supfile
fi
```

This shell script is based on an example in the manpage of fastest_cvsup. The only thing, you have to change is the country code. E.g you use this server in Spain, replace 'de' by 'es'. See the script or the FreeBSD Handbook for a full list.

4.2.2 fetcher.sh

fetcher is used to download all available distfiles to a special directory (e.g. /share/distfile_mirror/distfiles/). If a file isn't available at any ftp-server or have to be downloaded manuelly(because of the license), the process continues downloading another file.

```
#!/bin/csh
## fetcher.sh
setenv DISSTDIR /share/distfile_mirror/distfiles
setenv FETCH_CMD "/usr/bin/fetch -A -m -p"
setenv BATCH yes
cd /usr/ports && make -k fetch all &> /share/distfile_mirror/fetch.log
```

4.3 crontab

Now we have to configure the cron Daemon in order to make the Job execution automaticlly.

```
erde# crontab -e
```

```
0 18 1 * * /usr/local/sbin/portsclean -DQQi # Delete old Distfiles
0 20 * * * /usr/local/etc/distmirror/upd.sh # Update the ports collection
0 22 * * * /usr/local/etc/distmirror/fetcher.sh # Fetch distfiles
```

4.4 Configuring the FTP Server

Then you have to make this machine an anonymous FTP server.

4.4.1 FTPD

For creating an anonymous FTP server, you could e.g. use the system configuration tool /stand/sysinstall, select Configure an after that Networking. Then you have to enable Anon FTP. To allow anonymous FTP, use the arrow keys to select [Yes]and press Enter. If you have chosen an alternative place for the distfiles (e.g. /share/distfile_mirror/distfiles/), set the FTP Root Directory to /share/distfile_mirror/distfiles/.

Information on configuring alternate FTP Servers may be found in the manuel pages and websites for the servers(e.g. www.pureftpd.org).

4.4.2 pure-ftpd

Danach sollte man auf den FTP-Server vom Netz aus als anonymous zugreifen können.

5 Client Configuration

5.1 Adpate /etc/make.conf

Eine der folgenden Zeilen (nach Anpassen der IP-Adresse oder des DNS-Namen in die */etc/make.conf* einfügen
MASTER_SITE_OVERRIDE=ftp://erde.localnet.edv/distmirror/distfiles/$DIST_SUBDIR
MASTER_SITE_OVERRIDE=ftp://ftp.172.16.0.200/distmirror/distfiles/$DIST_SUBDIR

If you're behind a firewall, which blocks active FTP connections, add the following line