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# Lab - Project-Builder.org

## Lab Contents

This lab purpose is to install and use Project-Builder.org to produce packages for native and non-native Operating System, as well as experiencing the Continuous Packaging concept.

## Lab Writer and Trainer

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# Overview of the Project-Builder.org Lab

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## Objectives

At the end of the Lab students should be able to install Project-Builder.org, use pb to create a new project, package it natively, inside a VM and/or a VE for another OS.

Expected duration : 120 minutes



## Reference documents

When dealing with the installation and configuration of Project-Builder.org, the first approach is to look at the reference Web site <http://trac.project-builder.org>:

The netperf example is the most up to date introduction document at <http://trac.project-builder.org/wiki/NetPerfExample> as well as man page for pb.

A bootstrap page has been contributed by Bryan Gartner at: <http://trac.project-builder.org/wiki/Bootstrapping>

All the documentation is provided currently under a wiki format, so contributors are welcome and expected, including those finding issues in that training material. Trac also provides a bug report/enhancement request feature ;-)

A mailing-list dealing with pb is available at <http://mondorescue.org/sympa/arc/pb-devel>

Estimated time for the lab is placed in front of each part.

## Environment setup

Estimated time: 15 minutes

## Project-builder.org installation

Project-Builder.org is available externally from <ftp://ftp.project-builder.org/> and internally on the HP LAN from <http://eurolinux.gre.hp.com/pub/linux/mondorescue/> or using ftp as well from the same place. An SVN access is also available, Cf the Wiki.

Version 0.11.2 is the current stable release. Version devel is the development version

As we'll work on a RHEL environment for the Lab, you may want to use yum to do the installation. For that, download the file under `rhel/6` named `pb.repo` and place it under your `/etc/yum.repos.d` directory. Of course, you can use rpm and deal with the dependencies yourself ;-)

You may also need for RHEL additional packages not provided in the base distribution, but which are brought by RPMforge (or EPEL). This is useful if you intend to build from upstream tar files e.g. So create the following file (adapting it to your arch and distribution version):

```
# cd /etc/yum.repos.d/
# wget ftp://ftp.project-builder.org/rhel/6/x86_64/pb.repo
# cat > /etc/yum.repos.d/rpmforge.repo << EOF
[rpmforge]
name = Red Hat Enterprise $releasever - RPMforge.net - dag
baseurl = ftp://eurolinux.gre.hp.com/pub/linux/rpmforge/redhat/el6/en
enabled = 1
gpgcheck = 0
EOF
```



Or alternatively outside the HP LAN, replace the baseurl line by:

```
# baseurl = http://apt.sw.be/redhat/el6/en/x86\_64/dag/
```

Then use yum to install the application with all its dependencies:

```
# yum install project-builder
```

Other distributions may be easier to deal with by providing more packages out of the box (Case of most non-commercial distributions such as Debian/Ubuntu, Fedora, Mandriva, OpenSuSE, ...)

Check that the correct version is installed and operational:

```
# pb --version
```

Option version requires an argument

```
pb (aka project-builder.org) Version 0.11.2-1250
```

Usage:

```
pb [-vhSq][--r pbroot][--p project][[--s script -a account -P port][--t os-ver-arch][--m os-ver-arch[,...]]][--g][--i iso] <action> [<pkg1> ...]
```

```
pb [--verbose][--help][--man][--quiet][--snapshot][--revision pbroot]
[--project project][[--script script --account account --port port][--
target os-ver-arch][--machine os-ver-arcg[,...]]][--nographic][--iso iso]
<action> [<pkg1> ...]
```

## Local subversion setup

In order to be able to manage you build environment in configuration, we will use a local subversion repository on your machine. If not installed, please install subversion server and client, and create a local repository to manage your local modifications and allow its usage.

```
# yum --disablerepo=rpmsforge install subversion.x86_64
```

```
# mkdir -p /prj
```

```
# svnadmin create /prj/svn
```

```
# ls /prj/svn
```

```
conf db format hooks locks README.txt
```

```
# cat >> /prj/svn/conf/authz << EOF
```

```
[/]
```

```
pblab = rw
```

```
* = r
```

```
EOF
```

```
# cat >> /prj/svn/conf/passwd << EOF
```



```
pblab = pblab
EOF
# cat > /prj/svn/conf/svnserve.conf << EOF
[general]
password-db = passwd
authz-db = authz
[sasl]
EOF
# svnserve -d -r /prj/svn
```

The remaining operations should be done as user `pblab`, as no root access is needed in general for `pb` to operate. Create it with `adduser` and the `passwd` you want.

Check that you can log in this account and that the directory is nearly empty:

```
# su - pblab
$ ls -a
.  ..  .bash_logout  .bash_profile  .bashrc
```

As of now this document will use the name of the command (`pb`) to describe the project for easier reading, and because of the writer lazyness.

## Using `pb` with an existing project (tar)

Estimated time: 45 minutes.

### Pb setup

The goal of this part is to setup the minimal environment needed by `project-builder.org` to work correctly with a project whose delivery is accessible through a tar file. In this example we will use the `afio` project. Feel free to test with another one, the instructors during the lab should be able to adapt ;-)

First to work correctly the `pb` command needs to find the required information to the project you want to deal with in a configuration file under your home directly called `.pbrc`.

You can try to first launch `pb` with one of the recognized commands in order to see what happens:

```
$ pb clean
No existing /home/pblab/.pbrc found, creating one as template
No pbconfurl defined for unknown at
/usr/lib/perl5/vendor_perl/5.8.8/ProjectBuilder/Conf.pm line 325.
[pblab@o185i225 ~]$
[pblab@o185i225 ~]$ ls -a
```



```
. .. .bash_logout .bash_profile .bashrc .pbrc
```

So, first you can remark that there are some errors ;-)

But more importantly, pb has created for you a template of configuration file under your home directory to help you start with its usage. Look at it:

```
[pblab@o185i225 ~]$ cat .pbrc
#
# Define for each project the URL of its pbconf repository
# No default option allowed here as they need to be all different
#
#pbconfurl example =
svn+ssh://svn.example.org/svn/pb/projects/example/pbconf
#pbconfurl pb = svn+ssh://svn.project-builder.org/mondo/svn/pb/pbconf

# Under that dir will take place everything related to pb
# If you want to use VMs/chroot/..., then use $ENV{'HOME'} to make it
portable
# to your VMs/chroot/...
# if not defined then /var/cache
#pbdefdir default = $ENV{'HOME'}/pb/projects
#pbdefdir pb = $ENV{'HOME'}

# If not defined, pbconfdir is under pbdefdir/pbproj/pbconf
#pbconfdir pb = $ENV{'HOME'}/pb/pbconf

# If not defined, pbprojdir is under pbdefdir/pbproj
# Only defined if we have access to the dev of the project
#pbprojdir example = $ENV{'HOME'}/example/svn

# We have commit acces to these
#pburl example =
cvs+ssh://user@example.cvs.sourceforge.net:/cvsroot/example
#pburl pb = svn+ssh://svn.project-builder.org/mondo/svn/pb
```



```
# I mask my real login on the ssh machines here
#sshlogin example = user

# where to find Build System infos:
#vmppath default = /home/qemu
#veppath default = /home/rpmbootstrap
#rmpath default = /home/remote

# Overwrite generic setup
#vmpport pb = 2223
#vmpport example = 2224
```

## pb repository setup

Adapt the file in order to prepare your environment for a pb build of afio, and create the directory that will host your local SVN export content:

```
[pblab@o185i225 ~]$ grep -Ev '^$|^#' .pbrc
pbconfurl afio = svn://localhost/pb/afio/pbconf
pbdefdir default = $ENV{'HOME'}/pb
[pblab@o185i225 ~]$ mkdir pb
[pblab@o185i225 pb]$ svn import pb svn://localhost/pb -m "Initial creation
of pb repo"
[...]
Committed revision 1.
[pblab@o185i225 ~]$ svn log -v svn://localhost/
-----
r1 | pblab | 2011-03-11 15:34:59 +0100 (Fri, 11 Mar 2011) | 1 line
Changed paths:
   A /pb

Initial creation of pb repo
-----
[pblab@o185i225 ~]$ cd pb
[pblab@o185i225 pb]$ ls -a
```



```
. ..  
[pblab@o185i225 pb]$ svn co svn://localhost/pb .  
Checked out revision 1.  
[pblab@o185i225 pb]$ ls -a  
. .. .svn
```

Now that you have a correct SVN structure in your environment; you may try to ask pb to create the project structure of the afio packaging project for you, and start exploring it. As you only have a single package to create, you may call it afio and pass it as a parameter to your creation command:

```
[pblab@o185i225 pb]$ pb -p afio newproj afio  
Adding /home/pblab/pb/afio to VCS ... OK  
Updating /home/pblab/pb/afio ... OK  
Adding /home/pblab/pb/afio/pbconf to VCS ... OK  
Updating /home/pblab/pb/afio/pbconf ... OK  
Checking in /home/pblab/pb/afio ... OK  
Updating /home/pblab/pb/afio ... OK  
Project: afio  
Action: newproj
```

Look at what pb has created for you under that directory:

```
[pblab@o185i225 pb]$ ls -R  
.:  
afio  
  
./afio:  
build delivery pbconf  
  
./afio/build:  
  
./afio/delivery:  
  
./afio/pbconf:  
afio afio.pb pbfilter
```





```
./afio/pbconf/afio:
deb pbfilter pkg rpm

./afio/pbconf/afio/deb:
afio.dirs afio.docs changelog compat control copyright rules

./afio/pbconf/afio/pbfilter:

./afio/pbconf/afio/pkg:
depend pbbuild pkginfo

./afio/pbconf/afio/rpm:
afio.spec

./afio/pbconf/pbfilter:
all.pbf          debian-5.0.pbf fedora-1.pbf fedora-3.pbf fedora-5.pbf
fedora-7.pbf md.pbf          pkg.pbf
debian-4.0.pbf deb.pbf          fedora-2.pbf fedora-4.pbf fedora-6.pbf
fedora.pbf novell.pbf rpm.pbf
```

3 main directories have been created: `build` that will host all local build of packages, `delivery` that will contain the tar files generated as input for the build, and `pbconf` which contains all the metadata to build the packages.

The main configuration file for pb with this project is `./afio/pbconf/afio.pb`. We will have to modify it, in order for pb to have the required info on the afio project. We will do more modifications as we progress towards the knowledge of pb.

As we are on a rpm based distribution, we will have a look at the spec file generated `./afio/pbconf/afio/rpm/afio.spec`. You can also see that template for deb (Debian and Ubuntu) and pkg (Solaris/OpenSolaris) build have been generated as well. Also a `pbfilter` directory has been created to host macro filtering.

## Tar file creation

If at that point, without doing any modification, we try to generate at least the tar files of the project, the result is:

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
No defpkgdir defined for afio at
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
[pblab@o185i225 pb]$ pbg defpkgdir
```



```
./afio/pbconf/afio.pb:#defpkgdir afio = dir-afio  
./afio/pbconf/afio.pb:# Files are mentioned relatively to pbroot/defpkgdir
```

So time to give some content to our conf file:

```
[pblab@o185i225 pb]$ cat >> ./afio/pbconf/afio.pb << EOF  
defpkgdir afio = dummy  
EOF
```

In the case of a project for which you don't own/contribute to the development, the `defpkgdir` parameter value is useless, but however mandatory. If you have a local repository for the development, it should correspond to the name of the directory hosting the related development of the corresponding package.

```
[pblab@o185i225 pb]$ pb -p afio sbx2build  
No pbpackager defined for afio at  
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

`pbpackager` is another mandatory tag. It indicates who is doing the job of packaging. You want to be rewarded no ? So indicate it: Here you have 2 choices: you can put it in the configuration file of the project, as done previously, or you can put it in your own `.pbrc` file which relates to all your activities. As this is a fairly generic parameter in that case, we opt for the second and associate that parameter to all projects, by using the default project name:

```
[pblab@o185i225 pb]$ cat >> $HOME/.pbrc << EOF  
pbpackager default = Big Chief <bigchief@hp.com>  
EOF
```

So with this, you can remark that there is a notion of inheritance of parameters from the most generic configuration file, up to the most specialized. The order being `/etc/pb/pb.conf`, `$HOME/.pbrc`, `project.pb`, `VEPath/.pbrc`, `VMPATH/.pbrc`, `RMPATH/.pbrc`. New test:

```
[pblab@o185i225 pb]$ pb -p afio sbx2build  
No projver defined for afio at  
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

Again, a new required parameter is needed. We have to provide the version of the project. Here we are packaging version 2.5 of the project:

```
[pblab@o185i225 pb]$ cat >> ./afio/pbconf/afio.pb << EOF  
projver afio = 2.5  
EOF
```

Each project should have a version, which will be used as the default version for every package produced. This can be overloaded if needed package by package. New test:

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
```



```
No projtag defined for afio at
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

Same story with the tag that needs to be provided to packages. A tag indicates the iteration level of build of a similar content, or said differently a fix on a build process.

```
[pblab@o185i225 pb]$ cat >> ./afio/pbconf/afio.pb << EOF
projtag afio = 1
EOF
```

In a future version, we may consider defaulting to 1. That's not the case yet. Start over again:

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
Project: afio
Action: sbx2build
Packages: afio
No pburl defined for afio at
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

So we made some progress, as the trace indicates and we have passed the first round of metadata really required by pb to work on our project. Of course, the next request is legitimate. We have not said yet where the software is ! So do it:

```
[pblab@o185i225 pb]$ cat >> ./afio/pbconf/afio.pb << EOF
pburl afio = ftp://ftp.project-builder.org/src/afio-2.5.tar.gz
EOF
```

Some comments here: there are multiple possibilities to designate the target we want to package. Here we use the simplest one, which is a pointer to a tar file (pb can use ftp or http or file protocols to access the file, and knows how to handle compressed tar files. But it can also target VCS (Version Control System) such as Subversion, SVK, CVS, Git or Mercurial using direct or ssh encapsulated protocol. We will illustrate it on another section.

So test again !

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
Project: afio
Action: sbx2build
Packages: afio
No pbrepo defined for afio at
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

Again that parameter seems to appear early as a question with regards to where we are in the build process. But it may be used for filtering possibilities that we will explore later on. It corresponds to the root URL of the final place where your users will find your packages and deliveries, and is used to document some entries in build files, such as the spec file, thus needed quite early. Here give the name of where we found the source file:



```
[pblab@o185i225 pb]$ cat >> ./afio/pbconf/afio.pb << EOF
pbrepo afio = ftp://ftp.project-builder.org
EOF
```

Once more:

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
Project: afio
Action: sbx2build
Packages: afio

Management of afio 2.5-0.20110311154738 (rev flat)
Downloading ftp://ftp.project-builder.org/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.RgBI2HBr0_/afio-2.5.tar.gz
... OK
WARNING: You don't seem to have a mime-info database. The
shared-mime-info package is available from http://freedesktop.org/ .
Generating fake ChangeLog for test version
Preparing delivery ...
Delivered and compressed patches N/A
Delivered additional sources N/A
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-
2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
```

Hurray ! We have at least produced something from pb. Well you could be doubtful it's easier and quicker than using traditional way, and up to that point, I agree with you. Except that this setup phase just needs to be done once.

## Dealing with filters

So pb has downloaded the tar file for us, extracted it and generated 2 new tar files. In fact the first tar file is even not touched (“Preserving original tar file”) in order to satisfy md5sum checks, e.g. This is only true because we deal with a tar based project. The second tar file contains all the metadata needed to build the package for our native platform. You can check its content:

```
[pblab@o185i225 pb]$ tar xvfz /home/pblab/pb/afio/delivery/afio-
2.5.pbconf.tar.gz
afio-2.5/pbconf/
```



```
afio-2.5/pbconf/rhel-6-x86_64/  
afio-2.5/pbconf/rhel-6-x86_64/afio.spec  
[pblab@o185i225 pb]$ more afio-2.5/pbconf/rhel-6-x86_64/afio.spec  
#  
# $Id$  
#  
# Used if virtual name != real name (perl, ...) - replace hash by percent  
in the below line  
#define srcname afio  
  
Summary:          PBSUMMARY  
Summary(fr):     french bla-bla  
  
Name:             afio  
Version:          2.5  
Release:          0.20110311154738.rhel6  
License:          PBLIC  
Group:            PBGRP  
Url:              PBURL  
Source:           ftp://ftp.project-builder.org/test/PBSRC  
#PBPATCHSRC  
BuildRoot:        %{_tmppath}/%{name}-%{version}-%{release}-root-%(id -u -n)  
#Requires:        PBDEP  
  
%description  
PBDESC  
  
%description -l fr  
french desc  
  
%prep  
%setup -q
```



```
# Used if virtual name != real name (perl, ...)
#%setup -q -n %{srcname}-%{version}
#PBPATCHCMD

%build

%configure

make %{?_smp_mflags}

%install

%{__rm} -rf $RPM_BUILD_ROOT
make DESTDIR=$RPM_BUILD_ROOT install

%clean

%{__rm} -rf $RPM_BUILD_ROOT

%files
%defattr(-,root,root)
%doc ChangeLog
%doc INSTALL COPYING README AUTHORS NEWS

%changelog
PBLOG
```

As we can see in this file, there are some PB macros (PBLIC, PBGRP, ...) that will probably cause an error when trying to build the rpm. If we compare that generated file by pb with the template created earlier here are the differences:

```
[pblab@o185i225 pb]$ diff afio-2.5/pbconf/rhel-6-x86_64/afio.spec
afio/pbconf/afio/rpm/afio.spec
5c5
< #define srcname      afio
---
> #define srcname      PBPKG
10,12c10,12
< Name:                afio
```



```
< Version:      2.5
< Release:      0.20110311154738.rhel6
---
> Name:         PBREALPKG
> Version:      PBVER
> Release:      PBTAGPBSUF
16c16
< Source:       ftp://ftp.project-builder.org/test/PBSRC
---
> Source:       PBREPO/PBSRC
```

We can see that some of the macro in the template have already been translated into their metadata content, but not all of them. Because again pb needs our help to have additional information before being able to process it. So we need to edit the main filter file `all.pbf` in the `pbfilter` directory in order to add the adequate content missing in the spec template:

```
[pblab@o185i225 pb]$ grep PB afio-2.5/pbconf/rhel-6-x86_64/afio.spec
Summary:      PBSUMMARY
License:      PBLIC
Group:        PBGRP
Url:          PBURL
Source:       ftp://ftp.project-builder.org/test/PBSRC
#PBPATCHSRC
#Requires:    PBDEP
PBDESC
#PBPATCHCMD
PBLOG
[pblab@o185i225 pb]$ vi afio/pbconf/pbfilter/all.pbf
[ edition ]
[pblab@o185i225 pb]$ svn diff afio/pbconf/pbfilter/all.pbf
Index: afio/pbconf/pbfilter/all.pbf
=====
--- afio/pbconf/pbfilter/all.pbf      (revision 2)
+++ afio/pbconf/pbfilter/all.pbf      (working copy)
```



```
@@ -8,7 +8,7 @@
    filter PBREPO = $pb->{'repo'}

    # PBSRC is replaced by the source package location after the repo
-#filter PBSRC = src/{name}-{version}.tar.gz
+#filter PBSRC = src/{name}-{version}.tar.gz
    # Used if virtual name != real name (perl, ...)
    #filter PBSRC = src/{srcname}-{version}.tar.gz

@@ -46,15 +46,15 @@
    filter PBPACKAGER = $pb->{'packager'}

    # PBDESC contains the description of the package
-#filter PBDESC = Bla-Bla
+#filter PBDESC = afio is a cpio compatible archiver with extended
+features$/It can compress on a file by file basis.

    # PBSUMMARY contains a short single line description of the package
-#filter PBSUMMARY = Bla
+#filter PBSUMMARY = afio is a cpio compatible archiver with extended
+features

    # PBURL contains the URL of the Web site of the project
-#filter PBURL = http://www.afio.org
+#filter PBURL = http://www.boutell.com/lsm/lsmbyid.cgi/000462

    # PBLOG is replaced by the changelog if value is yes
    # and should be last as when used we need the %pb hash filled
-#filter PBLOG = yes
+#filter PBLOG = no
```

You can note in the PBDESC the usage of a perl variable `$/` which means a line separator. It will be expanded by `pb`, as well as the other variables such as the one provided by the `%pb` hash.





All these metadata can be shared across distributions, so they are placed here. However, some are specific to some distributions, such as the way they name licenses, or put software in groups. So we also need to add content in a more specific filter:

```
[pblab@o185i225 pb]$ vi ./afio/pbconf/pbfilter/rpm.pbf
[ edition ]
[pblab@o185i225 pb]$ svn diff ./afio/pbconf/pbfilter/rpm.pbf
Index: afio/pbconf/pbfilter/rpm.pbf
=====
--- afio/pbconf/pbfilter/rpm.pbf      (revision 2)
+++ afio/pbconf/pbfilter/rpm.pbf      (working copy)
@@ -5,10 +5,10 @@
#
# PBGRP is replaced by the RPM group of apps
-#filter PBGRP = Applications/Archiving
+#filter PBGRP = Applications/Archiving
# PBLIC is replaced by the license of the application
-#filter PBLIC = GPL
+#filter PBLIC = Afio
# PBDEP is replaced by the list of dependencies
#filter PBDEP =
```

So now that our macros have been expanded, we can try to regenerate the spec file for our distribution, and see if this time pb replaces everything correctly. Please also remark that we have still not committed anything in our repository, even if we have differences. pb is able to use the current state of our checked out version, as you're using the sbx2xxx commands. Of course, if you want to use what is in the repository, use instead the cms2xxx similar commands. Also note that each time you modify files under pbconf, you have to restart from the sbx2 commands so that the filtering and processing occurs as expected.

```
[pblab@o185i225 pb]$ pb -p afio sbx2build
Project: afio
Action: sbx2build
Packages: afio
```



```
Management of afio 2.5-0.20110311160549 (rev flat)

Downloading ftp://ftp.project-builder.org/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.rQw3s4LaUJ/afio-2.5.tar.gz

... child (/usr/bin/wget -nv -O /tmp/pb.rQw3s4LaUJ/afio-2.5.tar.gz
ftp://ftp.project-builder.org/src/afio-2.5.tar.gz) exited with value 4

WARNING: You don't seem to have a mime-info database. The
shared-mime-info package is available from http://freedesktop.org/ .
Generating fake ChangeLog for test version
Preparing delivery ...
Delivered and compressed patches N/A
Delivered additional sources N/A
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-
2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
[pblab@o185i225 pb]$ rm -rf afio-2.5
[pblab@o185i225 pb]$ tar xvfz /home/pblab/pb/afio/delivery/afio-
2.5.pbconf.tar.gz
afio-2.5/pbconf/
afio-2.5/pbconf/rhel-5.4-x86_64/
afio-2.5/pbconf/rhel-5.4-x86_64/afio.spec
[pblab@o185i225 pb]$ more afio-2.5/pbconf/rhel-6-x86_64/afio.spec
#
# $Id$
#
# Used if virtual name != real name (perl, ...) - replace hash by percent
in the below line
#define srcname afio

Summary:          afio is a cpio compatible archiver with extended features
Summary(fr):     french bla-bla

Name:             afio
```



```
Version:          2.5
Release:          0.20110311160549.rhel6
License:          Afio
Group:            Applications/Archiving
Url:              http://www.boutell.com/lsm/lsmbyid.cgi/000462
Source:           ftp://ftp.project-builder.org/test/src/{name}-{
{version}.tar.gz
#PBPATCHSRC
BuildRoot:        %{_tmppath}/{name}-{version}-{release}-root-%(id -u -n)
#Requires:        PBDEP

%description
afio is a cpio compatible archiver with extended features
It can compress on a file by file basis.

%description -l fr
french desc

%prep
%setup -q
# Used if virtual name != real name (perl, ...)
#%setup -q -n %{srcname}-{version}
#PBPATCHCMD

%build
%configure
make %{?_smp_mflags}

%install
%{__rm} -rf $RPM_BUILD_ROOT
make DESTDIR=$RPM_BUILD_ROOT install
```



```
%clean

%{__rm} -rf $RPM_BUILD_ROOT

%files

%defattr(-,root,root)

%doc ChangeLog

%doc INSTALL COPYING README AUTHORS NEWS

%changelog

* Fri Mar 11 2011 Big Chief <bigchief@hp.com> 2.5-0.20110311160549
- Updated to 2.5
```

## Building packages

```
[pblab@o185i225 pb]$ pb -p afio build2pkg

Project: afio
Action: build2pkg
Packages: afio

Extracting spec files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... OK

Extracting patch files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... N/A

Extracting src files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... N/A

Building package with /home/pblab/pb/afio/build/SPECS/afio.spec under /home/pblab/pb/afio/build... child (rpmbuild --define "packager Big Chief <bigchief@hp.com>" --define "_topdir /home/pblab/pb/afio/build" -ba /home/pblab/pb/afio/build/SPECS/afio.spec) exited with value 1

Executing(%prep): /bin/sh -e /var/tmp/rpm-tmp.YfEnUU

+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd /home/pblab/pb/afio/build/BUILD
+ rm -rf afio-2.5
+ /bin/tar -xf -
+ /usr/bin/gzip -dc /home/pblab/pb/afio/build/SOURCES/afio-2.5.tar.gz
+ STATUS=0
```



```
+ '[' 0 -ne 0 ']'
+ cd afio-2.5
+ /bin/chmod -Rf a+rX,u+w,g-w,o-w .
+ exit 0
Executing(%build): /bin/sh -e /var/tmp/rpm-tmp.YHA3AC
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ CFLAGS='-O2 -g'
+ export CFLAGS
+ CXXFLAGS='-O2 -g'
+ export CXXFLAGS
+ FFLAGS='-O2 -g'
+ export FFLAGS
+ ./configure --host=x86_64-unknown-linux-gnu --build=x86_64-unknown-
linux-gnu --program-prefix= --prefix=/usr --exec-prefix=/usr
--bindir=/usr/bin --sbindir=/usr/sbin --sysconfdir=/etc
--datadir=/usr/share --includedir=/usr/include --libdir=/usr/lib64
--libexecdir=/usr/libexec --localstatedir=/var --sharedstatedir=/var/lib
--mandir=/usr/share/man --infodir=/usr/share/info
/var/tmp/rpm-tmp.YHA3AC: line 32: ./configure: No such file or directory
error: Bad exit status from /var/tmp/rpm-tmp.YHA3AC (%build)

RPM build errors:

    Bad exit status from /var/tmp/rpm-tmp.YHA3AC (%build)

SRPM packages generated:
RPM packages generated:
```

Of course, if we try to go to the next step, it fails, because one last remaining set of modifications needs to be performed concerns the spec file itself. The way to generate the binaries and files to be delivered differ from one application to another and pb can not guess it, even if it proposes something to you. In our case, afio doesn't use a configure script.

```
[pblab@o185i225 pb]$ vi afio/pbconf/afio/rpm/afio.spec
```



```
[pblab@o185i225 pb]$ svn diff afio/pbconf/afio/rpm/afio.spec
Index: afio/pbconf/afio/rpm/afio.spec
=====
--- afio/pbconf/afio/rpm/afio.spec      (revision 2)
+++ afio/pbconf/afio/rpm/afio.spec      (working copy)
@@ -21,9 +21,6 @@
    %description
    PBDESC

-%description -l fr
-french desc
-
    %prep
    %setup -q
    # Used if virtual name != real name (perl, ...)
@@ -31,21 +28,28 @@
    #PBPATCHCMD

    %build
-%configure
    make %{?_smp_mflags}
+chmod 644 script*/*

+##%check
+#make regtest
+
    %install
    %{__rm} -rf $RPM_BUILD_ROOT
    -make DESTDIR=$RPM_BUILD_ROOT install
+mkdir -p $RPM_BUILD_ROOT%{_bindir}
+mkdir -p $RPM_BUILD_ROOT%{_mandir}/man1
+install -p -m 755 afio $RPM_BUILD_ROOT%{_bindir}
```



```
+install -p -m 644 afio.1 $RPM_BUILD_ROOT%{_mandir}/man1

%clean

%{__rm} -rf $RPM_BUILD_ROOT

%files
%defattr(-,root,root)
-%doc ChangeLog
-%doc INSTALL COPYING README AUTHORS NEWS
+%doc HISTORY PORTING README SCRIPTS ANNOUNCE-2.5 perl.artistic.license
+%doc afio.lsm script1 script2 script3 script4
+%{_bindir}/%{name}
+%{_mandir}/man1/%{name}.1*

%changelog
PBLOG
-
[pblab@o185i225 pb]$ pb -p afio sbx2pkg
Project: afio
Action: sbx2pkg
Packages: afio

Management of afio 2.5-0.20110311161419 (rev flat)
[...]
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
Packages: afio
Extracting spec files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... OK
Extracting patch files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... N/A
Extracting src files from /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz... N/A
```







```
compfile.c:182: warning: missing sentinel in function call

gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o exten.o
exten.c

gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o match.o
match.c

gcc afio.o compfile.o exten.o match.o -o afio

afio.o: In function `syserr':
afio.c:(.text+0x7bf): warning: `sys_errlist' is deprecated; use `strerror'
or `strerror_r' instead
afio.c:(.text+0x791): warning: `sys_nerr' is deprecated; use `strerror' or
`strerror_r' instead

+ chmod 644 script1/DONTDUMP script1/backup script2/README script2/backup
script2/restore script2/x.dot script2/x.home script3/gnupg_read
script3/gnupg_write script3/pgp_read script3/pgp_write script4/tapechange
script5/secbak script5/secrestore

+ exit 0

Executing(%install): /bin/sh -e /var/tmp/rpm-tmp.nJpQWB

+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ /bin/rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311161419.rhel6.x86_64
+ mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311161419.rhel6.x86_64/usr/bin
+ mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311161419.rhel6.x86_64/usr/share/man/man1
+ install -p -m 755 afio /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311161419.rhel6.x86_64/usr/bin
+ install -p -m 644 afio.1 /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311161419.rhel6.x86_64/usr/share/man/man1
+ /usr/lib/rpm/brp-compress
+ /usr/lib/rpm/brp-strip
+ /usr/lib/rpm/brp-strip-static-archive
```



```
+ /usr/lib/rpm/brp-strip-comment-note
Processing files: afio-2.5-0.20110311161419.rhel6.x86_64
Executing(%doc): /bin/sh -e /var/tmp/rpm-tmp.r9WhPh
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ DOCDIR=/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64/usr/share/doc/afio-2.5
+ export DOCDIR
+ rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64/usr/share/doc/afio-2.5
+ /bin/mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64/usr/share/doc/afio-2.5
+ cp -pr HISTORY PORTING README SCRIPTS ANNOUNCE-2.5 perl.artistic.license
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64/usr/share/doc/afio-2.5
+ cp -pr afio.lsm script1 script2 script3 script4
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64/usr/share/doc/afio-2.5
+ exit 0

Requires(rpmlib): rpmlib(CompressedFileNames) <= 3.0.4-1
rpmlib(PayloadFilesHavePrefix) <= 4.0-1

Requires: libc.so.6()(64bit) libc.so.6(GLIBC_2.12)(64bit)
libc.so.6(GLIBC_2.2.5)(64bit) libc.so.6(GLIBC_2.7)(64bit) rtld(GNU_HASH)

Checking for unpackaged file(s): /usr/lib/rpm/check-files
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64

Wrote: /home/pblab/pb/afio/build/SRPMS/afio-2.5-0.20110311161419.rhel6.src.rpm

Wrote: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-0.20110311161419.rhel6.x86_64.rpm

Executing(%clean): /bin/sh -e /var/tmp/rpm-tmp.1XHmek
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ /bin/rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311161419.rhel6.x86_64
+ exit 0
```



```
SRPM packages generated: /home/pblab/pb/afio/build/SRPMS/afio-2.5-0.20110311161419.rhel6.src.rpm
```

```
RPM packages generated: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-0.20110311161419.rhel6.x86_64.rpm
```

So we now have our first packages built with pb for afio. Time to take a coffee no ? (If you don't have that result, check that you don't miss some packages ;-)

As you can see, you don't need to have a knowledge of building rpm, as pb deals with that for you. What you do need to know is how the software is built, which are the files produced as an output, and which are the metadata related to the project.

Also you have seen a new command `sbx2pkg`, which chains `sbx2build` (which produces tar files from project) and `build2pkg` (which produces packages from tar files).

You can check your package and install it to verify it. Note that if `rpmlint` is available on your system, pb will automatically call it at the end of the build.

```
[pblab@o185i225 pb]$ rpm -qlvp /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-0.20110311161419.rhel6.x86_64.rpm
```

```
-rwxr-xr-x    1 root    root                76583 Mar 11 16:17
/usr/bin/afio

drwxr-xr-x    2 root    root                 0 Mar 11 16:17
/usr/share/doc/afio-2.5

-rw-r--r--    1 root    root                1634 Dec 21  2003
/usr/share/doc/afio-2.5/ANNOUNCE-2.5

-rw-r--r--    1 root    root               33879 Dec 21  2003
/usr/share/doc/afio-2.5/HISTORY

-rw-r--r--    1 root    root                7202 Dec 21  2003
/usr/share/doc/afio-2.5/PORTING

-rw-r--r--    1 root    root                3116 Dec 21  2003
/usr/share/doc/afio-2.5/README

-rw-r--r--    1 root    root                2179 Dec 21  2003
/usr/share/doc/afio-2.5/SCRIPTS

-rw-r--r--    1 root    root                 707 Dec 21  2003
/usr/share/doc/afio-2.5/afio.lsm

-rw-r--r--    1 root    root                4919 Nov 25  1999
/usr/share/doc/afio-2.5/perl.artistic.license

drwxr-xr-x    2 root    root                 0 Oct 16  1999
/usr/share/doc/afio-2.5/script1

-rw-r--r--    1 root    root                 54 Jul 20  1998
/usr/share/doc/afio-2.5/script1/DONTDUMP

-rw-r--r--    1 root    root                1320 Oct 16  1999
/usr/share/doc/afio-2.5/script1/backup
```



```
drwxr-xr-x    2 root    root                0 Oct 16 1999
/usr/share/doc/afio-2.5/script2

-rw-r--r--    1 root    root                1088 Jul 20 1998
/usr/share/doc/afio-2.5/script2/README

-rw-r--r--    1 root    root                1510 Oct 16 1999
/usr/share/doc/afio-2.5/script2/backup

-rw-r--r--    1 root    root                 840 Jul 20 1998
/usr/share/doc/afio-2.5/script2/restore

-rw-r--r--    1 root    root                 165 Jul 20 1998
/usr/share/doc/afio-2.5/script2/x.dot

-rw-r--r--    1 root    root                 32 Jul 20 1998
/usr/share/doc/afio-2.5/script2/x.home

drwxr-xr-x    2 root    root                0 Oct  4 1999
/usr/share/doc/afio-2.5/script3

-rw-r--r--    1 root    root                1169 Oct  4 1999
/usr/share/doc/afio-2.5/script3/gnupg_read

-rw-r--r--    1 root    root                1190 Oct  4 1999
/usr/share/doc/afio-2.5/script3/gnupg_write

-rw-r--r--    1 root    root                 579 Sep 19 1999
/usr/share/doc/afio-2.5/script3/pgp_read

-rw-r--r--    1 root    root                 665 Sep 19 1999
/usr/share/doc/afio-2.5/script3/pgp_write

drwxr-xr-x    2 root    root                0 Sep 28 1998
/usr/share/doc/afio-2.5/script4

-rw-r--r--    1 root    root                1164 Sep 28 1998
/usr/share/doc/afio-2.5/script4/tapechange

-rw-r--r--    1 root    root               15913 Dec 14 2003
/usr/share/man/man1/afio.1.gz

[pblab@o185i225 pb]$ rpm -qip /home/pblab/pb/afio/build/RPMS/x86_64/afio-
2.5-0.20110311161419.rhel6.x86_64.rpm

Name           : afio                               Relocations: (not relocatable)
Version        : 2.5                               Vendor: (none)
Release        : 0.20110311161419.rhel6         Build Date: Fri 11 Mar 2011
04:17:26 PM CET
Install Date: (not installed)                   Build Host: localhost
Group          : Applications/Archiving         Source RPM: afio-2.5-
0.20110311161419.rhel6.src.rpm
Size           : 155908                          License: Afio
```



```
Signature : (none)
Packager  : Big Chief <bigchief@hp.com>
URL       : http://www.boutell.com/lsm/lsmbyid.cgi/000462
Summary   : afio is a cpio compatible archiver with extended features
Description :
afio is a cpio compatible archiver with extended features
It can compress on a file by file basis.
```

It could also be a good time now to commit our changes in our SVN repository (hint: `svn ci`)

## Building for another distribution

Estimated time: 45 minutes.

### By using an existing rpm based distribution VM

#### Setup of the VM

You can get the prepared VM at <ftp://eurolinux.gre.hp.com/pub/linux/qemu/fedora-10-i386.qemu> (Only valid inside the HP LAN). Or create one with `pb newvm` pointing to an ISO image of the distribution . Create a new directory to host this VM. Also install KVM on your system as root.

```
[pblab@o185i225 pb]$ mkdir $HOME/vm
[pblab@o185i225 pb]$ cd $HOME/vm
[pblab@o185i225 vm]$ lftp ftp://eurolinux.gre.hp.com/pub/linux/qemu
cd ok, cwd=/pub/linux/qemu
lftp eurolinux.gre.hp.com:/pub/linux/qemu> get fedora-10-i386.qemu
3752185856 bytes transferred in 325 seconds (11.00M/s)
lftp eurolinux.gre.hp.com:/pub/linux/qemu> quit
# yum install kvm
```

Now that we have a working package for an rpm based distribution, it's easy to make another one for another rpm based one.

```
[pblab@o185i225 pb]$ pb -p afio -m fedora-10-i386 launchvm
Project: afio
Action: launchvm
No vmtypes defined for afio at
/usr/lib/perl5/vendor_perl/5.8.8/ProjectBuilder/Conf.pm line 312.
```



So we're back to a known problem (except if you have done previous part which already solved it). Pb needs again some parameters in order to make the work for us. First it needs the type of VM that we are dealing with. In our case we want a KVM one whose type is kvm (qemu is also supported and more could be added). As pb will need more content to deal with VM, it will be detailed right now, instead of step by step. Also the location of those parameters will be in a dedicated configuration file that we will place alongside the VMs themselves. So we will first create a new directory to host our VMs, let pb know it through our main `.pbrc`, and create another `.pbrc` conf file in it to store the parameters linked to VM management:

```
[pblab@o185i225 pb]$ cat >> $HOME/.pbrc << EOF
vmpath default = /home/pblab/vm
EOF

[pblab@o185i225 pb]$ cat >> $HOME/vm/.pbrc << EOF

vmtype default = kvm
vmsize default = 7G
vmhost default = localhost
vmport afio = 2222
vmlogin default = pb
vmntp default = 0.pool.ntp.org
vmmonport default = 4444
vmlist default = fedora-10-i386,debian-5.0-i386
EOF
```

Some explanations. The `vmpath` parameter is global, and points to the directory where VMs will be created and used. Then in that directory, pb will load a `.pbrc` file if it finds it, in which are parameters related to the type of VMs we deal with in here.

The `vmsize` parameter is used at creation to give the size of the VM container. The `vmhost`, `vmport` and `vmlogin` parameters indicate how the host will communicate with the guest by ssh, using a port redirection to the `vmport` port on localhost of the ssh (22) port in the VM, and it will log on the VM using the `pb` account. The `vmntp` indicates where is the NTP server (as for building software there is a strong need to have a good time synchronization). The `vmmonport` is the port used for monitoring the VM (planned usage for snapshot VM feature). And the `vmlist` last parameter indicate separated by comas, the list of all VM for which pb will be able to build in the format `distribution_name-version-architecture`.

pb has the capability to detect automatically on which system it runs, and adapt itself to that context. You can have more information on this by doing:

```
[pblab@o185i225 pb]$ pbdistrocheck
Project-Builder tuple:
OS:      linux
```



```
Name:    rhel
Ver:     6
Arch:    x86_64
Type:    rpm
Family:  rh
Suffix:  .rhel6
Update:  sudo /usr/bin/yum clean all; sudo /usr/bin/yum -y update
Install: sudo /usr/bin/yum clean all; sudo /usr/bin/yum -y update ;
sudo /usr/bin/yum -y install
```

This commands outputs details for pb of the underlying distribution: its name, version, tag name, build type, package extension, update command and architecture. If you disagree with the choices made by pb, nothing more simple than to adapt it to your needs, or to add support for a new distribution. Edit the `/etc/pb/pb.conf` file and give feedback !

So now pb is aware of how to deal with VMs, try again to launch it:

```
[pblab@o185i228 vm]$ pb -p afio -m fedora-10-i386 launchvm
Project: afio
Action: launchvm
Launching the VM /home/pblab/vm/fedora-10-i386.qemu... OK
Waiting 120 s for VM fedora-10-i386 to come up... open /dev/kvm: No such
file or directory
Could not initialize KVM, will disable KVM support
OK
VM /home/pblab/vm/fedora-10-i386.qemu launched (pid 8834)
```

You VM may or not come up correctly. Typically KVM launches the VM with only 128 MB of RAM, which may not be sufficient for the distribution you deal with. pb allows you adapt it in 2 ways. One is in the above mentioned configuration file:

```
[pblab@o185i228 vm]$ cat >> $HOME/vm/.pbrc << EOF
vmopt default = -m 384 -daemonize
EOF
```

Which is the most suited when the modification is permanent. Please note that the parameter for `vmopt` is the name of a distribution, from the most precise tuple definition to the least. So you can have a `vmopt fedora-11-i386`, a `vmopt fedora-11` a `vmopt fedora`, as well as for the distribution family (`vmopt rh`) or type (`vmopt rpm`). Useful for inheritance purposes.

Now if you just want to change the execution of the instance of VM you're about to start, you can also use the `PBVMOPT` environment variable for this, in addition to the previous



parameters. For example, if you just want the VM to start without X-Window interface as you're remote on a serial line, you can use the following:

```
[pblab@o185i228 vm]$ export PBVMOPT="-nographic"
```

that way the VM will be launched both with `-m 284 -daemonize -nographic`.

Same way if you want to use a VNC redirection if you're on Windows as a client without cygwin and X11 installed locally.

Relaunch the VM and check that you can have access to with with ssh (account root/linux1). The configuration done on ssh avoids painful authentication messages on the validity of localhost (accessed in fact here with another machine than the regular localhost).

```
[pblab@o185i228 vm]$ pb -p afio -m fedora-10-i386 launchvm
```

```
Project: afio
```

```
Action: launchvm
```

```
Launching the VM /home/pblab/vm/fedora-10-i386.qemu... OK
```

```
Waiting 120 s for VM fedora-10-i386 to come up... open /dev/kvm: No such file or directory
```

```
Could not initialize KVM, will disable KVM support
```

```
OK
```

```
VM /home/pblab/vm/fedora-10-i386.qemu launched (pid 8938)
```

```
[pblab@o185i228 vm]$ cat >> $HOME/.ssh/config << EOF
```

```
host localhost
```

```
    StrictHostKeyChecking no
```

```
EOF
```

```
[pblab@o185i228 vm]$ ssh -p 2222 root@localhost
```

```
The authenticity of host 'localhost (127.0.0.1)' can't be established.
```

```
RSA key fingerprint is f4:36:92:96:9e:a1:b6:ff:5f:aa:4e:d9:af:94:5c:b3.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

```
Warning: Permanently added 'localhost' (RSA) to the list of known hosts.
```

```
root@localhost's password:
```

```
Last login: Sun Jan 25 12:02:51 2009
```

```
[root@localhost ~]# pb --version
```

```
Option version requires an argument
```

```
pb (aka project-builder.org) Version 0.11.2-1250
```

```
Usage:
```





```
pb [-vhSq][--r pbroot][--p project][[--s script -a account -P port][--m mach-1[,...]]][--i iso] <action> [<pkg1> ...]
```

```
pb [--verbose][--help][--man][--quiet][--snapshot][--revision pbroot][--project project][[--script script --account account --port port][--machine mach-1[,...]]][--iso iso] <action> [<pkg1> ...]
```

```
[root@localhost ~]# ^D
```

Looks fine,. Now you can try to use it to build packages for Fedora 10 i386, after solving yet some additional requested parameters, and updating the VM with the latest pb version, as well as using the current context (ssh keys). Also on the HP LAN a proxy will need to be defined (pb will propagate it in the VM as needed).

```
[pblab@o185i228 vm]$ cat >> $HOME/vm/.pbrc << EOF
```

```
vmntpcmd default = /usr/sbin/ntpdate
```

```
vmtmout default = 180
```

```
EOF
```

```
[pblab@o185i228 vm]$ pb -p afio -m fedora-10-i386 setupvm
```

```
Project: afio
```

```
Action: setupvm
```

```
Found an existing VM /home/pblab/vm/fedora-10-i386.qemu (pid 8938)
```

```
Generating SSH keys for pb... OK
```

```
Copying local keys to vm. This may require the root password...
```

```
root@localhost's password:
```

```
OK
```

```
Found an existing VM /home/pblab/vm/fedora-10-i386.qemu (pid 8938)
```

```
Packages: afio
```

```
Sources handled (VMScript): /home/pblab/pb/afio/delivery/pbscript
```

```
Preparing pb/test/src on root@localhost:pb/test/src...OK
```

```
VMScript delivery in root@localhost:pb/test/src...OK
```

```
Executing pbscript on root@localhost:pb/test/src if needed...OK
```

```
[...]
```

```
Finish setting up the account env for pb... OK
```

```
distro tuple: fedora,10,rh,rpm,.fc10,i386
```

```
Cleaning yum env... OK
```



```
[...]  
pb 2>&1 | head -5... OK  
pb (aka project-builder.org) Version 0.9.8-924  
  
Usage:  
    pb [-vhSq][--r pbroot][--p project][[--s script -a account -P port][--m  
    mach-1[,...]]][--i iso] <action> [<pkg1> ...]  
[pblab@o185i228 vm]$ pb -p afio -m fedora-10-i386 sbx2vm  
Project: afio  
Action: sbx2vm  
Packages: afio  
  
Management of afio 2.5-0.20091203035131 (rev flat)  
Downloading ftp://ftp.project-builder.org/test/src/afio-2.5.tar.gz with  
/usr/bin/wget -nv -O to /tmp/pb.XADx5zndkc/afio-2.5.tar.gz  
... OK  
Extracting /tmp/pb.XADx5zndkc/afio-2.5.tar.gz in  
/home/pblab/pb/afio/delivery/afio-2.5 ... OK  
Generating fake ChangeLog for test version  
Build files are being generated for ...  
    ... debian-5.0-i386,fedora-10-i386,rhel-5.4-x86_64  
Delivering and compressing patches  
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-  
2.5.tar.gz  
Creating pbconf tar files compressed... OK  
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz  
Packages: afio  
Found an existing VM /home/pblab/vm/fedora-10-i386.qemu (pid 8938)  
Packages: afio  
Sources handled (VMbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz  
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz  
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-  
0.20091203035131.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc  
/home/pblab/pb/afio/delivery/pbscript
```



```
Preparing pb/afio/delivery on pb@localhost:pb/afio/delivery... OK
VMbuild delivery in pb@localhost:pb/afio/delivery... OK
Executing pbscript on pb@localhost:pb/afio/delivery if needed... OK
... Execution needed
setting up date with echo sudo /usr/sbin/ntpdate 0.pool.ntp.org
[...]
building packages on vm...
Project: afio
Action: build2pkg
Packages: afio
Extracting spec files from /home/pb/pb/afio/delivery/afio-2.5.pbconf.tar.gz... OK
Extracting patch files from /home/pb/pb/afio/delivery/afio-2.5.pbconf.tar.gz... N/A
Building package with /home/pb/pb/afio/build/SPECS/afio.spec under /home/pb/pb/afio/build... OK
Executing(%prep): /bin/sh -e /var/tmp/rpm-tmp.EXDXnG
+ umask 022
+ cd /home/pb/pb/afio/build/BUILD
+ cd /home/pb/pb/afio/build/BUILD
+ rm -rf afio-2.5
[...]
Checking for unpackaged file(s): /usr/lib/rpm/check-files
/home/pb/pb/afio/build/BUILDROOT/afio-2.5-0.20091203035131.fc10.i386
Wrote: /home/pb/pb/afio/build/SRPMS/afio-2.5-0.20091203035131.fc10.src.rpm
Wrote: /home/pb/pb/afio/build/RPMS/i386/afio-2.5-0.20091203035131.fc10.i386.rpm
Executing(%clean): /bin/sh -e /var/tmp/rpm-tmp.I8kVch
+ umask 022
+ cd /home/pb/pb/afio/build/BUILD
+ cd afio-2.5
+ /bin/rm -rf /home/pb/pb/afio/build/BUILDROOT/afio-2.5-0.20091203035131.fc10.i386
+ exit 0
```



```
rpm packages generated: SRPMS/afio-2.5-0.20091203035131.fc10.src.rpm
RPMS/i386/afio-2.5-0.20091203035131.fc10.i386.rpm

Get package names in pb@localhost:pb/afio/build... OK

Recovery of package afio-2.5-0.20091203035131.fc10.src.rpm in
/home/pblab/pb/afio/build/fedora/10... OK

Recovery of package afio-2.5-0.20091203035131.fc10.i386.rpm in
/home/pblab/pb/afio/build/fedora/10... OK

VMbuild cleanup... OK

Packages: afio

Sources handled (Packages): fedora/10/afio-2.5-
0.20091203035131.fc10.src.rpm fedora/10/afio-2.5-
0.20091203035131.fc10.i386.rpm /home/pblab/pb/afio/build/pbscript

No sshhost defined for afio at
/usr/lib/perl5/vendor_perl/5.8.8/ProjectBuilder/Conf.pm line 312.
```

So we now have fedora 10 packages ! You can look at them locally under `/home/pblab/pb/afio/build/fedora/10/`. We have had to add `vmntpcmd` parameter to our configuration file to indicate which command should be used to synchronize the VM for time aspects. As well the `vmtmout` parameter gives to pb the time to wait in seconds before trying to dialog with the VM (boot time) if it has to launch it (which wasn't our case). That timeout can be drastically reduced if you use the snapshot feature of the VM (can be done manually with pb, and is being added automatically in the devel version). These 2 parameters use as well `distribution_name-version-architecture` as a key.

Then we have to setup a proxy because we will download in `setupvm` packages from CPAN to resolve pb dependencies. On the HP LAN we need that proxy in order for our download to succeed. The `setupvm` phase is required here for 2 reasons. One is to update pb in the VM at the same version as the one we used locally, for coherency. The second is to create dedicated SSH keys for further exchanges with the pb and the root accounts inside the VM. The pb account in the VM is used to launch all pb related activities, and has to be declared for pb to work with VMs at all. It has to be noted that this is a case where pb install itself in the VM under a tar format, to manage the chicken and egg problem. To avoid any issue, do not install pb as a package in the VM in parallel.

Then we invoked `sbx2vm` which first does the `sbx2build` phase and then send in the VM all the required tar balls, configuration files and one script to launch pb in the VM, doing the right setup and invoking in it the `build2pkg` phase we have done previously locally.

Of course, pb still could do more providing we give it some more info. Just do it:

## Setup of a delivery environment

```
[pblab@o185i228 vm]$ cat >> $HOME/pb/afio/pbconf/afio.pb << EOF
sshhost afio = localhost
sshlogin afio = delivery
```



```
sshd_dir afio = /var/ftp/pub/afio
sshport afio = 22
EOF
```

Here we define where to deliver our built packages: the machine (`sshhost`), the account used to log on it through ssh (`sshlogin`), the directory (`sshd_dir`) in which we will setup the repository and the port on which ssh is working on that system (`sshport`)

PLEASE NOTE that no security is considered here (no pass phrase for ssh accounts). This should be considered for production environments.

And as root:

```
[root@o185i228 home]# yum install vsftpd createrepo
[root@o185i228 home]# /etc/init.d/vsftpd start
Starting vsftpd for vsftpd: [ OK ]
[root@o185i228 home]# chkconfig vsftpd on
[root@o185i228 home]# wget ftp://fr2.rpmfind.net/linux/epel/6/x86_64/yum-arch-2.2.2-9.el6.noarch.rpm
[root@o185i228 home]# rpm -Uvh yum-arch-2.2.2-9.el6.noarch.rpm
[root@o185i228 home]# useradd delivery
[root@o185i228 home]# perl -pi -e 's/delivery:!!/delivery:*/' /etc/shadow
[root@o185i228 home]# mkdir ~delivery/.ssh
[root@o185i228 home]# chmod 700 ~delivery/.ssh
[root@o185i228 home]# cp ~pblab/.ssh/pb_dsa.pub
~delivery/.ssh/authorized_keys
[root@o185i228 home]# chmod 600 ~delivery/.ssh/authorized_keys
[root@o185i228 home]# chown -R delivery ~delivery/.ssh
[root@o185i228 home]# mkdir -p mkdir -p /var/ftp/pub/afio
[root@o185i228 home]# chown -R delivery /var/ftp/pub/afio
```

We install newly needed packages to provide ftp acces (and set it up) and yum repository management. We also create an account having the rights to manage the afio ftp zone, and able to receive our updates by ssh.

Check that you can access the newly created account with ssh without password, and then launch the build again:

```
[pblab@o185i228 vm]$ ssh -i ~/.ssh/pb_dsa delivery@localhost touch
/var/ftp/pub/afio/README
```

## Build in the VM

```
[pblab@o185i228 vm]$ pb -p afio -m fedora-10-i386 sbx2vm
```



```
Project: afio
Action: cms2vm
Packages: afio
[...]
VMbuild cleanup... OK
Packages: afio

Sources handled (Packages): fedora/10/afio-2.5-
0.20091203124630.fc10.src.rpm fedora/10/afio-2.5-
0.20091203124630.fc10.i386.rpm /home/pblab/pb/afio/build/pbscript

Preparing /var/ftp/pub/afio/test/fedora/10 on
delivery@localhost:/var/ftp/pub/afio/test/fedora/10... OK

Packages delivery in
delivery@localhost:/var/ftp/pub/afio/test/fedora/10... OK

Executing pbscript on delivery@localhost:/var/ftp/pub/afio/test/fedora/10
if needed... OK

THIS PROGRAM IS DEPRECATED!
You should be generating xml metadata instead.
Please see http://linux.duke.edu/metadata

Digesting rpms 100 % complete: afio-2.5-0.20091203124630.fc10.i386.rpm

Total: 4
Used: 2
Src: 0

Writing header.info file
2/2 - afio-2.5-0.20091203124630.fc10.i386.rpm

Saving Primary metadata
Saving file lists metadata
Saving other metadata
afio.spec
```



```
[pblab@o185i228 ~]$ ls -alR ~ftp/pub/afio
/var/ftp/pub/afio:
total 12
drwxr-xr-x 3 delivery root      4096 Dec  3 12:37 .
drwxr-xr-x 3 root      root      4096 Dec  3 12:19 ..
-rw-rw-r-- 1 delivery delivery    0 Dec  3 12:35 README
drwxrwxr-x 3 delivery delivery 4096 Dec  3 12:37 test

/var/ftp/pub/afio/test:
total 12
drwxrwxr-x 3 delivery delivery 4096 Dec  3 12:37 .
drwxr-xr-x 3 delivery root      4096 Dec  3 12:37 ..
drwxrwxr-x 3 delivery delivery 4096 Dec  3 12:37 fedora

/var/ftp/pub/afio/test/fedora:
total 12
drwxrwxr-x 3 delivery delivery 4096 Dec  3 12:37 .
drwxrwxr-x 3 delivery delivery 4096 Dec  3 12:37 ..
drwxrwxr-x 4 delivery delivery 4096 Dec  3 12:48 10

/var/ftp/pub/afio/test/fedora/10:
total 536
drwxrwxr-x 4 delivery delivery  4096 Dec  3 12:48 .
drwxrwxr-x 3 delivery delivery  4096 Dec  3 12:37 ..
-rw-r--r-- 1 delivery delivery 79986 Dec  3 12:48 afio-2.5-
0.20091203124630.fc10.i386.rpm
-rw-r--r-- 1 delivery delivery 169185 Dec  3 12:48 afio-2.5-
0.20091203124630.fc10.src.rpm
-rw-r--r-- 1 delivery delivery   117 Dec  3 12:48 afio.repo
-rw-r--r-- 1 delivery delivery   1299 Dec  3 12:46 afio.spec
drwxr-xr-x 2 delivery delivery  4096 Dec  3 12:48 headers
drwxr-xr-x 2 delivery delivery  4096 Dec  3 12:48 repodata
```



```
/var/ftp/pub/afio/test/fedora/10/headers:  
total 20  
drwxr-xr-x 2 delivery delivery 4096 Dec  3 12:48 .  
drwxrwxr-x 4 delivery delivery 4096 Dec  3 12:48 ..  
-rw-r--r-- 1 delivery delivery 2161 Dec  3 12:48 afio-0-2.5-  
0.20091203124630.fc10.i386.hdr  
-rw-r--r-- 1 delivery delivery  156 Dec  3 12:48 header.info
```

```
/var/ftp/pub/afio/test/fedora/10/repodata:  
total 24  
drwxr-xr-x 2 delivery delivery 4096 Dec  3 12:48 .  
drwxrwxr-x 4 delivery delivery 4096 Dec  3 12:48 ..  
-rw-r--r-- 1 delivery delivery  662 Dec  3 12:48 filelists.xml.gz  
-rw-r--r-- 1 delivery delivery  383 Dec  3 12:48 other.xml.gz  
-rw-r--r-- 1 delivery delivery 1098 Dec  3 12:48 primary.xml.gz  
-rw-r--r-- 1 delivery delivery  951 Dec  3 12:48 repomd.xml
```

So pb has prepared and delivered for us a repository for afio. It created a test subdirectory, as we are working on a test version (testver in the afio.pb configuration file). For a stable release it would have created the same structure directly at the sshdir point.

If we want to use the repo file locally to check everything works as expected, we have to do the same for our local build:

```
[pblab@o185i228 ~]$ pb -p afio sbx2pkg  
Project: afio  
Action: cms2pkg  
Packages: afio  
  
Management of afio 2.5-0.20091203125549 (rev flat)  
[...]  
rpm packages generated: SRPMS/afio-2.5-0.20091203125549.rhel5.4.src.rpm  
RPMS/x86_64/afio-2.5-0.20091203125549.rhel5.4.x86_64.rpm  
  
[pblab@o185i228 ~]$ pb -p afio pkg2ssh  
Project: afio  
Action: pkg2ssh
```





```
Packages: afio
```

```
Sources handled (Packages): SRPMS/afio-2.5-  
0.20091203125549.rhel5.4.src.rpm RPMS/x86_64/afio-2.5-  
0.20091203125549.rhel5.4.x86_64.rpm /home/pblab/pb/afio/build/pbscript
```

```
Preparing /var/ftp/pub/afio/test/rhel/5.4 on  
delivery@localhost:/var/ftp/pub/afio/test/rhel/5.4... OK
```

```
Packages delivery in delivery@localhost:/var/ftp/pub/afio/test/rhel/5.4...  
OK
```

```
Executing pbscript on delivery@localhost:/var/ftp/pub/afio/test/rhel/5.4  
if needed... OK
```

```
THIS PROGRAM IS DEPRECATED!
```

```
You should be generating xml metadata instead.
```

```
Please see http://linux.duke.edu/metadata
```

```
Digesting rpms 100 % complete: afio-2.5-0.20091203125549.rhel5.4.src.rpm
```

```
Total: 2
```

```
Used: 1
```

```
Src: 0
```

```
Writing header.info file
```

```
2/2 - afio-2.5-0.20091203125549.rhel5.4.src.rpm
```

```
Saving Primary metadata
```

```
Saving file lists metadata
```

```
Saving other metadata
```

**And as root:**

```
[root@o185i228 home]# cp ~ftp/pub/afio/test/rhel/6/afio.repo  
/etc/yum.repos.d/
```

```
[root@o185i228 home]# export ftp_proxy=
```

```
[root@o185i228 home]# yum install afio
```

```
Loaded plugins: rhnplugin, security
```



```
This system is not registered with RHN.  
RHN support will be disabled.  
  
afio | 951 B  
00:00  
  
afio/primary | 948 B  
00:00  
  
afio  
2/2  
  
Setting up Install Process  
Resolving Dependencies  
--> Running transaction check  
----> Package afio.i386 0:2.4.7-1 set to be updated  
----> Package afio.x86_64 0:2.5-2.el5.rf set to be updated  
--> Finished Dependency Resolution  
  
Dependencies Resolved  
  
Package Arch Version Repository  
Size  
Installing:  
afio i386 2.4.7-1 pb  
60 k  
afio x86_64 2.5-2.el6.rf rpmforge  
79 k  
  
Transaction Summary  
=====
```

Install	2 Package(s)
Update	0 Package(s)
Remove	0 Package(s)

```
Total download size: 139 k  
Is this ok [y/N]:
```



```
Exiting on user Command
```

```
Complete!
```

We don't continue as we are not on the right architecture, but we can see our package in the list as expected.

Note that you can also deliver the tar sources using the `cms2ssh` command of pb.

## By using an existing deb based distribution VM

### Setup of the VM

You can get the prepared VM at <ftp://eurolinux.gre.hp.com/pub/linux/qemu/debian-5.0-i386.qemu>. (Only valid inside the HP LAN). Or create one with `pb newvm` pointing to an ISO image of the distribution .

```
[pblab@o185i225 pb]$ cd $HOME/vm
[pblab@o185i225 vm]$ lftp ftp://eurolinux.gre.hp.com/pub/linux/qemu
cd ok, cwd=/pub/linux/qemu
lftp eurolinux.gre.hp.com:/pub/linux/qemu> get debian-5.0-i386.qemu
```

Building for another type of distribution is much more easy now with pb, as most of what we need is already there. We can concentrate on the build files specific to Debian distribution:

```
[pblab@o185i228 ~]$ pb -p afio -m debian-5.0-i386 setupvm
Project: afio
Action: setupvm
[...]
pb (aka project-builder.org) Version 0.11.1-1250

Usage:
  pb [-vhSq][[-r pbroot][[-p project][[-s script -a account -P port][[-m
  mach-1[,...]]][[-i iso] <action> [<pkg1> ...]

[pblab@o185i228 ~]$ pb -p afio -m debian-5.0-i386 sbx2vm
Project: afio
Action: cms2vm
Packages: afio
```



```
[...]  
building packages on vm...  
Project: afio  
Action: build2pkg  
Packages: afio  
Extracting sources... OK  
Extracting pbconf... OK  
Installing dependencies (PBDEP)... Get:1 http://security.debian.org  
lenny/updates Release.gpg [835B]  
[...]  
child (sudo apt-get update ; sudo apt-get -y install PBDEP) exited with  
value 100  
Reading package lists...  
Building dependency tree...  
Reading state information...  
E: Couldn't find package PBDEP  
  
Building package... child (dpkg-buildpackage -us -uc -rfakeroot) exited  
with value 255  
[...]  
parsechangelog/debian: warning:      debian/changelog(11): found blank line  
where expected first heading  
parsechangelog/debian: warning:      debian/changelog(12): found blank line  
where expected first heading  
parsechangelog/debian: warning:      debian/changelog(12): found eof where  
expected first heading  
dpkg-buildpackage: error: unable to determine source package  
[...]  
Executing pbscript on delivery@localhost:/var/ftp/pub/afio/test/debian/5.0  
if needed... OK  
./pbscript: line 10: dpkg-scanpackages: command not found  
./pbscript: line 10: dpkg-scanpackages: command not found  
./pbscript: line 10: dpkg-scanpackages: command not found  
./pbscript: line 10: dpkg-scansources: command not found
```



OK, so as expected, it can not working magically. Even if some read HP as Harry Potter ;-)

A specificity of Debian is that it needs a working changelog, in order to determine metadata correctly. Pb can help building a sensible changelog for Debian (as well as for rpm packages).

Also if we want to be able to build a local Debian repository, we will need an additional application ( dpkg-scanpackages). There is no native package for RHEL 5, so we will use the package currently in Mandriva, which is compatible (why do you think I'm commiter for it ;-):

```
[root@o185i228 home]# wget
ftp://fr2.rpmfind.net/linux/dag/redhat/el5/en/i386/dag/RPMS/po4a-0.33.2-
1.el5.rf.noarch.rpm

[root@o185i228 home]# yum install perl-gettext

[root@o185i228 home]# rpm -Uvh po4a-0.33.2-1.el5.rf.noarch.rpm

[root@o185i228 home]# wget http://ftp.u-
picardie.fr/mirror/ftp.mandriva.com/Mandrakelinux//mandrakelinux/official/
2010.0/SRPMs/contrib/release/dpkg-1.13.26-lmdv2010.0.src.rpm

[root@o185i228 home]# rpm -ivh dpkg-1.13.26-lmdv2010.0.src.rpm

[root@o185i228 home]# perl -pi -e 's/%mkrel//'
/usr/src/redhat/SPECS/dpkg.spec

[root@o185i228 home]# perl -pi -e 's/%configure2_5x/%configure/'
/usr/src/redhat/SPECS/dpkg.spec

[root@o185i228 home]# perl -pi -e 's/%make/make   % {?_smp_mflags}/'
/usr/src/redhat/SPECS/dpkg.spec

[root@o185i228 home]# perl -pi -e 's/%makeinstall_std/make DESTDIR=%
{buildroot} install/' /usr/src/redhat/SPECS/dpkg.spec

[root@o185i228 home]# perl -pi -e 's/--enable-shared/--enable-shared
--without-selinux/' /usr/src/redhat/SPECS/dpkg.spec

[root@o185i228 home]# yum install gettext-devel.x86_64 zlib-devel.x86_64

[root@o185i228 home]# rpm -Uvh --nodeps /usr/src/redhat/RPMS/x86_64/dpkg-
1.13.26-1.x86_64.rpm
```

Do the following to address our issues:

```
[pblab@o185i228 ~]$ cd /home/pblab/pb/afio/pbconf/afio/deb/
[pblab@o185i228 deb]$ vi control

[... modifications...]

# there is an issue in the generation of the rules files in that version,
# you need to change the 8 spaces at the beginning of line by a TAB.

[pblab@o185i228 deb]$ perl -pi -e 's/^          /^I/' rules
```



```
[pblab@o185i228 deb]$ vi rules
[... modifications...]
[pblab@o185i228 deb]$ vi afio.docs
[... modifications...]
[pblab@o185i228 deb]$ cat > ../pbcl << EOF
# $Id$

AFIO CHANGES

2.5 (2009-12-03)
- First packages created
EOF
[pblab@o185i228 deb]$ perl -pi -e 's/DBDEBCOMP/PBDEBCOMP/' compat
[pblab@o185i228 deb]$ svn -x -b diff
Index: control
=====
--- control      (revision 2)
+++ control      (working copy)
@@ -3,7 +3,7 @@
    Section: PBGRP
    Priority: optional
    Maintainer: PBPACKAGER
-Build-Depends: debhelper (>= 4.2.20), PBDEP
+Build-Depends: debhelper (>= 4.2.20)
    Standards-Version: PBDEBSTD
    Vcs-Svn: svn://svn.PBPROJ.org/svn/PBVER/PBPKG
    Vcs-Browser: http://trac.PBPROJ.org/browser/PBVER/PBPKG
@@ -14,7 +14,7 @@
    # http://www.debian.org/doc/debian-policy/ch-archive.html#s-subsections
    Section: PBGRP
    Priority: optional
-Build-Depends: ${shlibs:Depends}, ${misc:Depends}, PBDEP
```



```
-Recommends: PBREC
-Suggests: PBSUG
+Depends: ${shlibs:Depends}, ${misc:Depends}
  Description: PBSUMMARY
Index: compat
=====
--- compat      (revision 2)
+++ compat      (working copy)
@@ -1 +1 @@
-DBDEBCOMP
+PBDEBCOMP
Index: afio.docs
=====
--- afio.docs   (revision 2)
+++ afio.docs   (working copy)
@@ -1,5 +1,12 @@
-INSTALL
-COPYING
-AUTHORS
-NEWS
+HISTORY
+PORTING
  README
+SCRIPTS
+ANNOUNCE-2.5
+perl.artistic.license
+afio.lsm
+script1
+script2
+script3
+script4
+
```



```
Index: rules
=====
--- rules      (revision 2)
+++ rules      (working copy)
@@ -27,13 +27,9 @@
     ifeq (, $(findstring nostrip, $(DEB_BUILD_OPTIONS)))
         INSTALL_PROGRAM += -s
     endif
-config.status: configure
+config.status: Makefile
     dh_testdir
-     # Configure the package.
-     CFLAGS="$(CFLAGS)" ./configure --host=$(DEB_HOST_GNU_TYPE)
--build=$(DEB_BUILD_GNU_TYPE) --prefix=/usr
- --mandir=\${prefix}/share/man
-
# Build both architecture dependent and independent
build: build-arch build-indep

@@ -86,9 +82,9 @@

     # Install the package files into build directory:
     # - start with upstream make install
-     $(MAKE) install prefix=$(CURDIR)/debian/$(PACKAGE_NAME)/usr
mandir=$(CURDIR)/debian/$(PACKAGE_NAME)/us
-r/share/man
-     # - copy html manual to temporary location for renaming
+     mkdir -p $(CURDIR)/debian/$(PACKAGE_NAME)/usr/bin $(CURDIR)
)/debian/$(PACKAGE_NAME)/usr/share/man/man1
+     install -p -m 755 afio $(CURDIR)/debian/$(PACKAGE_NAME)/usr/bin
+     install -p -m 644 afio.1 $(CURDIR)/debian/$(PACKAGE_NAME)
)/usr/share/man/man1

     mkdir -p debian/doc-temp
```





```
dh_install -s
```

So there are fixes, due to typo (that have been fixed since in SVN of pb). The other adaptations are similar to the one done for building the RPM of afio: list of files/dirs to manage, and way to build the software.

Now time to generate our deb packages:

```
[pblab@o185i228 deb]$ pb -p afio -m debian-5.0-i386 cms2vm
Project: afio
Action: cms2vm
Packages: afio

Management of afio 2.5-0.20091204131057 (rev flat)
Downloading ftp://ftp.project-builder.org/test/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.IaVyBLZakW/afio-2.5.tar.gz
... OK
Extracting /tmp/pb.IaVyBLZakW/afio-2.5.tar.gz in
/home/pblab/pb/afio/delivery/afio-2.5 ... OK
Generating fake ChangeLog for test version
Build files are being generated for ...
... debian-5.0-i386,fedora-10-i386,rhel-5.4-x86_64
Delivering and compressing patches
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-
2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
Packages: afio
Found an existing VM /home/pblab/vm/debian-5.0-i386.qemu (pid 19099)
Packages: afio
Sources handled (VMbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-
0.20091204131057.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc
/home/pblab/pb/afio/delivery/pbscript
Preparing pb/afio/delivery on pb@localhost:pb/afio/delivery... OK
VMbuild delivery in pb@localhost:pb/afio/delivery... OK
Executing pbscript on pb@localhost:pb/afio/delivery if needed... OK
```



```
... Execution needed
setting up date with echo sudo /usr/sbin/ntpdate 0.pool.ntp.org
building packages on vm...
Project: afio
Action: build2pkg
Packages: afio
Extracting sources... OK
Extracting pbconf... OK
Building package... OK
dpkg-buildpackage: set CFLAGS to default value: -g -O2
dpkg-buildpackage: set CPPFLAGS to default value:
dpkg-buildpackage: set LDFLAGS to default value:
dpkg-buildpackage: set FFLAGS to default value: -g -O2
dpkg-buildpackage: set CXXFLAGS to default value: -g -O2
dpkg-buildpackage: source package afio
dpkg-buildpackage: source version 2.5-0.20091204131057
dpkg-buildpackage: source changed by Big Chief <bigchief@hp.com>
dpkg-buildpackage: host architecture i386

 fakeroot debian/rules clean
dh_testdir
dh_testroot
rm -f build-arch-stamp build-indep-stamp #CONFIGURE-STAMP#
# Clean temporary document directory
rm -rf debian/doc-temp
# Clean up.
/usr/bin/make distclean
make[1]: Entering directory `/home/pb/pb/afio/build/afio-2.5'
make[1]: *** No rule to make target `distclean'. Stop.
make[1]: Leaving directory `/home/pb/pb/afio/build/afio-2.5'
make: [clean] Error 2 (ignored)
rm -f config.log
dh_clean
```



```
dpkg-source -b afio-2.5
dpkg-source: info: using source format `1.0'
dpkg-source: info: building afio in afio_2.5-0.20091204131057.tar.gz
dpkg-source: info: building afio in afio_2.5-0.20091204131057.dsc
  debian/rules build
dh_testdir
dh_testdir
# Compile the package.
/usr/bin/make
make[1]: Entering directory `/home/pb/pb/afio/build/afio-2.5'
gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o afio.o afio.c
[...]
make[1]: Leaving directory `/home/pb/pb/afio/build/afio-2.5'
touch build-stamp
# Nothing to do, the only indep item is the manual which is available as
html in original source
touch build-indep-stamp
  fakeroot debian/rules binary
dh_testdir
dh_testdir
# Compile the package.
/usr/bin/make
make[1]: Entering directory `/home/pb/pb/afio/build/afio-2.5'
make[1]: `afio' is up to date.
make[1]: Leaving directory `/home/pb/pb/afio/build/afio-2.5'
touch build-stamp
dh_testdir
dh_testroot
dh_clean -k -s
dh_installdirs -s
```



```
# Install the package files into build directory:
# - start with upstream make install

mkdir -p /home/pb/pb/afio/build/afio-2.5/debian/afio/usr/bin
/home/pb/pb/afio/build/afio-2.5/debian/afio/usr/share/man/man1

install -p -m 755 afio /home/pb/pb/afio/build/afio-2.5/debian/afio/usr/bin

install -p -m 644 afio.1 /home/pb/pb/afio/build/afio-
2.5/debian/afio/usr/share/man/man1

mkdir -p debian/doc-temp

dh_install -s

/usr/bin/make -f debian/rules DH_OPTIONS=-a binary-common
make[1]: Entering directory `/home/pb/pb/afio/build/afio-2.5'
dh_testdir
dh_testroot
dh_installchangelogs ChangeLog
dh_installdocs
dh_installman
dh_link
dh_strip
dh_compress
dh_fixperms
dh_installdeb
dh_shlibdeps
dh_gencontrol
dpkg-gencontrol: warning: unknown substitution variable ${misc:Depends}
dh_md5sums
dh_builddeb

dpkg-deb: building package `afio' in `../afio_2.5-
0.20091204131057_i386.deb'.

make[1]: Leaving directory `/home/pb/pb/afio/build/afio-2.5'

# Nothing to do, the only indep item is the manual which is available as
html in original source

touch build-indep-stamp

dh_testdir
```



```
dh_testroot
dh_clean -k -i
dh_clean: I have no package to build
dh_installdirs -i
dh_installdirs: I have no package to build
dh_install -i
dh_install: I have no package to build
/usr/bin/make -f debian/rules DH_OPTIONS=-i binary-common
make[1]: Entering directory `/home/pb/pb/afio/build/afio-2.5'
dh_testdir
dh_testdir: I have no package to build
dh_testroot
dh_installchangelogs ChangeLog
dh_installchangelogs: I have no package to build
[...]
dh_builddeb
dh_builddeb: I have no package to build
make[1]: Leaving directory `/home/pb/pb/afio/build/afio-2.5'
  dpkg-genchanges >../afio_2.5-0.20091204131057_i386.changes
dpkg-genchanges: including full source code in upload
dpkg-buildpackage: full upload; Debian-native package (full source is
included)

Checking validity of debs with lintian... child (lintian ../afio_2.5-
0.20091204131057_*.changes ) exited with value 1
W: afio source: debian-rules-ignores-make-clean-error line 62
W: afio source: maintainer-upload-has-incorrect-version-number 2.5-
0.20091204131057
W: afio: extra-license-file usr/share/doc/afio/perl.artistic.license.gz
W: afio: copyright-without-copyright-notice
E: afio: description-starts-with-package-name
E: afio: description-synopsis-is-duplicated
```



```
Get package names in pb@localhost:pb/afio/build... OK
Recovery of package afio_2.5-0.20091204131057.dsc in
/home/pblab/pb/afio/build/debian/5.0... OK
Recovery of package afio_2.5-0.20091204131057.tar.gz in
/home/pblab/pb/afio/build/debian/5.0... OK
Recovery of package afio_2.5-0.20091204131057_*.deb in
/home/pblab/pb/afio/build/debian/5.0... OK
Recovery of package afio_2.5-0.20091204131057_*.changes in
/home/pblab/pb/afio/build/debian/5.0... OK
VMbuild cleanup... OK
Packages: afio
Sources handled (Packages): debian/5.0/afio_2.5-0.20091204131057.dsc
debian/5.0/afio_2.5-0.20091204131057.tar.gz debian/5.0/afio_2.5-
0.20091204131057_*.deb debian/5.0/afio_2.5-0.20091204131057_*.changes
/home/pblab/pb/afio/build/pbscript
Preparing /var/ftp/pub/afio/test/debian/5.0 on
delivery@localhost:/var/ftp/pub/afio/test/debian/5.0... OK
Packages delivery in
delivery@localhost:/var/ftp/pub/afio/test/debian/5.0... OK
Executing pbscript on delivery@localhost:/var/ftp/pub/afio/test/debian/5.0
if needed... OK
! Package afio (filename 5.0/afio_2.5-0.20091204122251_i386.deb) is
repeat;
    ignored that one and using data from 5.0/afio_2.5-
0.20091204131057_i386.deb !
** Packages in archive but missing from override file: **
afio
Wrote 1 entries to output Packages file.
Wrote 0 entries to output Packages file.
Wrote 0 entries to output Packages file.
[pblab@o185i228 deb]$ dpkg -I ~ftp/pub/afio/test/debian/5.0/afio_2.5-
0.20091204131057_i386.deb
new debian package, version 2.0.
size 75366 bytes: control archive= 1163 bytes.
    414 bytes,    13 lines    control
```



```
1603 bytes, 24 lines md5sums
Package: afio
Version: 2.5-0.20091204131057
Architecture: i386
Maintainer: Big Chief <bigchief@hp.com>
Installed-Size: 232
Depends: libc6 (>= 2.7-1)
Section: utils
Priority: optional
Homepage: http://www.boutell.com/lsm/lsmbyid.cgi/000462
Description: afio is a cpio compatible archiver with extended features
 afio is a cpio compatible archiver with extended features
 It can compress on a file by file basis.
.
[pblab@o185i228 deb]$ dpkg -x ~ftp/pub/afio/test/debian/5.0/afio_2.5-
0.20091204131057_i386.deb /tmp/x
[pblab@o185i228 deb]$ ls -R /tmp/x
/tmp/x:
usr

/tmp/x/usr:
bin share

/tmp/x/usr/bin:
afio

/tmp/x/usr/share:
doc man

/tmp/x/usr/share/doc:
afio
```



```
/tmp/x/usr/share/doc/afio:
afio.lsm          changelog.gz  perl.artistic.license.gz  script1
script4

ANNOUNCE-2.5     copyright     PORTING.gz              script2
SCRIPTS

changelog.Debian.gz  HISTORY.gz    README                  script3

/tmp/x/usr/share/doc/afio/script1:
backup  DONTDUMP

/tmp/x/usr/share/doc/afio/script2:
backup  README  restore  x.dot  x.home

/tmp/x/usr/share/doc/afio/script3:
gnupg_read  gnupg_write  pgp_read  pgp_write

/tmp/x/usr/share/doc/afio/script4:
tapechange

/tmp/x/usr/share/man:
man1

/tmp/x/usr/share/man/man1:
afio.1.gz
```

So we have built our deb package, and check its metadata and its content.

## By creating a new VM

pb can also help you making new VM from scratch. Using LinuxCOE to design a Fedora install, we will build a QEMU/KVM VM hosting a Fedora release, set it up and build our afio package in it.

For this to work, you'll have to install at least a text based browser such as lynx on your RHEL 6 distribution and the KVM tool if not already done (you also may need xauth). Outside the HP LAN, refer to <http://www.instalinux.com>)

```
[pblab@o185i225 pb]$ lynx http://linuxcoe.corp.hp.com/designer
```

Choose **Generate a boot floppy**





```
Distro Rev Arch: OpenSUSE 11.1 - x86_64
```

```
Continue
```

```
Continue
```

```
Waystation: eurolinux.grenoble.hp.com - EMEA - Grenoble FR
```

```
Continue
```

```
Continue
```

```
Continue
```

```
Give passwd for root and a pblab user.
```

```
Go For It!
```

```
Download the ISO image generated
```

```
Save to disk as opensuse-11.1-x86_64-coe.iso
```

```
q
```

```
y
```

Now that you have designed your installation, use that ISO image as a boot image for your new VM with the help of pb:

```
[root@o185i228 home]# yum install kvm-qemu-img
```

```
[pblab@o185i228 ~]$ pb -p afio -i opensuse-11.1-x86_64-coe.iso -m  
opensuse-11.1-x86_64 newvm
```

```
Project: afio
```

```
Action: newvm
```

```
Creating the QEMU VM... OK
```

```
Launching the VM /home/pblab/vm/opensuse-11.1-x86_64.qemu... OK
```

```
Waiting 180 s for VM opensuse-11.1-x86_64 to come up... open /dev/kvm: No  
such file or directory
```

```
Could not initialize KVM, will disable KVM support
```

```
Please ensure that sshd is running in your VM by default
```

```
and that it allows remote root login (PermitRootLogin yes in  
/etc/ssh/sshd_config)
```

```
# In the VM type install and during the installation do the next chapter.
```

```
# When it's done, log on the system and check the above items are valid.
```

```
[pblab@o185i228 ~]$ pb -p afio -m opensuse-11.1-x86_64 setupvm
```

```
Project: afio
```

```
Action: setupvm
```



```
Launching the VM /home/pblab/vm/opensuse-11.1-x86_64.qemu... OK
```

```
[...]
```

After the automatic providing of the VM with LinuxCOE, you just have to set it up with `setupvm`, and then you can add it to your list of VM to build for, and rapidly generate new afio packages for that distribution. On a slow system you may have to use `launchvm` to finish the setup before being able to use `setupvm`.

## By creating a new RPM based VE

Estimated time: 45 minutes

### Setup of the VE

You can create one with `pb newve`. Create a new directory to host this VE. Also install `rpmbootstrap` on your system as root. If inside HP point to a local repository for Mandriva 2010.1 and install from sources to get the latest pb available and not the distribution one. Security is left open for the lab account.

```
[pblab@o185i225 pb]$ mkdir $HOME/ve
[pblab@o185i225 pb]$ cd $HOME/ve
# yum install rpmbootstrap
# perl -pi -e 's|http://mirrors.kernel.org/mandriva/|  
http://eurolinux.gre.hp.com/pub/linux/mandriva/|' /etc/pb/pb.conf
# perl -pi -e 's|pbinstalltype default = pkg|pbinstalltype default =  
file|' /etc/pb/pb.conf
# cat >> /etc/sudoers << EOF
pblab ALL=(ALL) NOPASSWD: ALL
EOF
[pblab@o185i225 pb]$ pb -p afio -m mandriva-2010.1-x86_64 newve
Project: afio
Action: newve
No vetype defined for afio at
/usr/share/perl5/vendor_perl/ProjectBuilder/Conf.pm line 325.
```

So we're back to a known problem (except if you have done previous part which already solved it). Pb needs again some parameters in order to make the work for us. First it needs the type of VE that we are dealing with. In our case we want a `rpmbootstrap` one whose type is `chroot + rpmtyp rpmbootstrap` (rinse and mock are also supported and more could be added, as well as `debootstrap` for deb based distributions). As pb will need more content to deal with VE, it will be detailed right now, instead of step by step. Also the location of those parameters will be in a dedicated configuration file that we will place alongside the VEs themselves. So as we have first created a new directory to host our VEs, we will let pb know it through our main `.pbrc`, and create another `.pbrc` conf file in it to store the parameters linked to VE management:



```
[pblab@o185i225 pb]$ cat >> $HOME/.pbrc << EOF
vepath default = /home/pblab
EOF

[pblab@o185i225 pb]$ cat >> $HOME/ve/.pbrc << EOF
vetype default = chroot
verpmttype default = rpmbotstrap
vedebtype default = debootstrap
verebuild default = false
ventp default = 1.pool.ntp.org
ventpcmd default = /usr/sbin/ntpdate
veopt default =
vesnap default = false
velogin default = pblab
velist default = mandriva-2010.1-x86_64
EOF
```

Some explanations. The vepath parameter is global, and points to the directory where VEs will be created and used. Then in that directory, pb will load a .pbrc file if it finds it, in which are parameters related to the type of VEs we deal with in here.

The verpmttype and vedebtype parameters are used to indicate which tool is used to create the chroot environment. The verebuild parameter is used to force the systematic recreation of the VE or not at build time. The ventp and ventpcmd parameters indicate where is the NTP server and how to synchronize with it (as for building software there is a strong need to have a good time synchronization). The veopt parameter allows to pass options to the command creating the chroot. The vesnap parameter is used to indicate whether we want to snapshot the VE at the end of the build (creating a compressed tar of it) in order to restart from that if needed. The velogin is here to define the account under which the build process will occur. And the velist last parameter indicates separated by commas, the list of all VE for which pb will be able to build in the format distribution\_name-version-architecture.

So time to relaunch our command. This time it should work, but may take a bit of time.

```
[pblab@o185i228 vm]$ pb -p afio -m mandriva-2010.1-x86_64 newve
Project: afio
Action: newve
Creating the rpmbotstrap VE for mandriva-2010.1 (x86_64)... OK
Starting VE build for mandriva-2010.1-x86_64
```



```
Downloading package list from
http://mirrors.kernel.org/mandriva/Mandrakelinux/official/2010.1/x86_64/me
dia/main/release/ ...

Downloading package basesystem-2010.0-2mdv2010.1.x86_64.rpm ..... OK

Extracting package basesystem-2010.0-2mdv2010.1.x86_64.rpm into
/home/pblab/ve/mandriva/2010.1/x86_64... OK

[...]

Downloading package zlib1-1.2.3-15mdv2010.1.x86_64.rpm ..... OK

Extracting package zlib1-1.2.3-15mdv2010.1.x86_64.rpm into
/home/pblab/ve/mandriva/2010.1/x86_64... OK

VE post configuration

Mounting /proc... OK

Creating /home/pblab/ve/mandriva/2010.1/x86_64/dev/random... OK

Creating /home/pblab/ve/mandriva/2010.1/x86_64/dev/urandom... OK

Creating /home/pblab/ve/mandriva/2010.1/x86_64/dev/zero... OK

Bootstrapping URPMI... OK

Bootstrapping OS by running /usr/bin/urpmi.update -a ; /usr/sbin/urpmi
--auto --no-suggests ldconfig urpmi passwd vim-minimal dhcp-client... OK

Calling authconfig... OK

Adding packages to OS by running /usr/bin/urpmi.update -a ;
/usr/sbin/urpmi --auto --no-suggests perl sudo wget tar make gzip... OK

Unmounting /proc... OK

Fixing permissions... OK
```

Once the VE has been build, you need to set it up in order to use it with pb as a VE.

```
[pblab@o185i228 vm]$ pb -p afio -m mandriva-2010.1-x86_64 setupve
Project: afio
Action: setupve
Fixing permissions... OK
Generating SSH keys for pb... OK
Fixing permissions... OK
Packages: afio
Sources handled (VEScript): /home/pblab/pb/afio/delivery/pbscript.3366
```



```
Preparing pb/test/src on
/home/pblab/ve/mandriva/2010.1/x86_64//root/pb/test/src... OK

VEScript delivery in
/home/pblab/ve/mandriva/2010.1/x86_64//root/pb/test/src... OK

Adapt owner in pb/test/src to root... OK

Executing pbscript on
/home/pblab/ve/mandriva/2010.1/x86_64//root/pb/test/src if needed... OK

gpg-agent: error while loading shared libraries: libassuan.so.0: cannot
open shared object file: No such file or directory

chmod: cannot access `/root/.gnupg/gpg-agent-info': No such file or
directory

Subroutine pb_mkdir_p redefined at ./pbscript.3366 line 2191.

[...]

Subroutine pb_conf_get redefined at ./pbscript.3366 line 3479.

rm -f /dev/null; mknod /dev/null c 1 3; chmod 777 /dev/null... OK

mount -t proc /proc /proc... OK

distro tuple: $VAR1 = {
    'nover' => '',
    'install' => 'sudo /usr/bin/urpmi.update -a ; sudo
/usr/sbin/urpmi --auto --no-suggests',
    'arch' => 'x86_64',
    'version' => '2010.1',
    'name' => 'mandriva',
    'rmdot' => '',
    'os' => 'linux',
    'suffix' => '.mdv2010.1',
    'type' => 'rpm',
    'update' => 'sudo /usr/bin/urpmi.update -a ; sudo
/usr/sbin/urpmi --auto --auto-select --no-suggests',
    'family' => 'md'
};

Building Project-Builder... --2011-03-11 21:38:55-- ftp://ftp.project-
builder.org/src/ProjectBuilder-latest.tar.gz

=> `ProjectBuilder-latest.tar.gz'
```



```
Resolving ftp.project-builder.org (ftp.project-builder.org)...
213.30.161.23

Connecting to ftp.project-builder.org (ftp.project-builder.org)|
213.30.161.23|:21... connected.

Logging in as anonymous ... Logged in!

==> SYST ... done.      ==> PWD ... done.

==> TYPE I ... done.   ==> CWD (1) /src ... done.

==> SIZE ProjectBuilder-latest.tar.gz ... 64646

==> PASV ... done.     ==> RETR ProjectBuilder-latest.tar.gz ... done.

Length: 64646 (63K) (unauthoritative)

      0K ..... 79% 572K
0s

      50K ..... 100%
433K=0.1s

2011-03-11 21:39:09 (536 KB/s) - `ProjectBuilder-latest.tar.gz' saved
[64646]

--2011-03-11 21:39:09-- ftp://ftp.project-builder.org/src/project-
builder-latest.tar.gz

      => `project-builder-latest.tar.gz'

Resolving ftp.project-builder.org (ftp.project-builder.org)...
213.30.161.23

Connecting to ftp.project-builder.org (ftp.project-builder.org)|
213.30.161.23|:21... connected.

Logging in as anonymous ... Logged in!

==> SYST ... done.      ==> PWD ... done.

==> TYPE I ... done.   ==> CWD (1) /src ... done.

==> SIZE project-builder-latest.tar.gz ... 93434

==> PASV ... done.     ==> RETR project-builder-latest.tar.gz ... done.

Length: 93434 (91K) (unauthoritative)

      0K ..... 54% 562K
0s
```



```
50K ..... 100%
457K=0.2s

2011-03-11 21:39:21 (509 KB/s) - `project-builder-latest.tar.gz' saved
[93434]

Writing Makefile for ProjectBuilder

cp lib/ProjectBuilder/Log.pm blib/lib/ProjectBuilder/Log.pm
cp lib/ProjectBuilder/Base.pm blib/lib/ProjectBuilder/Base.pm
cp lib/ProjectBuilder/Distribution.pm
blib/lib/ProjectBuilder/Distribution.pm
cp lib/ProjectBuilder/Conf.pm blib/lib/ProjectBuilder/Conf.pm
cp lib/ProjectBuilder/Version.pm blib/lib/ProjectBuilder/Version.pm
cp lib/ProjectBuilder/Log/Item.pm blib/lib/ProjectBuilder/Log/Item.pm
cp lib/ProjectBuilder/Display.pm blib/lib/ProjectBuilder/Display.pm
cp bin/pbdistrocheck blib/bin/pbdistrocheck

/usr/bin/perl5.10.1 -MExtUtils::MY -e 'MY->fixin(shift)' --
blib/bin/pbdistrocheck

Manifying blib/man1/pbdistrocheck.1
Manifying blib/man3/ProjectBuilder::Base.3pm
Manifying blib/man3/ProjectBuilder::Log.3pm
Manifying blib/man3/ProjectBuilder::Distribution.3pm
Manifying blib/man3/ProjectBuilder::Log::Item.3pm
Manifying blib/man3/ProjectBuilder::Conf.3pm
Manifying blib/man3/ProjectBuilder::Display.3pm
Manifying blib/man1/pbdistrocheck.1
Manifying blib/man3/ProjectBuilder::Base.3pm
Manifying blib/man3/ProjectBuilder::Log.3pm
Manifying blib/man3/ProjectBuilder::Distribution.3pm
Manifying blib/man3/ProjectBuilder::Log::Item.3pm
Manifying blib/man3/ProjectBuilder::Conf.3pm
Manifying blib/man3/ProjectBuilder::Display.3pm
Installing /usr/bin/pbdistrocheck
```



```
Appending installation info to /usr/lib/perl5/5.10.1/x86_64-linux-thread-
multi/perllocal.pod

mkdir -p /usr/local/etc/pb
chmod 755 /usr/local/etc/pb
cp etc/pb.conf /usr/local/etc/pb
mkdir -p /usr/local/share/man/man5
pod2man --section=5 etc/pb.conf.pod > /usr/local/share/man/man5/pb.conf.5
Writing Makefile for pb
cp lib/ProjectBuilder/Changelog.pm blib/lib/ProjectBuilder/Changelog.pm
cp lib/ProjectBuilder/Filter.pm blib/lib/ProjectBuilder/Filter.pm
cp lib/ProjectBuilder/CMS.pm blib/lib/ProjectBuilder/CMS.pm
cp lib/ProjectBuilder/Env.pm blib/lib/ProjectBuilder/Env.pm
cp bin/pbvi blib/bin/pbvi
/usr/bin/perl5.10.1 -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pbvi
cp bin/pb blib/bin/pb
/usr/bin/perl5.10.1 -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pb
cp bin/pbg blib/bin/pbg
/usr/bin/perl5.10.1 -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pbg
Manifying blib/man1/pb.1
Manifying blib/man3/ProjectBuilder::Changelog.3pm
Manifying blib/man3/ProjectBuilder::Filter.3pm
Manifying blib/man3/ProjectBuilder::CMS.3pm
Manifying blib/man3/ProjectBuilder::Env.3pm
Installing /usr/bin/pbg
Installing /usr/bin/pbvi
Installing /usr/bin/pb
Appending installation info to /usr/lib/perl5/5.10.1/x86_64-linux-thread-
multi/perllocal.pod
OK
pb 2>&1 | head -5... OK
pb (aka project-builder.org) Version 0.11.1-1241
```





```
Usage:
  pb [-vhSq][-r pbroot][-p project][[-s script -a account -P port]][-t
  os-ver-arch][-m os-ver-arch[,...]][-g][-i iso] <action> [<pkg1> ...]

pbdistrocheck... OK
Project-Builder tuple:
OS:      linux
Name:    mandriva
Ver:     2010.1
Arch:    x86_64
Type:    rpm
Family:  md
Suffix:  .mdv2010.1
Update:  sudo /usr/bin/urpmi.update -a ; sudo /usr/sbin/urpmi --auto
--auto-select --no-suggests
Install:          sudo /usr/bin/urpmi.update -a ; sudo /usr/sbin/urpmi
--auto --no-suggests

umount /proc... OK
```

Now that we have a working package for an rpm based distribution and a new build environment ready, it's easy to make another package for another rpm based distribution.

```
[pblab@o185i228 vm]$ pb -p afio -m mandriva-2010.1-x86_64 sbx2ve
Project: afio
Action: sbx2ve
Packages: afio

Management of afio 2.5-0.20110311225006 (rev flat)
Downloading ftp://ftp.project-builder.org/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.xTqx73FoYL/afio-2.5.tar.gz
... OK
WARNING: You don't seem to have a mime-info database. The
```



```
shared-mime-info package is available from http://freedesktop.org/ .
Generating fake ChangeLog for test version
Preparing delivery ...
Delivered and compressed patches N/A
Delivered additional sources N/A
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
Packages: afio
Fixing permissions... OK
Packages: afio
Sources handled (VEbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-0.20110311225006.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc
/home/pblab/pb/afio/delivery/pbscript.3931
Preparing pb/afio/delivery on
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery... OK
VEbuild delivery in
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery... OK
Adapt owner in pb/afio/delivery to pblab... OK
Executing pbscript on
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery if
needed... OK
gpg-agent: error while loading shared libraries: libassuan.so.0: cannot
open shared object file: No such file or directory
chmod: cannot access `/home/pblab/.gnupg/gpg-agent-info': No such file or
directory
... Execution needed
setting up date with echo sudo /usr/sbin/ntpdate 1.pool.ntp.org
11 Mar 21:50:19 ntpdate[4037]: adjust time server 91.121.121.160 offset
-0.004990 sec
building packages on ve...
Project: afio
Action: build2pkg
```







```
+ cd afio-2.5
+ '[' 1 -eq 1 -e ']'
+ /bin/rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64
+ mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/bin
+ mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/man/man1
+ install -p -m 755 afio /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/bin
+ install -p -m 644 afio.1 /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/man/man1
+ /usr/lib/rpm/mandriva/find-debuginfo.sh
/home/pblab/pb/afio/build/BUILD/afio-2.5

extracting debug info from /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/bin/afio

*** WARNING: No build ID note found in
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/bin/afio

cpio: /home/gateam/rpm/BUILD/glibc-2.11.1/csu: Cannot stat: No such file
or directory

0 blocks
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/clean_files
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/compress_files .lzma
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/relink_symlinks
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/clean_perl
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/lib_symlinks
+ '[' -n '' -e ']'
+ /usr/share/spec-helper/gprintify
+ '[' -n '' -e ']'
```



```
+ /usr/share/spec-helper/fix_mo
+ '[' -n '' ']'
+ /usr/share/spec-helper/translate_menu
+ '[' -n '' ']'
+ /usr/share/spec-helper/fix_pamd
+ '[' -n '' ']'
+ /usr/share/spec-helper/remove_info_dir
+ '[' -n '' ']'
+ /usr/share/spec-helper/fix_eol
+ '[' -n '' ']'
+ /usr/share/spec-helper/check_elf_files
Processing files: afio-2.5-0.20110311225006.mdv2010.1
Executing(%doc): /bin/sh -e /var/tmp/rpm-tmp.VMqvqM
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ DOCDIR=/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/doc/afio
+ export DOCDIR
+ /bin/mkdir -p /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/doc/afio
+ cp -pr HISTORY PORTING README SCRIPTS ANNOUNCE-2.5 perl.artistic.license
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/doc/afio
+ cp -pr afio.lsm script1 script2 script3 script4
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64/usr/share/doc/afio
+ exit 0
Finding Provides: /usr/lib/rpm/mandriva/filter.sh ' ' ' '
'/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64' /usr/lib/rpm/mandriva/find-provides
Finding Requires: /usr/lib/rpm/mandriva/filter.sh ' ' ' '
'/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64' /usr/lib/rpm/mandriva/find-requires
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64 x86_64
```



```
Requires(rpmlib): rpmlib(PayloadFilesHavePrefix) <= 4.0-1
rpmlib(CompressedFileNames) <= 3.0.4-1

Requires: libc.so.6()(64bit) libc.so.6(GLIBC_2.2.5)(64bit)
libc.so.6(GLIBC_2.4)(64bit) libc.so.6(GLIBC_2.7)(64bit) rtld(GNU_HASH)

Processing files: afio-debug-2.5-0.20110311225006.mdv2010.1

Checking for unpackaged file(s): /usr/lib/rpm/check-files
/home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64

warning: Could not canonicalize hostname: localhost.localdomain

Wrote: /home/pblab/pb/afio/build/SRPMS/afio-2.5-
0.20110311225006.mdv2010.1.src.rpm

Wrote: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm

Wrote: /home/pblab/pb/afio/build/RPMS/x86_64/afio-debug-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm

Executing(%clean): /bin/sh -e /var/tmp/rpm-tmp.BYmfuw
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ /bin/rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-
0.20110311225006.mdv2010.1.x86_64
+ exit 0

SRPM packages generated: /home/pblab/pb/afio/build/SRPMS/afio-2.5-
0.20110311225006.mdv2010.1.src.rpm

RPM packages generated: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm
/home/pblab/pb/afio/build/RPMS/x86_64/afio-debug-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm

Get package names in
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/build... OK

Adapt owner in pb/afio/delivery to 501... OK

Recovery of package afio-2.5-0.20110311225006.mdv2010.1.src.rpm in
/home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK

Recovery of package afio-2.5-0.20110311225006.mdv2010.1.x86_64.rpm in
/home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK
```



```
Recovery of package afio-debug-2.5-0.20110311225006.mdv2010.1.x86_64.rpm
in /home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK
```

```
VEbuild cleanup... OK
```

```
Packages: afio
```

```
Sources handled (Packages): mandriva/2010.1/x86_64/afio-2.5-
0.20110311225006.mdv2010.1.src.rpm mandriva/2010.1/x86_64/afio-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm mandriva/2010.1/x86_64/afio-debug-
2.5-0.20110311225006.mdv2010.1.x86_64.rpm
/home/pblab/pb/afio/build/pbscript.3931
```

```
No sshhost defined for afio at
/usr/lib/perl5/vendor_perl/5.8.8/ProjectBuilder/Conf.pm line 312.
```

So we now have Mandriva 2010.1 packages ! You can look at them locally under `/home/pblab/pb/afio/build/mandriva/2010.1/`. The `setupve` phase is required here for 2 reasons. One is to update `pb` in the VE to the same version as the one we used locally, for coherency. The second is to create dedicated SSH keys for further exchanges with the `pblab` and the root accounts inside the VE. The `pblab` account in the VE is used to launch all `pb` related activities, and has to be declared for `pb` to work with VEs at all. It has to be noted that this is a case where `pb` install itself in the VE under a tar format, to manage the chicken and egg problem. To avoid any issue, do not install `pb` as a package in the VE in parallel.

Then we invoked `sbx2ve` which first does the `sbx2build` phase and then send in the VE all the required tar balls, configuration files and one script to launch `pb` in the VE, doing the right setup and invoking in it the `build2pkg` phase we have done previously locally.

Of course, `pb` still could do more providing we give it some more info. Please refer to the paragraph "Setup of a delivery environnement", page 36, to know how to set it up as this is similar as what we did for VM.

## Build in the VE

```
[pblab@o185i228 vm]$ pb -p afio -m mandriva-2010.1-x86_64 build2ve
```

```
Project: afio
```

```
Action: build2ve
```

```
Packages: afio
```

```
Fixing permissions... OK
```

```
Packages: afio
```

```
Sources handled (VEbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-
0.20110311225006.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc
/home/pblab/pb/afio/delivery/pbscript.5207
```

```
Preparing pb/afio/delivery on
```

```
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery... OK
```





```
VEbuild delivery in
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery... OK

Adapt owner in pb/afio/delivery to pblab... OK

Executing pbscript on
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/delivery if
needed... OK

gpg-agent: error while loading shared libraries: libassuan.so.0: cannot
open shared object file: No such file or directory

chmod: cannot access `/home/pblab/.gnupg/gpg-agent-info': No such file or
directory

... Execution needed

setting up date with echo sudo /usr/sbin/ntpdate 1.pool.ntp.org

11 Mar 22:10:09 ntpdate[5302]: adjust time server 193.55.167.1 offset
-0.005831 sec

building packages on ve...

Project: afio

Action: build2pkg

Packages: afio

Extracting spec files from /home/pblab/pb/afio/delivery/afio-
2.5.pbconf.tar.gz... OK

Extracting patch files from /home/pblab/pb/afio/delivery/afio-
2.5.pbconf.tar.gz... N/A

Extracting src files from /home/pblab/pb/afio/delivery/afio-
2.5.pbconf.tar.gz... N/A

Building package with /home/pblab/pb/afio/build/SPECS/afio.spec under
/home/pblab/pb/afio/build... OK

Executing(%prep): /bin/sh -e /var/tmp/rpm-tmp.Yarwmz

+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ '[' 1 -eq 1 -e ']'
+ '[' 1 -eq 1 -e ']'
+ '[' 1 -eq 1 -e ']'
+ cd /home/pblab/pb/afio/build/BUILD
+ rm -rf afio-2.5
+ /bin/tar -xf -
+ /usr/bin/gzip -dc /home/pblab/pb/afio/build/SOURCES/afio-2.5.tar.gz
```



```
[...]

Wrote: /home/pblab/pb/afio/build/SRPMS/afio-2.5-0.20110311225006.mdv2010.1.src.rpm

Wrote: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-0.20110311225006.mdv2010.1.x86_64.rpm

Wrote: /home/pblab/pb/afio/build/RPMS/x86_64/afio-debug-2.5-0.20110311225006.mdv2010.1.x86_64.rpm

Executing(%clean): /bin/sh -e /var/tmp/rpm-tmp.mH6nzi
+ umask 022
+ cd /home/pblab/pb/afio/build/BUILD
+ cd afio-2.5
+ /bin/rm -rf /home/pblab/pb/afio/build/BUILDROOT/afio-2.5-0.20110311225006.mdv2010.1.x86_64
+ exit 0

SRPM packages generated: /home/pblab/pb/afio/build/SRPMS/afio-2.5-0.20110311225006.mdv2010.1.src.rpm

RPM packages generated: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-0.20110311225006.mdv2010.1.x86_64.rpm
/home/pblab/pb/afio/build/RPMS/x86_64/afio-debug-2.5-0.20110311225006.mdv2010.1.x86_64.rpm

Get package names in
/home/pblab/ve/mandriva/2010.1/x86_64//home/pblab/pb/afio/build... OK

Adapt owner in pb/afio/delivery to 501... OK

Recovery of package afio-2.5-0.20110311225006.mdv2010.1.src.rpm in
/home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK

Recovery of package afio-2.5-0.20110311225006.mdv2010.1.x86_64.rpm in
/home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK

Recovery of package afio-debug-2.5-0.20110311225006.mdv2010.1.x86_64.rpm
in /home/pblab/pb/afio/build/mandriva/2010.1/x86_64... OK

VEbuild cleanup... OK

Packages: afio

Sources handled (Packages): mandriva/2010.1/x86_64/afio-2.5-0.20110311225006.mdv2010.1.src.rpm mandriva/2010.1/x86_64/afio-2.5-0.20110311225006.mdv2010.1.x86_64.rpm mandriva/2010.1/x86_64/afio-debug-2.5-0.20110311225006.mdv2010.1.x86_64.rpm
/home/pblab/pb/afio/build/pbscript.5207
```



```
Preparing /var/ftp/pub/afio/test/mandriva/2010.1/x86_64 on
delivery@localhost:/var/ftp/pub/afio/test/mandriva/2010.1/x86_64...OK
```

```
Packages delivery in
delivery@localhost:/var/ftp/pub/afio/test/mandriva/2010.1/x86_64...OK
```

```
Executing pbscript on
delivery@localhost:/var/ftp/pub/afio/test/mandriva/2010.1/x86_64 if
needed...OK
```

THIS PROGRAM IS DEPRECATED!

You should be generating xml metadata instead.

Please see <http://linux.duke.edu/metadata>

```
Digesting rpms 100 % complete: afio-2.5-0.20110311225006.mdv2010.1.src.rpm
pm
```

```
Total: 3
```

```
Used: 2
```

```
Src: 0
```

```
Writing header.info file
```

```
3/3 - afio-2.5-0.20110311225006.mdv2010.1.src.rpm
```

```
Saving Primary metadata
```

```
Saving file lists metadata
```

```
Saving other metadata
```

```
./pbscript.5207: line 29: genhdlist2: command not found
```

```
./pbscript.5207: line 31: genhdlist: command not found
```

```
[pblab@o185i228 ~]$ ls -alR ~ftp/pub/afio
```

```
/var/ftp/pub/afio:
```

```
total 12
```

```
drwxr-xr-x. 3 delivery root      4096 Mar 11 23:10 .
```

```
drwxr-xr-x. 3 root      root      4096 Mar 11 23:03 ..
```

```
-rw-rw-r--. 1 delivery delivery    0 Mar 11 23:03 README
```



```
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 test

/var/ftp/pub/afio/test:
total 12
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 .
drwxr-xr-x. 3 delivery root      4096 Mar 11 23:10 ..
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 mandriva

/var/ftp/pub/afio/test/mandriva:
total 12
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 .
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 ..
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 2010.1

/var/ftp/pub/afio/test/mandriva/2010.1:
total 12
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 .
drwxrwxr-x. 3 delivery delivery 4096 Mar 11 23:10 ..
drwxrwxr-x. 4 delivery delivery 4096 Mar 11 23:10 x86_64

/var/ftp/pub/afio/test/mandriva/2010.1/x86_64:
total 280
drwxrwxr-x. 4 delivery delivery  4096 Mar 11 23:10 .
drwxrwxr-x. 3 delivery delivery  4096 Mar 11 23:10 ..
-rw-r--r--. 1 delivery delivery 182132 Mar 11 23:10 afio-2.5-
0.20110311225006.mdv2010.1.src.rpm
-rw-r--r--. 1 delivery delivery  68625 Mar 11 23:10 afio-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm
-rwxr-xr-x. 1 delivery delivery   104 Mar 11 23:10 afio.addmedia
-rw-r--r--. 1 delivery delivery  7288 Mar 11 23:10 afio-debug-2.5-
0.20110311225006.mdv2010.1.x86_64.rpm
-rw-r--r--. 1 delivery delivery   146 Mar 11 23:10 afio.repo
drwxr-xr-x. 2 delivery delivery  4096 Mar 11 23:10 headers
```



```
drwxr-xr-x. 2 delivery delivery 4096 Mar 11 23:10 repodata

/var/ftp/pub/afio/test/mandriva/2010.1/x86_64/headers:
total 20
drwxr-xr-x. 2 delivery delivery 4096 Mar 11 23:10 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 11 23:10 ..
-rw-r--r--. 1 delivery delivery 2083 Mar 11 23:10 afio-0-2.5-
0.20110311225006.mdv2010.1.x86_64.hdr
-rw-r--r--. 1 delivery delivery 1156 Mar 11 23:10 afio-debug-0-2.5-
0.20110311225006.mdv2010.1.x86_64.hdr
-rw-r--r--. 1 delivery delivery 196 Mar 11 23:10 header.info

/var/ftp/pub/afio/test/mandriva/2010.1/x86_64/repodata:
total 24
drwxr-xr-x. 2 delivery delivery 4096 Mar 11 23:10 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 11 23:10 ..
-rw-r--r--. 1 delivery delivery 713 Mar 11 23:10 filelists.xml.gz
-rw-r--r--. 1 delivery delivery 496 Mar 11 23:10 other.xml.gz
-rw-r--r--. 1 delivery delivery 1170 Mar 11 23:10 primary.xml.gz
-rw-r--r--. 1 delivery delivery 1354 Mar 11 23:10 repomd.xml
```

So pb has prepared and delivered for us a repository for afio. It created a test subdirectory, as we are working on a test version (`testver` in the `afio.pb` configuration file). For a stable release it would have created the same structure directly at the `sshdir` point.

Of course at the end it tries to also generate indices for Mandriva, but some commands do not exist on RHEL so it fails. It's left as an exercise to the reader to fix that part.

If we want to use the repo file locally to check everything works as expected, we have to do the same for our local build:

```
[pblab@o185i225 pb]$ perl -pi -e 's|pbrepo afio = ftp://ftp.project-
builder.org|pbrepo afio = ftp://localhost/pub/afio|'
~/pb/afio/pbconf/afio.pb

[pblab@o185i228 ~]$ pb -p afio sbx2pkg

Project: afio
Action: sbx2pkg
Packages: afio
```



```
Management of afio 2.5-0.20110311231428 (rev flat)

[...]

SRPM packages generated: /home/pblab/pb/afio/build/SRPMS/afio-2.5-
0.20110311231428.rhel6.src.rpm

RPM packages generated: /home/pblab/pb/afio/build/RPMS/x86_64/afio-2.5-
0.20110311231428.rhel6.x86_64.rpm

[pblab@o185i228 ~]$ pb -p afio pkg2ssh

PProject: afio
Action: pkg2ssh
Packages: afio

Sources handled (Packages): SRPMS/afio-2.5-0.20110311231428.rhel6.src.rpm
RPMS/x86_64/afio-2.5-0.20110311231428.rhel6.x86_64.rpm
/home/pblab/pb/afio/build/pbscript.5916

Preparing /var/ftp/pub/afio/test/rhel/6/x86_64 on
delivery@localhost:/var/ftp/pub/afio/test/rhel/6/x86_64...OK

Packages delivery in
delivery@localhost:/var/ftp/pub/afio/test/rhel/6/x86_64...OK

Executing pbscript on
delivery@localhost:/var/ftp/pub/afio/test/rhel/6/x86_64 if needed...OK

THIS PROGRAM IS DEPRECATED!

You should be generating xml metadata instead.

Please see http://linux.duke.edu/metadata

Digesting rpms 100 % complete: afio-2.5-0.20110311231428.rhel6.src.rpm

Total: 2
Used: 1
Src: 0

Writing header.info file

2/2 - afio-2.5-0.20110311231428.rhel6.src.rpm
```



```
Saving Primary metadata
Saving file lists metadata
Saving other metadata
```

And as root:

```
[root@o185i228 home]# cp ~ftp/pub/afio/test/rhel/6/x86_64/afio.repo
/etc/yum.repos.d/

[root@o185i228 home]# export ftp_proxy=

[root@o185i228 home]# yum install afio

Loaded plugins: rhnplugin

This system is not registered with RHN.
RHN support will be disabled.

afio
| 1.3 kB      00:00

afio/primary
| 1.1 kB      00:00

afio
4/4

pb
| 1.3 kB      00:00

file:///mnt/Server/repodata/repomd.xml: [Errno 14] Could not open/read
file:///mnt/Server/repodata/repomd.xml

Trying other mirror.

rpmforge
| 1.1 kB      00:00

Setting up Install Process
Resolving Dependencies
--> Running transaction check
---> Package afio.x86_64 0:2.5-2.el6.rf set to be updated
--> Finished Dependency Resolution

Dependencies Resolved
```

```
=====
=====
```



```
Package Arch Version
Repository Size
=====
Installing:
  afio x86_64 2.5-
2.el6.rf rpmforge 80
k

Transaction Summary
=====
Install      1 Package(s)
Upgrade      0 Package(s)

Total download size: 80 k
Installed size: 151 k
Is this ok [y/N]: y
Downloading Packages:
afio-2.5-2.el6.rf.x86_64.rpm
| 80 kB 00:00
Running rpm_check_debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction

  Installing      : afio-2.5-2.el6.rf.x86_64
1/1

Installed:

  afio.x86_64 0:2.5-2.el6.rf

Complete!
```

Note that you can also deliver the tar sources using the `sbx2ssh` command of `pb`.





## By using a deb based distribution VE

### Setup of the VE

Setup has been previously done. However, a mandatory is needed to build a deb based VE: debootstrap. As it is not available out of the box on RHEL 6, use the one from Mandriva.

```
[pblab@o185i225 pb]$ wget
http://ftp.free.fr/mirrors/ftp.mandriva.com/MandrivaLinux/official/2010.1/x86\_64/media/contrib/release/debootstrap-1.0.19-1mdv2010.0.x86\_64.rpm

[pblab@o185i225 pb]$ sudo rpm -Uvh debootstrap-1.0.19-1mdv2010.0.x86_64.rpm
warning: debootstrap-1.0.19-1mdv2010.0.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 78d019f5: NOKEY

Preparing...                               #####
[100%]

   1:debootstrap                             #####
[100%]
```

Now type directly (and don't forget it takes time):

```
[pblab@o185i225 pb]$ pb -p afio -m debian-6.0-x86_64 newve

Project: afio
Action: newve

Creating the debootstrap VE for debian-6.0 (x86_64)... OK

I: Retrieving Release
I: Retrieving Packages
I: Validating Packages
I: Found packages in base already in required: gzip tar
I: Resolving dependencies of required packages...
I: Resolving dependencies of base packages...
I: Found additional required dependencies: insserv libbz2-1.0 libdb4.8 libslang2
I: Found additional base dependencies: libdb4.7 libnfnetwork0 libsqlite3-0 perl-modules
I: Checking component main on http://ftp.us.debian.org/debian...
I: Retrieving libacl1
I: Validating libacl1

[...]

I: Retrieving zlibg
```



```
I: Validating zliblg
I: Extracting libacl1...
I: Extracting libattr1...
[...]
I: Extracting zliblg...
I: Installing core packages...
I: Unpacking required packages...
I: Unpacking libacl1...
I: Unpacking libattr1...
[...]
I: Unpacking zliblg...
I: Configuring required packages...
I: Configuring ncurses-base...
[...]
I: Configuring e2fsprogs...
I: Unpacking the base system...
I: Unpacking adduser...
[...]
I: Unpacking libxapian22...
I: Configuring the base system...
I: Configuring sudo...
[...]
I: Configuring tasksel...
I: Base system installed successfully.
```

Fixing permissions... OK

Once the VE has been build, you need to set it up in order to use it with pb as a VE.

```
[pblab@o185i228 vm]$ pb -p afio -m debian-6.0-x86_64 setupve
Project: afio
Action: setupve
Fixing permissions... OK
Fixing permissions... OK
```



```
Packages: afio

Sources handled (VEScript): /home/pblab/pb/afio/delivery/pbscript.3135

Preparing pb/test/src on
/home/pblab/ve/debian/6.0/x86_64//root/pb/test/src... OK

VEScript delivery in /home/pblab/ve/debian/6.0/x86_64//root/pb/test/src...
OK

Adapt owner in pb/test/src to root... OK

Executing pbscript on /home/pblab/ve/debian/6.0/x86_64//root/pb/test/src
if needed...

[...]

Get:233 http://ftp.us.debian.org/debian/ squeeze/main conkeror-spawn-
process-helper amd64 0.9.2+git100804-1 [24.9 kB]

Get:234 http://ftp.us.debian.org/debian/ squeeze/main equivs all 2.0.8
[20.3 kB]

Extracting templates from packages: 100%

Preconfiguring packages ...

Fetched 132 MB in 7min 0s (313 kB/s)

Selecting previously deselected package libcap2.
(Reading database ... 9884 files and directories currently installed.)
Unpacking libcap2 (from .../libcap2_1%3a2.19-3_amd64.deb) ...

Selecting previously deselected package ntpdate.
Unpacking ntpdate (from .../ntpdate_1%3a4.2.6.p2+dfsg-1+b1_amd64.deb) ...

[...]

Selecting previously deselected package conkeror-spawn-process-helper.
Unpacking conkeror-spawn-process-helper (from .../conkeror-spawn-process-
helper_0.9.2+git100804-1_amd64.deb) ...

Selecting previously deselected package equivs.
Unpacking equivs (from .../archives/equivs_2.0.8_all.deb) ...

Processing triggers for man-db ...

Processing triggers for install-info ...

Setting up libcap2 (1:2.19-3) ...

[...]
```



```
Building Project-Builder... --2011-03-11 23:10:05-- ftp://ftp.project-
builder.org/src/ProjectBuilder-latest.tar.gz

=> `ProjectBuilder-latest.tar.gz'

Resolving ftp.project-builder.org... 213.30.161.23
Connecting to ftp.project-builder.org|213.30.161.23|:21... connected.
Logging in as anonymous ... Logged in!

==> SYST ... done.      ==> PWD ... done.
==> TYPE I ... done.   ==> CWD (1) /src ... done.
==> SIZE ProjectBuilder-latest.tar.gz ... 64646
==> PASV ... done.     ==> RETR ProjectBuilder-latest.tar.gz ... done.
Length: 64646 (63K) (unauthoritative)

      0K ..... 79% 417K
0s

      50K ..... 100%
216K=0.2s

2011-03-11 23:10:15 (349 KB/s) - `ProjectBuilder-latest.tar.gz' saved
[64646]

--2011-03-11 23:10:15-- ftp://ftp.project-builder.org/src/project-
builder-latest.tar.gz

=> `project-builder-latest.tar.gz'

Resolving ftp.project-builder.org... 213.30.161.23
Connecting to ftp.project-builder.org|213.30.161.23|:21... connected.
Logging in as anonymous ... Logged in!

==> SYST ... done.      ==> PWD ... done.
==> TYPE I ... done.   ==> CWD (1) /src ... done.
==> SIZE project-builder-latest.tar.gz ... 93434
==> PASV ... done.     ==> RETR project-builder-latest.tar.gz ... done.
Length: 93434 (91K) (unauthoritative)

      0K ..... 54% 832K
0s
```



```
50K ..... 100%
461K=0.1s

2011-03-11 23:10:24 (610 KB/s) - `project-builder-latest.tar.gz' saved
[93434]

Writing Makefile for ProjectBuilder

cp lib/ProjectBuilder/Log.pm blib/lib/ProjectBuilder/Log.pm
cp lib/ProjectBuilder/Base.pm blib/lib/ProjectBuilder/Base.pm
cp lib/ProjectBuilder/Distribution.pm
blib/lib/ProjectBuilder/Distribution.pm
cp lib/ProjectBuilder/Conf.pm blib/lib/ProjectBuilder/Conf.pm
cp lib/ProjectBuilder/Version.pm blib/lib/ProjectBuilder/Version.pm
cp lib/ProjectBuilder/Log/Item.pm blib/lib/ProjectBuilder/Log/Item.pm
cp lib/ProjectBuilder/Display.pm blib/lib/ProjectBuilder/Display.pm
cp bin/pbdistrocheck blib/bin/pbdistrocheck

/usr/bin/perl -MExtUtils::MY -e 'MY->fixin(shift)' --
blib/bin/pbdistrocheck

Manifying blib/man1/pbdistrocheck.1p
Manifying blib/man3/ProjectBuilder::Base.3pm
Manifying blib/man3/ProjectBuilder::Log.3pm
Manifying blib/man3/ProjectBuilder::Distribution.3pm
Manifying blib/man3/ProjectBuilder::Log::Item.3pm
Manifying blib/man3/ProjectBuilder::Conf.3pm
Manifying blib/man3/ProjectBuilder::Display.3pm

Installing /usr/bin/pbdistrocheck
Installing /usr/share/perl/5.10/ProjectBuilder/Display.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Conf.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Distribution.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Version.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Log.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Base.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Log/Item.pm
```



```
Installing /usr/share/man/man1/pbdistrocheck.1p
Installing /usr/share/man/man3/ProjectBuilder::Log::Item.3pm
Installing /usr/share/man/man3/ProjectBuilder::Base.3pm
Installing /usr/share/man/man3/ProjectBuilder::Conf.3pm
Installing /usr/share/man/man3/ProjectBuilder::Distribution.3pm
Installing /usr/share/man/man3/ProjectBuilder::Display.3pm
Installing /usr/share/man/man3/ProjectBuilder::Log.3pm
mkdir -p /usr/local/etc/pb
chmod 755 /usr/local/etc/pb
cp etc/pb.conf /usr/local/etc/pb
mkdir -p /usr/local/share/man/man5
pod2man --section=5 etc/pb.conf.pod > /usr/local/share/man/man5/pb.conf.5
Writing Makefile for pb
cp lib/ProjectBuilder/Changelog.pm blib/lib/ProjectBuilder/Changelog.pm
cp lib/ProjectBuilder/Filter.pm blib/lib/ProjectBuilder/Filter.pm
cp lib/ProjectBuilder/CMS.pm blib/lib/ProjectBuilder/CMS.pm
cp lib/ProjectBuilder/Env.pm blib/lib/ProjectBuilder/Env.pm
cp bin/pbvi blib/bin/pbvi
/usr/bin/perl -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pbvi
cp bin/pb blib/bin/pb
/usr/bin/perl -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pb
cp bin/pbg blib/bin/pbg
/usr/bin/perl -MExtUtils::MY -e 'MY->fixin(shift)' -- blib/bin/pbg
Manifying blib/man1/pb.1p
Manifying blib/man3/ProjectBuilder::Changelog.3pm
Manifying blib/man3/ProjectBuilder::Filter.3pm
Manifying blib/man3/ProjectBuilder::CMS.3pm
Manifying blib/man3/ProjectBuilder::Env.3pm
Installing /usr/bin/pbg
Installing /usr/bin/pbvi
Installing /usr/bin/pb
Installing /usr/share/perl/5.10/ProjectBuilder/Changelog.pm
```



```
Installing /usr/share/perl/5.10/ProjectBuilder/Filter.pm
Installing /usr/share/perl/5.10/ProjectBuilder/Env.pm
Installing /usr/share/perl/5.10/ProjectBuilder/CMS.pm
Installing /usr/share/man/man1/pb.1p
Installing /usr/share/man/man3/ProjectBuilder::Env.3pm
Installing /usr/share/man/man3/ProjectBuilder::Filter.3pm
Installing /usr/share/man/man3/ProjectBuilder::Changelog.3pm
Installing /usr/share/man/man3/ProjectBuilder::CMS.3pm
OK
pb 2>&1 | head -5... OK
pb (aka project-builder.org) Version 0.11.1-1241

Usage:
    pb [-vhSq][--r pbroot][--p project][[--s script -a account -P port][--t
    os-ver-arch][--m os-ver-arch[,...]]][--g][--i iso] <action> [<pkg1> ...]

pbdistrocheck... OK
Project-Builder tuple:
OS:      linux
Name:    debian
Ver:     6.0
Arch:    x86_64
Type:    deb
Family:  du
Suffix:  .debian6.0

Update:  sudo /usr/bin/apt-get update; export
DEBIAN_FRONTEND="noninteractive"; sudo /usr/bin/apt-get --quiet -y
--force-yes dist-upgrade

Install:          sudo /usr/bin/apt-get update ; sudo /usr/bin/apt-get -y
install

umount /proc... OK
[pblab@o185i228 vm]$ pb -p afio -m debian-6.0-x86_64 sbx2ve
```



```
Project: afio
Action: sbx2ve
Packages: afio

Management of afio 2.5-0.20110312002026 (rev flat)

Downloading ftp://ftp.project-builder.org/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.DiEUWEuYFq/afio-2.5.tar.gz
... OK

WARNING: You don't seem to have a mime-info database. The
shared-mime-info package is available from http://freedesktop.org/ .
Generating fake ChangeLog for test version
Preparing delivery ...
Delivered and compressed patches N/A
Delivered additional sources N/A
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-
2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
Packages: afio
Fixing permissions... OK
Packages: afio

Sources handled (VEbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-
0.20110312002026.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc
/home/pblab/pb/afio/delivery/pbscript.3449

Preparing pb/afio/delivery on
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery... OK

VEbuild delivery in
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery... OK

Adapt owner in pb/afio/delivery to pblab... OK

Executing pbscript on
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery if needed...
OK
... Execution needed

sudo: unable to resolve host localhost.localdomain
```





```
setting up date with echo sudo /usr/sbin/ntpdate 1.pool.ntp.org
sudo: unable to resolve host localhost.localdomain
11 Mar 23:20:46 ntpdate[3510]: adjust time server 88.191.129.167 offset
-0.141257 sec
building packages on ve...
Project: afio
Action: build2pkg
Packages: afio
Extracting sources... OK
Extracting pbconf... Unable to open debian/control at
/usr/share/perl/5.10/ProjectBuilder/Distribution.pm line 353.
OK
sudo: unable to resolve host localhost.localdomain

Get package names in
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/build... child
(sudo /bin/cp -r
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/build/pbgen-2.5-
0.20110312002026-debian-6.0-x86_64 /home/pblab/pb/afio/build/pbgen-2.5-
0.20110312002026.3449 2> /dev/null) exited with value 1

/bin/cp: cannot stat
`/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/build/pbgen-2.5-
0.20110312002026-debian-6.0-x86_64': No such file or directory

Adapt owner in pb/afio/delivery to 501... child (sudo chown 501
/home/pblab/pb/afio/build/pbgen-2.5-0.20110312002026.3449) exited with
value 1

chown: cannot access `/home/pblab/pb/afio/build/pbgen-2.5-
0.20110312002026.3449': No such file or directory

Problem with VM/RM debian-6.0-x86_64 on /home/pblab/pb/afio/build/pbgen-
2.5-0.20110312002026.3449
```

In fact, nothing has been prepared to support our Debian distribution, nor to indicate how to build in it. Do the following to address our issues:

```
[pblab@o185i228 ~]$ perl -pi -e 's|velist default = mandriva-2010.1-
x86_64|velist default = mandriva-2010.1-x86_64,debian-6.0-x86_64|'
~/ve/.pbrc
[pblab@o185i228 ~]$ cd /home/pblab/pb/afio/pbconf/afio/deb/
```



```
[pblab@o185i228 deb]$ vi control
[... modifications...]
[pblab@o185i228 deb]$ vi rules
[... modifications...]
[pblab@o185i228 deb]$ vi afio.docs
[... modifications...]
[pblab@o185i228 deb]$ cat > ../pbcl << EOF
# $Id$

AFIO CHANGES

2.5 (2009-12-03)
- First packages created
EOF
[pblab@o185i228 deb]$ svn add ../pbcl
A      ../pbcl
[pblab@o185i228 deb]$ svn -x -b diff
Index: control
=====
--- control      (revision 2)
+++ control      (working copy)
@@ -3,7 +3,7 @@
    Section: PBGRP
    Priority: optional
    Maintainer: PBPACKAGER
-Build-Depends: debhelper (>= 4.2.20), PBDEP
+Build-Depends: debhelper (>= 4.2.20)
    Standards-Version: PBDEBSTD
    Vcs-Svn: svn://svn.PBPROJ.org/svn/PBVER/PBPKG
    Vcs-Browser: http://trac.PBPROJ.org/browser/PBVER/PBPKG
@@ -14,9 +14,7 @@
    # http://www.debian.org/doc/debian-policy/ch-archive.html#s-subsections
```



```
Section: PBGRP
Priority: optional
-Depends: ${shlibs:Depends}, ${misc:Depends}, PBDEP
-Recommends: PBREC
-Suggests: PBSUG
+Depends: ${shlibs:Depends}, ${misc:Depends}
Description: PBSUMMARY
PBDESC
.
Index: afio.docs
=====
--- afio.docs (revision 2)
+++ afio.docs (working copy)
@@ -1,5 +1,11 @@
-INSTALL
-COPYING
-AUTHORS
-NEWS
+HISTORY
+PORTING
README
+SCRIPTS
+ANNOUNCE-2.5
+perl.artistic.license
+afio.lsm
+script1
+script2
+script3
+script4
Index: rules
=====
--- rules (revision 2)
```



```
+++ rules          (working copy)
@@ -27,13 +27,9 @@
    ifeq (, $(findstring nostrip, $(DEB_BUILD_OPTIONS)))
        INSTALL_PROGRAM += -s
    endif
-config.status: configure
+config.status: Makefile
    dh_testdir

-    # Configure the package.
-    CFLAGS="$(CFLAGS)" ./configure --host=$(DEB_HOST_GNU_TYPE)
--build=$(DEB_BUILD_GNU_TYPE) --prefix=/usr
- --mandir=\${prefix}/share/man
-
# Build both architecture dependent and independent
build: build-arch build-indep

@@ -86,8 +82,9 @@

    # Install the package files into build directory:
    # - start with upstream make install
-    $(MAKE) install prefix=$(CURDIR)/debian/$(PACKAGE_NAME)/usr
mandir=$(CURDIR)/debian/$(PACKAGE_NAME)/usr/share/man
-    # - copy html manual to temporary location for renaming
+    mkdir -p $(CURDIR)/debian/$(PACKAGE_NAME)/usr/bin $(CURDIR)
)/debian/$(PACKAGE_NAME)/usr/share/man/man1
+    install -p -m 755 afio $(CURDIR)/debian/$(PACKAGE_NAME)/usr/bin
+    install -p -m 644 afio.1 $(CURDIR)/debian/$(PACKAGE_NAME)
)/usr/share/man/man1
    mkdir -p debian/doc-temp
    dh_install -s

@@ -105,7 +102,7 @@
```



```
binary-common:
    dh_testdir
    dh_testroot
-   dh_installchangelogs ChangeLog
+   dh_installchangelogs debian/changelog
    dh_installdocs
    dh_installman
    dh_link
```

The adaptations are similar to the one done for building the RPM of afio: list of files/dirs to manage, and way to build the software. Now everything is in place to build:

```
[pblab@o185i228 vm]$ pb -p afio -m debian-6.0-x86_64 sbx2ve
Project: afio
Action: sbx2ve
Packages: afio

Management of afio 2.5-0.20110312005646 (rev flat)
Downloading ftp://ftp.project-builder.org/src/afio-2.5.tar.gz with
/usr/bin/wget -nv -O to /tmp/pb.lsXPwz3Eqs/afio-2.5.tar.gz
... OK
WARNING: You don't seem to have a mime-info database. The
shared-mime-info package is available from http://freedesktop.org/ .
Generating fake ChangeLog for test version
Preparing delivery ...
Delivered and compressed patches N/A
Delivered additional sources N/A
Preserving original tar file Under /home/pblab/pb/afio/delivery/afio-
2.5.tar.gz
Creating pbconf tar files compressed... OK
Under /home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
Packages: afio
Fixing permissions... OK
Packages: afio
```



```
Sources handled (VEbuild): /home/pblab/pb/afio/delivery/afio-2.5.tar.gz
/home/pblab/pb/afio/delivery/afio-2.5.pbconf.tar.gz
/home/pblab/pb/afio/pbconf/afio.pb /home/pblab/pb/afio/delivery/2.5-
0.20110312005646.pb /home/pblab/.pbrc /home/pblab/pb/afio/delivery/pbrc
/home/pblab/pb/afio/delivery/pbscript.4990

Preparing pb/afio/delivery on
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery... OK

VEbuild delivery in
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery... OK

Adapt owner in pb/afio/delivery to pblab... OK

Executing pbscript on
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/delivery if needed...
OK

... Execution needed

sudo: unable to resolve host localhost.localdomain

setting up date with echo sudo /usr/sbin/ntpdate 1.pool.ntp.org

sudo: unable to resolve host localhost.localdomain

11 Mar 23:57:15 ntpdate[5051]: adjust time server 88.191.108.178 offset
0.000920 sec

building packages on ve...

Project: afio
Action: build2pkg
Packages: afio
Extracting sources... OK
Extracting pbconf... OK
Building package... OK

dpkg-buildpackage: export CFLAGS from dpkg-buildflags (origin: vendor): -g
-O2
dpkg-buildpackage: export CPPFLAGS from dpkg-buildflags (origin: vendor):
dpkg-buildpackage: export CXXFLAGS from dpkg-buildflags (origin: vendor):
-g -O2
dpkg-buildpackage: export FFLAGS from dpkg-buildflags (origin: vendor): -g
-O2
dpkg-buildpackage: export LDFLAGS from dpkg-buildflags (origin: vendor):
dpkg-buildpackage: source package afio
dpkg-buildpackage: source version 2.5-0.20110312005646
```



```
dpkg-buildpackage: source changed by Big Chief <bigchief@hp.com>
  dpkg-source --before-build afio-2.5
dpkg-buildpackage: host architecture amd64
  fakeroot debian/rules clean
dh_testdir
dh_testroot
rm -f build-arch-stamp build-indep-stamp #CONFIGURE-STAMP#
# Clean temporary document directory
rm -rf debian/doc-temp
# Clean up.
/usr/bin/make distclean
make[1]: Entering directory `/home/pblab/pb/afio/build/afio-2.5'
make[1]: *** No rule to make target `distclean'.  Stop.
make[1]: Leaving directory `/home/pblab/pb/afio/build/afio-2.5'
make: [clean] Error 2 (ignored)
rm -f config.log
dh_clean
  dpkg-source -b afio-2.5
dpkg-source: warning: no source format specified in debian/source/format,
see dpkg-source(1)
dpkg-source: info: using source format `1.0'
dpkg-source: info: building afio in afio_2.5-0.20110312005646.tar.gz
dpkg-source: info: building afio in afio_2.5-0.20110312005646.dsc
  debian/rules build
dh_testdir
dh_testdir
# Compile the package.
/usr/bin/make
make[1]: Entering directory `/home/pblab/pb/afio/build/afio-2.5'
gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o afio.o afio.c
```



```
afio.c: In function 'incheckdata':
afio.c:1588: warning: missing sentinel in function call
afio.c: In function 'opencontrolsript':
afio.c:3007: warning: missing sentinel in function call
afio.c: In function 'openotty':
afio.c:3269: warning: missing sentinel in function call

gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o compfile.o
compfile.c

compfile.c: In function 'setupgzip':
compfile.c:182: warning: missing sentinel in function call

gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o exten.o
exten.c

gcc -Wall -Wstrict-prototypes -s -O2 -fomit-frame-pointer
-D_FILE_OFFSET_BITS=64 -D_LARGEFILE_SOURCE -DMEMCPY -DMKDIR -DVOIDFIX
-DHAVEFCNTL -DHAVEMEMCMP -DDEFFMTCMD='"fdformat /dev/fd0H1440"'
-DHAVE_LCHOWN -DPRG_COMPRESS='"gzip"' -DHAVEFNMATCH -c -o match.o
match.c

gcc afio.o compfile.o exten.o match.o -o afio

afio.o: In function `syserr':
afio.c:(.text+0x7cf): warning: `sys_errlist' is deprecated; use `strerror'
or `strerror_r' instead
afio.c:(.text+0x7a1): warning: `sys_nerr' is deprecated; use `strerror' or
`strerror_r' instead

make[1]: Leaving directory `/home/pblab/pb/afio/build/afio-2.5'

touch build-stamp

# Nothing to do, the only indep item is the manual which is available as
html in original source

touch build-indep-stamp

 fakeroot debian/rules binary

dh_testdir
dh_testdir

# Compile the package.
```





```
/usr/bin/make
make[1]: Entering directory `/home/pblab/pb/afio/build/afio-2.5'
make[1]: `afio' is up to date.
make[1]: Leaving directory `/home/pblab/pb/afio/build/afio-2.5'
touch build-stamp
dh_testdir
dh_testroot
dh_clean -k -s
dh_clean: dh_clean -k is deprecated; use dh_prep instead
dh_installdirs -s
# Install the package files into build directory:
# - start with upstream make install
mkdir -p /home/pblab/pb/afio/build/afio-2.5/debian/afio/usr/bin
/home/pblab/pb/afio/build/afio-2.5/debian/afio/usr/share/man/man1
install -p -m 755 afio /home/pblab/pb/afio/build/afio-
2.5/debian/afio/usr/bin
install -p -m 644 afio.1 /home/pblab/pb/afio/build/afio-
2.5/debian/afio/usr/share/man/man1
mkdir -p debian/doc-temp
dh_install -s
/usr/bin/make -f debian/rules DH_OPTIONS=-a binary-common
make[1]: Entering directory `/home/pblab/pb/afio/build/afio-2.5'
dh_testdir
dh_testroot
dh_installchangelogs debian/changelog
dh_installdocs
dh_installman
dh_link
dh_strip
dh_compress
dh_fixperms
dh_installdeb
dh_shlibdeps
```



```
dh_gencontrol
dh_md5sums
dh_builddeb
dpkg-deb: building package `afio' in `../afio_2.5-
0.20110312005646_amd64.deb'.
make[1]: Leaving directory `/home/pblab/pb/afio/build/afio-2.5'
# Nothing to do, the only indep item is the manual which is available as
html in original source
touch build-indep-stamp
dh_testdir
dh_testroot
dh_clean -k -i
dh_clean: You asked that all arch in(dep) packages be built, but there are
none of that type.
dh_installdirs -i
dh_installdirs: You asked that all arch in(dep) packages be built, but
there are none of that type.
dh_install -i
dh_install: You asked that all arch in(dep) packages be built, but there
are none of that type.
/usr/bin/make -f debian/rules DH_OPTIONS=-i binary-common
make[1]: Entering directory `/home/pblab/pb/afio/build/afio-2.5'
dh_testdir
dh_testdir: You asked that all arch in(dep) packages be built, but there
are none of that type.
dh_testroot
dh_installchangelogs debian/changelog
dh_installchangelogs: You asked that all arch in(dep) packages be built,
but there are none of that type.
dh_installdocs
dh_installdocs: You asked that all arch in(dep) packages be built, but
there are none of that type.
dh_installman
dh_installman: You asked that all arch in(dep) packages be built, but
there are none of that type.
```



```
dh_link
dh_link: You asked that all arch in(dep) packages be built, but there are
none of that type.
dh_strip
dh_strip: You asked that all arch in(dep) packages be built, but there are
none of that type.
dh_compress
dh_compress: You asked that all arch in(dep) packages be built, but there
are none of that type.
dh_fixperms
dh_fixperms: You asked that all arch in(dep) packages be built, but there
are none of that type.
dh_installdeb
dh_installdeb: You asked that all arch in(dep) packages be built, but
there are none of that type.
dh_shlibdeps
dh_shlibdeps: You asked that all arch in(dep) packages be built, but there
are none of that type.
dh_gencontrol
dh_gencontrol: You asked that all arch in(dep) packages be built, but
there are none of that type.
dh_md5sums
dh_md5sums: You asked that all arch in(dep) packages be built, but there
are none of that type.
dh_builddeb
dh_builddeb: You asked that all arch in(dep) packages be built, but there
are none of that type.
make[1]: Leaving directory `/home/pblab/pb/afio/build/afio-2.5'
  dpkg-genchanges >../afio_2.5-0.20110312005646_amd64.changes
dpkg-genchanges: including full source code in upload
  dpkg-source --after-build afio-2.5
dpkg-buildpackage: full upload; Debian-native package (full source is
included)

Cleanup... OK
```



```
Checking validity of debs with /usr/bin/lintian... child (/usr/bin/lintian
afio_2.5-0.20110312005646_*.deb ) exited with value 1
```

```
E: afio: description-starts-with-package-name
```

```
E: afio: description-synopsis-is-duplicated
```

```
W: afio: copyright-refers-to-versionless-license-file usr/share/common-
licenses/GPL
```

```
W: afio: copyright-without-copyright-notice
```

```
W: afio: extra-license-file usr/share/doc/afio/perl.artistic.license.gz
```

```
deb packages generated: afio_2.5-0.20110312005646_*.deb
```

```
sudo: unable to resolve host localhost.localdomain
```

```
Get package names in
```

```
/home/pblab/ve/debian/6.0/x86_64//home/pblab/pb/afio/build... OK
```

```
Adapt owner in pb/afio/delivery to 501... OK
```

```
Recovery of package afio_2.5-0.20110312005646.dsc in
```

```
/home/pblab/pb/afio/build/debian/6.0/x86_64... OK
```

```
Recovery of package afio_2.5-0.20110312005646.tar.gz in
```

```
/home/pblab/pb/afio/build/debian/6.0/x86_64... OK
```

```
Recovery of package afio_2.5-0.20110312005646_*.deb in
```

```
/home/pblab/pb/afio/build/debian/6.0/x86_64... OK
```

```
Recovery of package afio_2.5-0.20110312005646_*.changes in
```

```
/home/pblab/pb/afio/build/debian/6.0/x86_64... OK
```

```
VEbuild cleanup... OK
```

```
Packages: afio
```

```
Sources handled (Packages): debian/6.0/x86_64/afio_2.5-
```

```
0.20110312005646.dsc debian/6.0/x86_64/afio_2.5-0.20110312005646.tar.gz
```

```
debian/6.0/x86_64/afio_2.5-0.20110312005646_*.deb
```

```
debian/6.0/x86_64/afio_2.5-0.20110312005646_*.changes
```

```
/home/pblab/pb/afio/build/pbscript.4990
```

```
Preparing /var/ftp/pub/afio/test/debian/6.0 on
```

```
delivery@localhost:/var/ftp/pub/afio/test/debian/6.0... OK
```

```
Packages delivery in
```

```
delivery@localhost:/var/ftp/pub/afio/test/debian/6.0... OK
```

```
Executing pbscript on delivery@localhost:/var/ftp/pub/afio/test/debian/6.0
```

```
if needed... OK
```

```
Creating Packages metadata (x86_64)
```



```
./pbscript.4990: line 25: dpkg-scanpackages: command not found
./pbscript.4990: line 26: dpkg-scanpackages: command not found
Creating Contents metadata
./pbscript.4990: line 28: apt-ftparchive: command not found
Creating Release metadata (x86_64)
Creating Source metadata
./pbscript.4990: line 33: dpkg-scansources: command not found
Creating Release metadata
./pbscript.4990: line 37: apt-ftparchive: command not found
[pblab@o185i228 ~]$ ls -alR ~ftp/pub/afio/test/debian
/var/ftp/pub/afio/test/debian:
total 16
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 5 delivery delivery 4096 Mar 12 00:47 ..
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:57 6.0
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 dists

/var/ftp/pub/afio/test/debian/6.0:
total 276
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:57 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 ..
-rw-r--r--. 1 delivery delivery 1290 Mar 12 00:57 afio_2.5-
0.20110312005646_amd64.changes
-rw-r--r--. 1 delivery delivery 77674 Mar 12 00:57 afio_2.5-
0.20110312005646_amd64.deb
-rw-r--r--. 1 delivery delivery 654 Mar 12 00:57 afio_2.5-
0.20110312005646.dsc
-rw-r--r--. 1 delivery delivery 181580 Mar 12 00:57 afio_2.5-
0.20110312005646.tar.gz
-rw-r--r--. 1 delivery delivery 96 Mar 12 00:57 afio.sources.list

/var/ftp/pub/afio/test/debian/dists:
total 12
```



```
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 ..
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 6.0

/var/ftp/pub/afio/test/debian/dists/6.0:
total 16
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 ..
-rw-rw-r--. 1 delivery delivery  20 Mar 12 00:57 Contents.gz
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 contrib
-rw-rw-r--. 1 delivery delivery   0 Mar 12 00:57 Release

/var/ftp/pub/afio/test/debian/dists/6.0/contrib:
total 16
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 3 delivery delivery 4096 Mar 12 00:47 ..
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:47 binary-x86_64
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:47 source

/var/ftp/pub/afio/test/debian/dists/6.0/contrib/binary-x86_64:
total 20
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 ..
-rw-rw-r--. 1 delivery delivery  14 Mar 12 00:57 Packages.bz2
-rw-rw-r--. 1 delivery delivery  20 Mar 12 00:57 Packages.gz
-rw-rw-r--. 1 delivery delivery 123 Mar 12 00:57 Release

/var/ftp/pub/afio/test/debian/dists/6.0/contrib/source:
total 16
drwxrwxr-x. 2 delivery delivery 4096 Mar 12 00:47 .
drwxrwxr-x. 4 delivery delivery 4096 Mar 12 00:47 ..
-rw-rw-r--. 1 delivery delivery 123 Mar 12 00:57 Release
```



```
-rw-rw-r--. 1 delivery delivery 20 Mar 12 00:57 Sources.gz
```

So pb has again prepared and delivered for us a repository for afio. Of course at the end it tries to also generate indices for Debian, but some commands do not exist on RHEL so it fails. It's left as an exercise to the reader to fix that part.

## Using pb with an existing project (SVN)

Estimated time: 15 minutes.

### pb setup

Now that we have done it once, it will be much quicker to adapt our setup to build for a new project. You just have to adapt the `.pbrc` file that way:

```
[pblab@o185i225 ~]$ cat >> $HOME/.pbrc << EOF
pbconfurl mondorescue = svn+socks://svn.project-
builder.org/pb/projects/mondorescue/pbconf
EOF
```

And inside the HP LAN, setup a SVN proxy with tsocks:

```
[root@o185i228 home]# yum install tsocks
[root@o185i228 home]# cat > /etc/tsocks.conf << EOF
server = socks-server
local = 15.0.0.0/255.0.0.0
local = 16.0.0.0/255.0.0.0
EOF
[pblab@o185i225 ~]$ cat >> $HOME/.pbrc << EOF
pbsockscmd default = tsocks
EOF
```

### pb repository setup

```
[pblab@o185i225 pb]$ pb -p mondorescue cms2pkg
Checking out svn://svn.project-builder.org/pb/projects/mondorescue/pbconf
to /home/pblab/pb/mondorescue/pbconf ... OK
ERROR: no pbrout defined, used /home/pblab/pb/mondorescue/pbconf, without
finding mondorescue.pb in it
Please use -r release in order to be able to initialize your
environment correctly
Unable to open /home/pblab/pb/mondorescue/pbconf/mondorescue.pb at
/usr/lib/perl5/vendor_perl/5.8.8/ProjectBuilder/Env.pm line 1041.
```



Of course, we need to say which version we want to build. Try building the development one named branches/2.2.10. Remark also that pb extracted the whole pbconf content for mondorescue from the SVN.

```
[pblab@o185i225 pb]$ pb -p mondorescue -r branches/2.2.10 cms2pkg
Project: mondorescue
Action: cms2pkg
Packages: mondo,mindi
Checking out svn+ssh://svn.mondorescue.org/mondo/svn/mondorescue/2.2.10 to
/home/pblab/pb/mondorescue//branches/2.2.10 ... The authenticity of host
'svn.mondorescue.org (213.30.161.23)' can't be established.
RSA key fingerprint is 58:7f:66:05:4e:c1:b0:60:89:7a:b7:09:1c:10:18:5b.
Are you sure you want to continue connecting (yes/no)? yes
pblab@svn.mondorescue.org's password:
```

Of course, the setup of the project leader is different from us. He is using SSH to have SVN access, which is not our case. So we need to overload that configuration to have access to the project sources:

```
[pblab@o185i228 ~]$ grep svn
pb/mondorescue/pbconf/branches/2.2.10/mondorescue.pb
pburl mondorescue = svn+ssh://svn.mondorescue.org/mondo/svn/mondorescue
[pblab@o185i225 ~]$ cat >> $HOME/.pbrc << EOF
pburl mondorescue = svn+socks://svn.mondorescue.org/mondorescue/branches
EOF
```

## Tar file and package creation

If at that point, without doing any modification, we try to generate at least the tar files of the project, the result is:

```
[pblab@o185i225 pb]$ pb -p mondorescue sbx2pkg
Project: mondorescue
Action: cms2pkg
Packages: mondo,mindi
Checking out svn://svn.mondorescue.org/mondorescue/branches/2.2.10 to
/home/pblab/pb/mondorescue//branches/2.2.10 ... OK

Management of mondo 2.2.10-0.20091204174124 (rev 2497)
```





```
Exporting /home/pblab/pb/mondorescue//branches/2.2.10/mondo from svn+socks
to /home/pblab/pb/mondorescue/delivery/mondo-2.2.10 ... OK

Generating fake ChangeLog for test version

Build files are being generated for ...

... debian-5.0-i386,fedora-10-i386,rhel-5.4-x86_64

Delivering and compressing patches

Executing init script from
/home/pblab/pb/mondorescue/pbconf/branches/2.2.10/mondo/pbinit... OK

./bootstrap: line 5: automake: command not found
./bootstrap: line 8: autoconf: command not found
[...]
./bootstrap: line 29: libtoolize: command not found
./bootstrap: line 30: aclocal: command not found
./bootstrap: line 31: autoheader: command not found
[...]
make: convert: Command not found
[...]
Installing dependencies (newt-devel libtool)...

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

    #1) Respect the privacy of others.
    #2) Think before you type.
    #3) With great power comes great responsibility.

Password:
[...]
error: Failed build dependencies:

    newt-devel >= 0.50 is needed by mondo-2.2.10-
0.20091204174124.rhel5.4.x86_64

    gcc-c++ is needed by mondo-2.2.10-0.20091204174124.rhel5.4.x86_64
    autoconf is needed by mondo-2.2.10-0.20091204174124.rhel5.4.x86_64
    automake is needed by mondo-2.2.10-0.20091204174124.rhel5.4.x86_64
```



```
libtool is needed by mondo-2.2.10-0.20091204174124.rhel5.4.x86_64
```

```
[...]
```

```
rpm packages generated: SRPMS/mindi-2.0.8-0.20091204174124.rhel5.4.src.rpm RPMS/noarch/mindi-2.0.8-0.20091204174124.rhel5.4.noarch.rpm
```

Ok, so we were able to generate one of the 2 packages planned. The reason for the lack of success for mondo is linked to a lack of packages needed at build time. Some are part of the initialization of the project (automake and the likes) others are dependencies in RPM that pb tries unsuccessfully to install as our build account is not in the sudoers here (you may not want to adopt the solution below for obvious security reason). Fix these issues:

```
[root@o185i228 home]# yum install autoconf automake libtool ImageMagick docbook-utils-pdf gcc-c++
```

```
[root@o185i228 home]# cat >> /etc/sudoers << EOF
```

```
pblab ALL=(ALL) ALL
```

```
EOF
```

```
[pblab@o185i228 ~]$ pb -p mondorescue -r branches/2.2.10 cms2pkg mondo
```

```
Project: mondorescue
```

```
Action: cms2pkg
```

```
Packages: mondo
```

```
Management of mondo 2.2.10-0.20091204175959 (rev 2497)
```

```
[...]
```

```
Executing init script from  
/home/pblab/pb/mondorescue/pbconf/branches/2.2.10/mondo/pbinit...
```

```
Creating mondo tar files compressed... OK
```

```
Under /home/pblab/pb/mondorescue/delivery/mondo-2.2.10.tar.gz
```

```
Creating pbconf tar files compressed... OK
```

```
Under /home/pblab/pb/mondorescue/delivery/mondo-2.2.10.pbconf.tar.gz
```

```
Packages: mondo
```

```
Extracting spec files from /home/pblab/pb/mondorescue/delivery/mondo-2.2.10.pbconf.tar.gz... OK
```

```
Extracting patch files from /home/pblab/pb/mondorescue/delivery/mondo-2.2.10.pbconf.tar.gz... N/A
```

```
Installing dependencies (newt-devel)... Password:
```

```
Loaded plugins: rhnplugin, security
```

```
Cleaning up Everything
```



```
Loaded plugins: rhnplugin, security
This system is not registered with RHN.
RHN support will be disabled.

afio | 951 B
00:00

afio/primary | 948 B
00:00

afio
2/2

[...]

Building package with /home/pblab/pb/mondorescue/build/SPECS/mondo.spec
under /home/pblab/pb/mondorescue/build...

[...]

rpm packages generated: SRPMS/mondo-2.2.10-
0.20091204184315.rhel5.4.src.rpm RPMS/x86_64/mondo-2.2.10-
0.20091204184315.rhel5.4.x86_64.rpm
```

If you have problems building it, you may have to solve a current build issue with recent autotools:

```
[pblab@o185i228 pbconf]$ svn diff
Index: branches/2.2.10/mondo/rpm/mondo.spec
=====
--- branches/2.2.10/mondo/rpm/mondo.spec      (revision 930)
+++ branches/2.2.10/mondo/rpm/mondo.spec      (working copy)
@@ -57,6 +57,7 @@
     %setup -q

     %build
+mkdir m4
     %configure
     make %{?_smp_mflags} VERSION=%{version}
```

It could also be possible at that point to build for your existing VMs.

There is much more to discover around pb (management of patches, other DVCS, managing announces to mailing list, website, managing official vs test versions, ...) but I leave that for an update of this document.