

# Not Your Grandpa's Debhelper

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DebConf 9  
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binary-arch:

dh\_install

dh\_installchangelogs

dh\_installdocs

dh\_installexamples

[...]

dh\_compress

dh\_fixperms

dh\_installdeb

dh\_shlibdeps

dh\_gencontrol

dh\_md5sums

dh\_builddeb

binary-arch:

**dh\_install**

**dh\_installchangelogs**

**dh\_installdocs**

**dh\_installexamples**

[...]

**dh\_compress**

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binary-arch:



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**dh** binary-arch

**dh\_install**

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[...]

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**dh\_shlibdeps**

**dh\_gencontrol**

**dh\_md5sums**

**dh\_builddeb**

dh

debhelper 7.0.0  
April 2008

```
#!/usr/bin/make -f
```

```
build:
```

```
dh build
```

```
clean:
```

```
dh clean
```

```
binary-arch:
```

```
dh binary-arch
```

```
binary-indep:
```

```
dh binary-indep
```

```
binary:
```

```
dh binary
```

```
#!/usr/bin/make -f
```

```
build:
```

```
    dh build
```

```
clean:
```

```
    dh clean
```

```
binary-arch:
```

```
    dh binary-arch
```

```
binary-indep:
```

```
    dh binary-indep
```

```
binary:
```

```
    dh binary
```

```
#!/usr/bin/make -f  
build:
```

```
    dh build
```



```
#!/usr/bin/make -f  
%:
```

```
    dh $@
```

```
clean:
```

```
    dh clean
```

```
binary-arch:
```

```
    dh binary-arch
```

```
binary-indep:
```

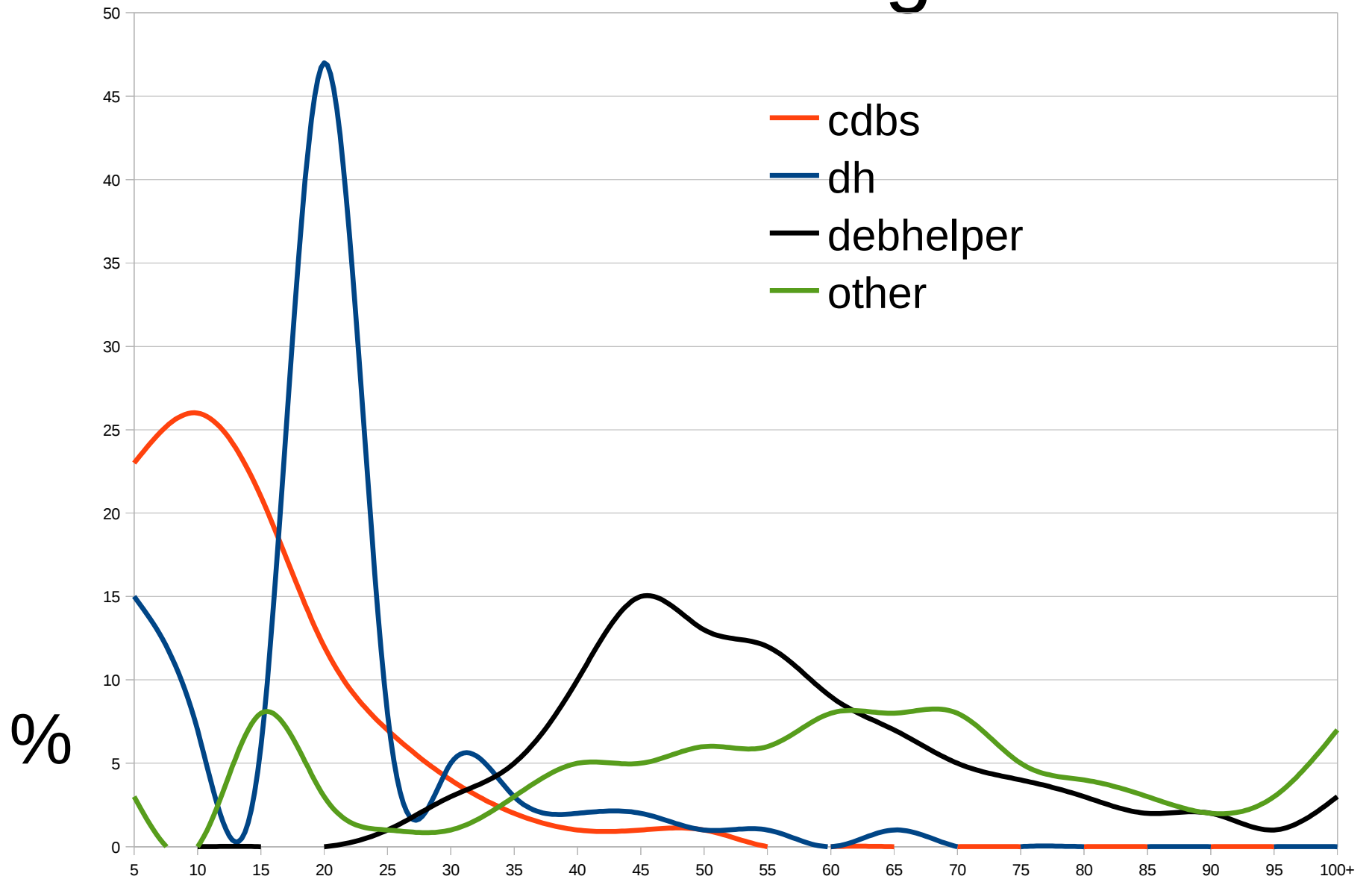
```
    dh binary-indep
```

```
binary:
```

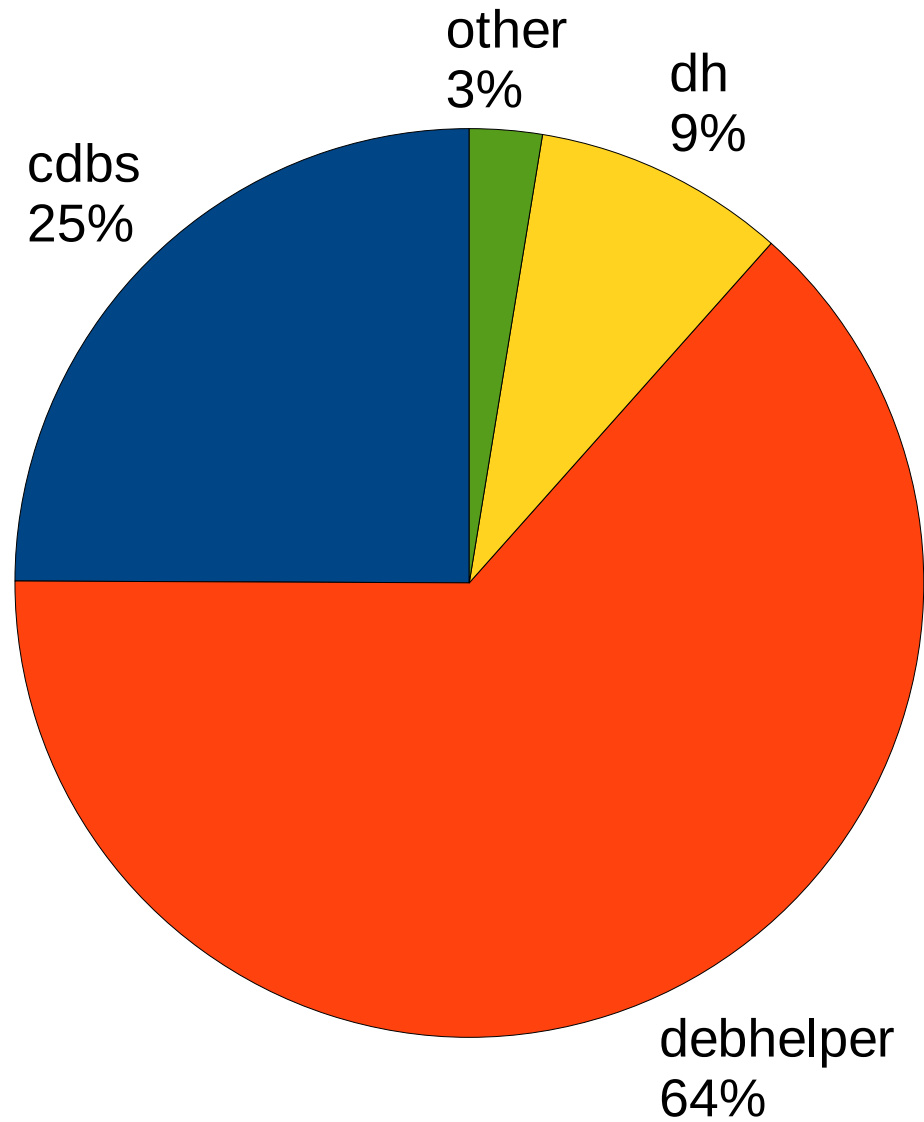
```
    dh binary
```



# debian/rules length



# market share



# What does dh do?

```
$ dh binary --no-act  
dh_testdir  
dh_auto_configure  
dh_auto_build  
dh_auto_test  
dh_testroot  
dh_prep  
dh_installdirs  
dh_auto_install  
dh_install  
dh_installdocs  
[...]
```

```
$ dh clean --no-act  
dh_testdir  
dh_auto_clean  
dh_clean
```

# What does dh do?

```
$ dh binary --no-act  
dh_testdir  
dh_auto_configure  
dh_auto_build  
dh_auto_test  
dh_testroot  
dh_prep  
dh_installdirs  
dh_auto_install  
dh_install  
dh_installdocs  
[...]
```

```
$ dh clean --no-act  
dh_testdir  
dh_auto_clean  
dh_clean
```

# dh\_auto\_\*

- dh\_auto\_configure** → ./configure --prefix=/usr
- dh\_auto\_build** → make
- dh\_auto\_test** → make test || check
- dh\_auto\_install** → make install
- dh\_auto\_clean** → make distclean || clean

# dh\_auto\_\*

- dh\_auto\_configure** →
- dh\_auto\_build** → ./setup.py build
- dh\_auto\_test** →
- dh\_auto\_install** → ./setup.py install --blah
- dh\_auto\_clean** → ./setup.py clean

# dh\_auto\_\*

- dh\_auto\_configure** → perl Build.PL
- dh\_auto\_build** → perl Build
- dh\_auto\_test** → perl Build test
- dh\_auto\_install** → perl Build install
- dh\_auto\_clean** → perl Build distclean

# dh\_auto works for common cases

```
./configure --prefix=/usr  
make
```

```
build:  
dh build
```



# uncommon case

```
./configure --prefix=/usr --without-kitchen-sink  
make world
```

```
build:  
dh build
```

# handling the uncommon case

override\_dh\_auto\_configure:

dh\_auto\_configure – **–without-kitchen-sink**

override\_dh\_auto\_build:

make **world**

build:

dh build

# override targets

debhelper 7.0.50  
February 2009

# override target examples

override\_dh\_fixperms:

```
dh_fixperms
```

```
chmod 4755 debian/foo/usr/bin/foo
```

override\_dh\_strip:

```
dh_strip --dbg-package=foo-dbg
```

override\_dh\_installinit:

```
dh_installinit -- start 30 2 3 4 5 . stop 80 1 .
```

override\_dh\_auto\_test:

```
dh_auto_test || echo "ignoring test failure"
```

# ikiwiki debian/rules

```
#!/usr/bin/make -f
```

```
%:
```

```
dh $@
```

```
override_dh_auto_configure:
```

```
dh_auto_configure -- PREFIX=/usr
```

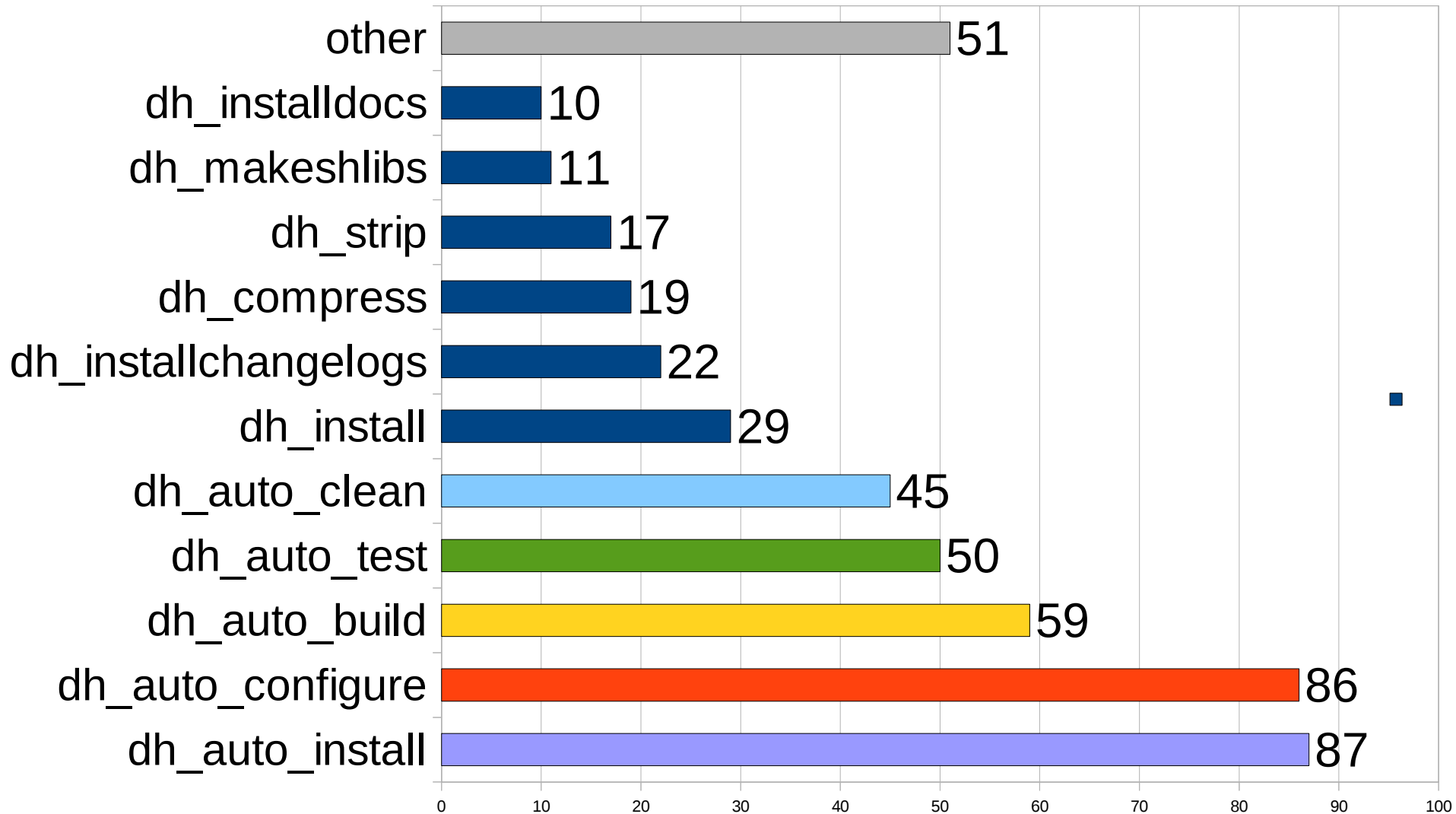
```
override_dh_compress:
```

```
dh_compress -Xhtml
```

```
override_dh_auto_clean:
```

```
if [ -e Makefile ]; then $(MAKE) realclean; fi
```

# override frequency



# which should dh use?

**dh\_pysupport**

dh\_pycentral

~~dh\_python~~

(What a mess!)

# forcing python-central

```
override_dh_pysupport:  
    dh_pycentral
```

---

```
build:  
    dh build --with python-central
```



# dh sequence addons

debhelper 7.0.8  
May 2008

# available sequence addons

dh `--with python-central`

dh `--with quilt`

dh `--with bash-completion`

dh `--with haskell_devscripts`

dh `--with tex`

...

third-party sequence addons:  
encouraged!

# sequence addon implementation

```
#!/usr/bin/perl  
# debhelper sequence file for python-central
```

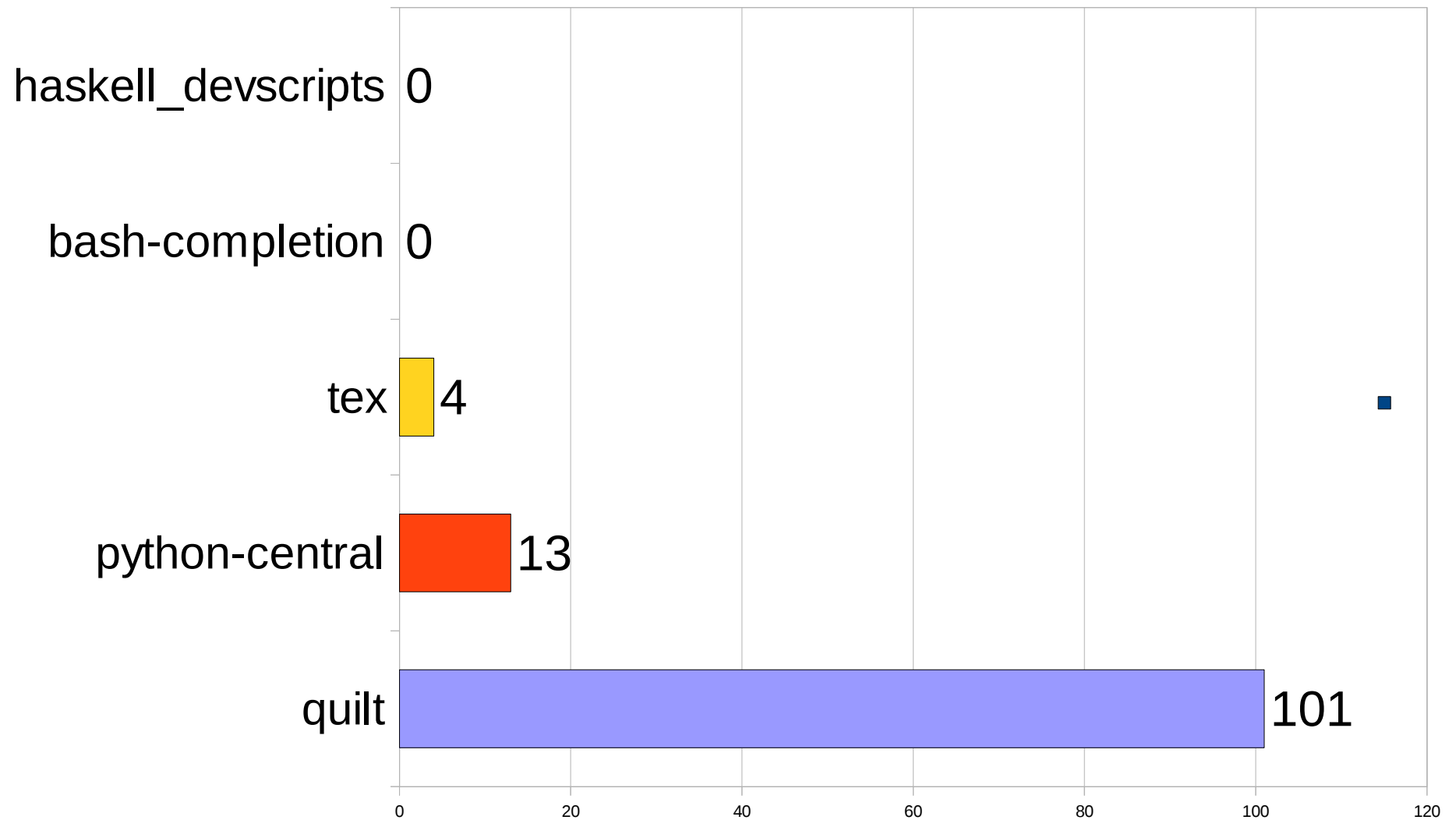
```
use warnings;  
use strict;  
use Debian::Debhelper::Dh_Lib;
```

```
insert_after("dh_perl", "dh_pycentral");  
remove_command("dh_pysupport");
```

# haskell-devscripts sequence addon

```
insert_before("dh_auto_build", "dh_haskell_prep");
insert_before("dh_auto_build", "dh_haskell_configure");
insert_before("dh_auto_build", "dh_haskell_build");
insert_before("dh_compress",
              "dh_compress -X.haddock");
remove_command("dh_compress");
insert_before("dh_install", "dh_haskell_install");
insert_before("dh_gencontrol", "dh_haskell_depends");
insert_before("dh_gencontrol", "dh_haskell_shlibdeps");
insert_before("dh_clean", "dh_haskell_clean");
```

# sequence addon usage



# build system classes

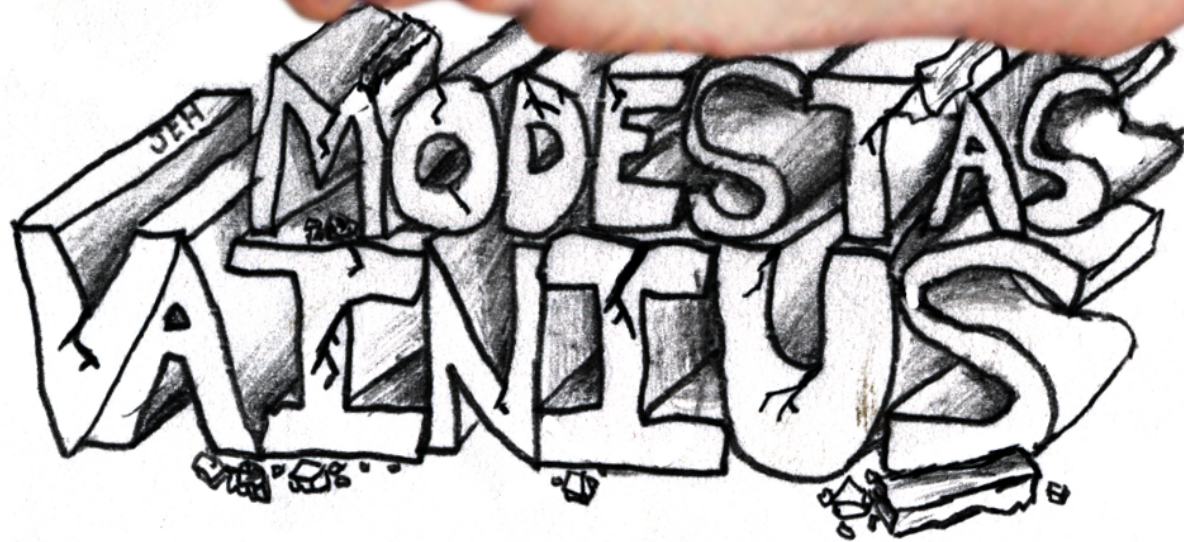
debhelper 7.3.7  
24 July 2009

build system classes





build system class



# build system classes

```
$ dh_auto_build --list
```

autoconf	GNU Autoconf (configure)
perl_makemaker	Perl MakeMaker (Makefile.PL)
makefile	simple Makefile
python_distutils	Python Distutils (setup.py)
perl_build	Perl Module::Build (Build.PL)
cmake	Cmake (CmakeLists.txt)
ant	Ant (build.xml)

# forcing build system

```
#!/usr/bin/make -f
```

```
%:
```

```
dh $@ -buildsystem perl_build
```

# source and build directories

```
#!/usr/bin/make -f
```

```
%:
```

```
dh $@ --sourcedirectory=src \  
      --builddirectory=build
```

third-party build system classes ok

(but, must be explicitly enabled  
in debian/rules)

# writing build system classes

```
#!/usr/bin/perl
package Debian::Debhelper::Buildsystem::foo;
use base 'Debian::Debhelper::Buildsystem::makefile';

sub check_auto_buildable {
    my $this=shift;
    return -x $this->get_sourcepath("fooconfig");
}

sub configure {
    my $this=shift;
    $this->doit_in_sourcedir("./fooconfig", "--bar", @_);
}
```

# not your Grandpa's rules file

```
#!/usr/bin/make -f
```

```
%:
```

```
dh $@ --with quilt --builddirectory obj \  
--sourcedirectory source
```

```
override_dh_auto_configure:
```

```
autoconf
```

```
dh_auto_configure -- --with-sdl
```

```
override_dh_installchangelogs:
```

```
dh_installchangelogs changelog.html
```

thank you



# Appendix A: triggerization

- dh\_installdocs (doc-base files)
- dh\_installmenu (fail!)
- dh\_icons (themes)
- ~~•dh\_desktop~~
- dh\_installinfo

# Appendix B: dh vs CDBS

from a user's perspective

(an unfair and biased comparison)

# visible surface area: debhelper

-- --add-udeb --autodest --dbg-package --destdir --dirs-only --dpkg-gencontrol-params --dpkg-shlibdeps-params  
--error-handler --fail-missing --filename --flavor --ignore --init-script --keep-debug --language --list-missing  
--mainpackage --name --no-act --no-restart-on-upgrade --no-start --priority --remove-d --restart-after-upgrade  
--sourcedir --version-info

-A -L -N -P -V -X -a -d -i -k -l -m -n -o -p -s -u -v -x

DH\_ALWAYS\_EXCLUDE DH\_COMPAT DH\_NO\_ACT DH\_OPTIONS DH\_VERBOSE

**138 items**

debian/<package>.bug-control debian/<package>.bug-script  
debian/<package>.bug-sub debian/<package>.bug-script  
debian/<package>.compress debian/<package>.cron.<type> debian/<package>.default debian/<package>.dirs  
debian/<package>.docs debian/<package>.emacsen-install debian/<package>.emacsen-remove  
debian/<package>.emacsen-startup debian/<package>.examples debian/<package>.files  
debian/<package>.gconf-defaults debian/<package>.gconf-mandatory debian/<package>.if-<script>  
debian/<package>.info debian/<package>.init debian/<package>.init.d debian/<package>.links  
debian/<package>.lintian-overrides debian/<package>.logcheck.<type> debian/<package>.logrotate  
debian/<package>.manpages debian/<package>.menu debian/<package>.modprobe debian/<package>.modules  
debian/<package>.pam debian/<package>.ppp.ip-<script> debian/<package>.sharedmimeinfo  
debian/<package>.suid debian/<package>.symbols debian/<package>.udev debian/<package>.wm  
debian/compat

dh\_bugfiles dh\_builddeb dh\_clean dh\_compress dh\_desktop dh\_fixperms dh\_gconf dh\_gencontrol dh\_icons  
dh\_install dh\_installcatalogs dh\_installchangelogs dh\_installcron dh\_installdeb dh\_installdebconf dh\_installdirs  
dh\_installdocs dh\_installemacsen dh\_installexamples dh\_installifupdown dh\_installinfo dh\_installinit  
dh\_installlogcheck dh\_installlogrotate dh\_installman dh\_installmanpages dh\_installmenu dh\_installmime  
dh\_installmodules dh\_installpam dh\_installppp dh\_installudev dh\_installwm dh\_installxfonts dh\_link dh\_lintian  
dh\_listpackages dh\_makeshlibs dh\_md5sums dh\_movefiles dh\_perl dh\_prep dh\_python dh\_scrollkeeper  
dh\_shlibdeps dh\_strip dh\_suidregister dh\_testdir dh\_testroot dh\_testversion dh\_undocumented dh\_usrlocal

# visible surface area: CDBS

/usr/share/cdb/1/class/ant.mk /usr/share/cdb/1/class/autotools.mk /usr/share/cdb/1/class/cmake.mk /usr/share/cdb/1/class/docbookxml.mk  
/usr/share/cdb/1/class/gnome.mk /usr/share/cdb/1/class/hbuild.mk /usr/share/cdb/1/class/hlibrary.mk /usr/share/cdb/1/class/kde.mk  
/usr/share/cdb/1/class/langcore.mk /usr/share/cdb/1/class/makefile.mk /usr/share/cdb/1/class/perlmodule.mk /usr/share/cdb/1/class/python-distutils.mk  
/usr/share/cdb/1/class/qmake.mk /usr/share/cdb/1/rules/buildcore.mk /usr/share/cdb/1/rules/debhelper.mk /usr/share/cdb/1/rules/dpatch.mk  
/usr/share/cdb/1/rules/patchsys-quilt.mk /usr/share/cdb/1/rules/simple-patchsys.mk /usr/share/cdb/1/rules/tarball.mk

ANT\_ARGS ANT\_ARGS\_<package> ANT\_HOME ANT\_OPTS BUILD\_GHC6 CABAL\_PACKAGE CFLAGS CMAKE CXXFLAGS DEB\_AC\_AUX\_DIR  
DEB\_ALL\_PACKAGES DEB\_ANT\_BUILD\_TARGET DEB\_ANT\_CHECK\_TARGET DEB\_ANT\_CLEAN\_TARGET DEB\_ANT\_INSTALL\_TARGET DEB\_ARCH  
DEB\_ARCH\_PACKAGES DEB\_AUTO\_UPDATE\_ACLOCAL DEB\_AUTO\_UPDATE\_AUTOCONF DEB\_AUTO\_UPDATE\_AUTOHEADER  
DEB\_AUTO\_UPDATE\_AUTOMAKE DEB\_AUTO\_UPDATE\_DEB\_CONTROL DEB\_AUTO\_UPDATE\_LIBTOOL DEB\_BUILDDIR  
DEB\_BUILD\_DEPENDENCIES DEB\_BUILD\_MAKE\_TARGET DEB\_CLASSPATH DEB\_CLEAN\_MAKE\_TARGET DEB\_CLEAN\_TARGET  
DEB\_CMAKE\_INSTALL\_PREFIX DEB\_CMAKE\_NORMAL\_ARGS DEB\_COMPILE\_INCLUDE DEB\_CONFIGURE\_EXTRA\_FLAGS  
DEB\_CONFIGURE\_INCLUDEDIR DEB\_CONFIGURE\_INFODIR DEB\_CONFIGURE\_INVOKE DEB\_CONFIGURE\_LIBEXECDIR  
DEB\_CONFIGURE\_LOCALSTATEDIR DEB\_CONFIGURE\_MANDIR DEB\_CONFIGURE\_NORMAL\_ARGS DEB\_CONFIGURE\_PREFIX  
DEB\_CONFIGURE\_SCRIPT DEB\_CONFIGURE\_SCRIPT\_ENV DEB\_CONFIGURE\_SYSCONFDIR DEB\_DESTDIR DEB\_DH\_ALWAYS\_EXCLUDE  
DEB\_DH\_DESKTOP\_ARGS DEB\_DH\_GCONF\_ARGS DEB\_DH\_GENCONTROL\_ARGS DEB\_DH\_GENCONTROL\_ARGS\_<package>  
DEB\_DH\_GENCONTROL\_ARGS\_ALL DEB\_DH\_ICONS\_ARGS DEB\_DH\_MAKESHLIBS\_ARGS DEB\_DH\_MAKESHLIBS\_ARGS\_<package>  
DEB\_DH\_MAKESHLIBS\_ARGS\_ALL DEB\_DH\_PERL\_ARGS DEB\_DH\_PREP DEB\_DH\_SCROLLKEEPER\_ARGS DEB\_DH\_SHLIBDEPS\_ARGS  
DEB\_DH\_SHLIBDEPS\_ARGS\_<package> DEB\_DH\_SHLIBDEPS\_ARGS\_ALL DEB\_FIXPERMS\_EXCLUDE DEB\_HADDOCK\_DIR  
DEB\_HADDOCK\_HTML\_DIR DEB\_HBUILD\_INVOKE DEB\_HOST\_ARCH\_CPU DEB\_HOST\_ARCH\_OS DEB\_INDEP\_PACKAGES  
DEB\_INSTALL\_CHANGELOGS\_ALL DEB\_INSTALL\_DIRS\_<package> DEB\_INSTALL\_DIRS\_ALL DEB\_INSTALL\_DOCS\_<package>  
DEB\_INSTALL\_DOCS\_ALL DEB\_ISNATIVE DEB\_JARS DEB\_KDE\_APIDOX DEB\_KDE\_ENABLE\_FINAL DEB\_MAKEMAKER\_INVOKE  
DEB\_MAKEMAKER\_PACKAGE DEB\_MAKEMAKER\_USER\_FLAGS DEB\_MAKE\_BUILD\_TARGET DEB\_MAKE\_CHECK\_TARGET  
DEB\_MAKE\_CLEAN\_TARGET DEB\_MAKE\_ENVVARS DEB\_MAKE\_INSTALL\_TARGET DEB\_MAKE\_INVOKE DEB\_MAKE\_MAKEFILE  
DEB\_MAKE\_TEST\_TARGET DEB\_NOEPOCH\_VERSION DEB\_NOREVISION\_VERSION DEB\_NO\_IMPLICIT\_HADDOCK\_HYPERLINK DEB\_PACKAGES  
DEB\_PATCHDIRS DEB\_PATCHDIRS\_READONLY DEB\_PATCH\_SUFFIX DEB\_PERL\_INCLUDE DEB\_PERL\_INCLUDE\_package DEB\_PHONY\_RULES  
DEB\_PYTHON\_BUILD\_ARGS DEB\_PYTHON\_CLEAN\_ARGS DEB\_PYTHON\_DESTDIR DEB\_PYTHON\_INSTALL\_ARGS\_ALL  
DEB\_PYTHON\_MODULE\_PACKAGE DEB\_PYTHON\_MODULE\_PACKAGES DEB\_PYTHON\_PRIVATE\_MODULES\_DIRS DEB\_PYTHON\_SETUP\_CMD  
DEB\_PYTHON\_SYSTEM DEB\_QMAKE\_CONFIG\_VAL DEB\_QUILT\_TOPDIR DEB\_SETUP\_BIN\_NAME DEB\_SHLIBDEPS\_INCLUDE  
DEB\_SHLIBDEPS\_INCLUDE\_<package> DEB\_SHLIBDEPS\_LIBRARY\_<package> DEB\_SHLIBDEPS\_LIBRARY\_package DEB\_SOURCE\_PACKAGE  
DEB\_SRCDIR DEB\_TARBALL DEB\_TAR\_SRCDIR DEB\_UDEB\_PACKAGES DEB\_UPDATE\_RCD\_PARAMS DEB\_VERBOSE\_ALL DEB\_VERSION  
GHC6\_VERSION JAVACMD JAVA\_HOME MAKEFILE MAKEFLAGS NUMJOBS OPTIMIZE QMAKE

binary-install/<package>:: clean:: debian/ant.properties install/<package>::

visible surface area: dh

**+12 items**

dh override\_dh\_<command>:

dh\_auto\_clean dh\_auto\_build dh\_auto\_install dh\_auto\_test

--with --sourcedirectory --buildsystem --builddirectory --list

