

Gentoo EAPI 7

Ulrich Müller

Gentoo Linux developer, PMS/EAPI team and Council member
<ulm@gentoo.org>

Gentoo Miniconf, LinuxDays, Prague, 2016-10-12

- 1 Introduction
- 2 Features for EAPI 7
 - Removals
 - Easy features
 - Difficult or controversial features



What are EAPIs?

- EAPI = Ebuild Application Programming Interface
- Interface between ebuild and package manager (PM)

- PMS = Package Manager Specification
<<https://wiki.gentoo.org/wiki/Project:PMS>>



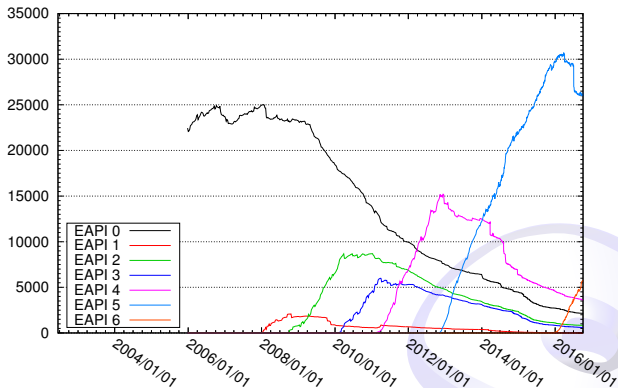
Procedure for a new EAPI

- Discuss ideas for new features in gentoo-dev mailing list
- All features traced via bugs <<https://bugs.gentoo.org/>>
Gentoo Hosted Projects – PMS/EAPI
- Pre-approval by Council
- Write the specification (PMS)
- Implement in Portage
- Final approval by Council

Takes time ...

- One EAPI about every other year
- Not so bad, want to keep number of EAPIs in tree limited





Source: <<http://www.akhuettel.de/~huettel/plots/eapi.php>> (dilfridge)

- EAPIs 0, 1, 2, 3 banned (March 2014 / January 2016)
- EAPI 4 deprecated (October 2015)
- EAPI 6 approved (November 2015)

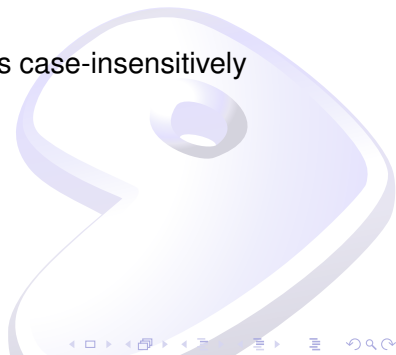
EAPI 6 is EAPI 5 with the following changes:

- Bash version is 4.2
- Default `src_prepare` no longer a no-op
- Different `src_install` implementation
- `LC_CTYPE` and `LC_COLLATE` compatible with POSIX locale
- `failglob` is enabled in global scope
- `einstall` banned
- `die` and `assert` called with `-n` respect `nonfatal`
- `eapply` support
- `eapply_user` support



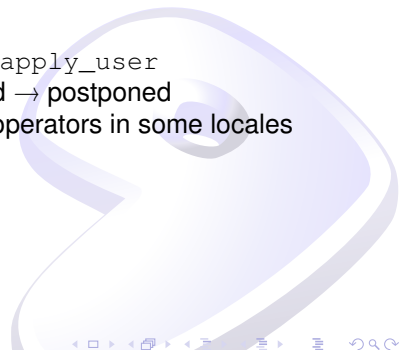
EAPI 6 (continued)

- `econf` adds `--docdir` and `--htmldir`
- `in_iuse` support
- `unpack` supports absolute and relative paths
- `unpack` supports `.txz`
- `unpack` matches filename extensions case-insensitively
- `installdocs` support
- `get_libdir` support



Did EAPI 6 take too long?

- More than 3 years after EAPI 5
- Most proposed features came without a patch
- Late changes:
 - Exact behaviour of `eapply`
 - Idempotence and return status of `eapply_user`
 - Directories for profile files ill-defined → postponed
 - Bash 4 ^^ and `,,` case modifying operators in some locales



1 Introduction

2 Features for EAPI 7

- **Removals**
- Easy features
- Difficult or controversial features



Ban DESTTREE and INSDESTTREE

Bug 173630

- Install locations for `dobin` etc. and `doins`
- Variables should not be exposed to `ebuild` environment
- Removal already suggested in 2007
- No longer used in `eclasses`
- Use `into` and `insinto` instead



- Creeping featurism
 - Options `-r`, `-V`, `-A`, `-a`, `-f`, `-x`, `-p`
 - 8 filename extensions (more suggested)
- PMS and Portage implementation disagree
- Deprecated in EAPI 6
- Use `dodoc -r` as replacement
- “The council remains silent about the issue if a substitute in an eclass will be needed.” (2014-09-09 Council meeting)

1 Introduction

2 Features for EAPI 7

- Removals
- **Easy features**
- Difficult or controversial features



Bash version

- Roughly keep in sync with stable version
- Update to Bash 4.3 (or later)



GNU patch version

Bug 593786

- Currently no minimum version required
- “patch-2.7 introduced support for git-formatted patches”



Directory support for profile files

Bug 282296

- Allow most `package.*` and `use.*` in profiles to be either regular files or directories
- Allow `profiles/package.mask` to be a directory
- Requested for overlays, not intended for gentoo tree
- Didn't make it into EAPI 6



Ban package.provided in profiles

Bug 568884

- Listed in PMS as strongly deprecated
- Not used in tree
- If not removed, would have to support directories for consistency



- Portage function, with proxy in eutils.eclass
- Similar to `ewarn`
- Widely used in eclasses



Consistent install locations for helpers

Bug 595924

- `into` controls location for `dobin`, `dosbin`, `dolib*`, and `domo`
- Mostly used for `/` vs `/usr`
- `domo` is inconsistent with `doheader`, `doinfo`, `doman`, etc.
- Should always install into `/usr/share/locale`



1 Introduction

2 Features for EAPI 7

- Removals
- Easy features
- Difficult or controversial features



Runtime-switchable USE flags

Bug 424283

GLEP 62 <<https://wiki.gentoo.org/wiki/GLEP:62>>

- A way to specify optional runtime dependencies in ebuild
- USE dependencies: `RDEPEND="foo? (cat/foo)"`
- Behaves like a regular USE flag
- Avoid rebuilding the package when the flag is switched
- Two ways to implement:
 - New ebuild variable, `IUSE_RUNTIME="foo"`
 - Special syntax, like `IUSE="foo (*)"`
- Replaces proposed “recommended/suggested dependencies” (bug 327701)

Remove trailing slash from directory variables

Bug 465772

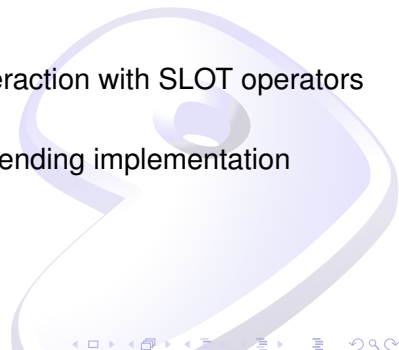
- Typical usage in ebuilds: `"${D}"/usr/bin/foo`
- D has a trailing slash, so we end up with `//` in path
- Proposal to remove trailing slash everywhere:
`"${D}, "${ED}, "${ROOT}, "${EROOT}`
- Problem: `ROOT` allowed to be empty?



Variant of `|| ()` with defined runtime behaviour

Bug 489458

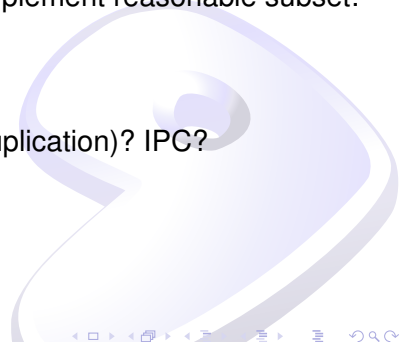
- Currently undefined if `|| (cat1/foo cat2/bar)` dependencies can be switched at runtime
- Replace by two new dependency types:
 - `||* ()` switchable at runtime
 - `||= ()` *not* switchable at runtime
- Still several open questions, e. g. interaction with SLOT operators (like `||* (A:= B:=)`)
- Conditionally approved by Council, pending implementation in Portage



Version comparison and components

Bug 482170

- Currently implemented in `versionator.eclass`
- Slow and sometimes called in global scope
- 15 functions in `versionator.eclass`, implement reasonable subset:
 - Version comparison
 - Component extraction
 - Separator replacement
- PM implementation in Bash (code duplication)? IPC?



src_fetch() for fetching VCS sources

Bug 481434

- Split off VCS fetching from `src_unpack()`
- Only useful for live ebuids ...

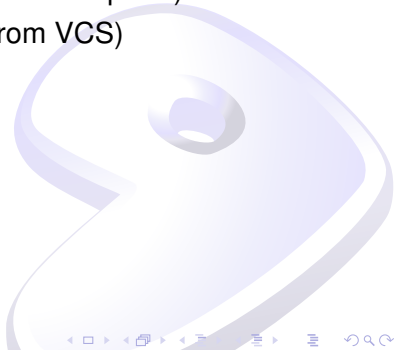


New dependency types

Bugs 182028, 317337, 327701, 392239

`<https://wiki.gentoo.org/wiki/Future_EAPI/New_dependency_types>`

- Host/target build-time dependencies (when cross-compiling)
- Build-against dependencies (e. g., libX11 → xproto)
- Fetch dependencies (when fetching from VCS)
- Suggested dependencies
- ...
- Which ones do we need?
- Complete solution would be best



Gentoo EAPI 7

Ulrich Müller

Gentoo Linux developer, PMS/EAPI team and Council member
<ulm@gentoo.org>

Gentoo Miniconf, LinuxDays, Prague, 2016-10-12

Copyright 2012–2016 Ulrich Müller. Some rights reserved.

This work is licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported License. To view a copy of this license, visit

[<http://creativecommons.org/licenses/by-sa/3.0/>](http://creativecommons.org/licenses/by-sa/3.0/) or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View CA 94041, USA.

Gentoo Name and Logo Usage Guidelines:

[<http://www.gentoo.org/main/en/name-logo.xml>](http://www.gentoo.org/main/en/name-logo.xml)

