

**Cross compilation support** Several variables have been added and some commands have been extended for better cross compilation support:

**BDEPEND** Build dependencies are divided into two classes: `BDEPEND` for native build tools (`CBUILD`); `DEPEND` for dependencies compatible with the system being built (`CHOST`). See `BDEPEND` on page 34.

**SYSROOT** The path to the root directory for `DEPEND` type dependencies. See `SYSROOT` on page 53.

**ESYSROOT** The concatenation of the `SYSROOT` and `EPREFIX` paths, for convenience.

**BROOT** The prefixed root directory path for `BDEPEND` type dependencies, typically executable build tools. See `BROOT` on page 53.

**econf** Option `--with-sysroot=${ESYSROOT}` is passed to configure, if this option is supported. See `ECONF-OPTIONS` on page 65.

**has\_version and best\_version** These helpers support `-b`, `-d` or `-r` options, causing the query to apply to `BDEPEND`, `DEPEND` or `RDEPEND` (the default). This replaces the `--host-root` option. See `PM-QUERY-OPTIONS` on page 62.

**Environment blacklist** Any environment variable listed in the profile-defined `ENV_UNSET` variable will be unset by the package manager. See `ENV_UNSET` on page 56.

**patch** All inputs valid for GNU patch version 2.7 are supported. Especially, this includes support for git-formatted patches. See `GNU-PATCH` on page 60.

**nonfatal** In addition to its definition as a shell function, the `nonfatal` wrapper has now a fallback implementation as an external command. Thus, it can be called from other commands. See `NONFATAL` on page 61.

**Output commands** `einfo` and friends no longer use `stdout`, so inside of command substitution their output won't be caught. See `OUTPUT-NO-STDOUT` on page 62.

**eqawarn** The `eqawarn` output command is supported in the package manager itself. See `EQAWARN` on page 63.

**die in subshell** The `die` command is guaranteed to work in a subshell context. See `SUBSHELL-DIE` on page 63.

**domo destination** `domo` installs the specified files under `/usr/share/locale` instead of `${DESTTREE}/share/locale`. See `DOMO-PATH` on page 68.

**Controllable stripping** The `dostrip -x` command can be used to add paths to an exclusion list for stripping of debug symbols, to allow more fine-grained control than with `RESTRICT="strip"`. See `DOSTRIP` on page 72.

#### Version manipulation and comparison commands

**ver\_cut range [version]** Print the version substring specified by *range*. *version* defaults to `PV`.

**ver\_rs range repl ... [version]** Replace all version separators in *range* by string *repl*. Multiple *range repl* pairs are allowed. *version* defaults to `PV`.

**ver\_test [v1] op v2** Check if the relation *v1 op v2* is true. *v1* defaults to `PVR`; *op* can be `-eq`, `-ne`, `-gt`, `-ge`, `-lt` or `-le`.

See `VER-COMMANDS` on page 73.

#### Removals/Bans

**package.provided** Deprecated since a long time and finally dropped. See `PACKAGE-PROVIDED` on page 25.

**PORTDIR and ECLASSDIR** No longer defined, because ebuilds should not directly access files in the repository. See `PORTDIR` on page 53 and `ECLASSDIR` on page 53.

**DESTTREE and INSDESTTREE** Not defined any more. Use the `into` and `insinto` commands instead. See `DESTTREE` on page 54 and `INSDESTTREE` on page 54.

**dohtml** No longer allowed. `doins -r` can be used as a replacement. See `BANNED-COMMANDS` on page 61.

**dolib and libopts** No longer allowed. The specific `dolib.a` or `dolib.so` commands should be used as replacement. See `BANNED-COMMANDS` on page 61.

# EAPI Cheat Sheet

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## Abstract

An overview of the main EAPI changes in Gentoo, for ebuild authors. For full details, consult the Package Manager Specification found on the project page;<sup>1</sup> this is an incomplete summary only.

Official Gentoo EAPIs are consecutively numbered integers (0, 1, 2, ...). Except where otherwise noted, an EAPI is the same as the previous EAPI. All labels refer to the PMS document itself, built from the same checkout as this overview.

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## EAPIs 0, 1, 2, 3, and 4

Omitted for lack of space. See version 5.0 of this document for differences between these previous EAPIs.

## EAPI 5 (2012-09-20)

### Additions/Changes

**Sub-slots** The `SLOT` variable and slot dependencies may contain an optional sub-slot part that follows the regular slot, delimited by a `/` character; for example `2/2.30`. The sub-slot is used to represent cases in which an upgrade to a new version of a package with a different sub-slot may require dependent packages to be rebuilt. If the

<sup>1</sup>[https://wiki.gentoo.org/wiki/Project:Package\\_Manager\\_Specification](https://wiki.gentoo.org/wiki/Project:Package_Manager_Specification)

<sup>2</sup><http://creativecommons.org/licenses/by-sa/3.0/>

sub-slot is not specified in `SLOT`, it defaults to the regular slot. See `SUB-SLOT` on page 38.

**Slot operator dependencies** Package dependencies can specify one of the following operators as a suffix, which will affect updates of runtime dependencies:

**\*** Any slot value is acceptable. The package will not break when its dependency is updated.

**::=** Any slot value is acceptable, but the package can break when its dependency is updated to a different slot (or sub-slot).

See `SLOT-OPERATOR-DEFS` on page 38.

**Profile IUSE injection** Apart from the `USE` flags explicitly listed in `IUSE`, additional flags can be implicitly provided by profiles. See `PROFILE-IUSE-INJECT` on page 57.

**At-most-one-of groups** In `REQUIRED_USE` you can use `"? ( flag1 flag2 ... )"` to allow zero or one `USE` flag out of many. See `AT-MOST-ONE-OF` on page 35.

**Parallel tests** The default for `src_test` runs `emake` without `-j1` now. See `PARALLEL-TESTS` on page 44.

**econf changes** The `conft` function now always passes `--disable-silent-rules` to `configure`. See `ECONF-OPTIONS` on page 65.

**has\_version and best\_version changes** The two helpers support a `--host-root` option that causes the query to apply to the host root instead of `ROOT`. See `PM-QUERY-OPTIONS` on page 62.

**usex** Usage for this helper function is `usex <USE flag> [true1] [false1] [true2] [false2]`. If the `USE` flag is set, outputs `[true1] [false1] [true2] [false2]` (defaults to `yes`), otherwise outputs `[false1] [false2]` (defaults to `no`). See `USEX` on page 72.

**doheader and newheader** These new helper functions install the given header file(s) into `/usr/include`. The `-r` option enables recursion for `doheader`, similar to `doins`. See `DOHEADER` on page 67.

**new\* standard input** The `newins` etc. commands read from standard input if the first argument is `-` (a hyphen). See `NEFWOO-STDIN` on page 69.

**EBUILD\_PHASE\_FUNC** This variable is very similar to `EBUILD_PHASE`, but contains the name of the current `ebuild` function. See `EBUILD-PHASE-FUNC` on page 55.

**Stable use masking/forcing** New files `use.stable`, `{mask,force}` and `package.use.stable`, `{mask,force}` are supported in profile directories. They are similar to their non-stable counterparts, but act only on packages that would be merged due to a stable keyword. See `STABLEMASK` on page 25.

## EAPI 6 (2015-11-13)

### Additions/Changes

**Bash version** Ebuilds can use features of Bash version 4.2 (was 3.2 before). See `BASH-VERSION` on page 29.

**failglob** The `failglob` option of Bash is set in global scope, so that unintentional pattern expansion will be caught as an error. See `FAILGLOB` on page 29.

**Locale settings** It is ensured that the behaviour of case modification and collation order for ASCII characters (`LC_TYPE` and `LC_COLLATE`) are the same as in the POSIX locale. See `LOCAL-SETTINGS` on page 56.

**src\_prepare** This phase function has a default now, which applies patches from the `PATCHES` variable with the new `apply` command, and user-provided patches with `apply_user`. See `SRC-PREPARE-6` on page 43.

**src\_install** The default implementation uses the new `installdocs` function for installing documentation. See `SRC-INSTALL-6` on page 45.

**nonfatal die** When `die` or `assert` are called under the `nonfatal` command and with the `-n` option, they will not abort the build process but return with an error. See `NONFATAL-DIE` on page 63.

**unpack changes** `unpack` has been extended:

**Pathnames** Both absolute paths and paths relative to the working directory are accepted as arguments. See `UNPACK-ABSOLUTE` on page 75.

**.txz files** Suffix `.txz` for `xz` compressed tarballs is recognised. See `UNPACK-EXTENSIONS` on page 75.

**Filename case** Character case of filename extensions is ignored. See `UNPACK-IGNORE-CASE` on page 75.

**conft changes** Options `--docdir` and `--htmldir` are passed to `configure`, in addition to the existing options. See `ECONF-OPTIONS` on page 65.

**apply** The `apply` command is a simplified substitute for `patch`, implemented in the package manager. The patches from its file or directory arguments are applied using `patch -p1`. See `APPLY` on page 63.

**apply\_user** The `apply_user` command permits the package manager to apply user-provided patches. It must be called from every `src_prepare` function. See `APPLY-USER` on page 63.

**installdocs** The `installdocs` function will install the files specified by the `DOCS` variable (or a default set of files if `DOCS` is unset) and by the `HTML_DOCS` variable. See `EINSTALLDOCS` on page 76.

**in\_use** The `in_use` function returns true if the `USE` flag given as its argument is available in the `ebuild` for `USE` queries. See `IN-USE` on page 73.

**get\_libdir** The `get_libdir` command outputs the `lib*` directory basename suitable for the current ABI. See `GET-LIBDIR` on page 76.

### Removals/Bans

**install** No longer allowed. Use `emake install` as replacement. See `BANNED-COMMANDS` on page 61.

## EAPI 7 (2018-04-30)

### Additions/Changes

**package.\* and use.\*** These profile files can be directories instead of regular files. This is intended to be used in overlays only. See `PACKAGE-MASK-DIR` on page 19 and `PROFILE-FILE-DIRS` on page 24.

**! and ^ dependency groups** These groups now evaluate to false when they are empty (for example, if there are only unmatched use dependencies inside of them). See `EMPTY-DEP-GROUPS` on page 36.

**No trailing slash** The paths specified by `ROOT`, `ERROR`, `D`, and `ED` no longer end with a slash. Thus, default `ROOT` is empty now. See `TRAILING-SLASH` on page 58.