

**NAME**

tlmgr – the TeX Live Manager

**SYNOPSIS**

tlmgr [*option*]... *action* [*option*]... [*operand*]...

**DESCRIPTION**

**tlmgr** manages an existing TeX Live installation, both packages and configuration options. For information on initially downloading and installing TeX Live, see <<http://tug.org/texlive/acquire.html>>.

The most up-to-date version of this documentation (updated nightly from the development sources) is available at <<http://tug.org/texlive/tlmgr.html>>, along with procedures for updating **tlmgr** itself and information about test versions.

TeX Live is organized into a few top-level *schemes*, each of which is specified as a different set of *collections* and *packages*, where a collection is a set of packages, and a package is what contains actual files. Schemes typically contain a mix of collections and packages, but each package is included in exactly one collection, no more and no less. A TeX Live installation can be customized and managed at any level.

See <<http://tug.org/texlive/doc>> for all the TeX Live documentation available.

**EXAMPLES**

After successfully installing TeX Live, here are a few common operations with **tlmgr**:

```
tlmgr option repository
http://mirror.ctan.org/systems/texlive/tlnet
```

Tell **tlmgr** to use a nearby CTAN mirror for future updates; useful if you installed TeX Live from the DVD image and want continuing updates.

```
tlmgr update --list
```

Report what would be updated without actually updating anything.

```
tlmgr update --all
```

Make your local TeX installation correspond to what is in the package repository (typically useful when updating from CTAN).

```
tlmgr info what
```

Display detailed information about a package *what*, such as the installation status and description, of searches for *what* in all packages.

For all the capabilities and details of **tlmgr**, please read the following voluminous information.

**OPTIONS**

The following options to **tlmgr** are global options, not specific to any action. All options, whether global or action-specific, can be given anywhere on the command line, and in any order. The first non-option argument will be the main action. In all cases, *--option* and *-option* are equivalent, and an = is optional between an option name and its value.

**--repository url|path**

Specifies the package repository from which packages should be installed or updated, overriding the default package repository found in the installation's TeX Live Package Database (a.k.a. the TLPDB, defined entirely in the file `tlpkg/texlive.tlpdb`). The documentation for `install-tl` has more details about this (<<http://tug.org/texlive/doc/install-tl.html>>).

`--repository` changes the repository location only for the current run; to make a permanent change, use `option repository` (see the “option” action).

For backward compatibility and convenience, `--location` and `--repo` are accepted as aliases for this option.

**--gui** [*action*]

`tlmgr` has a graphical interface as well as the command line interface. You can give this option, `--gui`, together with an action to be brought directly into the respective screen of the GUI. For example, running

```
tlmgr --gui update
```

starts you directly at the update screen. If no action is given, the GUI will be started at the main screen.

**--gui-lang** *llcode*

By default, the GUI tries to deduce your language from the environment (on Windows via the registry, on Unix via `LC_MESSAGES`). If that fails you can select a different language by giving this option with a language code (based on ISO 639-1). Currently supported (but not necessarily completely translated) are: English (`en`, default), Czech (`cs`), German (`de`), French (`fr`), Italian (`it`), Japanese (`ja`), Dutch (`nl`), Polish (`pl`), Brazilian Portuguese (`pt_BR`), Russian (`ru`), Slovak (`sk`), Slovenian (`sl`), Serbian (`sr`), Ukrainian (`uk`), Vietnamese (`vi`), simplified Chinese (`zh_CN`), and traditional Chinese (`zh_TW`).

**--debug-translation**

In GUI mode, this switch tells `tlmgr` to report any untranslated (or missing) messages to standard error. This can help translators to see what remains to be done.

**--machine-readable**

Instead of the normal output intended for human consumption, write (to standard output) a fixed format more suitable for machine parsing. See the “MACHINE-READABLE OUTPUT” section below.

**--no-execute-actions**

Suppress the execution of the execute actions as defined in the `tlsrc` files. Documented only for completeness, as this is only useful in debugging.

**--package-logfile** *file*

`tlmgr` logs all package actions (install, remove, update, failed updates, failed restores) to a separate log file, by default `TEXMFSYSVAR/web2c/tlmgr.log`. This option allows you to specify a different file for the log.

**--pause**

This option makes `tlmgr` wait for user input before exiting. Useful on Windows to avoid disappearing command windows.

**--persistent-downloads**

**--no-persistent-downloads**

For network-based installations, this option (on by default) makes `tlmgr` try to set up a persistent connection (using the `LWP` Perl module). The idea is to open and reuse only one connection per session between your computer and the server, instead of initiating a new download for each package.

If this is not possible, `tlmgr` will fall back to using `wget`. To disable these persistent

connections, use `--no-persistent-downloads`.

**--pin-file**

Change the pinning file location from `TEXMFLOCAL/tlpkg/pinning.txt` (see “Pinning” below). Documented only for completeness, as this is only useful in debugging.

**--require-verification**

**--no-require-verification**

Instructs `tlmgr` to only accept signed and verified remotes. In any other case `tlmgr` will quit operation. See “CRYPTOGRAPHIC VERIFICATION” below for details.

**--usermode**

Activates user mode for this run of `tlmgr`; see “USER MODE” below.

**--usertree *dir***

Uses *dir* for the tree in user mode; see “USER MODE” below.

**--verify-downloads**

**--no-verify-downloads**

Enables or disables cryptographic verification of downloaded database files. A working GnuPG (`gpg`) binary needs to be present in the path, otherwise this option has no effect. See “CRYPTOGRAPHIC VERIFICATION” below for details.

The standard options for TeX Live programs are also accepted: `--help/-h/-?`, `--version`, `-q` (no informational messages), `-v` (debugging messages, can be repeated). For the details about these, see the `TeXLive:TLUtils` documentation.

The `--version` option shows version information about the TeX Live release and about the `tlmgr` script itself. If `-v` is also given, revision number for the loaded TeX Live Perl modules are shown, too.

## ACTIONS

### help

Display this help information and exit (same as `--help`, and on the web at <http://tug.org/texlive/doc/tlmgr.html>). Sometimes the `perldoc` and/or `PAGER` programs on the system have problems, resulting in control characters being literally output. This can’t always be detected, but you can set the `NOPERLDOC` environment variable and `perldoc` will not be used.

### version

Gives version information (same as `--version`).

If `-v` has been given the revisions of the used modules are reported, too.

### backup [`--clean[=N]`] [`--backupdir dir`] [`--all` | *pkg*]...

If the `--clean` option is not specified, this action makes a backup of the given packages, or all packages given `--all`. These backups are saved to the value of the `--backupdir` option, if that is an existing and writable directory. If `--backupdir` is not given, the `backupdir` option setting in the `TLpdb` is used, if present. If both are missing, no backups are made.

If the `--clean` option is specified, backups are pruned (removed) instead of saved. The optional integer value *N* may be specified to set the number of backups that will be retained when cleaning. If *N* is not given, the value of the `autobackup` option is used. If both are missing, an error is issued. For more details of backup pruning, see the `option` action.

Options:

**--backupdir** *directory*

Overrides the `backupdir` option setting in the TLPDB. The *directory* argument is required and must specify an existing, writable directory where backups are to be placed.

**--all**

If `--clean` is not specified, make a backup of all packages in the TeX Live installation; this will take quite a lot of space and time. If `--clean` is specified, all packages are pruned.

**--clean[=*N*]**

Instead of making backups, prune the backup directory of old backups, as explained above. The optional integer argument *N* overrides the `autobackup` option set in the TLPDB. You must use `--all` or a list of packages together with this option, as desired.

**--dry-run**

Nothing is actually backed up or removed; instead, the actions to be performed are written to the terminal.

**candidates** *pkg***candidates** *pkg*

Shows the available candidate repositories for package *pkg*. See “MULTIPLE REPOSITORIES” below.

**check** [*option*]... [**files**|**depends**|**executes**|**runfiles**|**all**]

Executes one (or all) check(s) on the consistency of the installation.

**files**

Checks that all files listed in the local TLPDB (`texlive.tlpdb`) are actually present, and lists those missing.

**depends**

Lists those packages which occur as dependencies in an installed collections, but are themselves not installed, and those packages that are not contained in any collection.

If you call `tlmgr check collections` this test will be carried out instead since former versions for `tlmgr` called it that way.

**executes**

Check that the files referred to by `execute` directives in the TeX Live Database are present.

**runfiles**

List those filenames that are occurring more than one time in the runfiles sections.

Options:

**--use-svn**

Use the output of `svn status` instead of listing the files; for checking the TL development repository.

**conf** [**texmf**|**tlmgr**|**updmap** [**--conffile** *file*] [**--delete**] [*key* [*value*]]]

With only `conf`, show general configuration information for TeX Live, including active configuration files, path settings, and more. This is like the `texconfig conf` call, but works on all supported platforms.

With either `conf texmf`, `conf tlmgr`, or `conf updmap` given in addition, shows all

key/value pairs (i.e., all settings) as saved in `ROOT/texmf.cnf`, the user-specific `tlmgr` configuration file (see below), or the first found (via `kpsewhich`) `updmap.cfg` file, respectively.

If *key* is given in addition, shows the value of only that *key* in the respective file. If option `--delete` is also given, the value in the given configuration file is entirely removed (not just commented out).

If *value* is given in addition, *key* is set to *value* in the respective file. *No error checking is done!*

In all cases the file used can be explicitly specified via the option `--conffile file`, in case one wants to operate on a different file.

The `PATH` value shown is that used by `tlmgr`. The directory in which the `tlmgr` executable is found is automatically prepended to the `PATH` value inherited from the environment.

Practical example of changing configuration values: if the execution of (some or all) system commands via `\write18` was left enabled during installation, you can disable it afterwards:

```
tlmgr conf texmf shell_escape 0
```

A more complicated example: the `TEXMFHOME` tree (see the main TeX Live guide, <<http://tug.org/texlive/doc.html>>) can be set to multiple directories, but they must be enclosed in braces and separated by commas, so quoting the value to the shell is a good idea. Thus:

```
tlmgr conf texmf TEXMFHOME "{~/texmf,~/texmfbis}"
```

Warning: The general facility is here, but tinkering with settings in this way is very strongly discouraged. Again, no error checking on either keys or values is done, so any sort of breakage is possible.

### **dump-tlpdb [--local|--remote]**

Dump complete local or remote TLPDB to standard output, as-is. The output is analogous to the `--machine-readable` output; see “MACHINE-READABLE OUTPUT” section.

Options:

#### **--local**

Dump the local TLPDB.

#### **--remote**

Dump the remote TLPDB.

Exactly one of `--local` and `--remote` must be given.

In either case, the first line of the output specifies the repository location, in this format:

```
"location-url" "\t" location
```

where `location-url` is the literal field name, followed by a tab, and *location* is the file or url to the repository.

Line endings may be either LF or CRLF depending on the current platform.

### **generate [option]... what**

**generate language**

**generate language.dat**

**generate language.def**

**generate language.dat.lua**

The `generate` action overwrites any manual changes made in the respective files: it recreates them from scratch based on the information of the installed packages, plus local adaptations. The TeX Live installer and `tlmgr` routinely call `generate` for all of these files.

For managing your own fonts, please read the `updmap --help` information and/or <http://tug.org/fonts/fontinstall.html>.

For managing your own formats, please read the `fmtutil --help` information.

In more detail: `generate` remakes any of the configuration files `language.dat`, `language.def`, and `language.dat.lua` from the information present in the local TLPDB, plus locally-maintained files.

The locally-maintained files are `language-local.dat`, `language-local.def`, or `language-local.dat.lua`, searched for in `TEXMFLOCAL` in the respective directories. If local additions are present, the final file is made by starting with the main file, omitting any entries that the local file specifies to be disabled, and finally appending the local file.

(Historical note: The formerly supported `updmap-local.cfg` and `fmtutil-local.cnf` are no longer read, since `updmap` and `fmtutil` now reads and supports multiple configuration files. Thus, local additions can and should be put into an `updmap.cfg` or `fmtutil.cnf` file in `TEXMFLOCAL`. The `generate updmap` and `generate fmtutil` actions no longer exist.)

Local files specify entries to be disabled with a comment line, namely one of these:

```
%!NAME
--!NAME
```

where `language.dat` and `language.def` use `%`, and `language.dat.lua` use `--`. In all cases, the *name* is the respective format name or hyphenation pattern identifier. Examples:

```
%!german
--!usenglishmax
```

(Of course, you're not likely to actually want to disable those particular items. They're just examples.)

After such a disabling line, the local file can include another entry for the same item, if a different definition is desired. In general, except for the special disabling lines, the local files follow the same syntax as the master files.

The form `generate language` recreates all three files `language.dat`, `language.def`, and `language.dat.lua`, while the forms with an extension recreates only that given language file.

Options:

**--dest *output\_file***

specifies the output file (defaults to the respective location in `TEXMFSYSVAR`). If `--dest` is given to `generate language`, it serves as a basename onto which `.dat` will be appended for the name of the `language.dat` output file, `.def` will be appended to the value for the name of the `language.def` output file, and `.dat.lua` to the name of the `language.dat.lua` file. (This is just to avoid overwriting; if you want a specific name for each output file, we recommend invoking `tlmgr` twice.)

**--localcfg** *local\_conf\_file*

specifies the (optional) local additions (defaults to the respective location in `TEXMFLOCAL`).

**--rebuild-sys**

tells `tlmgr` to run necessary programs after config files have been regenerated. These are:  
`fmtutil-sys --all` after generate `fmtutil`, `fmtutil-sys --byhyphen .../language.dat` after generate `language.dat`, and `fmtutil-sys --byhyphen .../language.def` after generate `language.def`.

These subsequent calls cause the newly-generated files to actually take effect. This is not done by default since those calls are lengthy processes and one might want to make several related changes in succession before invoking these programs.

The respective locations are as follows:

```
tex/generic/config/language.dat (and language-local.dat);
tex/generic/config/language.def (and language-local.def);
tex/generic/config/language.dat.lua (and language-local.dat.lua);
```

**gui**

Start the graphical user interface. See **GUI** below.

**info** [*option...*] [**collections**]**schemes**[*pkg...*]

With no argument, lists all packages available at the package repository, prefixing those already installed with `i`.

With the single word `collections` or `schemes` as the argument, lists the request type instead of all packages.

With any other arguments, display information about *pkg*: the name, category, short and long description, installation status, and TeX Live revision number. If *pkg* is not locally installed, searches in the remote installation source.

If *pkg* is not found locally or remotely, the search action is used and lists matching packages and files.

It also displays information taken from the TeX Catalogue, namely the package version, date, and license. Consider these, especially the package version, as approximations only, due to timing skew of the updates of the different pieces. By contrast, the `revision` value comes directly from TL and is reliable.

The former actions `show` and `list` are merged into this action, but are still supported for backward compatibility.

Options:

**--list**

If the option `--list` is given with a package, the list of contained files is also shown, including those for platform-specific dependencies. When given with `schemes` and `collections`, `--list` outputs their dependencies in a similar way.

**--only-installed**

If this option is given, the installation source will not be used; only locally installed packages, collections, or schemes are listed.

**init-usertree**

Sets up a texmf tree for so-called user mode management, either the default user tree (TEXMFHOME), or one specified on the command line with `--usertree`. See “USER MODE” below.

**install** [*option*]... *pkg*...

Install each *pkg* given on the command line, if it is not already installed. (It does not touch existing packages; see the `update` action for how to get the latest version of a package.)

By default this also installs all packages on which the given *pkgs* are dependent. Options:

**--dry-run**

Nothing is actually installed; instead, the actions to be performed are written to the terminal.

**--file**

Instead of fetching a package from the installation repository, use the package files given on the command line. These files must be standard TeX Live package files (with contained `tlpobj` file).

**--force**

If updates to `tlmgr` itself (or other parts of the basic infrastructure) are present, `tlmgr` will bail out and not perform the installation unless this option is given. Not recommended.

**--no-depends**

Do not install dependencies. (By default, installing a package ensures that all dependencies of this package are fulfilled.)

**--no-depends-at-all**

Normally, when you install a package which ships binary files the respective binary package will also be installed. That is, for a package `foo`, the package `foo.i386-linux` will also be installed on an `i386-linux` system. This option suppresses this behavior, and also implies `--no-depends`. Don't use it unless you are sure of what you are doing.

**--reinstall**

Reinstall a package (including dependencies for collections) even if it already seems to be installed (i.e. is present in the TLPDB). This is useful to recover from accidental removal of files in the hierarchy.

When re-installing, only dependencies on normal packages are followed (i.e., not those of category Scheme or Collection).

**--with-doc****--with-src**

While not recommended, the `install-tl` program provides an option to omit installation of all documentation and/or source files. (By default, everything is installed.) After such an installation, you may find that you want the documentation or source files for a given package after all. You can get them by using these options in conjunction with `--reinstall`, as in (using the `fontspec` package as the example):

```
tlmgr install --reinstall --with-doc --with-src fontspec
```

**key args****key list**



**key add *what*****key remove *keyid***

The action `key` allows listing, adding and removing additional keys to the set of trusted keys, that is those that are used to verify the TeX Live databases.

With the `list` argument lists all keys.

The `add` argument requires another argument, either a filename or `-` for stdin, from which the key is added. The key is added to the local keyring `GNUPGHOME/repository-keys.gpg`, which normally is `tlpkg/gpg/repository-keys.gpg`.

The `delete` argument requires a key id and removes the requested id from the local keyring.

**option****option [show]****option showall****option *key* [*value*]**

The first form shows the global TeX Live settings currently saved in the TLPDB with a short description and the `key` used for changing it in parentheses.

The second form is similar, but also shows options which can be defined but are not currently set to any value.

In the third form, if *value* is not given, the setting for *key* is displayed. If *value* is present, *key* is set to *value*.

Possible values for *key* are (run `tlmgr option showall` for the definitive list):

```
repository (default package repository),
formats   (create formats at installation time),
postcode   (run postinst code blobs)
docfiles   (install documentation files),
srcfiles   (install source files),
backupdir  (default directory for backups),
autobackup (number of backups to keep).
sys_bin    (directory to which executables are linked by the path action)
sys_man     (directory to which man pages are linked by the path action)
sys_info    (directory to which Info files are linked by the path action)
desktop_integration (Windows-only: create Start menu shortcuts)
fileassocs  (Windows-only: change file associations)
multiuser   (Windows-only: install for all users)
```

One common use of `option` is to permanently change the installation to get further updates from the Internet, after originally installing from DVD. To do this, you can run

```
tlmgr option repository http://mirror.ctan.org/systems/texlive/tlnet
```

The `install-tl` documentation has more information about the possible values for `repository`. (For backward compatibility, `location` can be used as alternative name for `repository`.)

If `formats` is set (this is the default), then formats are regenerated when either the engine or the format files have changed. Disable this only when you know what you are doing.

The `postcode` option controls execution of per-package postinstallation action code. It is set by default, and again disabling is not likely to be of interest except perhaps to developers.

The `docfiles` and `srcfiles` options control the installation of their respective files of a package. By default both are enabled (1). Either or both can be disabled (set to 0) if disk space is limited or for minimal testing installations, etc. When disabled, the respective files are not downloaded at all.

The options `autobackup` and `backupdir` determine the defaults for the actions `update`, `backup` and `restore`. These three actions need a directory in which to read or write the backups. If `--backupdir` is not specified on the command line, the `backupdir` option value is used (if set).

The `autobackup` option (de)activates automatic generation of backups. Its value is an integer. If the `autobackup` value is `-1`, no backups are removed. If `autobackup` is 0 or more, it specifies the number of backups to keep. Thus, backups are disabled if the value is 0. In the `--clean` mode of the `backup` action this option also specifies the number to be kept.

To setup `autobackup` to `-1` on the command line, use:

```
tlmgr option -- autobackup -1
```

The `--` avoids having the `-1` treated as an option. (`--` stops parsing for options at the point where it appears; this is a general feature across most Unix programs.)

The `sys_bin`, `sys_man`, and `sys_info` options are used on Unix-like systems to control the generation of links for executables, info files and man pages. See the `path` action for details.

The last three options control behaviour on Windows installations. If `desktop_integration` is set, then some packages will install items in a sub-folder of the Start menu for `tlmgr gui`, documentation, etc. If `fileassocs` is set, Windows file associations are made (see also the `postaction` action). Finally, if `multiuser` is set, then adaptations to the registry and the menus are done for all users on the system instead of only the current user. All three options are on by default.

## paper

**paper** [**a4**]**letter**

[**xdvi**]**pdf****tex**[**dvips**]**dvipdfmx**[**context**]**psutils** **paper** [**papersize**]**--list**

With no arguments (`tlmgr paper`), shows the default paper size setting for all known programs.

With one argument (e.g., `tlmgr paper a4`), sets the default for all known programs to that paper size.

With a program given as the first argument and no paper size specified (e.g., `tlmgr dvips paper`), shows the default paper size for that program.

With a program given as the first argument and a paper size as the last argument (e.g., `tlmgr dvips paper a4`), set the default for that program to that paper size.

With a program given as the first argument and `--list` given as the last argument (e.g., `tlmgr dvips paper --list`), shows all valid paper sizes for that program. The first size shown is the default.

Incidentally, this syntax of having a specific program name before the `paper` keyword is unusual. It is inherited from the longstanding `texconfig` script, which supports other

configuration settings for some programs, notably `dvips`. `tlmgr` does not support those extra settings.

### **path** [`--w32mode=user|admin`] [`add|remove`]

On Unix, merely adds or removes symlinks for binaries, man pages, and info pages in the system directories specified by the respective options (see the “option” description above). Does not change any initialization files, either system or personal.

On Windows, the registry part where the binary directory is added or removed is determined in the following way:

If the user has admin rights, and the option `--w32mode` is not given, the setting `w32_multi_user` determines the location (i.e., if it is on then the system path, otherwise the user path is changed).

If the user has admin rights, and the option `--w32mode` is given, this option determines the path to be adjusted.

If the user does not have admin rights, and the option `--w32mode` is not given, and the setting `w32_multi_user` is off, the user path is changed, while if the setting `w32_multi_user` is on, a warning is issued that the caller does not have enough privileges.

If the user does not have admin rights, and the option `--w32mode` is given, it must be **user** and the user path will be adjusted. If a user without admin rights uses the option `--w32mode admin` a warning is issued that the caller does not have enough privileges.

### **pinning**

The pinning action manages the pinning file, see “Pinning” below.

`pinning show`

Shows the current pinning data.

`pinning add repo pkgglob...`

Pins the packages matching the *pkgglob*(s) to the repository *repo*.

`pinning remove repo pkgglob...`

Any packages recorded in the pinning file matching the *<pkgglob>*s for the given repository *repo* are removed.

`pinning remove repo --all`

Remove all pinning data for repository *repo*.

### **platform list|add|remove *platform*...**

#### **platform set *platform***

#### **platform set auto**

`platform list` lists the TeX Live names of all the platforms (a.k.a. architectures), (*i386-linux*, ...) available at the package repository.

`platform add platform...` adds the executables for each given platform *platform* to the installation from the repository.

`platform remove platform...` removes the executables for each given platform *platform* from the installation, but keeps the currently running platform in any case.

`platform set platform` switches TeX Live to always use the given platform instead of auto detection.

`platform set auto` switches TeX Live to auto detection mode for platform.

Platform detection is needed to select the proper `xz`, `xzdec` and `wget` binaries that are shipped with TeX Live.

`arch` is a synonym for `platform`.

Options:

**--dry-run**

Nothing is actually installed; instead, the actions to be performed are written to the terminal.

**postaction** `[--w32mode=user|admin] [--fileassocmode=1|2] [--all] [install|remove] [shortcut|fileassoc|script] [pkg]...`

Carry out the `postaction` `shortcut`, `fileassoc`, or `script` given as the second required argument in `install` or `remove` mode (which is the first required argument), for either the packages given on the command line, or for all if `--all` is given.

If the option `--w32mode` is given the value `user`, all actions will only be carried out in the user-accessible parts of the registry/filesystem, while the value `admin` selects the system-wide parts of the registry for the file associations. If you do not have enough permissions, using `--w32mode=admin` will not succeed.

`--fileassocmode` specifies the action for file associations. If it is set to 1 (the default), only new associations are added; if it is set to 2, all associations are set to the TeX Live programs. (See also option `fileassocs`.)

**print-platform**

Print the TeX Live identifier for the detected platform (hardware/operating system) combination to standard output, and exit. `--print-arch` is a synonym.

**remove** `[option]... pkg...`

Remove each `pkg` specified. Removing a collection removes all package dependencies (unless `--no-depends` is specified), but not any collection dependencies of that collection. However, when removing a package, dependencies are never removed. Options:

**--no-depends**

Do not remove dependent packages.

**--no-depends-at-all**

See above under **install** (and beware).

**--force**

By default, removal of a package or collection that is a dependency of another collection or scheme is not allowed. With this option, the package will be removed unconditionally. Use with care.

A package that has been removed using the `--force` option because it is still listed in an installed collection or scheme will not be updated, and will be mentioned as **forcibly removed** in the output of **tlmgr update --list**.

**--dry-run**

Nothing is actually removed; instead, the actions to be performed are written to the terminal.

**repository**

**repository list**

**repository list** *path|tag*

**repository add** *path* [*tag*]

**repository remove** *path|tag*

**repository set** *path[#tag]* [*path[#tag]* ...]

This action manages the list of repositories. See “MULTIPLE REPOSITORIES” below for detailed explanations.

The first form (*list*) lists all configured repositories and the respective tags if set. If a path, url, or tag is given after the *list* keyword, it is interpreted as source from where to initialize a TeX Live Database and lists the contained packages. This can also be an up-to-now not used repository, both locally and remote. If one pass in addition *--with-platforms*, for each package the available platforms (if any) are listed, too.

The third form (*add*) adds a repository (optionally attaching a tag) to the list of repositories. The forth form (*remove*) removes a repository, either by full path/url, or by tag. The last form (*set*) sets the list of repositories to the items given on the command line, not keeping previous settings

In all cases, one of the repositories must be tagged as *main*; otherwise, all operations will fail!

**restore** [*--backupdir dir*] [*--all* | *pkg* [*rev*]]

Restore a package from a previously-made backup.

If *--all* is given, try to restore the latest revision of all package backups found in the backup directory.

Otherwise, if neither *pkg* nor *rev* are given, list the available backup revisions for all packages. With *pkg* given but no *rev*, list all available backup revisions of *pkg*.

When listing available packages, *tlmgr* shows the revision, and in parenthesis the creation time if available (in format *yyyy-mm-dd hh:mm*).

If (and only if) both *pkg* and a valid revision number *rev* are specified, try to restore the package from the specified backup.

Options:

***--all***

Try to restore the latest revision of all package backups found in the backup directory. Additional non-option arguments (like *pkg*) are not allowed.

***--backupdir*** *directory*

Specify the directory where the backups are to be found. If not given it will be taken from the configuration setting in the TLPDB.

***--dry-run***

Nothing is actually restored; instead, the actions to be performed are written to the terminal.

***--force***

Don't ask questions.

**search** [*option...*] *what*

*search* [*option...*] *--file* *what*

*search* [*option...*] *--all* *what*

By default, search the names, short descriptions, and long descriptions of all locally installed packages for the argument *what*, interpreted as a (Perl) regular expression.

Options:

**--file**

List all filenames containing *what*.

**--all**

Search everything: package names, descriptions and filenames.

**--global**

Search the TeX Live Database of the installation medium, instead of the local installation.

**--word**

Restrict the search of package names and descriptions (but not filenames) to match only full words. For example, searching for `table` with this option will not output packages containing the word `tables` (unless they also contain the word `table` on its own).

**uninstall**

Uninstalls the entire TeX Live installation. Options:

**--force**

Do not ask for confirmation, remove immediately.

**update** [*option*]... [*pkg*]...

Updates the packages given as arguments to the latest version available at the installation source. Either **--all** or at least one *pkg* name must be specified. Options:

**--all**

Update all installed packages except for `tlmgr` itself. Thus, if updates to `tlmgr` itself are present, this will simply give an error, unless also the option **--force** or **--self** is given. (See below.)

In addition to updating the installed packages, during the update of a collection the local installation is (by default) synchronized to the status of the collection on the server, for both additions and removals.

This means that if a package has been removed on the server (and thus has also been removed from the respective collection), `tlmgr` will remove the package in the local installation. This is called “auto-remove” and is announced as such when using the option **--list**. This auto-removal can be suppressed using the option **--no-auto-remove** (not recommended, see option description).

Analogously, if a package has been added to a collection on the server that is also installed locally, it will be added to the local installation. This is called “auto-install” and is announced as such when using the option **--list**. This auto-installation can be suppressed using the option **--no-auto-install**.

An exception to the collection dependency checks (including the auto-installation of packages just mentioned) are those that have been “forcibly removed” by you, that is, you called `tlmgr remove --force` on them. (See the `remove` action documentation.) To reinstall any such forcibly removed packages use **--reinstall-forcibly-removed**.

If you want to exclude some packages from the current update run (e.g., due to a slow link), see the **--exclude** option below.

**--self**

Update `tlmgr` itself (that is, the infrastructure packages) if updates to it are present. On Windows this includes updates to the private Perl interpreter shipped inside TeX Live.

If this option is given together with either `--all` or a list of packages, then `tlmgr` will be updated first and, if this update succeeds, the new version will be restarted to complete the rest of the updates.

In short:

```
tlmgr update --self          # update infrastructure only
tlmgr update --self --all    # update infrastructure and all packages
tlmgr update --force --all   # update all packages but *not* infrastructure
                             # ... this last at your own risk, not recommended
```

**--dry-run**

Nothing is actually installed; instead, the actions to be performed are written to the terminal. This is a more detailed report than `--list`.

**--list [pkg]**

Concisely list the packages which would be updated, newly installed, or removed, without actually changing anything. If `--all` is also given, all available updates are listed. If `--self` is given, but not `--all`, only updates to the critical packages (`tlmgr`, `texlive` infrastructure, `perl` on Windows, etc.) are listed. If neither `--all` nor `--self` is given, and in addition no *pkg* is given, then `--all` is assumed (thus, `tlmgr update --list` is the same as `tlmgr update --list --all`). If neither `--all` nor `--self` is given, but specific package names are given, those packages are checked for updates.

**--exclude pkg**

Exclude *pkg* from the update process. If this option is given more than once, its arguments accumulate.

An argument *pkg* excludes both the package *pkg* itself and all its related platform-specific packages *pkg.ARCH*. For example,

```
tlmgr update --all --exclude a2ping
```

will not update `a2ping`, `a2ping.i386-linux`, or any other `a2ping.ARCH` package.

If this option specifies a package that would otherwise be a candidate for auto-installation, auto-removal, or reinstallation of a forcibly removed package, `tlmgr` quits with an error message. Excludes are not supported in these circumstances.

**--no-auto-remove [pkg]...**

By default, `tlmgr` tries to remove packages which have disappeared on the server, as described above under `--all`. This option prevents such removals, either for all packages (with `--all`), or for just the given *pkg* names. This can lead to an inconsistent TeX installation, since packages are not infrequently renamed or replaced by their authors. Therefore this is not recommended.

**--no-auto-install [pkg]...**

Under normal circumstances `tlmgr` will install packages which are new on the server, as described above under `--all`. This option prevents any such automatic installation, either for all packages (with `--all`), or the given *pkg* names.

Furthermore, after the `tlmgr` run using this has finished, the packages that would have been auto-installed *will be considered as forcibly removed*. So, if `foobar` is the only new package on the server, then

```
tlmgr update --all --no-auto-install
```

is equivalent to

```
tlmgr update --all
tlmgr remove --force foobar
```

### **--reinstall-forcibly-removed**

Under normal circumstances `tlmgr` will not install packages that have been forcibly removed by the user; that is, removed with `remove --force`, or whose installation was prohibited by `--no-auto-install` during an earlier update.

This option makes `tlmgr` ignore the forcible removals and re-install all such packages. This can be used to completely synchronize an installation with the server's idea of what is available:

```
tlmgr update --reinstall-forcibly-removed --all
```

### **--backup** and **--backupdir** *directory*

These two options control the creation of backups of packages *before* updating; that is, backup of packages as currently installed. If neither of these options are given, no backup package will be saved. If `--backupdir` is given and specifies a writable directory then a backup will be made in that location. If only `--backup` is given, then a backup will be made to the directory previously set via the `option` action (see below). If both are given then a backup will be made to the specified *directory*.

You can set options via the `option` action to automatically create backups for all packages, and/or keep only a certain number of backups. Please see the `option` action for details.

`tlmgr` always makes a temporary backup when updating packages, in case of download or other failure during an update. In contrast, the purpose of this `--backup` option is to allow you to save a persistent backup in case the actual *content* of the update causes problems, e.g., introduces an incompatibility.

The `restore` action explains how to restore from a backup.

### **--no-depends**

If you call for updating a package normally all depending packages will also be checked for updates and updated if necessary. This switch suppresses this behavior.

### **--no-depends-at-all**

See above under **install** (and beware).

### **--force**

Force update of normal packages, without updating `tlmgr` itself (unless the `--self` option is also given). Not recommended.

Also, `update --list` is still performed regardless of this option.

If the package on the server is older than the package already installed (e.g., if the selected mirror is out of date), `tlmgr` does not downgrade. Also, packages for uninstalled platforms are not installed.



tlmgr saves a copy of the `texlive.tlpdb` file used for an update with a suffix representing the repository url, as in `tlpkg/texlive.tlpdb.long-hash-string`. These can be useful for fallback information, but if you don't like them accumulating (e.g., on each run `mirror.ctan.org` might resolve to a new host, resulting in a different hash), it's harmless to delete them.

## CONFIGURATION FILE FOR TLMGR

There are two configuration files for tlmgr: One is system-wide in `TEXMFCONFIG/tlmgr/config`, and the other is user-specific in `TEXMFCONFIG/tlmgr/config`. The user-specific one is the default for the `conf tlmgr` action. (Run `kpsewhich -var-value=TEXMFCONFIG` or `... TEXMFCONFIG ...` to see the actual directory names.)

A few defaults corresponding to command-line options can be set in these configuration files. In addition, the system-wide file can contain a directive to restrict the allowed actions.

In these config files, empty lines and lines starting with `#` are ignored. All other lines must look like:

```
key = value
```

where the spaces are optional but the `=` is required.

The allowed keys are:

`auto-remove`, value 0 or 1 (default 1), same as command-line option.

`gui-expertmode`, value 0 or 1 (default 1). This switches between the full GUI and a simplified GUI with only the most common settings.

`gui-lang llcode`, with a language code value as with the command-line option.

`no-checksums`, value 0 or 1 (default 0, see below).

`persistent-downloads`, value 0 or 1 (default 1), same as command-line option.

`require-verification`, value 0 or 1 (default 1), same as command-line option.

`verify-downloads`, value 0 or 1 (default 1), same as command-line option.

The system-wide config file can contain one additional key:

`allowed-actions action1 [,action,...]` The value is a comma-separated list of tlmgr actions which are allowed to be executed when tlmgr is invoked in system mode (that is, without `--usermode`).

This allows distributors to include the tlmgr in their packaging, but allow only a restricted set of actions that do not interfere with the distro package managers. For native TeX Live installations, it doesn't make sense to set this.

The `no-checksums` key needs more explanation. By default, package checksums computed and stored on the server (in the TLPDB) are compared to checksums computed locally after downloading. `no-checksums` disables this.

The checksum algorithm is SHA-512. Your system must have (looked for in this order) the Perl `Digest::SHA` module, the `openssl` program (<http://openssl.org>), or the `sha512sum` program (from GNU Coreutils, <http://www.gnu.org/software/coreutils>). If none of these are available, a warning is issued and tlmgr proceeds without checking checksums. (Incidentally, other SHA implementations, such as the pure Perl and pure Lua modules, are much too slow to be usable in our context.) `no-checksums` also avoids the warning.

## CRYPTOGRAPHIC VERIFICATION

If a working GnuPG binary (`gpg`) is found (see below for the search method), by default verification of downloaded files is performed. This can be suppressed by specifying `--no-verify-downloads` on the command line, or adding an entry `verify-downloads = 0` to a `tlmgr` config file (described in “CONFIGURATION FILE FOR TLMGR”). On the other hand, it is possible to **require** verification by either specifying `--require-verification` on the command line, or adding an entry `require-verification = 1` to a `tlmgr` config file.

Verification is performed as follows: For each `texlive.tlpdb` loaded for a repository, the respective checksum `texlive.tlpdb.sha512` is always downloaded, too, and `tlmgr` confirms whether the checksum of the downloaded TLPDB file agrees with the download data. This is done in any case.

Unless cryptographic verification is disabled, then a signature of the checksum file is downloaded and the signature verified. The signature is created by the TeX Live Distribution GPG key `0x06BAB6BC`, which in turn is signed by Karl Berry’s key `0x9DEB46C0` and Norbert Preining’s key `0x6CACA448`. All of these keys are obtainable from the standard key servers.

Additional trusted keys can be added using the `key` action.

### Configuration of GnuPG invocation

The executable used for GnuPG is searched as follows: If the environment variable `TL_GNUPG` is set, it is tested and used; otherwise `gpg` is checked; finally `gpg2` is checked.

Further adaptation of the `gpg` invocation can be made using the two environment variables `TL_GNUPGHOME`, which is passed to `gpg` as the value for `--homedir`, and `TL_GNUPGARGS`, which replaces the default arguments `--no-secmem-warning` `--no-permission-warning`.

## USER MODE

`tlmgr` provides a restricted way, called “user mode”, to manage arbitrary `texmf` trees in the same way as the main installation. For example, this allows people without write permissions on the installation location to update/install packages into a tree of their own.

`tlmgr` is switched into user mode with the command line option `--usermode`. It does not switch automatically, nor is there any configuration file setting for it. Thus, this option has to be explicitly given every time user mode is to be activated.

This mode of `tlmgr` works on a user tree, by default the value of the `TEXMFHOME` variable. This can be overridden with the command line option `--usertree`. In the following when we speak of the user tree we mean either `TEXMFHOME` or the one given on the command line.

Not all actions are allowed in user mode; `tlmgr` will warn you and not carry out any problematic actions. Currently not supported (and probably will never be) is the `platform` action. The `gui` action is currently not supported, but may be in a future release.

Some `tlmgr` actions don’t need any write permissions and thus work the same in user mode and normal mode. Currently these are: `check`, `help`, `list`, `print-platform`, `search`, `show`, `version`.

On the other hand, most of the actions dealing with package management do need write permissions, and thus behave differently in user mode, as described below: `install`, `update`, `remove`, `option`, `paper`, `generate`, `backup`, `restore`, `uninstall`, `symlinks`.

Before using `tlmgr` in user mode, you have to set up the user tree with the `init-usertree` action. This creates `usertree/web2c` and `usertree/tlpkg/tlpobj`, and a minimal `usertree/tlpkg/texlive.tlpdb`. At that point, you can tell `tlmgr` to do the (supported) actions by adding the `--usermode` command line option.

In user mode the file `usertree/tlpkg/texlive.tlpdb` contains only the packages that have been installed into the user tree using `tlmgr`, plus additional options from the “virtual” package `00texlive.installation` (similar to the main installation’s `texlive.tlpdb`).

All actions on packages in user mode can only be carried out on packages that are known as relocatable. This excludes all packages containing executables and a few other core packages. Of the 2500 or so packages currently in TeX Live the vast majority are relocatable and can be installed into a user tree.

Description of changes of actions in user mode:

### User mode install

In user mode, the `install` action checks that the package and all dependencies are all either relocated or already installed in the system installation. If this is the case, it unpacks all containers to be installed into the user tree (to repeat, that’s either `TEXMFHOME` or the value of `--usertree`) and add the respective packages to the user tree’s `texlive.tlpdb` (creating it if need be).

Currently installing a collection in user mode installs all dependent packages, but in contrast to normal mode, does *not* install dependent collections. For example, in normal mode `tlmgr install collection-context` would install `collection-basic` and other collections, while in user mode, *only* the packages mentioned in `collection-context` are installed.

If a package shipping map files is installed in user mode, a backup of the user’s `updmap.cfg` in `USERTREE/web2c/` is made, and then this file regenerated from the list of installed packages.

### User mode backup, restore, remove, update

In user mode, these actions check that all packages to be acted on are installed in the user tree before proceeding; otherwise, they behave just as in normal mode.

### User mode generate, option, paper

In user mode, these actions operate only on the user tree’s configuration files and/or `texlive.tlpdb`. creates configuration files in user tree

## MULTIPLE REPOSITORIES

The main TeX Live repository contains a vast array of packages. Nevertheless, additional local repositories can be useful to provide locally-installed resources, such as proprietary fonts and house styles. Also, alternative package repositories distribute packages that cannot or should not be included in TeX Live, for whatever reason.

The simplest and most reliable method is to temporarily set the installation source to any repository (with the `-repository` or option `repository` command line options), and perform your operations.

When you are using multiple repositories over a sustained length of time, however, explicitly switching between them becomes inconvenient. Thus, it’s possible to tell `tlmgr` about additional repositories you want to use. The basic command is `tlmgr repository add`. The rest of this section explains further.

When using multiple repositories, one of them has to be set as the main repository, which distributes most of the installed packages. When you switch from a single repository installation to a multiple repository installation, the previous sole repository will be set as the main repository.

By default, even if multiple repositories are configured, packages are *still only* installed from the main repository. Thus, simply adding a second repository does not actually enable installation of anything from there. You also have to specify which packages should be taken from the new repository, by specifying so-called “pinning” rules, described next.

### Pinning

When a package `foo` is pinned to a repository, a package `foo` in any other repository, even if it has a higher revision number, will not be considered an installable candidate.

As mentioned above, by default everything is pinned to the main repository. Let’s now go through an example of setting up a second repository and enabling updates of a package from it.

First, check that we have support for multiple repositories, and have only one enabled (as is the case by default):

```
$ tlmgr repository list
List of repositories (with tags if set):
/var/www/norbert/tlnet
```

Ok. Let’s add the `tlcontrib` repository (this is a real repository, hosted at <http://tlcontrib.metatex.org>, maintained by Taco Hoekwater et al.), with the tag `tlcontrib`:

```
$ tlmgr repository add http://tlcontrib.metatex.org/2012 tlcontrib
```

Check the repository list again:

```
$ tlmgr repository list
List of repositories (with tags if set):
http://tlcontrib.metatex.org/2012 (tlcontrib)
/var/www/norbert/tlnet (main)
```

Now we specify a pinning entry to get the package context from `tlcontrib`:

```
$ tlmgr pinning add tlcontrib context
```

Check that we can find context:

```
$ tlmgr show context
tlmgr: package repositories:
...
package:      context
repository:   tlcontrib/26867
...
```

– install context:

```
$ tlmgr install context
tlmgr: package repositories:
...
[1/1,  ??:??/?:??] install: context @tlcontrib [
```

In the output here you can see that the `context` package has been installed from the `tlcontrib` repository (`@tlcontrib`).

Finally, `tlmgr` pinning also supports removing certain or all packages from a given repository:

```
$ tlmgr pinning remove tlcontrib context # remove just context
$ tlmgr pinning remove tlcontrib --all   # take nothing from tlcontrib
```

A summary of the `tlmgr` pinning actions is given above.

## GUI FOR TLMGR

The graphical user interface for `tlmgr` needs Perl/Tk to be installed. For Windows the necessary modules are shipped within TeX Live, for all other (i.e., Unix-based) systems Perl/Tk (as well as Perl of course) has to be installed. <<http://tug.org/texlive/distro.html#perlTk>> has a list of invocations for some distros.

When started with `tlmgr gui` the graphical user interface will be shown. The main window contains a menu bar, the main display, and a status area where messages normally shown on the console are displayed.

Within the main display there are three main parts: the `Display configuration` area, the list of packages, and the action buttons.

Also, at the top right the currently loaded repository is shown; this also acts as a button and when clicked will try to load the default repository. To load a different repository, see the `tlmgr` menu item.

Finally, the status area at the bottom of the window gives additional information about what is going on.

### Main display

#### *Display configuration area*

The first part of the main display allows you to specify (filter) which packages are shown. By default, all are shown. Changes here are reflected right away.

#### Status

Select whether to show all packages (the default), only those installed, only those *not* installed, or only those with update available.

#### Category

Select which categories are shown: packages, collections, and/or schemes. These are briefly explained in the “DESCRIPTION” section above.

#### Match

Select packages matching for a specific pattern. By default, this searches both descriptions and filenames. You can also select a subset for searching.

#### Selection

Select packages to those selected, those not selected, or all. Here, “selected” means that the checkbox in the beginning of the line of a package is ticked.

#### Display configuration buttons

To the right there are three buttons: select all packages, select none (a.k.a. deselect all), and reset all these filters to the defaults, i.e., show all available.

#### *Package list area*

The second are of the main display lists all installed packages. If a repository is loaded, those that are available but not installed are also listed.

Double clicking on a package line pops up an informational window with further details: the long description, included files, etc.

Each line of the package list consists of the following items:

a checkbox

Used to select particular packages; some of the action buttons (see below) work only on the selected packages.

package name

The name (identifier) of the package as given in the database.

local revision (and version)

If the package is installed the TeX Live revision number for the installed package will be shown. If there is a catalogue version given in the database for this package, it will be shown in parentheses. However, the catalogue version, unlike the TL revision, is not guaranteed to reflect what is actually installed.

remote revision (and version)

If a repository has been loaded the revision of the package in the repository (if present) is shown. As with the local column, if a catalogue version is provided it will be displayed. And also as with the local column, the catalogue version may be stale.

short description

The short description of the package.

### *Main display action buttons*

Below the list of packages are several buttons:

Update all installed

This calls `tlmgr update --all`, i.e., tries to update all available packages. Below this button is a toggle to allow reinstallation of previously removed packages as part of this action.

The other four buttons only work on the selected packages, i.e., those where the checkbox at the beginning of the package line is ticked.

Update

Update only the selected packages.

Install

Install the selected packages; acts like `tlmgr install`, i.e., also installs dependencies. Thus, installing a collection installs all its constituent packages.

Remove

Removes the selected packages; acts like `tlmgr remove`, i.e., it will also remove dependencies of collections (but not dependencies of normal packages).

Backup

Makes a backup of the selected packages; acts like `tlmgr backup`. This action needs the option `backupdir` set (see `Options - General`).

### **Menu bar**

The following entries can be found in the menu bar:

#### tlmgr menu

The items here load various repositories: the default as specified in the TeX Live database, the default network repository, the repository specified on the command line (if any), and an arbitrarily manually-entered one. Also has the so-necessary quit operation.

#### Options menu

Provides access to several groups of options: `Paper` (configuration of default paper sizes), `Platforms` (only on Unix, configuration of the supported/installed platforms), `GUI Language` (select language used in the GUI interface), and `General` (everything else).

Several toggles are also here. The first is `Expert options`, which is set by default. If you turn this off, the next time you start the GUI a simplified screen will be shown that display only the most important functionality. This setting is saved in the configuration file of `tlmgr`; see “CONFIGURATION FILE FOR TLMGR” for details.

The other toggles are all off by default: for debugging output, to disable the automatic installation of new packages, and to disable the automatic removal of packages deleted from the server. Playing with the choices of what is or isn’t installed may lead to an inconsistent TeX Live installation; e.g., when a package is renamed.

#### Actions menu

Provides access to several actions: update the filename database (aka `ls-R`, `mktexlsr`, `texhash`), rebuild all formats (`fmtutil-sys --all`), update the font map database (`updmap-sys`), restore from a backup of a package, and use of symbolic links in system directories (not on Windows).

The final action is to remove the entire TeX Live installation (also not on Windows).

#### Help menu

Provides access to the TeX Live manual (also on the web at <http://tug.org/texlive/doc.html>) and the usual “About” box.

## MACHINE-READABLE OUTPUT

With the `--machine-readable` option, `tlmgr` writes to `stdout` in the fixed line-oriented format described here, and the usual informational messages for human consumption are written to `stderr` (normally they are written to `stdout`). The idea is that a program can get all the information it needs by reading `stdout`.

Currently this option only applies to the update, install, and “option” actions.

### Machine-readable update and install output

The output format is as follows:

```
fieldname "\t" value
...
"end-of-header"
pkgname status localrev serverrev size runtime esttot
...
"end-of-updates"
other output from post actions, not in machine readable form
```

The header section currently has two fields: `location-url` (the repository source from which updates are being drawn), and `total-bytes` (the total number of bytes to be downloaded).

The `localrev` and `serverrev` fields for each package are the revision numbers in the local

installation and server repository, respectively. The *size* field is the number of bytes to be downloaded, i.e., the size of the compressed tar file for a network installation, not the unpacked size. The *runtime* and *esttot* fields are only present for updated and auto-install packages, and contain the currently passed time since start of installation/updates and the estimated total time.

Line endings may be either LF or CRLF depending on the current platform.

*location-url location*

The *location* may be a url (including `file:///foo/bar/...`), or a directory name (`/foo/bar`). It is the package repository from which the new package information was drawn.

*total-bytes count*

The *count* is simply a decimal number, the sum of the sizes of all the packages that need updating or installing (which are listed subsequently).

Then comes a line with only the literal string `end-of-header`.

Each following line until a line with literal string `end-of-updates` reports on one package. The fields on each line are separated by a tab. Here are the fields.

*pkgname*

The TeX Live package identifier, with a possible platform suffix for executables. For instance, `pdftex` and `pdftex.i386-linux` are given as two separate packages, one on each line.

*status*

The status of the package update. One character, as follows:

- d      The package was removed on the server.
- f      The package was removed in the local installation, even though a collection depended on it. (E.g., the user ran `tlmgr remove --force`.)
- u      Normal update is needed.
- r      Reversed non-update: the locally-installed version is newer than the version on the server.
- a      Automatically-determined need for installation, the package is new on the server and is (most probably) part of an installed collection.
- i      Package will be installed and isn't present in the local installation (action install).
- I      Package is already present but will be reinstalled (action install).

*localrev*

The revision number of the installed package, or – if it is not present locally.

*serverrev*

The revision number of the package on the server, or – if it is not present on the server.

*size*

The size in bytes of the package on the server. The sum of all the package sizes is given in the `total-bytes` header field mentioned above.

*runtime*

The run time since start of installations or updates.



*esttot*

The estimated total time.

**Machine-readable option output**

The output format is as follows:

```
key "\t" value
```

If a value is not saved in the database the string (not set) is shown.

If you are developing a program that uses this output, and find that changes would be helpful, do not hesitate to write the mailing list.

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