

# Tin: A Tcl Package Manager

Version 0.4.4

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<https://github.com/ambaker1/Tin>

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## **Abstract**

Tin is a package installer for Tcl. With Tin, you can easily install packages directly from GitHub.

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# The Tin List

Tin installs packages that are in the “Tin List”, which can be modified in the current session with the commands *tin add* and *tin remove*.

```
tin add $name $version $repo $tag $file
```

<b>\$name</b>	Package name.
<b>\$version</b>	Package version.
<b>\$repo</b>	Github repository URL.
<b>\$tag</b>	Github release tag for version.
<b>\$file</b>	Installer file path in repo.

```
tin remove $name <$version> <$repo>
```

<b>\$name</b>	Package name.
<b>\$version</b>	Package version to remove (optional, default all versions).
<b>\$repo</b>	Repository to remove (optional, default all repositories).

## Example 1: Adding a package to the Tin List

*Code:*

```
package require tin
tin add foo 1.0 https://github.com/username/foo v1.0 install_foo.tcl
```

## Auto Packages

The commands *tin add* and *tin remove* also have alternative syntax for adding and removing Auto-Tin packages. An Auto-Tin package is one which has a GitHub repository that has release tags corresponding directly with the package versions, such as “v1.2.3”. To be specific, version release tags must match the following regular expression:

```
^v(0|[1-9]\d*)(\.(0|[1-9]\d*))*([ab](0|[1-9]\d*)(\.(0|[1-9]\d*))*)?*$
```

```
tin add -auto $name $repo $file <<-exact> $version> <$reqs ...>
```

<b>\$name</b>	Package name.
<b>\$repo</b>	Github repository URL.
<b>\$file</b>	Installer file path in repo.
<b>-exact</b>	Option to specify exact version.
<b>\$version</b>	Package version.
<b>\$reqs ...</b>	Package version requirements, mutually exclusive with -exact option.

```
tin remove -auto $name <$repo> <$file>
```

<b>\$name</b>	Package name.
<b>\$repo</b>	Repository to remove (optional, default all repositories).
<b>\$file</b>	Installer file path to remove (optional, default all installer files).

Then, if a package is configured as an Auto-Tin package, the Tin List can be populated with versions available for installation with the command *tin fetch*.

```
tin fetch <$name>
```

<b>\$name</b>	Package name (optional, default “-all” fetches for all Auto-Tin packages).
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## *The Official Tin List*

The “tinlist.tcl” file in the Tin installation initializes the Tin List. As of Tin version 0.4.4, these are the packages in the official Tin List:

### **Auto-Tin Packages**

Package	Repo	File	Version Requirements
tin	<a href="https://github.com/ambaker1/Tin">https://github.com/ambaker1/Tin</a>	install.tcl	0
tintest	<a href="https://github.com/ambaker1/Tin-Test">https://github.com/ambaker1/Tin-Test</a>	install.tcl	0-
wob	<a href="https://github.com/ambaker1/wob">https://github.com/ambaker1/wob</a>	install.tcl	0.1.3-
flytrap	<a href="https://github.com/ambaker1/flytrap">https://github.com/ambaker1/flytrap</a>	install.tcl	0-
vutil	<a href="https://github.com/ambaker1/vutil">https://github.com/ambaker1/vutil</a>	install.tcl	0.1.1-

## *Saving, Clearing, and Resetting the Tin List*

The state of the Tin List can be saved for future sessions with *tin save*, cleared with *tin clear*, and reset to default or factory settings with *tin reset*. Note that *tin save* does not modify the “tinlist.tcl” file in the Tin installation. Rather, it saves to a hidden user-config file located in the user’s home directory.

```
tin save
```

```
tin clear
```

```
tin reset <-hard>
```

**-hard**

Option to reset to factory settings.

### Example 2: Saving changes to the Tin List

*Code:*

```
tin reset -hard
tin add foo 1.0 https://github.com/username/foo v1.0 install_foo.tcl
tin save
```

*Output:*

"~/tinlist.tcl" :

```
tin add foo 1.0 https://github.com/username/foo v1.0 install_foo.tcl
```

## Accessing the Tin List

The command *tin get* queries basic information about Tin, and returns blank if the requested entry does exist. Similar to *tin add* and *tin remove*, it has two forms, one for querying Tin packages and one for querying Auto-Tin packages. Returns a dictionary associated with the supplied arguments.

```
tin get $name <$version> <$repo>
tin get -auto $name <$repo> <$file>
```

<b>\$name</b>	Package name.
<b>\$version</b>	Package version.
<b>\$repo</b>	Github repository URL.
<b>-auto</b>	Option to query Auto-Tin packages.
<b>\$file</b>	Installer file path in repo.

Additionally, the available packages in the Tin List can be queried with the command *tin packages*, and the available versions for each Tin package can be queried with the command *tin versions*.

```
tin packages <-auto> <$pattern>
```

<b>-auto</b>	Option to search for Auto-Tin packages. By default searches Tin packages only.
<b>\$pattern</b>	Optional “glob” pattern, default “*”, or all packages.

```
tin versions $name <<-exact> $version> <$reqs ...>
```

<b>\$name</b>	Package name.
<b>-exact</b>	Option to specify exact version.
<b>\$version</b>	Package version.
<b>\$reqs ...</b>	Package version requirements, mutually exclusive with -exact option.

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## Installing, Uninstalling, and Upgrading Packages

The command *tin install* installs packages directly from GitHub, and returns the version installed. The command *tin depend* installs packages only if they are not installed, and returns the version number installed (useful for installation scripts). The command *tin installed* returns the package version that is installed and meets the version requirements, or blank if it is not installed. The command *tin uninstall* uninstalls packages (as long as they are in the Tin List), and returns blank if successful. The command *tin upgrade* upgrades a package within the major version (for minor and patch upgrades) and returns the version number installed.

```
tin install $name <<-exact> $version> <$reqs ...>
```

```
tin depend $name <<-exact> $version> <$reqs ...>
```

```
tin installed $name <<-exact> $version> <$reqs ...>
```

```
tin uninstall $name <<-exact> $version> <$reqs ...>
```

```
tin upgrade $name <<-exact> $version> <$reqs ...>
```

<code>\$name</code>	Package name.
<code>-exact</code>	Option to specify exact version.
<code>\$version</code>	Package version.
<code>\$reqs ...</code>	Package version requirements, mutually exclusive with <code>-exact</code> option.

### Example 3: Upgrading Tin, and reloading within current interpreter

*Code:*

```
# Upgrade Tin
package require tin
tin upgrade tin
# Reload Tin
package forget tin
namespace delete tin
package require tin
```

---

## Loading and Importing Packages

Tin also provides advanced tools for loading and importing packages. The command *tin require* is similar to the Tcl command *package require*, but with the added feature that if the package is missing, it will try to install it with *tin install*. The command *tin import* additionally handles most use-cases of *namespace import*. Both *tin require* and *tin import* return the version number of the package imported.

```
tin require $name <<-exact> $version> <$reqs ...>
```

<b>\$name</b>	Package name.
<b>-exact</b>	Option to specify exact version.
<b>\$version</b>	Package version.
<b>\$reqs ...</b>	Package version requirements, mutually exclusive with -exact option.

```
tin import <-force> <$patterns from> $name <<-exact> $version> <$reqs ...> <as $ns>
```

<b>-force</b>	Option to overwrite existing commands.
<b>\$patterns</b>	Commands to import, or “glob” patterns, default “*”, or all commands.
<b>\$name</b>	Package name.
<b>-exact</b>	Option to specify exact version.
<b>\$version</b>	Package version.
<b>\$reqs ...</b>	Package version requirements, mutually exclusive with -exact option.
<b>\$ns</b>	Namespace to import into. Default global namespace, or “::”.

### Example 4: Importing all commands package “foo”

Code:

```
package require tin
tin import foo 1.0
```



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## Utilities for Package Development

In addition to commands for installing and loading packages, Tin provides a few commands intended to help in writing installation and build files for your packages.

### *Creating Package Directories*

The command *tin mkdir* creates a library directory to install a package in, with a normalized naming convention that allows it to be uninstalled easily with *tin uninstall*.

```
tin mkdir <-force> <$basedir> $name $version
```

<b>-force</b>	Option to create fresh library directory (deletes existing folder).
<b>\$basedir</b>	Base directory, default one folder up from the Tcl library folder.
<b>\$name</b>	Package name.
<b>\$version</b>	Package version.

See the example installation file for a package “foo” that requires the package “bar 1.2”, and installs in library folder “foo-1.0”.

Example 5: Example file “install\_foo.tcl”

*Code:*

```
package require tin
tin depend bar 1.2
set dir [tin mkdir -force foo 1.0]
file copy README.md $dir
file copy LICENSE $dir
file copy lib/bar.tcl $dir
file copy lib/pkgIndex.pdf $dir
```

## Building Library Files from Source with Configuration Variable Substitution

The command *tin bake* takes an input text file, and writes an output text file after substitution of configuration variables such as @VERSION@. This is especially helpful for ensuring that the package version is consistent across the entire project.

```
tin bake $inFile $outFile $config
```

<b>\$inFile</b>	Source file to read from.
<b>\$outFile</b>	File to write to after substitution.
<b>\$config</b>	Dictionary of config variable names and values. Config variables must be uppercase alphanumeric.

See below for an example of how *tin bake* can be used to automatically update a “pkgIndex.tcl” file:

### Example 6: Building a “pkgIndex.tcl” file

#### Code:

```
package require tin
tin bake pkgIndex.tin pkgIndex.tcl {VERSION 1.0}
```

#### Output:

*"pkgIndex.tin" :*

```
package ifneeded foo @VERSION@ [list source [file join $dir foo.tcl]]
```

*"pkgIndex.tcl" :*

```
package ifneeded foo 1.0 [list source [file join $dir foo.tcl]]
```