Which

Show the full path of commands

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1 The `which` Program

`Which` takes one or more arguments. For each of its arguments it prints to stdout the full path of the executables that would have been executed when this argument had been entered at the shell prompt. It does this by searching for an executable or script in the directories listed in the environment variable `PATH` using the same algorithm as `bash(1)`.

2 Invoking which

The synopsis to invoke which is

```
which [options] [--] programname [...]
```

3 Option Summary

'`--all`'
'`-a`' Print all matching executables in `PATH`, not just the first.

'`--read-alias`'
'`-i`' Read aliases from stdin, reporting matching ones on stdout. This is useful in combination with using an alias for which itself. For example
`alias which='alias | which -i'`.

'`--skip-alias`'
Ignore option '`--read-alias`', if any. This is useful to explicity search for normal binaries, while using the '`--read-alias`' option in an alias or function for which.

'`--read-functions`'
Read shell function definitions from stdin, reporting matching ones on stdout. This is useful in combination with using a shell function for which itself. For example:

```
which() { declare -f | which --read-functions $@ }
export -f which
```

'`--skip-functions`'
Ignore option '`--read-functions`', if any. This is useful to explicity search for normal binaries, while using the '`--read-functions`' option in an alias or function for which.

'`--skip-dot`'
Skip directories in `PATH` that start with a dot.

'`--skip-tilde`'
Skip directories in `PATH` that start with a tilde and executables which reside in the `HOME` directory.

'`--show-dot`'
If a directory in `PATH` starts with a dot and a matching executable was found for that path, then print "./programname" rather than the full path.

'`--show-tilde`'
Output a tilde when a directory matches the `HOME` directory. This option is ignored when which is invoked as root.

'`--tty-only`'
Stop processing options on the right if not on tty.

'`--version, -v, -V`'
Print version information on standard output then exit successfully.

'`--help`' Print usage information on standard output then exit successfully.

4 Return Value

`Which` returns the number of failed arguments, or `-1` when no '`programname`' was given.

5 Example

The recommended way to use this utility is by adding an alias (C shell) or shell function (Bourne shell) for `which` like the following:

[ba]sh:

```
which ()
{
  (alias; declare -f) | /usr/bin/which --tty-only --read-alias --read-functions --show-tilde --show-dot $@
}
export -f which
```

[t]csh:

```
alias which 'alias | /usr/bin/which --tty-only --read-alias --show-dot --show-tilde'
```

This will print the readable ~/ and ./ when starting which from your prompt, while still printing the full path when used from a script:

```
> which q2
~/bin/q2
> echo `which q2`
/home/carlo/bin/q2
```

6 Bugs

The `HOME` directory is determined by looking for the `HOME` environment variable, which aborts when this variable doesn't exist. `Which` will consider two equivalent directories to be different when one of them contains a path with a symbolic link.

7 See Also

`bash(1)`

Index

Table of Contents