

Zsh: A high-level overview of shell-use and scripting

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Why Zsh

A short history

- Written in 1990 by Paul Falstad at Princeton University
- Named for the login of a teaching assistant, Zhong Shao
- Implements many of the features of bash, ksh, and csh

Basics

- `~/.zprofile`
- `~/.zshrc`
- `~/.zlogin`
- `~/.zlogout`

Interactive setup

```
autoload -Uz zsh-newuser-install  
zsh-newuser-install -f
```

Compatibility Modes

Tries to emulate *sh* or *ksh* when invoked as `sh` or `ksh`, respectively.

Themeable Prompts

Preview all built-in themes:

```
prompt -p
```

Shell Options

- `auto_cd`
- `extendedglob`
- `no_clobber`
- `rm_star_wait`
- `share_history`

Spelling correction

```
% setopt correct  
% sl
```

Zsh Line Editor (zle)

- **Zsh does not use readline!**
- Excellent Multiline Editing

zmv

```
zmv ' (*)-(*) .mpeg3' '$2_$1.mp3'  
alias mmv='noglob zmv -W'  
mmv *pl.bak backups/*.pl
```

Alias Suffixes

Allow for default handlers based on file extensions:

```
alias -s \  
php="/usr/share/vim/vim73/macros/less.sh"
```

Global aliases

```
alias -g IN='..@{u}'  
alias -g OUT='@{u}..'   
alias -g UP='@{u}'
```

Glob Qualifiers

`zshexpn(1)` manpage under “Glob Qualifiers”

Globber

Recursive Search `**/`

Numeric Ranges `ls file<1-5>,ls file<50->`

Negate Matches `ls ^*.o`

Grouping `ls (foo|bar)`

Globber Basics

Regular Files `ls *. (.)`

Irregular Files `ls *. (^.)`

Directories `ls *. (/)`

Executable Files (non-directories) `ls *. (*)`

Symbolic Links `ls *. (@)`

Follows Symbolic Links `ls *. (-)`

File access time

For files accessed less than 5 hours ago:

```
ls * (ah-5)
```

- *a* file access time (atime)
- *m* file modification time
- *c* inode change time

Time can be either *+* or *-* the current time.

Units:

- *M* months
- *w* weeks
- *h* hours
- *m* minutes
- *s* seconds

File size

For files of size $((L)length)$ greater than 100 KB:

```
ls (Lk+100)
```

Size can be specified with $-$ or $+$ and units can be specified with kilobytes k , megabytes m , gigabytes g , or blocks P .

File types

For all directories:

```
ls * (/)
```

Type units can be directories `/`, non-empty directories `F`, regular files `.`, symbolic links `@`, sockets `=`, fifos `p`, executable files `*`, device files `%`, block special `%b`, character special `%c`.

Files on device

Only list files on the specified device:

```
ls * (d65030)
```

File permissions

owner, group, world-readable, writable, executable, setuid, setgid, sticky:

```
ls *(r)      # readable by the current user
ls *(U)      # owned by the current user
ls *(u1000)  # owned by uid 1000
```

Long-form (-, +, = and octal):

```
ls *(f:gu+w,o-rx:)
```

Current user: (r), (w), (x) All users: (R), (W), (X) Owned by you: (U) Setuid: (s), `ls /**/*(s)`

Globbering Combinations

Readable, not writable for you:

```
ls * (r^w)
```

Executable files (after following symbolic links):

```
ls * (-*)
```

Broken Symbolic Links:

```
rm * (-@)
```

Completion

Completion

- compinit
- compinstall
- bashcompinit

Completion style syntax:

```
:completion:function:\  
completer:command:argument:tag
```


Completion Caching

Cache expensive completions:

```
zstyle ':completion:*' use-cache on
zstyle ':completion:*' cache-path ~/.zsh/cache

% rm ~/.zcompdump && exec zsh
```

Completion Sorting

Sort specific completions:

```
zstyle ':completion:*:*:xdvi:*' menu yes select  
zstyle ':completion:*:*:xdvi:*' file-sort time
```

Arrays

`zshexpn(1)` manpage under “PARAMETER EXPANSION”

`zshparam(1)` manpage under “ARRAY PARAMETERS”

Arrays

Joins, splits, set operations(!)

`zshmodules(1)` manpage under “zparseopts”

zparseopts

```
function mplayerx2() {  
    local -a args  
    zparseopts -D -E -a args -- s: -speed:  
    mplayer -af scaletempo -speed ${args[2]}:=1.5  
}
```