# 1  Shell CheatSheet                                                    LANGUAGES

- PDF Link: cheatsheet-shell-A4.pdf, Category: languages

- Blog URL: `https://cheatsheet.dennyzhang.com/cheatsheet-shell-A4`

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## 1.1  Basic

| Name | Comment |
|---|---|
| Redirect stdout/stderr | `ls /tmp >/dev/null 2>&1` |
| Deal with filename | `basename $f, dirname $f` |
| Use timeout: avoid command hang | `timeout 10 sh -c 'ls -lt'` |
| Restart shell without killing terminal | `exec -l $SHELL` |
| Run sub-shell | `echo $BASH_SUBSHELL; ( echo "Running in subshell: $BASH_SUBSHELL" )` |
| Run static code check | link: shellcheck |

## 1.2  Shell script

| Name | Comment |
|---|---|
| Trap exit signal | code/trap-exit.sh |
| Shell retry | code/shell-retry.sh |
| Check if a string contains a substring | code/string-contains.sh |
| Check if a string in a list | code/string-in-list.sh, link: stackoverflow |
| Log with timestamp | code/log-with-timestamp.sh |
| Quit if current user is not root | code/assert-user-root.sh |

## 1.3  GNU tools

### 1.3.1  Check file

| Name | Comment |
|---|---|
| Show file content | `cat /etc/hosts` |
| Show file content with line numbers | `cat -n /etc/hosts` |
| Show with line numbers, while excluding blank lines | `cat -b /etc/hosts` |
| Show the first 3 lines | `head -n3 /etc/hosts` |
| Show the last 3 lines | `tail -n3 /etc/hosts` |
| Keep tailing log files | `tail -f /var/log/system.log, taif /var/log/system.log` |
| Show the 4th line | `sed -n '4p' /etc/hosts` |
| Show 4th, 5th, 7th and 8th lines | `sed -n '4,5p;7,8p' /etc/hosts` |
| Show matched string with 3 lines before and after | `grep -C 3 "127.0.0.1" /etc/hosts` |
| For table-like files, show 2nd column | `awk -F'\t' '{print $2}' /etc/hosts` |
| For table-like files, swap 1st and 2nd columns | `awk -F'\t' '{print $2,$1}' /etc/hosts` |

### 1.3.2  Copy file

| Name | Comment |
|---|---|
| Copy one file | `cp /etc/hosts /tmp/hosts` |
| Copy one folder | `cp -r /usr/local/bin/ /tmp/bin/` |
| Copy for backup | `cp /tmp/hosts{,.bak}, ls -lth /tmp/hosts*` |
| Create a copy but ask confirmation for overwrite | `cp -i ~/Desktop/foo.txt ~/Documents/foo.txt` |
| Create a copy for backup with timstamp as suffix | `cp foo.txt{,."$(date +%Y%m%d-%H%M%S)"}` |

### 1.3.3  Watch files

| Name | Comment |
|---|---|
| Show file changes | `watch -d -n 1 stat /var/log/message` |
| Keep tailing log files | `tail -f /var/log/system.log, taif /var/log/system.log` |

### 1.3.4   Echo string

| Name | Comment |
| --- | --- |
| Echo red text | echo -e "hello,[0;31m there [0;31m" |
| Echo multiple lines | echo -e "hello," |
| Echo bold text | echo -e hello, "\033[1mThis is bold text.\033[0m" |
| Echo underlined text | echo -e hello, "\033[4mThis is underlined text.\033[0m" |

### 1.3.5   Check process via /proc

| Name | Comment |
| --- | --- |
| Check process start command | `cat /proc/$pid/cmdline` |
| Check process environment variables | `cat /proc/$pid/environ` |
| Check process ulimits setting | `cat /proc/$pid/limits` |

## 1.4   Shell Basic

### 1.4.1   cd

| Name | Comment |
| --- | --- |
| Go to given folder | `cd /var/log/` |
| Go to folder in subshell | `(cd /var/log/ && ls)` After this, PWD won't be changed |
| Go to home | `cd` |
| Go to parent folder | `cd ..` |
| Go to previous folder | `cd -` |

### 1.4.2   Numeric

| Name | Comment |
| --- | --- |
| * | `expr 5 \* 4` |
| + | `let z=x+y, z=$x+$y` |
| == | `int1 -eq int2, [ $?  -eq 0 ] && echo "good"` |
| >= | `int1 -ge =int2` |
| > | `int1 -gt =int2` |
| <= | `int1 -le =int2` |
| < | `int1 -lt =int2` |
| != | `int1 -ne =int2` |

### 1.4.3   xargs

```
# Run grep for files filtered by find
find /var/log -name "*.log" | xargs grep -i error

# Loop with pipes
cat /etc/passwd | awk -F':' '{print $1}' | xargs -I{} sudo -l -U {} | grep -v "not allowed to"
```

## 1.5   Scripts

- Compare command output

```
[ 0 -eq $(find ./data -name "*.txt" -type f -print | wc -l) ]
```

- get ip from eth0

```
/sbin/ifconfig eth0 | grep 'inet addr:' | cut -d: -f2 | awk '{ print $1}'
```

## 1.6   More Resources

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