

Reviewing redirection

`command > file` creates an empty *file* and redirects the output of *command* to *file*.

`command >> file` appends the output of the *command* to *file*.

`command < file` takes the input of the of the *command* from *file*.

`command1 | command2` takes the output of *command1* and gives is an input to *command2*.

It's possible to do many redirections at the same time:

```
command1 < infile | command2 | command3 | command4 > outfile
```

Redirecting error messages (stderr)

Bourne Shell

```
command 2>file redirects stderr to file
command 2>&1 redirects stderr to stdout, so command 2>&1 > file will redirect both stderr and stdout to file
command > fileout 2>fileerr redirects stderr and stdout to different files.
```

C Shell

```
command >& file, command >>& file, command1 |& command2 redirect both stderr and stdout
command > fileout >& fileerr redirect stderr and stdout to different files
command > fileout |& command redirects stdout to file and "pipes" the stderr.
```

Exit code

When a command exits, it reports its status in an *exit code* — a number, usually between 0 and 255. 0 stands for "OK" or "yes" and non-zero exit codes stand for "error" or "no".

Example: `grep` exits with exit status 0 if matches were found, 1 if no matches were found and 2 on errors.

Combining commands

`command1 ; command2` — run commands sequentially

`command1 && command2` — run *command2* if *command1* succeeded

`command1 || command2` — run *command2* if *command1* failed

`(command)` — run *command* in a *subshell*

Shell variables

All variables hold data in string format. Shell variables can be either local or environment variables. The difference is that environment variables are inherited by all subprocesses.

Common environment variables

Name	Meaning
<u>PATH</u>	List of directories to search for commands (:-separated)
HOME	Full path to home directory
USER	Your username (login)
SHELL	Full path to your login shell
TERM	Type of your terminal
DISPLAY	Your X-Windows display
MAIL	Full path to your mail box

Bourne Shell

```
var=value      unset var
export var     export -n var
export var=value
```

C shell

```
set var=value  unset var
setenv var value  unsetenv var
export var=value
```