

## Using the shell

---

Johan Öhlin

11 November 2021

Yabs

# Debugging files

Files for exercises should be available at:

<https://github.com/Najoj/yabsbashcourse/tree/main/exercises/5>

**Note:** The notes will tell you which file to try, but you are free to use whichever you want. Therefore, only `script.bash` will be used for the examples.

Check syntax without running with `-n`.

Print every line executed:

```
$ bash -x script.bash
```

or, set -x argument in script head

```
#!/bin/bash -x
```

or, set with set command inside script

```
#!/bin/bash
```

```
set -x # Note the minus sign
```

```
# ...
```

```
set +x # Note the plus sign
```

# Debugging

Print shell input lines as they are read:

```
$ bash -v script.bash
```

or, set `-v` argument in script head

```
#!/bin/bash -v
```

or, set with `set` command inside script

```
#!/bin/bash
```

```
set -v # Note the minus sign
```

```
# ...
```

```
set +v # Note the plus sign
```

Can of course be combined with `-x`.

Download `script1.bash` from GitHub without and with commands above.

Note what happens and how they differ.

Is the output expected?

Show full execution path with `-ilx`.

**Tip:** Long output can be stored in a file by using

```
$ bash -ilx script.bash &> save.txt
```

Or read through less `$ bash -ilx script.bash 2>&1 | less`

The execution steps are written to `stderr`. `2>&1` will redirect `stderr` to `stdout`. `less` will only read streams from `stdin` and only data from `stdout` will be directed to `stdin`.

# Debugging

Using debug variable DEBUG.

```
$ DEBUG= bash script.bash
```

```
#!/bin/bash
```

```
if
```

```
    ${DEBUG+x}; then
```

```
    # Set debug options an variables
```

```
fi
```

**Note:** If parameter DEBUG is null or unset, nothing is substituted, otherwise the expansion of word is substituted.



Error printing function:

```
function err {  
    [ "${DEBUG+x}" ] && echo "$@"  
}
```

`https://www.shellcheck.net/`

Shellcheck is a GPLv3 tool that gives warnings and suggestions for bash/sh shell scripts.

Can be installed or run through their website.

(Written in Haskell.)

Correct `script1.bash` & `script2.bash` on Shellcheck. Have look at their explanations.

Errors in Shellcheck can be ignored by comment before error line:

```
# shellcheck disable=SC2059
```

## Line-by-line execution

One way of forcing line-by-line execution of scripts is to use `trap`:

```
#!/bin/bash
trap read debug
whoami
ls
for i in {1..5}; do echo "$i"; done
```

Followed by your code. Press return to execute next line.

Try to run with `-x` and `-v` flag.

## Various IDE plugins

You can search for plugins for your IDE. There will probably be some tool to help you.

There is a tool you can install to use `--debug` flag for Bash called bashdb:

<http://bashdb.sourceforge.net/>