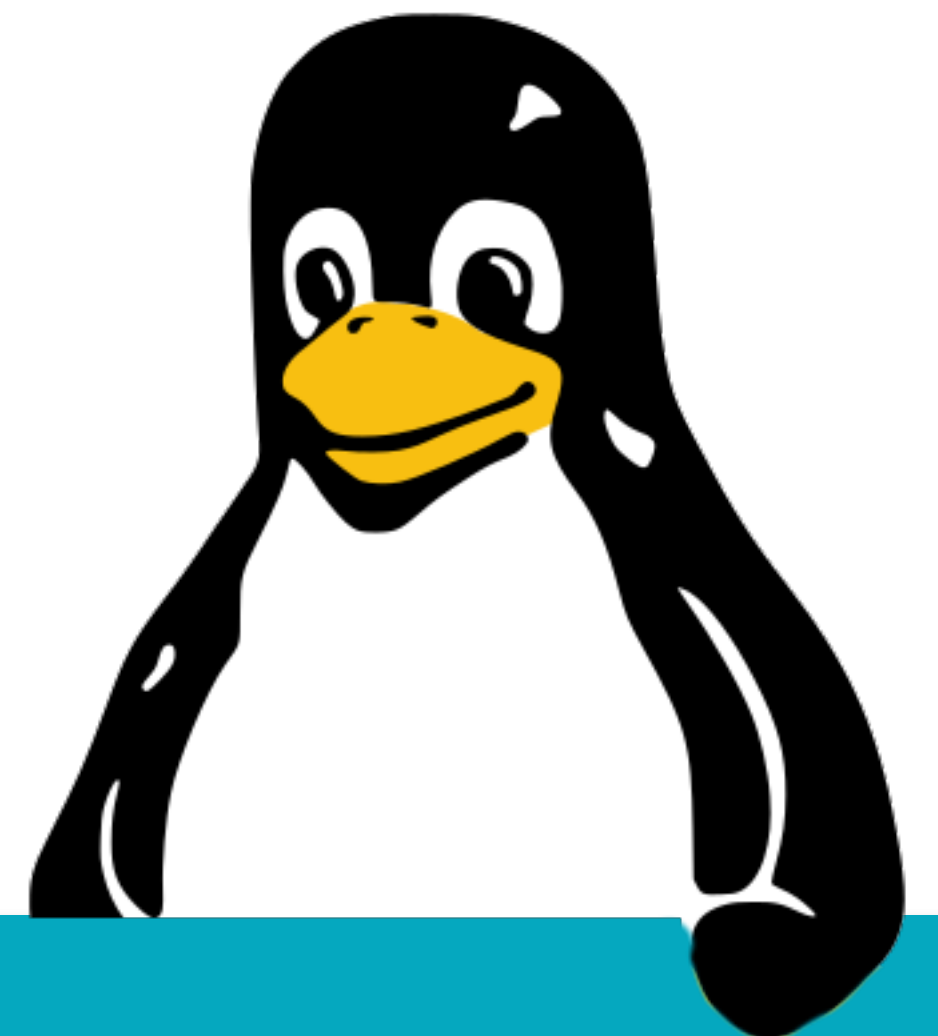


Linux, day 4

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LAB: The shell environment



Assignment

- Adjust your account's "*~/.bashrc*".
 - Add "*/opt/test*" to *\$PATH*.
- Make the "*/opt/test*" directory.
 - Copy the "*/ls*" binary to "*/opt/test/testls*".
- Do a new SSH login (or start a new Bash).
 - Can you now run "*testls*"?

Solution

```
$ echo 'PATH=$PATH:/opt/test' >> ~/.bashrc  
  
$ sudo mkdir -p /opt/test  
$ sudo cp -p /usr/bin/ls /opt/test/testls  
  
$ ssh localhost "which testls"
```

What will we do today?

- ~~Recap~~
- ~~Git lab, from day 3.~~
- ~~The shell environment~~
- Shell scripting
- Closing: homework and Q&A

LAB: Shell scripting: a start

LAB: Create a simple script

- Create a script which:
 - Runs ;)
 - Reads a name from the first, passed parameter.
 - Asks for a greeting interactively (with *read*).
 - Outputs a greeting to the name.

Example

```
$ ./greeting.sh Tess  
How would you like to be greeted?  
Hello  
Hello Tess
```


Solution

```
#!/bin/bash  
NAME=$1  
  
read -p "What greeting would you like? " GREET  
  
echo "${GREET} ${NAME}"
```

Solution

```
$ chmod +x greeting.sh
```

```
$ ./greeting.sh Tess
```

```
What greeting would you like? Hello
```

```
Hello Tess
```

What will we do today?

- ~~Recap~~
- ~~Git lab, from day 3.~~
- ~~The shell environment~~
- Shell scripting - MORE
- Closing: homework and Q&A

LAB: Shell scripting: I/O & Files

Assignment 1

- Find all files with "passwd" in their name.
- Find all files, literally and exactly called "passwd".
- Find all world-writable files.

Assignment 2

- SSH from one VM to the other,
- Use a HEREDOC to run:
 - *touch /tmp/foobar*
 - *ls /tmp*
 - *echo \$(whoami) > /tmp/foobar*
 - *cat /tmp/foobar*

Solution

```
$ locate passwd
```

```
$ find / -type f -name "*passwd*"
```

```
$ locate -b -r /passwd$
```

```
$ find / -type f -name "passwd"
```

Solution

```
$ find / -perm -o+w -type f
```


Solution

```
$ ssh localhost << EOF
touch /tmp/foobar
ls /tmp
echo \$(whoami) > /tmp/foobar
cat /tmp/foobar
EOF
```

What will we do today?

- ~~Recap~~
- ~~Git lab, from day 3.~~
- ~~The shell environment~~
- Shell scripting -> More!
- Closing: homework and Q&A

LAB: Shell scripting: Flow

Assignment

- Write a shell script which:
 - Checks if it's run as root; if not, *"exit 1"*.
 - Reads a command from passed parameters.
 - This command is either "create" or "remove".
 - Asks for a number (for now, keep it <20).
 - Either creates or removes "user1", "user2", "user3" etc.
 - Uses HEREDOC to make "welcome.txt" in their homedir.

Assignment

- If you run it, this looks like:

```
$ sudo /tmp/dummy-users.sh create
```

```
How many?
```

```
5
```

```
$ cat /home/user5/welcome.txt      #works
```

Solution

- I have a sample solution on Github.
- It's here, in [the Lesson 004 directory](#).

What will we do today?

- ~~Recap~~
- ~~Git lab, from day 3.~~
- ~~The shell environment~~
- ~~Shell scripting~~
- Closing: homework and Q&A

Closing



Homework

- Reading:
 - Chapter 4: Processing and analyzing text
 - Chapter 25: Shell scripting

Homework

- Create a shell script to "*ping sweep*" a network.
 - It should ask for the first three octets of an IP.
 - Then it should cycle through all 254 addresses.
 - e.g. *./pingsweep 192.168.10.0 24*

Other resources

- [GNU.org Bash manual](#)
- [Exercism](#): gamified learning programming.
 - 80+ assignments for Bash.
- [TLDP.org](#) has some [fun assignments](#).

Reference materials

Resources

- [Creating shell scripts in Enterprise Linux](#) (PluralSight)
- [A roundup of 15 popular Linux shells.](#)
- [Linux shell metacharacters](#)
- [Bash globbing tutorial](#)
- [Bash read command](#)
- [Bash getopts example](#)

Resources

- [Really in-depth on pipes, forks and more](#)
- [Testing file characteristics in Bash](#)
- [Why you don't read lines with "for"](#)
- [An excellent, in-depth study guide for shell scripting](#)
- [Practice more, take the challenge!](#)
- [Or try Tutorials Ground](#)

Resources

- [Exercism](#): gamified learning programming.
- [TLDP.org](#) has some [fun assignments](#).
- [Arithmetic in Bash](#)
- [GNU.org Bash manual](#)
- [Shell Scripting tutorial for beginners](#) (YouTube)