

Exercises for the Lecture in Cloud Computing: Sheet 4

by Prof. Dr. Wolfgang Wiedermann, Summer Term 2025

Prerequisites:

You need a running Linux system with bash as a shell. You can do this either by having an already running Linux on your Laptop or by using the Alpine virtual machine, you should setup within Virtual Box in the End of last lab exercises. If you use Alpine please do *apk update && apk add bash* because it only uses the reduced sh-Shell as default shell.

Exercises:

This is the first primary technical exercise. Its focus is to enable you to automate diverse tasks at setting up cloud infrastructure, configure cloud components and so on.

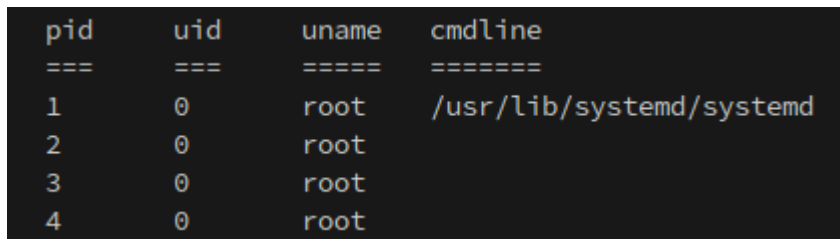
Advanced Scripting using bash

1. An own implementation of ps

In Linux everything is represented as a file. That's true for processes as well. Read about the proc filesystem at <https://docs.kernel.org/filesystems/proc.html>, explore procfs using ls and cat and discuss with some of your fellow students how you could implement an own version of ps, just based on bash, grep, sed and procfs.

After you found a first concept. Implement a ps-Command that outputs all processes with some filtering options by user or command

The output should look the following way:



pid	uid	uname	cmdline
===	===	=====	=====
1	0	root	/usr/lib/systemd/systemd
2	0	root	
3	0	root	
4	0	root	

To your information: Knowledge about processes is necessary to understand containers (and virtual machines). Containers will be our first real cloud computing technology in this course, being introduced after our short easter break.