Introduction to the Linux OS

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Overview and Organization

Introduction to the Operation system Linux, focus on the command line, scripting, basic services and tools used in (not only) physics: tasks automation in data processing and modeling

Organization

- Graded Assessment (KZ): attendance to the lectures, worked out homeworks

Literature

- C. Herborth: Unix a Linux - Názorný průvodce, Computer Press, Praha, 2006
- D. J. Barrett: Linux - Kapesní přehled, Computer Press, Praha, 2006
- M. Sobell: Mistrovství v RedHat a Fedora Linux, Computer Press, Praha, 2006
- M. Sobell: Linux - praktický průvodce, Computer Press, Praha, 2002
- E. Siever: Linux v kostce, Computer Press, Praha, 1999
- Number of online sources...

Study materials and homeworks

- http://kfa.mff.cuni.cz/linux

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Syllabus

1. UNIX systems, history, installation, basic applications
2. Structure of the Linux OS, file systems, hierarchy of the file system
3. Command line, shells, remote access (ssh, ftp)
4. Processes and their administration, basic system commands, packages, printing
5. Users, file and directory permissions
6. Work with files and directories, file compression, links, partition
7. Text-file processing commands, redirection, pipeline
8. Regular expressions
9. Command line based text editors
10. User and system variables, output processing
11. Scripts: basic construction, conditionals, loops, functions, automation
12. Networking, server-client services: http, (s)ftp, scp, ssh, sshfs, nfs
13. Programming in Linux (examples of Fortran, C/C++, Python), version control systems, documents in Latex

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1. It was not mentioned on the lecture, but what happens to input file if gzip (or bzip2) is used and how to change this behavior? (try it out and then check the man pages)

2. Download the http://meop3.troja.mff.cuni.cz:8010/linux/materials/AirBase_new/AirBase_stations_measurements.csv file and compress it with all possible methods. Then compare the size of the resulting compressed files. (to download, use the wget command!!!)

3. How to set the output directory for all compression methods (unzip,tar,gunzip,bunzip2,unrar,7z,xz) different that the local directory? See the man pages or just google it;)

4. How to use df command to list only ext4 (or any other specific) filesystem type mounts?

5. How to find out the mount options for a specific mount (google it, but we had the command on the last lecture just did not use it that way)?

6. How to use hdparm to check the read speed on a disk/partition (man pages, google)?