ENGR 4421:Robotics II

Linux & CLI

01/16/2024

Outline

- Linux Overview
- Ubuntu Get Started
- Command Line Interface
- ROS Installation

The Story of Linux

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From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)
Newsgroups: comp.os.minix
Subject: What would you like to see most in minix?
Summary: small poll for my new operating system
Message-ID:
Date: 25 Aug 91 20:57:08 GMT
Organization: University of Helsinki


Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and
professional like gnu) for 386(486) AT clones.  This has been brewing
since april, and is starting to get ready.  I'd like any feedback on
things people like/dislike in minix, as my OS resembles it somewhat
(same physical layout of the file-system (due to practical reasons)
among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work.
This implies that I'll get something practical within a few months, and
I'd like to know what features most people would want.  Any suggestions
are welcome, but I won't promise I'll implement them :-)

                Linus (torvalds@kruuna.helsinki.fi)

PS.  Yes - it's free of any minix code, and it has a multi-threaded fs.
It is NOT protable (uses 386 task switching etc), and it probably never
will support anything other than AT-harddisks, as that's all I have :-(.
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Linux Distributions

Ubuntu Get Started

- [Install Ubuntu Desktop](#)
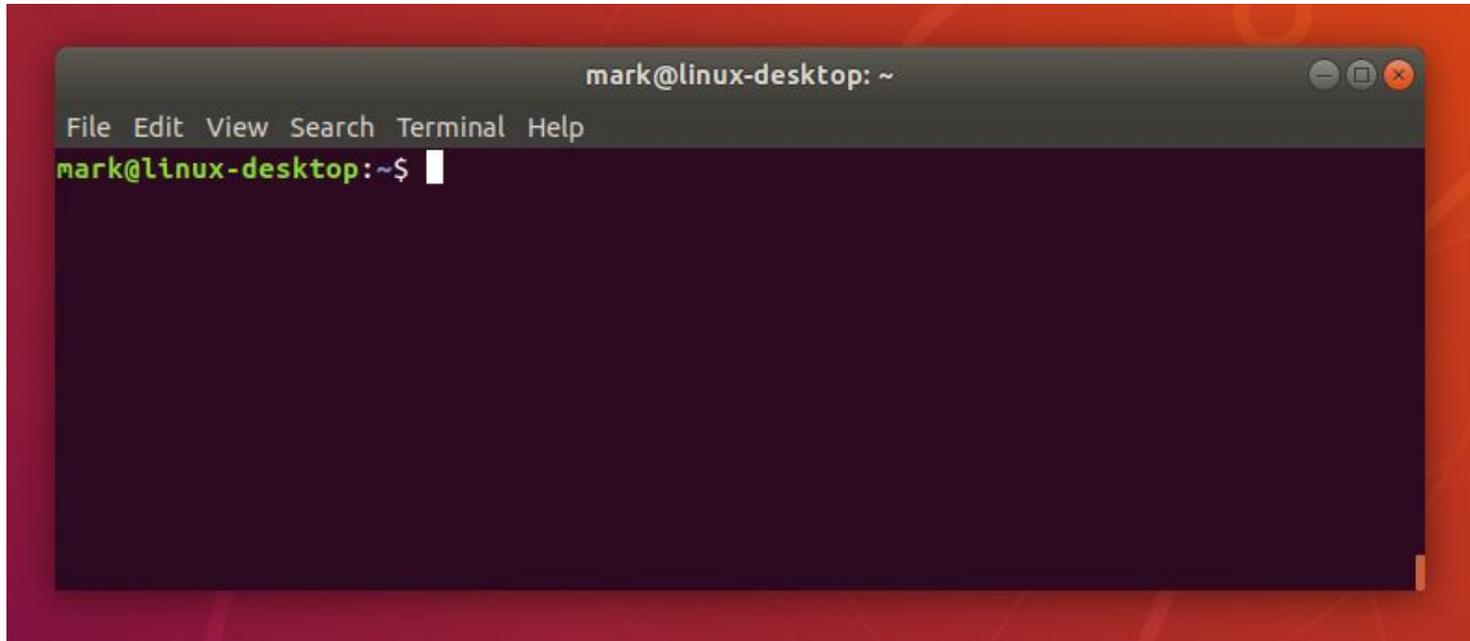- [Install Ubuntu on Windows](#)

Command-Line Interface

- Ubuntu CLI Tutorial:
  https://ubuntu.com/tutorials/command-line-for-beginners#1-overview
- Video resources:
  - Beginner's Guide to the Bash Terminal
  - Linux Commands for Beginners

Command-Line Interface

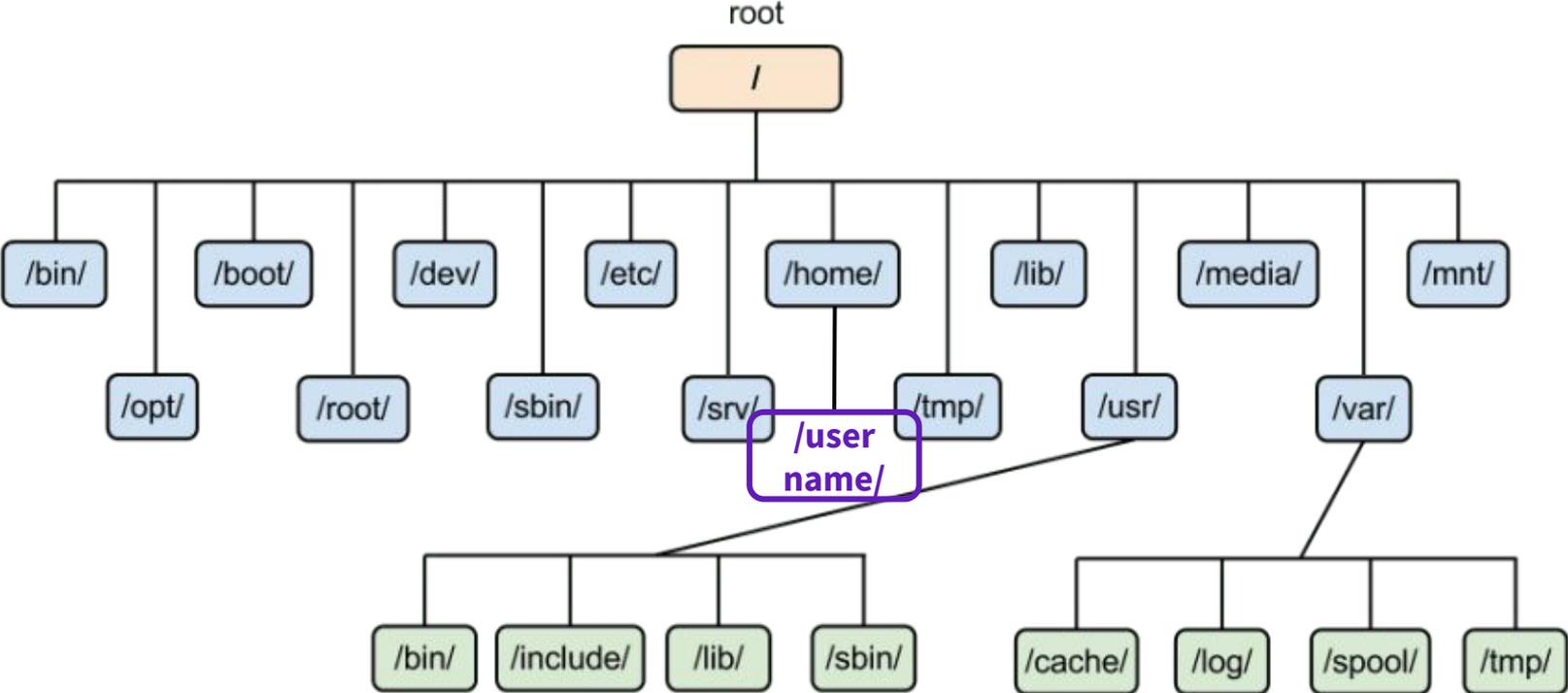- Prompt
- File system
- Basic commands
- Super user (sudo)
- APT package manager

Prompt

<user name>@<host name>:<current directory><user privilege>

Linux File System

Basic Commands

- pwd - print name of current/working directory
- cd - change current directory
- mkdir - make directory
- ls - list directory contents
- cat - concatenate files and print on the standard output
- echo - display a line of text
- touch - change file timestamps (create files)
- nano - a text editor
- mv - mv (rename) files
- rm - remove files or directories
- man - an interface to the system reference manuals

Super User

- Super user is also known as "ROOT" (Note: not the root directory).
- Super user can change files and system configurations that normal users are not allowed to.
- "sudo rm -rf /" will erase your file system.

APT Package Manager

- Ubuntu use "apt" as the package manager. Other Linux distributions may use different package manager
- sudo apt update fetches the latest version of the package list from your distro's software repository, and any third-party repositories you may have configured. In other words, it'll figure out what the latest version of each package and dependency is, but will not actually download or install any of those updates.
- sudo apt upgrade downloads and installs the updates for each outdated package and dependency on your system.
- sudo apt install <package name> installs the specified package and dependency on your system.
- sudo apt remove <package name> uninstalls the specified package.

Shell vs. Terminal

ROS Installation

- Official Documentation: https://docs.ros.org/en/humble/index.html
- Beware of version: Ubuntu 22.04 + ROS2 Humble Hawksbill
- Installation Guide (Debian Package):

  https://docs.ros.org/en/humble/Installation/Ubuntu-Install-Debians.html