

Module 2 - Linux Basics

ME4140 - ROS Workshop

Mechanical Engineering

Tennessee Technological University

Lecture 2 - Linux Basics

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- What is Linux?
- A Brief History, Examples
- Keyboard Shortcuts
- The Terminal
- Tutorial 2 - Install ROS Noetic



What is Linux?

- *Just like Windows, iOS, and Mac OS, Linux is an operating system. In fact, one of the most popular platforms on the planet, Android, is powered by the Linux operating system. An operating system is software that manages all of the hardware resources associated with your desktop or laptop. To put it simply, the operating system manages the communication between your software and your hardware. Without the operating system (OS), the software wouldn't function. - [LINUX.COM](https://www.linux.com)*

What is Linux?



debian

Ubuntu is a **distribution** of Linux. But there are many others.



A Brief History, Examples

Once upon a time in California ...


- Unix was developed at Bell Labs (AT&T) - Ken Thompson, Dennis Richie - 1970
- Berkely Software Distribution (BSD) - based on 6th edition Unix - [lawsuit](#) - 1977
- Onyx Systems, [Sun Microsystems](#) - single use UNIX microcomputer - 1980
- Richard Stallman started [GNU project](#) - [General Public License \(GPL\)](#) - 1983
- Intel Released [x86 microprocessor](#) - 1985
- Andrew Tanenbaum created MINIX for academic use - 1987
- Linus Torvalds began the [Linux kernel](#) - 1991




A Brief History, Examples

What is Linux used for?

- The Internet - in 2015 96% worlds webserver [ran on Linux](#) - [NGINX](#), [Apache](#)
- [Smart Devices](#) - Web Enabled Technology
- NASA [Pleiades Supercomputer](#) - [runs on Linux](#)
- Automobiles - Toyota, Mazda, Mercedes-Benz, Volkswagen - [Automotive Grade Linux](#)
- Robotics - [Boston Dynamics](#) - [Universal Robotics](#)

Keyboard Shortcuts



Press  and type *Keyboard Shortcuts* to list shortcuts in Ubuntu.



Function	Shortcut
Launcher	
New Terminal	 +  + T
Abort Process	
Switch Windows	
Close Window	
Rename	
New Folder	

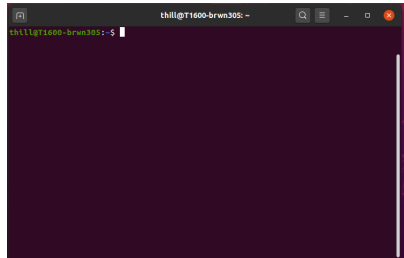


The Terminal

The *Terminal* is a text based interface to the computer.

Press  +  + T to open a new terminal.

Function	Command
Change Directory	cd
List Directory	ls
Copy File	cp
Remove File	rm
Abort Process	 + C
Clear Terminal	 + L



Tutorial 2 - Install ROS Noetic

- ▶ **Overview:** ROS runs on Linux! Now that Ubuntu is setup you need to install ROS.
- ▶ **Assignment:** Complete the tutorial [Tutorial2 Install ROS](#) on ilearn. Your new system must have ROS Noetic installed.
- ▶ **Deliverable:** Write a one to two paragraph summary of what you accomplished and what you struggled with the most. Include an image of a terminal after the *roscore* command.
- ▶ **Next Week:** After completion of Module 2, you will be ready to start using ROS. You will begin with a simple turtle robot simulator.