

4ITRC2 Operating System Lab

Lab Assignment 1

Aim: To install and study Ubuntu OS

To perform: Install VMware or Virtual Box and Ubuntu over Windows OS

To Submit: Study of Ubuntu OS

1. Introduction

Linux :- Linux is a free and open-source operating system kernel that powers millions of devices globally. It was created by Linus Torvalds in 1991 and is based on Unix, a time-tested system. What makes Linux unique is its flexibility; it's used in servers, desktops, mobile phones, embedded systems, and more. Numerous distributions (or “distros”) have been built around the Linux kernel, including Fedora, Debian, and, of course, Ubuntu.

Ubuntu :- Ubuntu, one of the most popular Linux distros, was first released in October 2004 by Canonical Ltd., founded by entrepreneur Mark Shuttleworth. Ubuntu is based on Debian, and it was created to make Linux more user-friendly and accessible to everyday users. It's well-known for its frequent updates, occurring every six months, and each version is supported for nine months (except Long-Term Support [LTS] versions, which are supported for five years).

Some notable Ubuntu versions over the years:

- Ubuntu 4.10 Warty Warthog: The very first release in 2004.
- Ubuntu 10.04 Lucid Lynx: An important LTS release focused on user experience.
- Ubuntu 18.04 Bionic Beaver: A widely-used modern version offering great stability.
- Ubuntu 22.04 Jammy Jellyfish: The latest LTS release as of today.

Linux and Ubuntu have revolutionized computing with their collaborative, open-source philosophy.

2. Features of Ubuntu

- * **Open Source:** Ubuntu is free to use and based on open-source principles, meaning anyone can view, modify, and share its code.
- * **Regular Updates:** Ubuntu offers predictable release cycles, with a new version every six months and Long-Term Support (LTS) releases every two years.
- * **User-Friendly Interface:** The GNOME desktop environment ensures a clean, intuitive, and visually appealing experience, even for Linux newcomers.

- * **Built-In Applications:** It comes pre-installed with a suite of productivity and multimedia applications, like LibreOffice, Firefox, and Rhythmbox.
- * **High Security:** Frequent updates, a built-in firewall, and AppArmor security modules protect against vulnerabilities.
- * **Extensive Software Repository:** Ubuntu users have access to thousands of software packages via the Ubuntu Software Center and package managers like APT.
- * **Compatibility:** Ubuntu supports a wide range of hardware, from old PCs to modern devices, and offers seamless integration with cloud services.
- * **Customizability:** Advanced users can tweak almost every aspect of the system, from its appearance to core functionality.
- * **Community and Support:** Ubuntu has a vast global community, offering forums, guides, and documentation for troubleshooting and learning.
- * **Lightweight Versions:** Variants like Xubuntu and Lubuntu cater to older hardware with lightweight desktop environments.

3. Difference between ubuntu and windows OS.

Ubuntu and Windows are two distinct operating systems with their own strengths and use cases. Here's a comparison to highlight their differences:

Feature	Ubuntu (Linux-based)	Windows
Cost	Free and open-source	Paid, with licensing costs
Source	Open-source; users can modify and share the code	Closed-source; proprietary software by Microsoft
User Interface (UI)	GNOME (default in Ubuntu) is simple and customizable	Highly polished and standardized; focuses on ease of use
Software Support	Primarily supports open-source applications; some Windows software can run with emulators like Wine	Compatible with a wide range of commercial software
Hardware Support	Works on older hardware; lightweight versions available	Requires more resources; better for modern hardware

Security	Generally more secure due to fewer vulnerabilities and its user permission model	Regular updates and built-in security tools, but targeted by malware more often
Gaming	Limited support for AAA games, though improving with tools like Steam Proton	Robust gaming support, including native DirectX
Command-Line Usage	Heavy reliance on command-line for advanced tasks; loved by developers	Command-line (PowerShell) optional, rarely needed for average users
Customization	Highly customizable, including the desktop environment	Limited to themes and wallpapers
Support	Community-driven forums and documentation	Paid professional support and a large help ecosystem

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