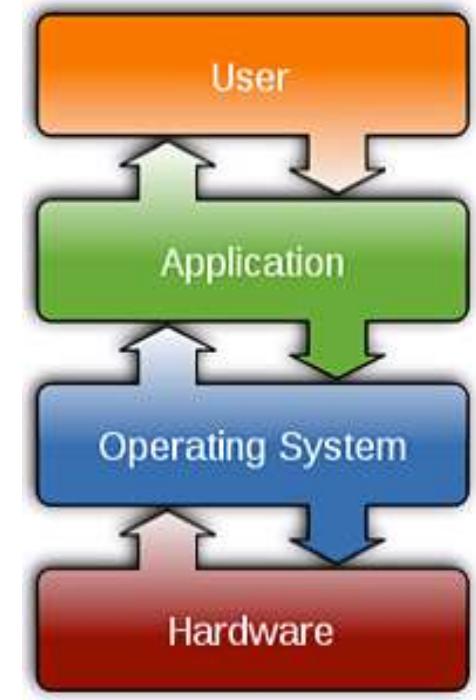




Bok, JongSoon  
javaexpert@nate.com  
<https://github.com/swacademy/fss>

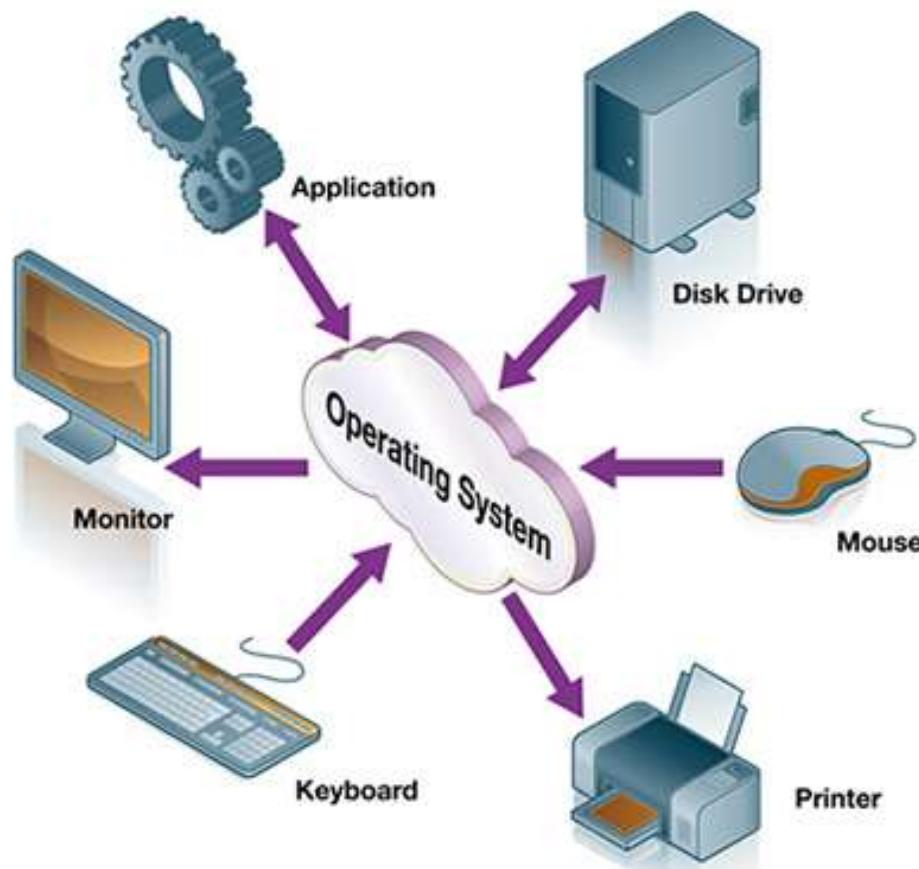
# Operating System

- Is an interface between the hardware and the user for the management and sharing of the resources of the system.
- Every general-purpose computer must have an operating system to run other programs.



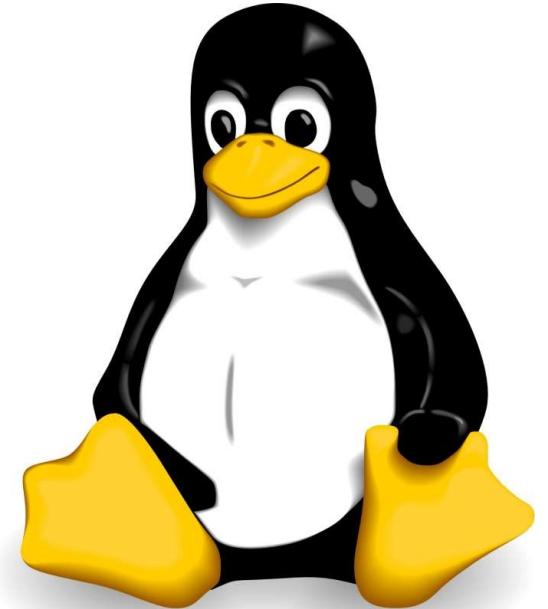
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# Operating System (Cont.)



# Linux...

- Is an open source operating system based or Unix environment.
- Multi-user, Multitasking, Multiprocessor.
- Has the X Window GUI.
- Is very similar to other operating systems, such as Windows and macOS.
- But something sets Linux apart from these operating systems.



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## Linux... (Cont.)

- As an open operating system, Linux is developed collaboratively.
- Source Code is available.
- Means no one company is solely responsible for its development or ongoing support.
- Begins as a server OS and has become useful as a desktop OS, can also be used on all of these devices.



# Linux... (Cont.)

## ■ <https://www.kernel.org/>

The Linux Kernel Archives



About Contact us FAQ Releases Signatures Site news

Protocol Location  
HTTP <https://www.kernel.org/pub/>  
GIT <https://git.kernel.org/>  
RSYNC <rsync://rsync.kernel.org/pub/>

Latest Release  
**6.6.4** 

mainline:	<b>6.7-rc4</b>	2023-12-03	[tarball]	[patch]	[inc. patch]	[view diff]	[browse]		
stable:	<b>6.6.4</b>	2023-12-03	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
stable:	<b>6.5.13 [EOL]</b>	2023-11-28	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>6.1.65</b>	2023-12-03	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>5.15.141</b>	2023-12-03	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>5.10.202</b>	2023-11-28	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>5.4.262</b>	2023-11-28	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>4.19.300</b>	2023-11-28	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
longterm:	<b>4.14.331</b>	2023-11-28	[tarball]	[pgp]	[patch]	[inc. patch]	[view diff]	[browse]	[changelog]
linux-next:	<b>next-20231208</b>	2023-12-08							[browse]

Other resources

<a href="#">Git Trees</a>	<a href="#">Documentation</a>	<a href="#">Kernel Mailing Lists</a>
<a href="#">Patchwork</a>	<a href="#">Wikis</a>	<a href="#">Bugzilla</a>
<a href="#">Mirrors</a>	<a href="#">Linux.com</a>	<a href="#">Linux Foundation</a>

Social

<a href="#">Site Atom feed</a>
<a href="#">Releases Atom Feed</a>
<a href="#">Kernel Planet</a>



## Linux... (Cont.)

- As per the latest report from Top 500, Linux now runs on all the fastest 500 supercomputers in the world<sup>1</sup>.
- Also runs on embedded systems such as mobile phones, tablet computers, network routers, building automation controls, televisions and video game consoles.



1. <https://www.stackscale.com/blog/most-powerful-supercomputers-linux/>

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## Linux... (Cont.)



- Typically, Linux is packaged in a format known as a *Linux distribution*(or *distro*) for desktop & server use.
- Linux distributions include the Linux *kernel*, supporting utilities and libraries and usually a large amount of application software to fulfill the distribution's intended use.



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## Linux... (Cont.)

- The Four Web Bigshots, Google, Amazon, Twitter and Facebook; They All Use Linux.
- Nuclear Submarines running on Linux.
- Linux on Air Traffic Control Systems.
- Linux helping in Power Particle Physics Research.
- Linux powers The New York Stock Exchange.

## Linux... (Cont.)

- In-Vehicle-Infotainment And Communications Systems Of Toyota runs Linux.
- High-Tech Road Traffic Control running on Linux.
- Linux powers Japan's Bullet Trains.
- The Most Powerful Supercomputers Today Run Linux.



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# Linux... (Cont.)



Dell Inspiron Mini 9 and 12



Garmin Nuvi 860, 880, and 5000



Google Android Dev Phone 1



TiVo Digital Video Recorder



HP Mini 1000



Lenovo IdeaPad S9



Motorola MotoRokr EM35 Phone



Volvo In-Car Navigation System



One Laptop Per Child XO2



Sony Bravia Television



Sony Reader



Yamaha Motif Keyboard

# Linux... (Cont.)



NimbRo-OP Humanoid TeenSize Open Platform

<http://www.itworld.co.kr/slideshow/86037>

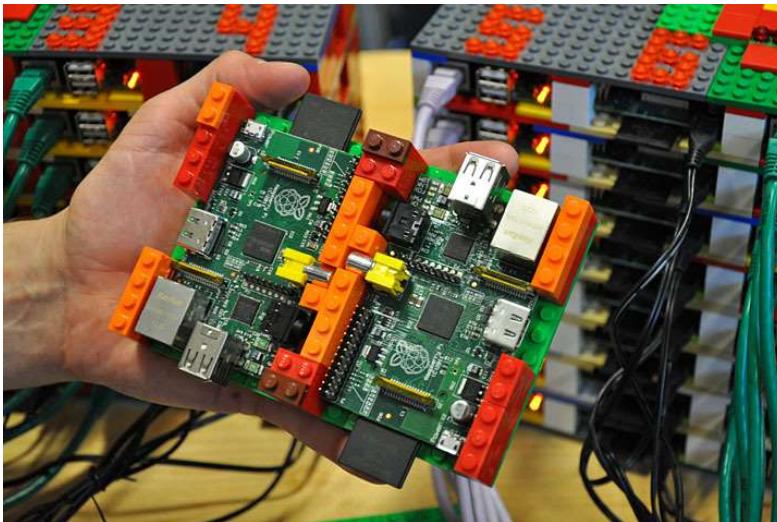
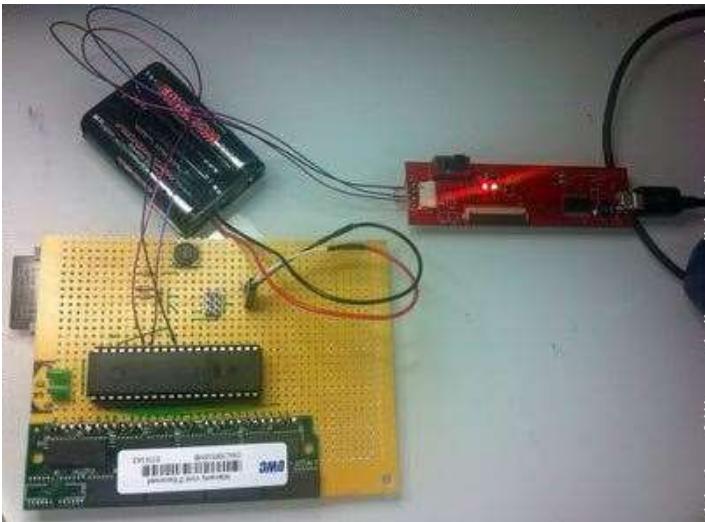
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# Linux... (Cont.)



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# Linux... (Cont.)



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# Linux 주요 구성 요소

커널

- 운영 체제의 핵심 기능 제공

대몬(Daemon)

- 시스템 또는 사용자에게 추가 지원 제공

애플리케이션

- 텍스트 편집기, 웹 브라우저, 데이터베이스 등의 프로그램 포함

데이터 파일

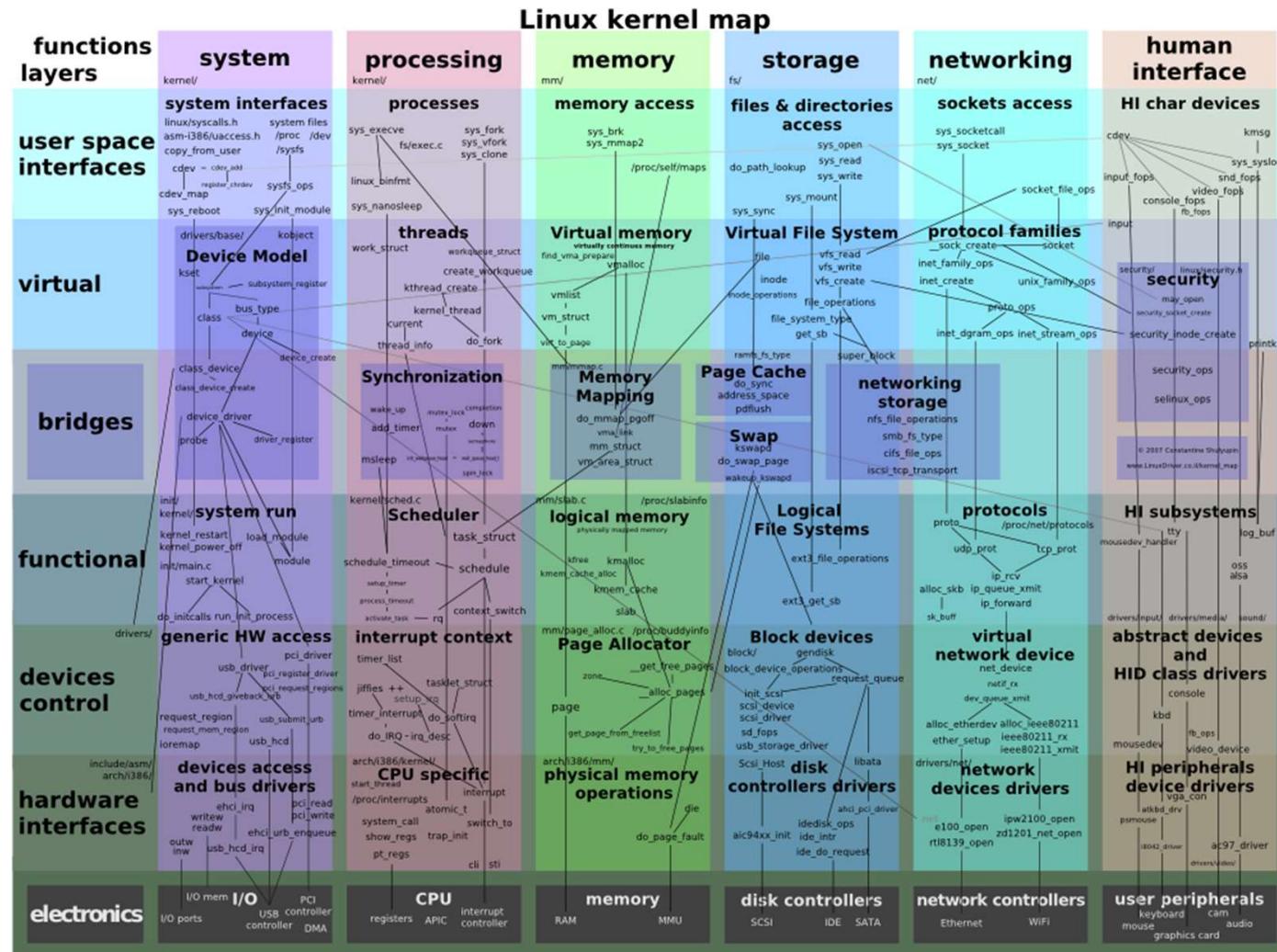
- 텍스트 파일, 음악 파일, 이미지 파일 등의 사용자 콘텐츠 포함

구성 파일

- 텍스트 파일에 저장된 Linux, 서비스, 애플리케이션용 설정 포함

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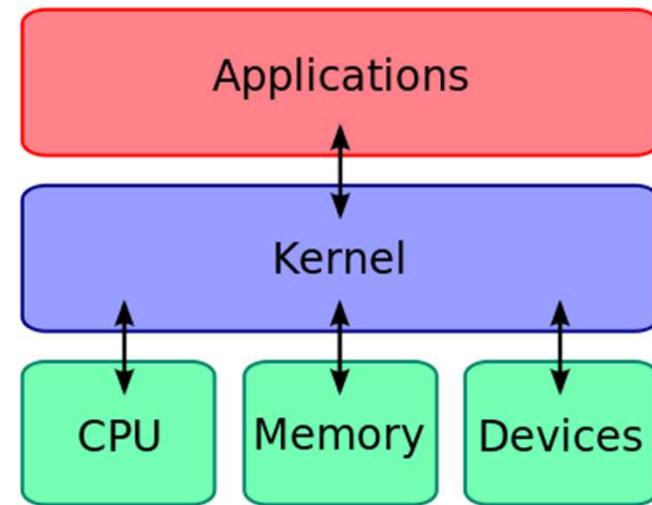
# Kernel



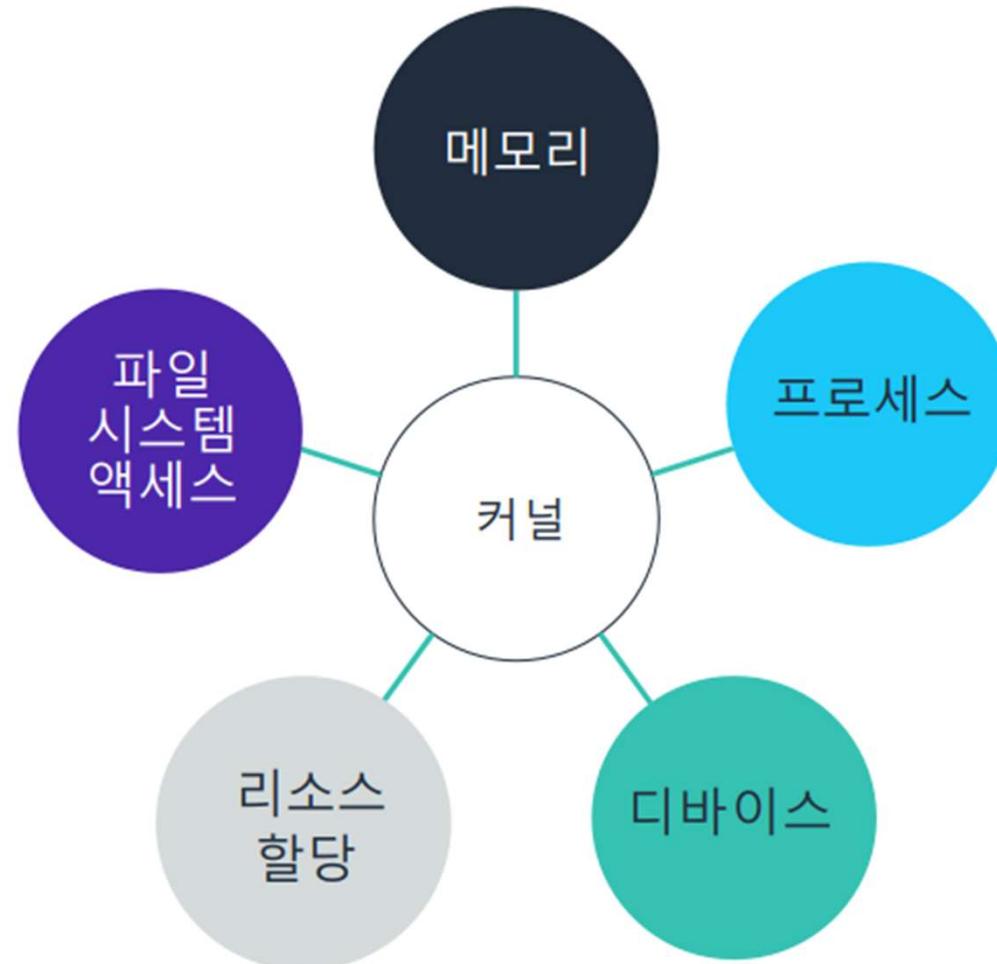
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## Kernel (Cont.)

- Is a fundamental part of a modern computer operating system.
  - Process Management System
  - File Management System
  - Hardware Interface



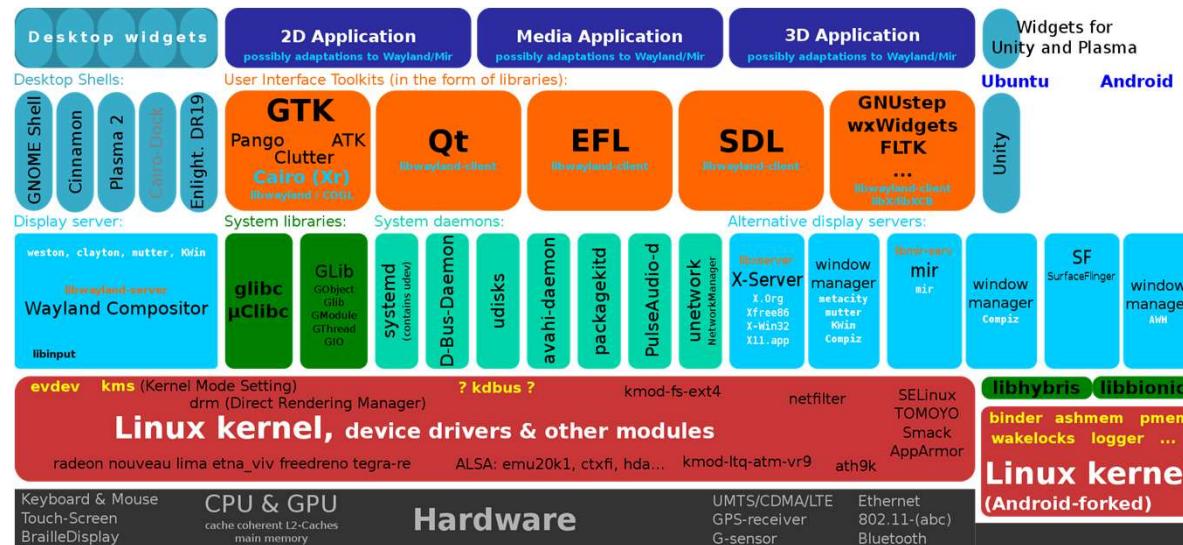
## Kernel (Cont.)



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# Daemon

- Background에서 실행되는 Computer Program
- Interactive User가 Control 하지 못함.
- 일반적으로 System Service 역할
- 일반적으로 문자 **d**로 끝나는 Process 이름
  - syslog**d**
  - ssh**d**
  - http**d**



[https://ko.wikipedia.org/wiki/%EB%8D%B0%EB%AA%AC\\_%28%EC%BB%B4%ED%93%A8%ED%8C%85%29](https://ko.wikipedia.org/wiki/%EB%8D%B0%EB%AA%AC_%28%EC%BB%B4%ED%93%A8%ED%8C%85%29)

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# Application

- User가 Multi-Task 또는 Job을 수행할 때 도움이 되는 다양한 기능을 제공하는 Software
- i.e.
  - Word Processor
  - Web Browser
  - Email Client
  - Media Player



# Data Files

■ File에는 Program이 사용하는 정보가 담겨 있고, 다른 Data 도 있을 수 있다.

■ i.e.

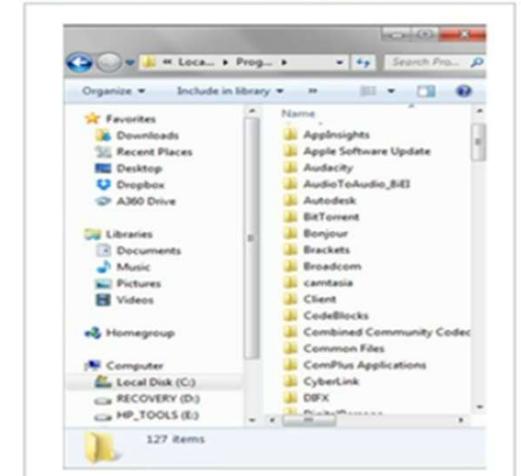
- Music File
- Text File
- Image File



Data Files In Binary

```
01111001 01101111  
01110101 00100000  
01110010 01101111  
01100011 01101011  
01111001 01101111  
01110101 00100000  
01110010 01101111  
01100011 01101011
```

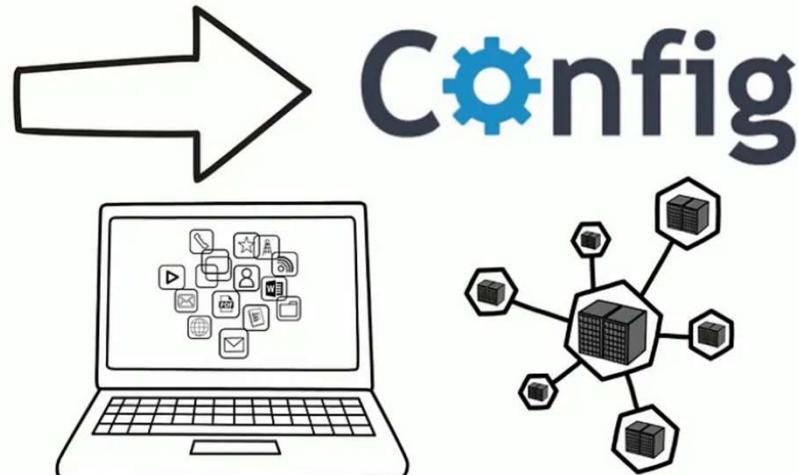
OS Presents Logical View



# Configuration Files

- 구성 파일은 초기 설정을 포함하거나 System Program 값을 저장하는 특수한 유형의 파일이다.
- 일부 구성 파일은 시작할 때 여러 가지 명령을 실행한다.
- 일반적인 구성 파일의 확장자

- .cnf
- .conf
- .cfg
- .cf
- .ini



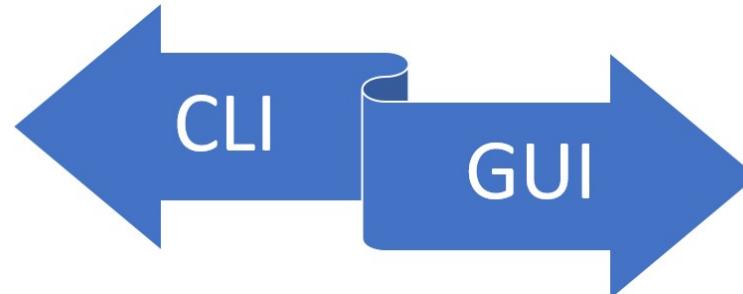
# Linux Interface

## ■ CLI

- Command Line Interface
- Hardware Resource를 적게 사용
- Script로 자동화 가능
- 더 많은 Option 제공
- Linux Server는 대부분 CLI 사용

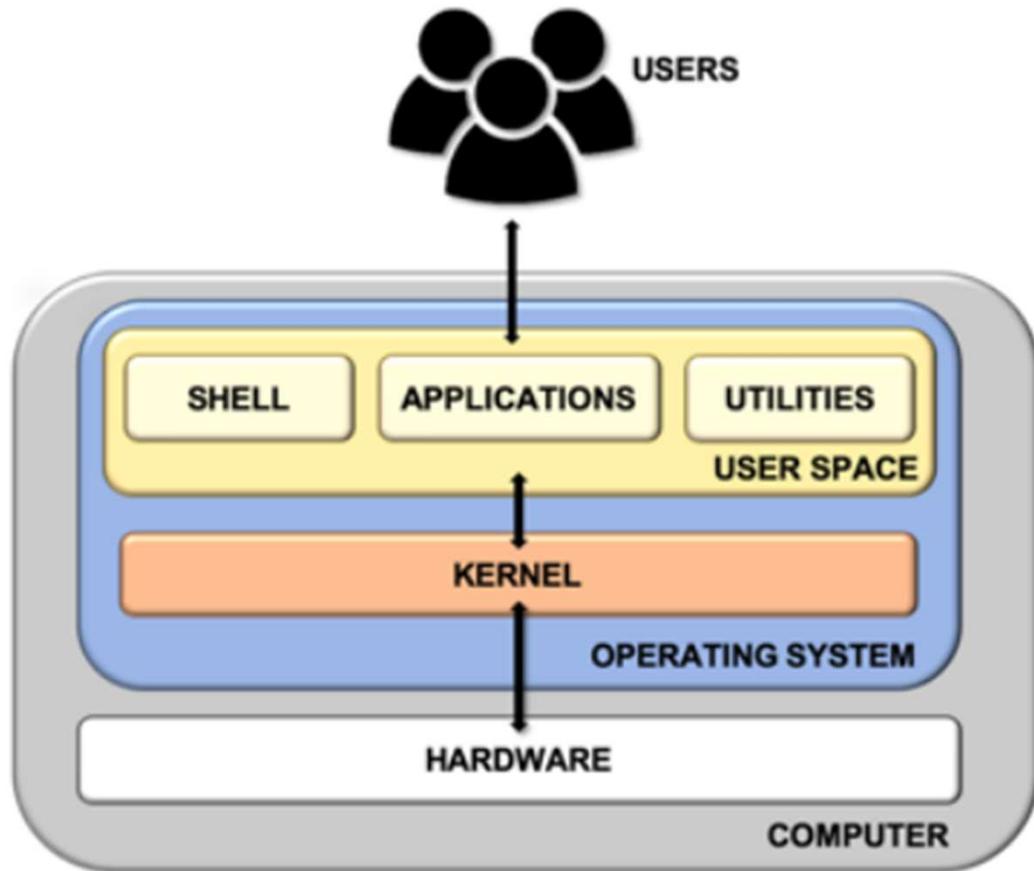
## ■ GUI

- Graphical User Interface
- 직관적, 시각적으로 탐색
- Linux, Windows, macOS
- Desktop or Workstation은 대부분 GUI 사용



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# Shell



<https://www.futurelearn.com/info/courses/linux-for-bioinformatics/0/steps/202947>

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# History

- An OS ***Kernel***(The core of the Linux operating system) first released on October 5, 1991.
- By **Linus Benedict Torvalds**(born December 28, 1969)
- A Finn computer science student at the University of Helsinki.



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## History (Cont.)

- On August 25, 1991, made the following announcement to the Usenet group comp.os.minux:

*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<sup>1</sup>, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) (among other things).*

1. The, Minix, Torvalds referred to is a variant of the UNIX operating system, <http://www.minix3.org/>  
Source from : <https://groups.google.com/forum/#!msg/comp.os.minix/dINtH7RRrGA/SwRavCzVE7gJ>



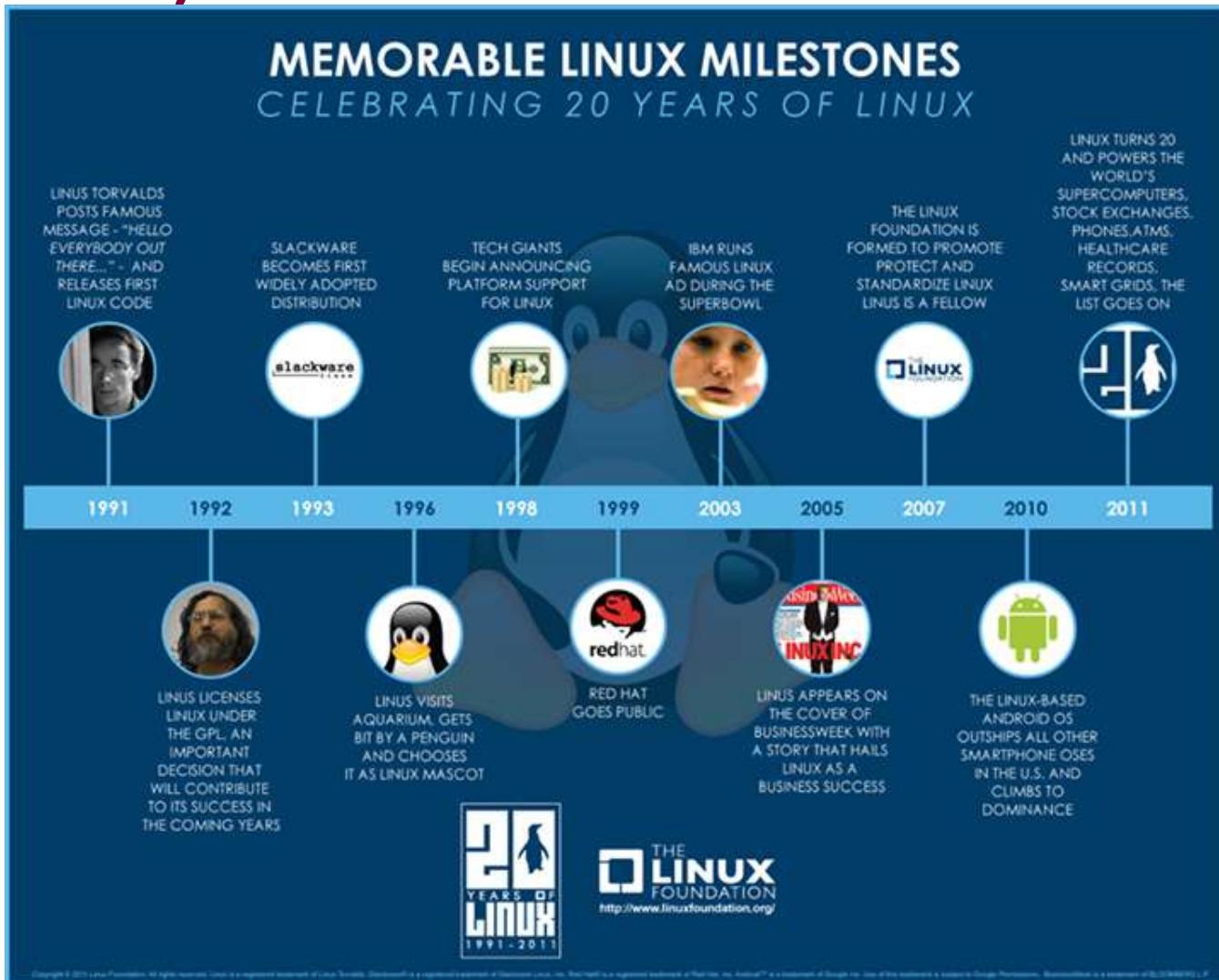
## History (Cont.)

- Torvalds wanted to run on the x86-based consumer PCs of the day.
- *GNU(GNU Is Not Unix)*<sup>1</sup> tools first put together by Richard Stallman in 1983.
- Stallman's GNU tools were from a project to create an operating system as well.
- Was founded “The Linux Foundation”<sup>2</sup> in 2007.

<sup>1</sup> <http://www.gnu.org/gnu/manifesto.html>

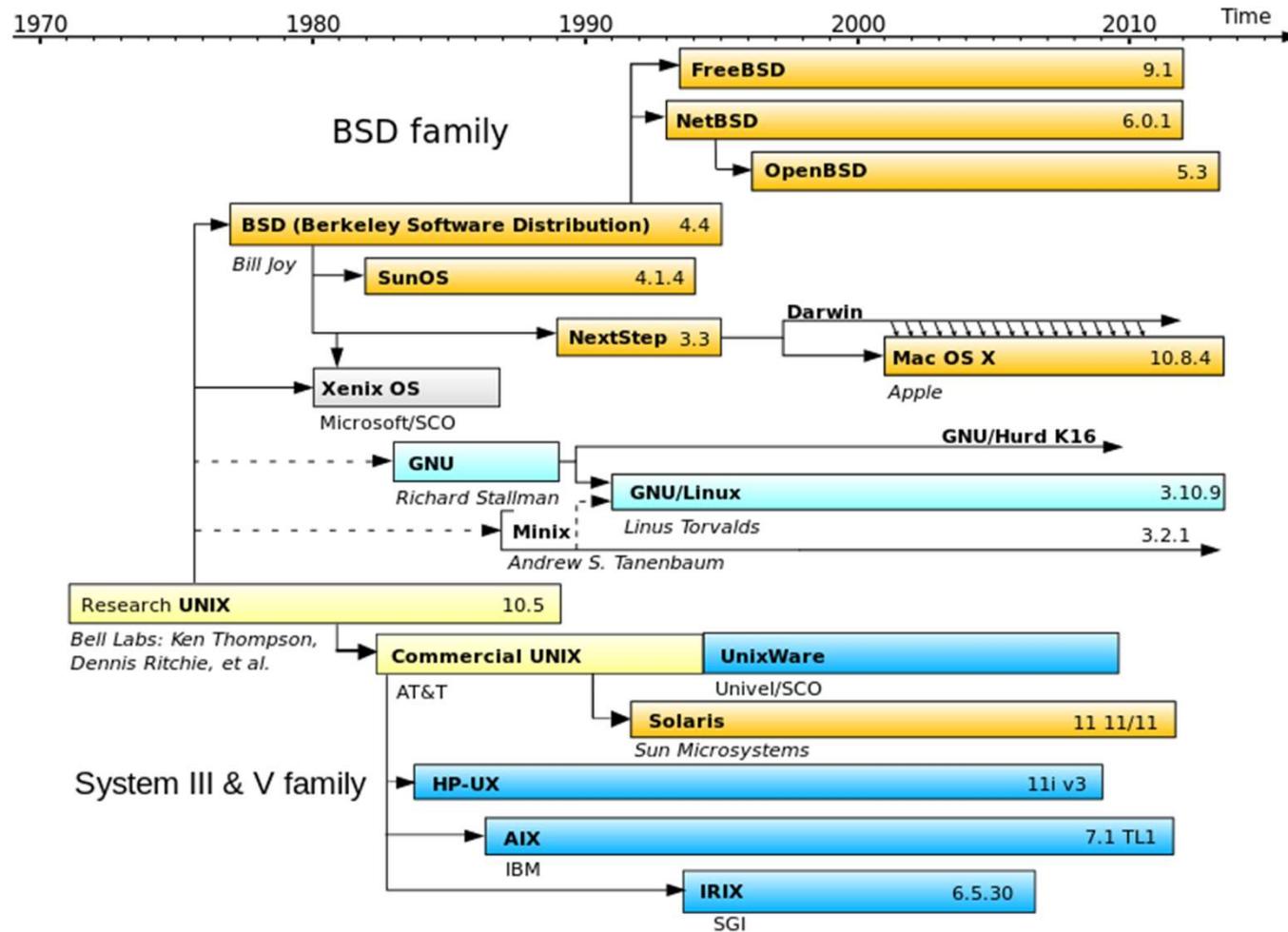
<sup>2</sup> <http://www.linuxfoundation.org/>

# History (Cont.)



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# History (Cont.)



# Philosophy of Linux

Openness

Efficiency

Stability

# Significant Impact on Modern OSs in Several Keys

- Open Source Philosophy
- Stability and Reliability
- Security Focus
- Versatility and Portability
- Command-Line Interface(CLI)
- Containerization and Virtualization
- Community Collaboration
- Cost-Efficiency

# Linux Distributions

■ <https://distrowatch.com/>

The screenshot shows the homepage of DistroWatch.com. At the top, there's a search bar and a navigation menu with links to English, Español, Français, Deutsch, Português, Bosanski, 日本語, and 한국어. Below the header, there are several sections:

- 3CX VoIP PBX**: An advertisement for 3CX VoIP PBX featuring a person holding a red phone handset.
- MX Linux**: A news item from July 29, 2021, about the Development Release of MX Linux 21 Beta 1. It mentions Debian-based desktop distribution, Xfce 4.16 desktop, and new features like LVM support and UEFI live system boot menus.
- Linux Lite**: A news item from July 28, 2021, about the Development Release of Linux Lite 5.6 RC1.
- 3CX**: An advertisement for 3CX PBX systems, asking if they still cost \$20 per extension.

On the right side of the page, there's a large orange "ubuntu" logo.

# Linux Distributions (Cont.)

## ■ <https://lwn.net/>

The screenshot shows the LWN.net website interface. At the top, there's a header with a logo of a penguin holding a book, the text "Welcome to LWN.net [LWN.net] x +", and a search bar with fields for "User:" and "Password:", and buttons for "Log in", "Subscribe", and "Register". Below the header, the main content area has a title "Welcome to LWN.net". A sidebar on the left contains links for "Content" (Weekly Edition, Archives, Search, Kernel, Security, Distributions, Events calendar, Unread comments), "LWN FAQ", and "Write for us". The main content area features several news items:

- [\$] LWN.net Weekly Edition for July 29, 2021** [Kernel] Posted Jul 28, 2021 14:59 UTC (Wed) by ris. This item discusses a set of stable kernels released on July 29, 2021, including versions 5.13.6, 5.10.54, 5.4.136, 4.19.199, 4.14.241, 4.9.277, and 4.4.277.
- Inside this week's LWN.net Weekly Edition** [Security] Posted Jul 28, 2021 14:47 UTC (Wed) by ris. This item lists security updates for Wednesday, mentioning Fedora, Mageia, openSUSE, Red Hat, and SUSE.
- Security updates for Tuesday** [Security] Posted Jul 27, 2021 15:14 UTC (Tue) by ris. This item lists security updates for Tuesday.

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# Linux Distributions (Cont.)

■ <https://www.linux.org>

The screenshot shows the homepage of Linux.org. At the top, there's a navigation bar with links for Forums, What's new, Linux Tutorials, Members, Download Linux, Newsletter, Credits, Log in, Register, and Search. Below the navigation, the main content area displays several articles in a grid format:

- Linux Cluster – Basics** (JUL 28): Jarret B posted yesterday at 5:40 PM. The post discusses basic understanding of clustering and making a small virtual cluster. It has 335 replies and 0 comments.
- LFCS – Login Scripts** (JUL 12): Jarret B posted Jul 12, 2021. The post explains what happens when a user logs into a system, mentioning login scripts that can be manipulated. It has 2,790 replies and 2 comments.
- Portable Raspberry Pi 400** (APR 23): Jarret B posted Apr 23, 2021. The post announces the release of the Raspberry Pi 400, which is encased in a keyboard. It has 17,472 replies and 0 comments.
- LFCS – Managing Software – Ubuntu** (MAY 03): Jarret B posted May 3, 2021. The post discusses managing system software on Ubuntu, referencing previous coverage for CentOS. It has 15,046 replies and 0 comments.
- Flatpak and WhatIP** (APR 05): Jarret B posted Apr 5, 2021. The post covers Flatpak and WhatIP, tools for managing software packages. It has 12,510 replies and 0 comments.

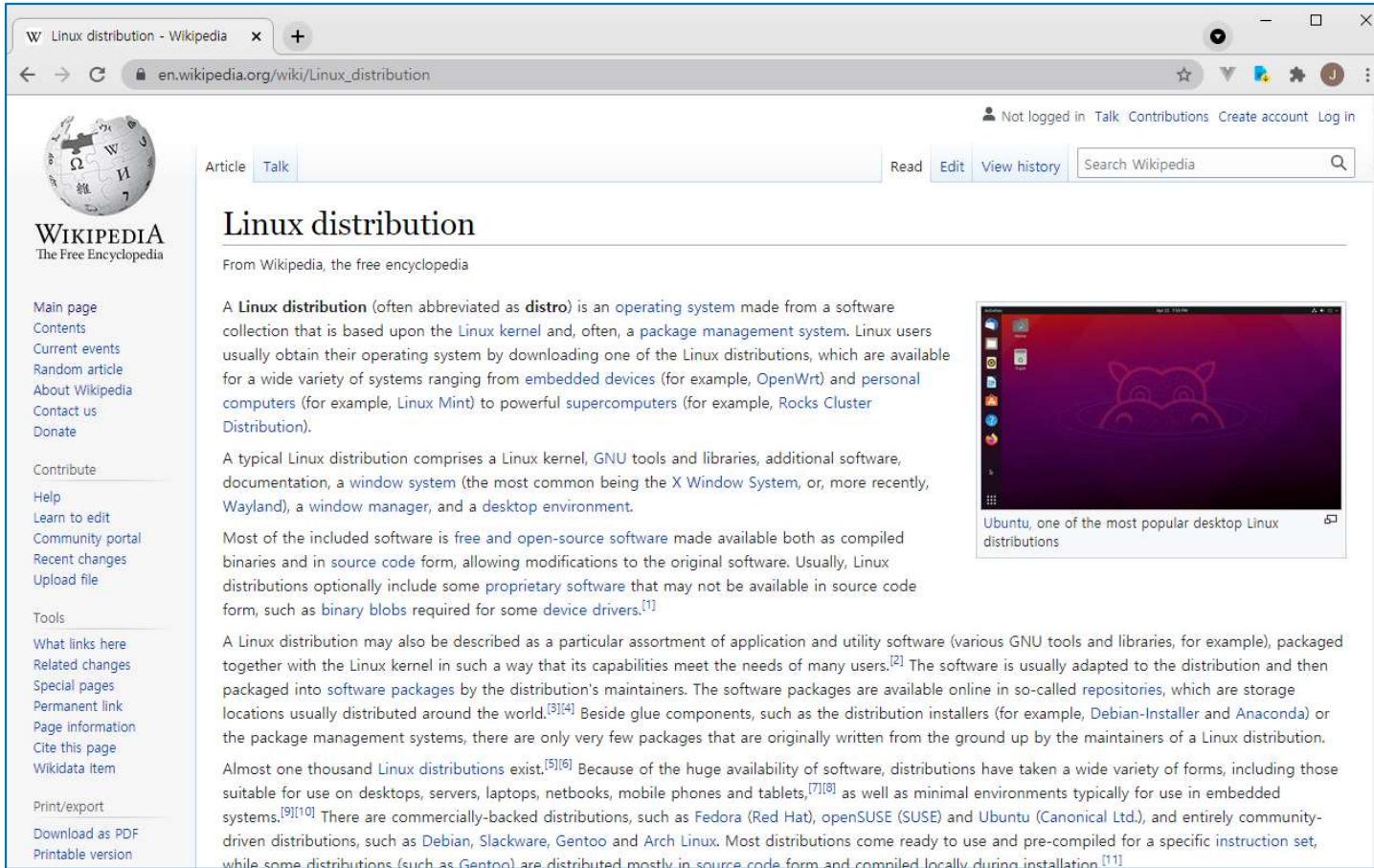
On the right side of the page, there are several sidebar elements:

- \$100 Digital Ocean Credit**: An advertisement for Digital Ocean offering a free VM to test out Linux.
- Members online**: Shows that 561 members are currently online, with 2 guests and 559 total users.
- SHOCKBYTE**: An advertisement for Shockbyte featuring "WORRY-FREE GAME HOSTING" and "Best Minecraft Server Hosting".
- Latest posts**: A list of recent activity:
  - Wayland + NVIDIA + Fedora experience so far (Latest: TheProf - 16 minutes ago)
  - General Linux
  - cursor is gone (Latest: Alexzee - Today at 1:55 AM)
  - Command Line

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# Linux Distributions (Cont.)

- [https://en.wikipedia.org/wiki/Linux\\_distribution](https://en.wikipedia.org/wiki/Linux_distribution)



The screenshot shows a web browser displaying the English Wikipedia article titled "Linux distribution". The page has a standard Wikipedia layout with a sidebar on the left containing links like "Main page", "Contents", and "Help". The main content area is titled "Linux distribution" and describes it as an operating system made from a software collection based on the Linux kernel. It mentions various types of distributions for different purposes. A sidebar image shows the Ubuntu desktop environment with its characteristic purple gradient background and the Tux mascot.

Linux distribution

From Wikipedia, the free encyclopedia

A **Linux distribution** (often abbreviated as **distro**) is an operating system made from a software collection that is based upon the Linux kernel and, often, a package management system. Linux users usually obtain their operating system by downloading one of the Linux distributions, which are available for a wide variety of systems ranging from embedded devices (for example, OpenWrt) and personal computers (for example, Linux Mint) to powerful supercomputers (for example, Rocks Cluster Distribution).

A typical Linux distribution comprises a Linux kernel, GNU tools and libraries, additional software, documentation, a window system (the most common being the X Window System, or, more recently, Wayland), a window manager, and a desktop environment.

Most of the included software is free and open-source software made available both as compiled binaries and in source code form, allowing modifications to the original software. Usually, Linux distributions optionally include some proprietary software that may not be available in source code form, such as binary blobs required for some device drivers.<sup>[1]</sup>

A Linux distribution may also be described as a particular assortment of application and utility software (various GNU tools and libraries, for example), packaged together with the Linux kernel in such a way that its capabilities meet the needs of many users.<sup>[2]</sup> The software is usually adapted to the distribution and then packaged into software packages by the distribution's maintainers. The software packages are available online in so-called repositories, which are storage locations usually distributed around the world.<sup>[3][4]</sup> Beside glue components, such as the distribution installers (for example, Debian-Installer and Anaconda) or the package management systems, there are only very few packages that are originally written from the ground up by the maintainers of a Linux distribution.

Almost one thousand Linux distributions exist.<sup>[5][6]</sup> Because of the huge availability of software, distributions have taken a wide variety of forms, including those suitable for use on desktops, servers, laptops, netbooks, mobile phones and tablets,<sup>[7][8]</sup> as well as minimal environments typically for use in embedded systems.<sup>[9][10]</sup> There are commercially-backed distributions, such as Fedora (Red Hat), openSUSE (SUSE) and Ubuntu (Canonical Ltd.), and entirely community-driven distributions, such as Debian, Slackware, Gentoo and Arch Linux. Most distributions come ready to use and pre-compiled for a specific instruction set, while some distributions (such as Gentoo) are distributed mostly in source code form and compiled locally during installation.<sup>[11]</sup>

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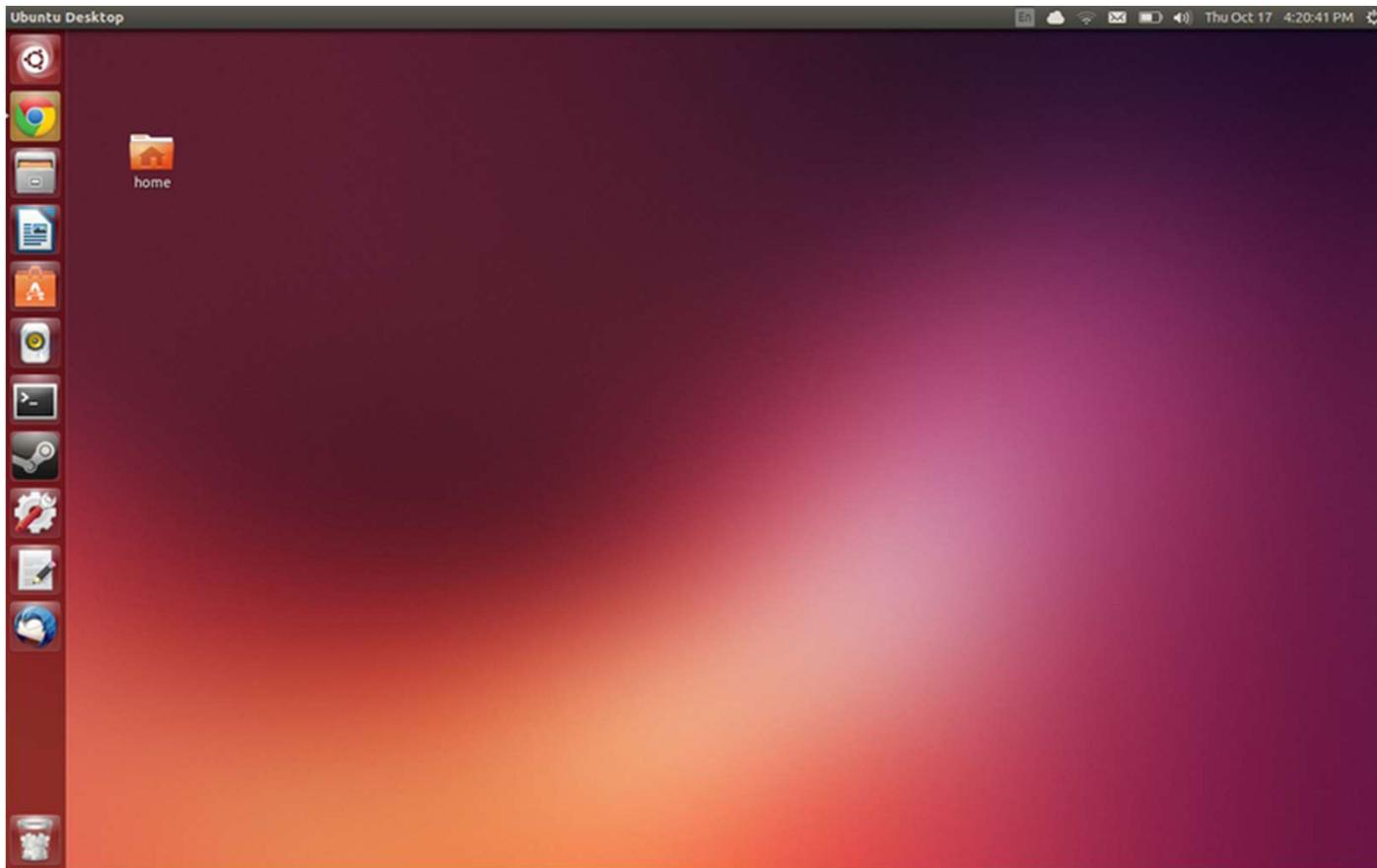
# Linux Distributions (Cont.)

## ■ Debian



# Linux Distributions (Cont.)

## ■ Ubuntu



# Linux Distributions (Cont.)

## ■ Linux Mint



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# Linux Distributions (Cont.)

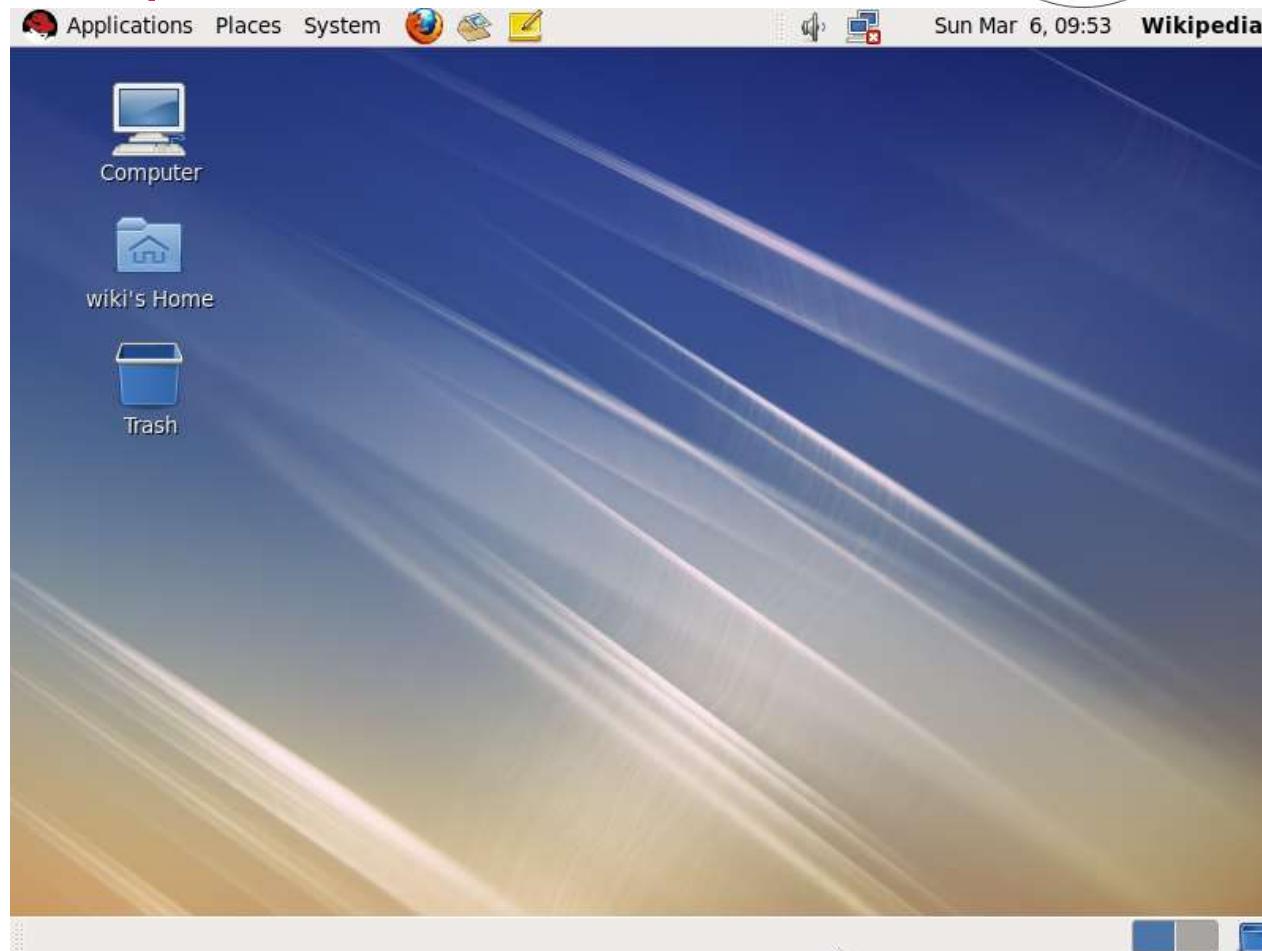
## ■ Fedora



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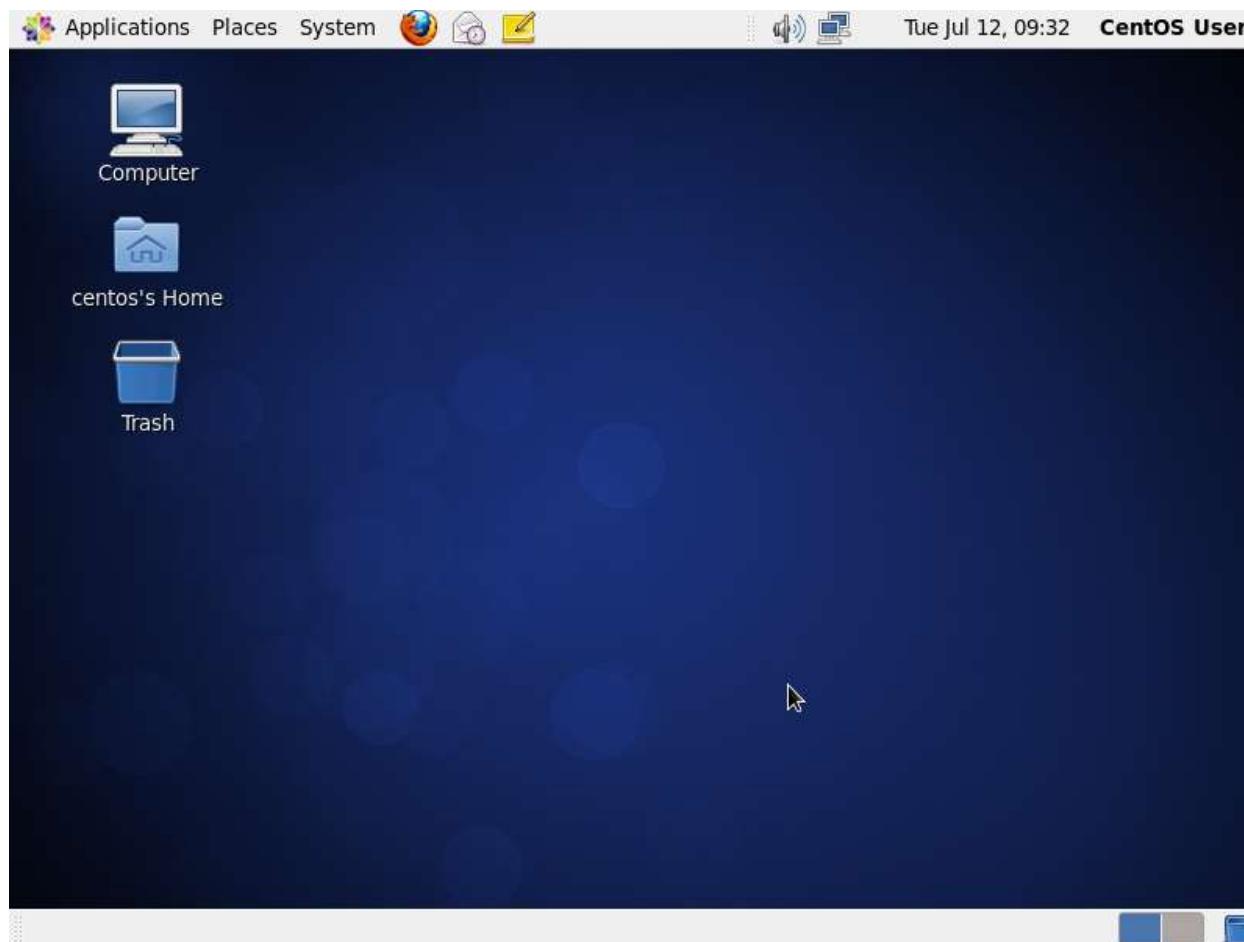
# Linux Distributions (Cont.)

## ■ Red Hat Enterprise Linux



# Linux Distributions (Cont.)

## ■ CentOS



# Linux Distributions (Cont.)



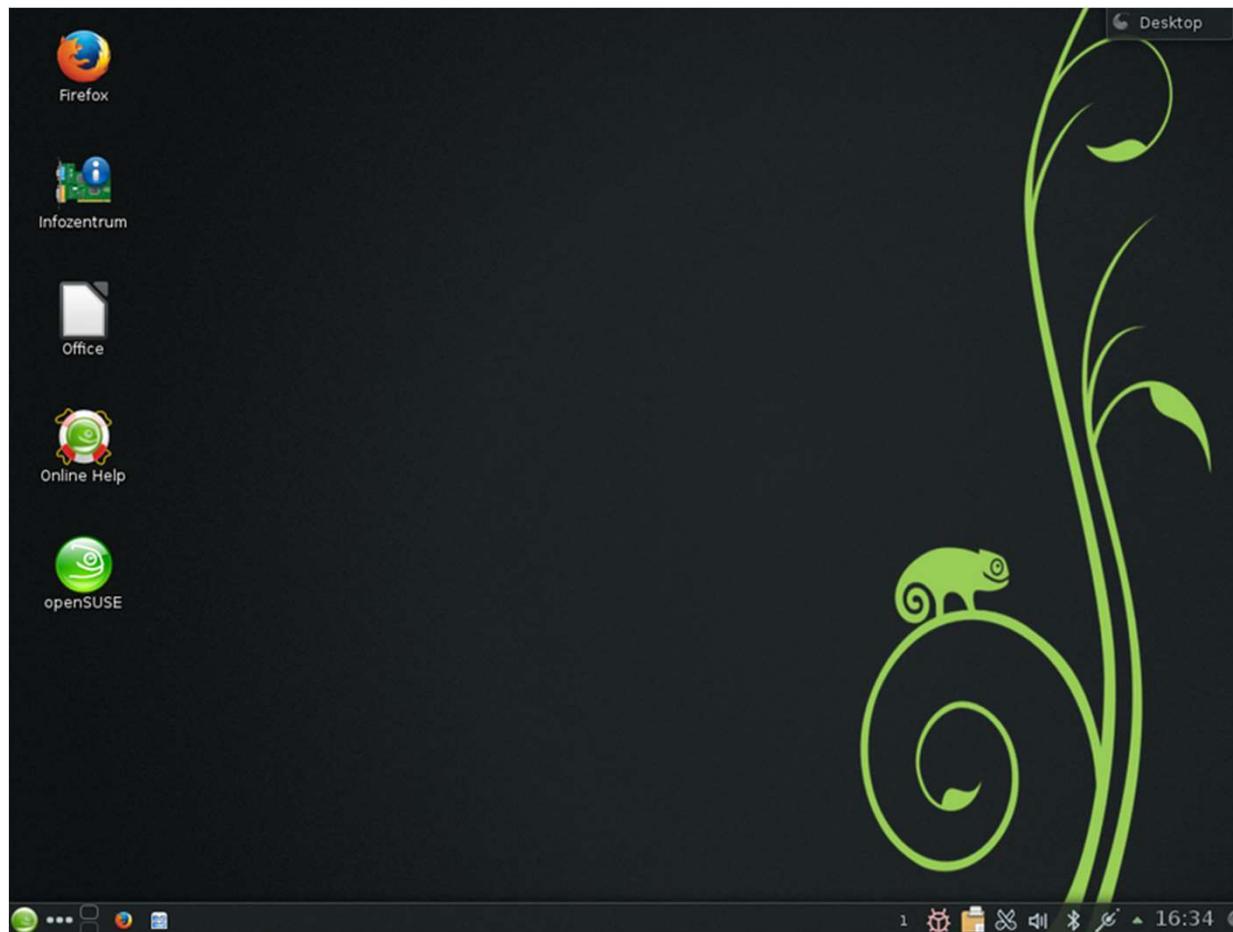
## ■ Mandriva Linux



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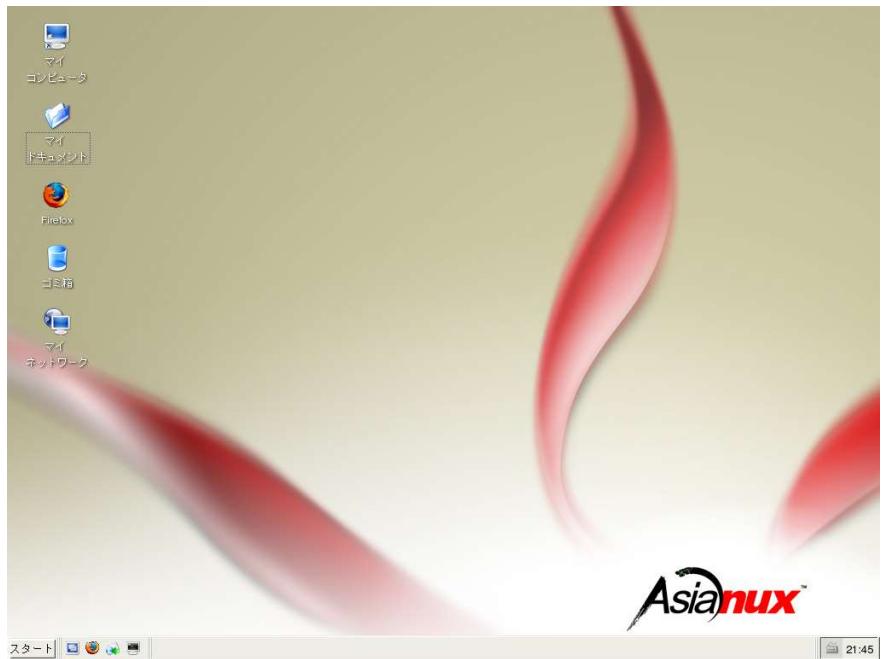
# Linux Distributions (Cont.)

## ■ openSUSE



# Linux Distributions (Cont.)

## ■ Asianux



About Asianux | www.asianux.co × +

asianux.com

↑ Slide Up

**Asianux™**

About Asianux

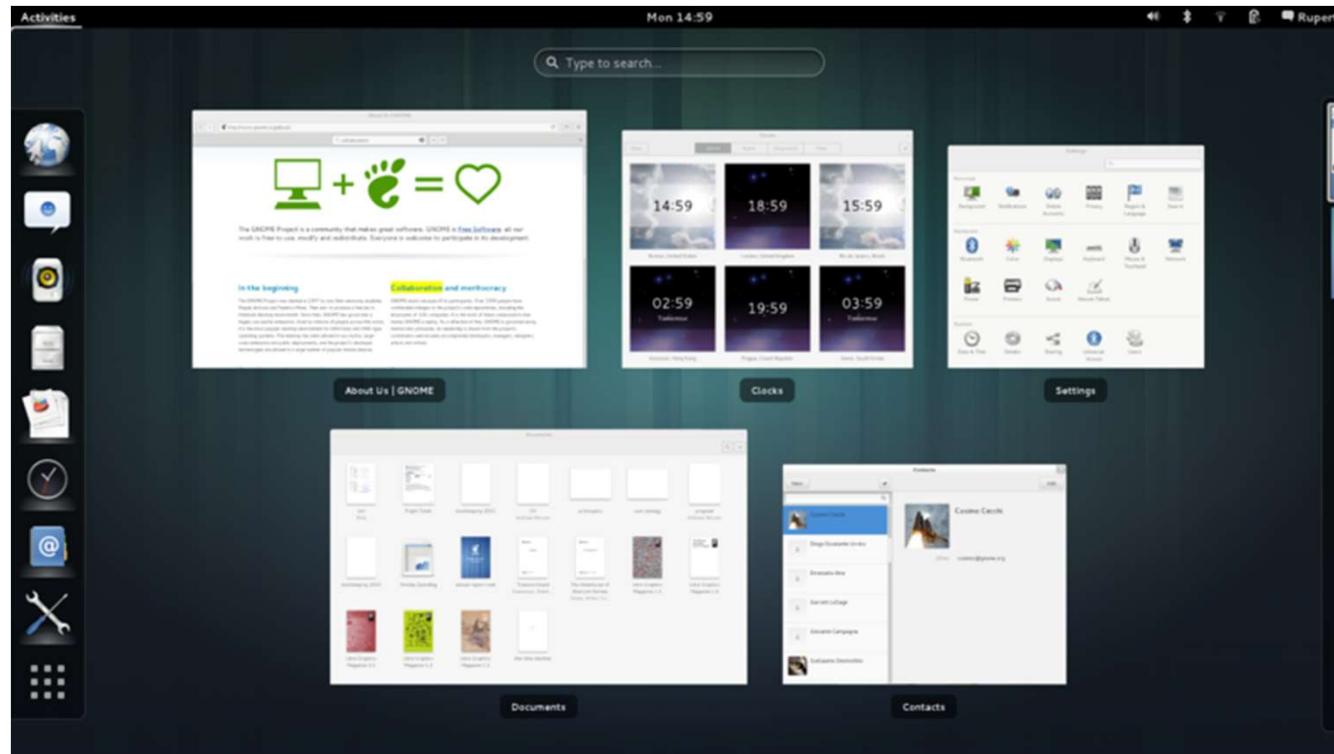
In September 2015, the Asianux Project has been dissolved.  
Thank you for your support for our project.  
Cybertrust Japan Co., Ltd.(formerly MIRACLE LINUX CORPORATION) has still  
distributed Linux OS in Japan as "MIRACLE LINUX".  
<https://www.cybertrust.co.jp/miracle-linux/>

Copyright© 2007-2019 Asianux. All rights reserved.



# Linux Graphical Desktop Environments

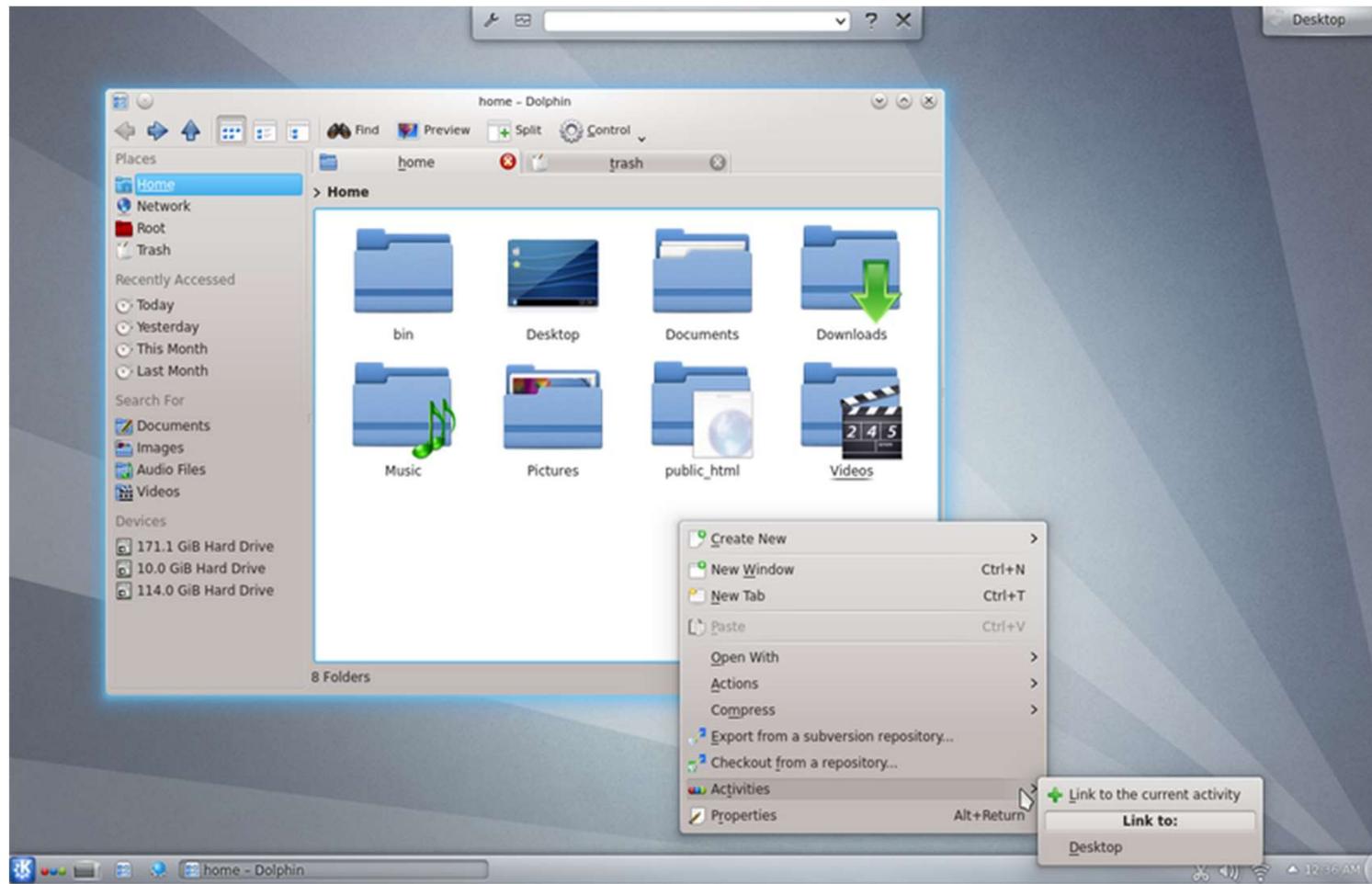
## -GNOME Shell



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# Linux Graphical Desktop Environments

## -KDE Plasma



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# Linux Graphical Desktop Environments

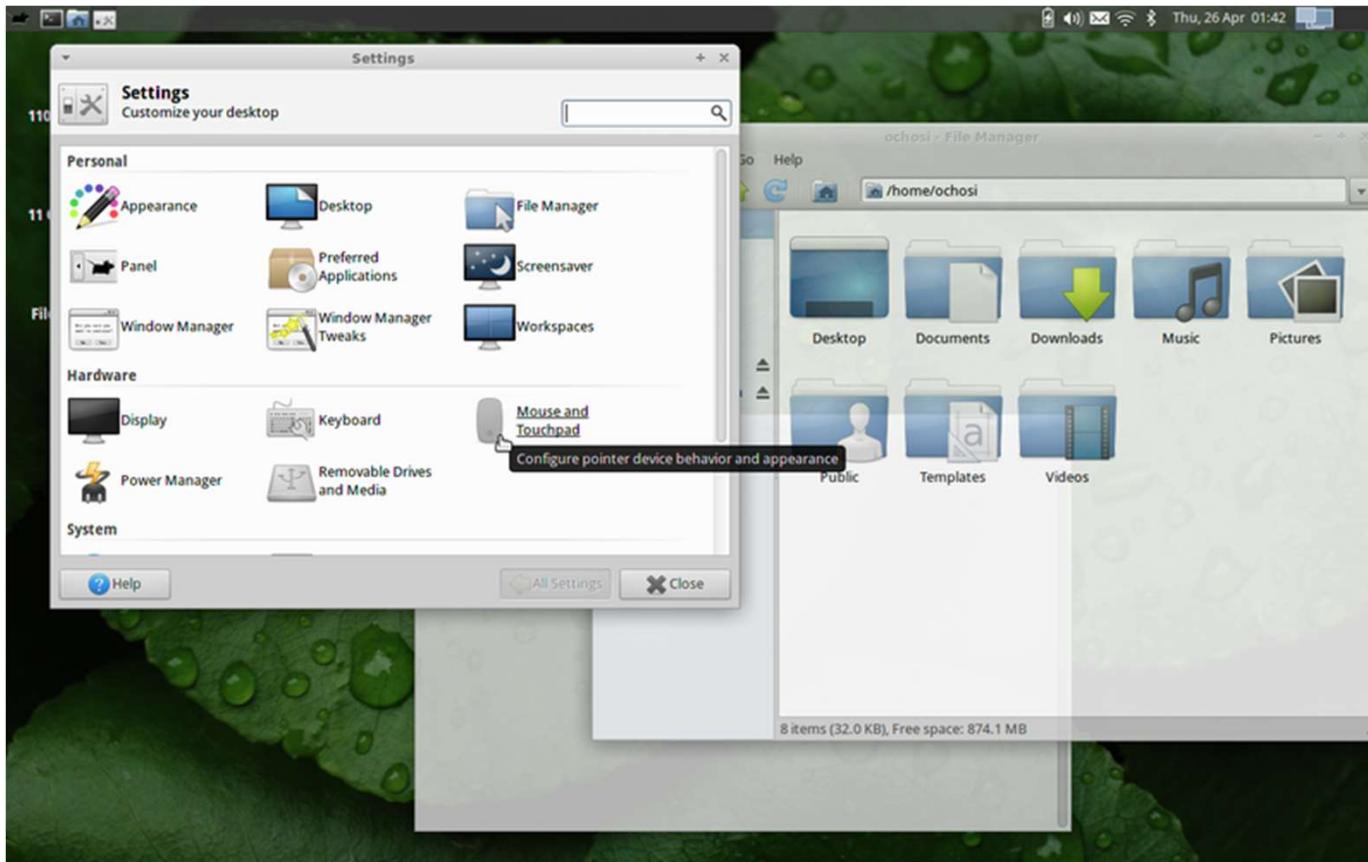
## -Unity



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# Linux Graphical Desktop Environments

## -Xfce



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# Linux Graphical Desktop Environments

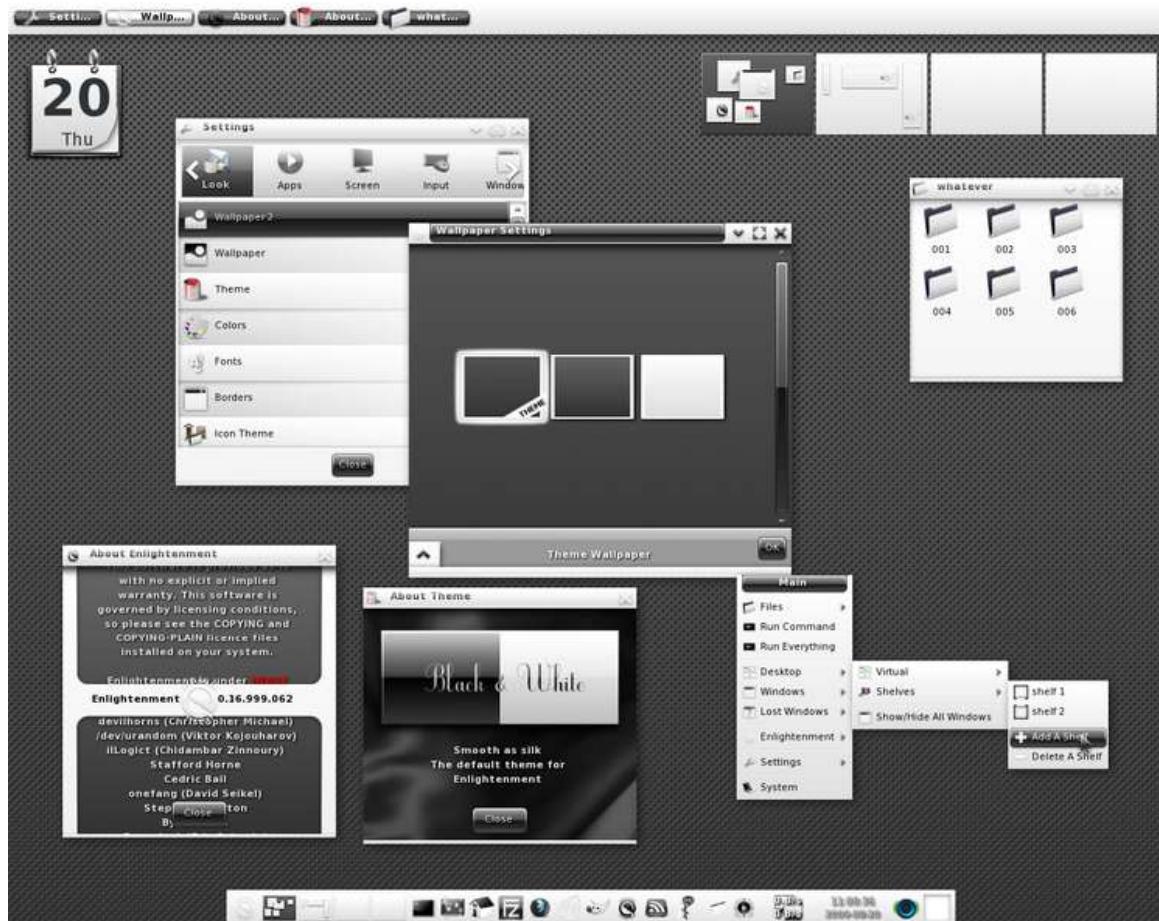
## -LXDE



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# Linux Graphical Desktop Environments

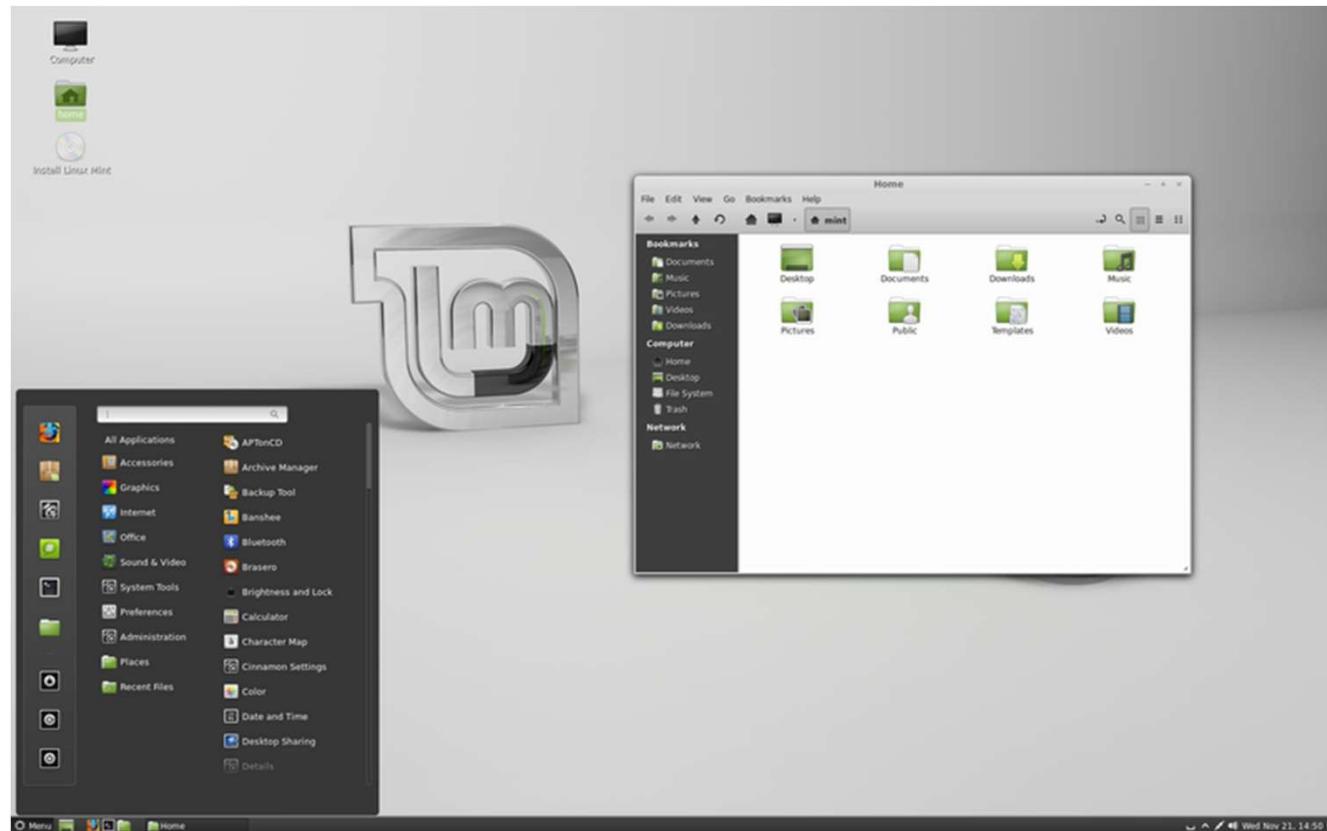
## -Enlightenment



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# Linux Graphical Desktop Environments

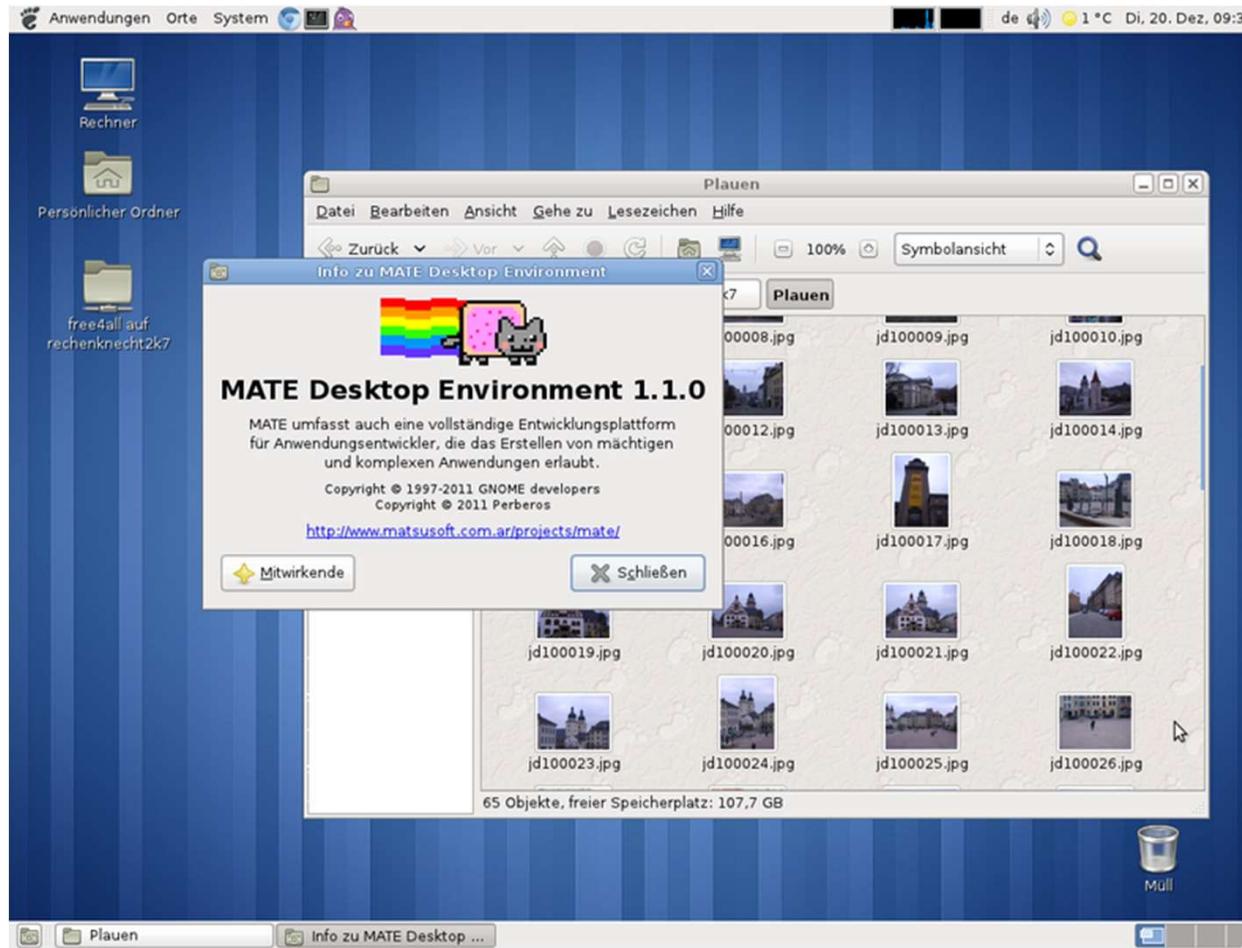
## -Cinnamon



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# Linux Graphical Desktop Environments

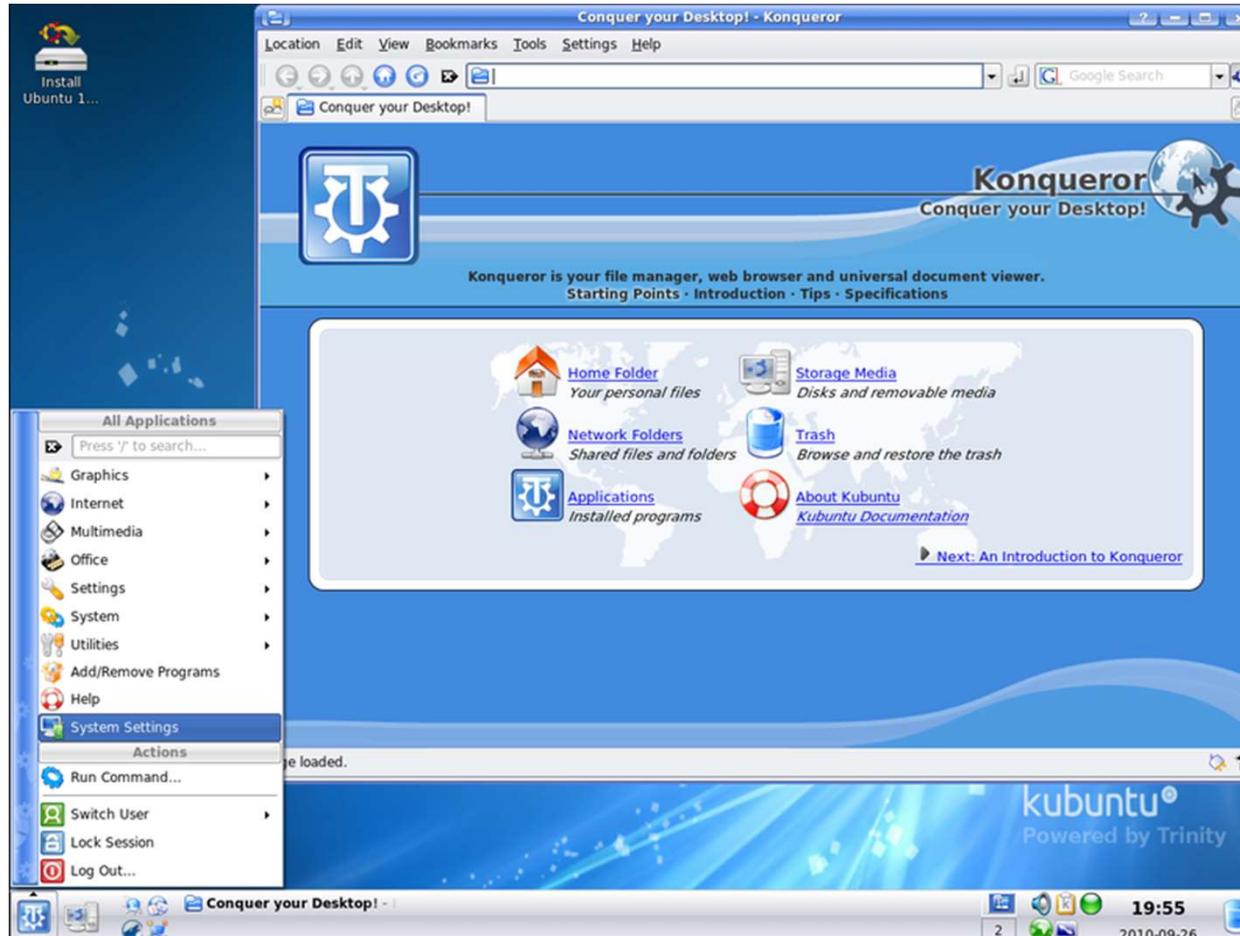
## -MATE (GNOME 2)



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# Linux Graphical Desktop Environments

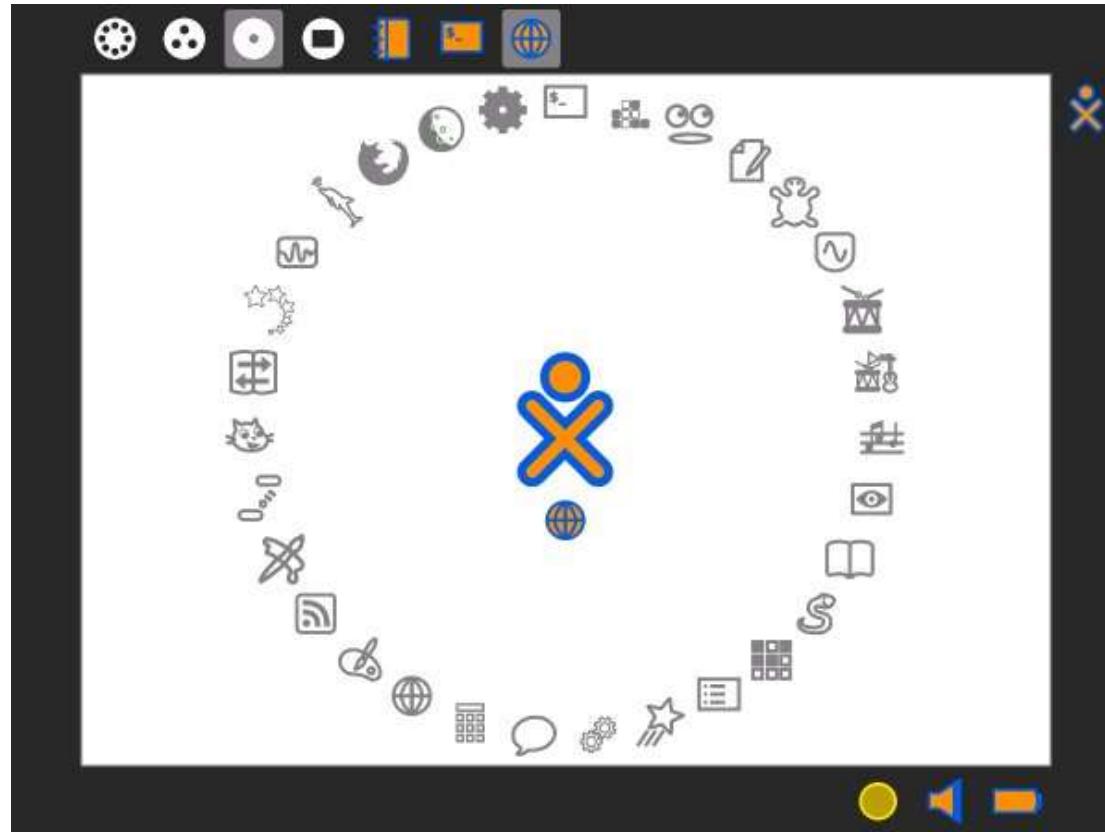
## -Trinity (KDE 3)



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# Linux Graphical Desktop Environments

## -Sugar



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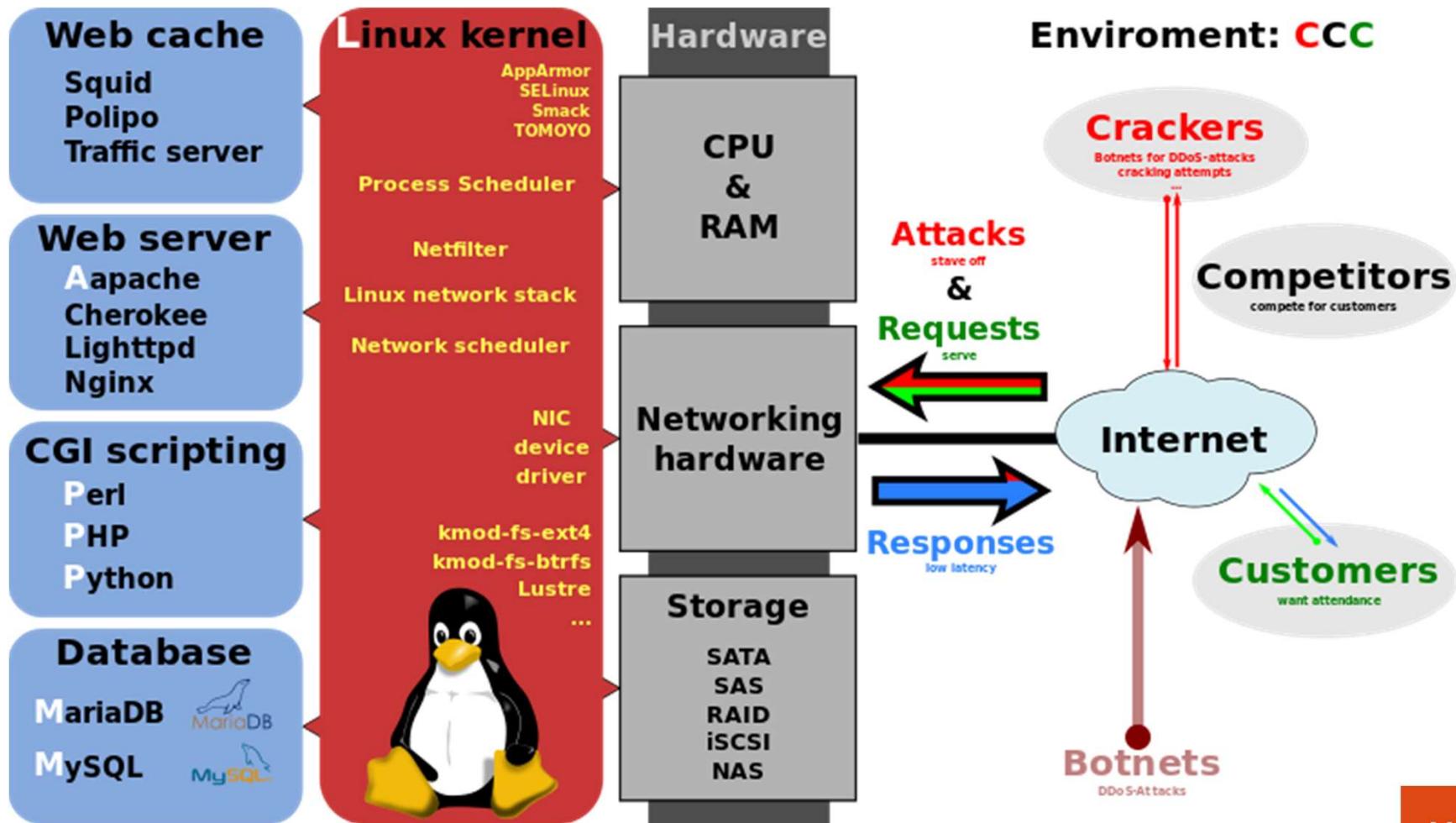
# Linux Graphical Desktop Environments

## -Pantheon



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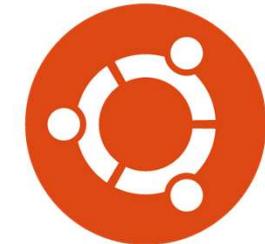
# Linux Server Environment - LAMP



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# What is Ubuntu ?

- Ubuntu, pronounced oo'boontoō, is actually three different things:
  - A philosophy
  - A worldwide collaborative software project, and
  - A computer operating system



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# Ubuntu Philosophy

- Is a traditional African concept originating from the *Julu* languages of southern Africa.
- Roughly translates to *humanity to others*.

*Ubuntu is an ancient African word meaning 'humanity to others'. It also means 'I am what I am because of who we all are'.*

## Proprietary Software vs Free / Libre Open-Source Software

- Examples of proprietary operating systems include Microsoft Windows and Mac OS X.
- Ubuntu, on the other hand, is **NOT** proprietary software because it is actively maintained by the *FLOSS* community.
  - ***FREE*** to use
  - ***FREE*** to share, and
  - ***FREE*** to develop

# Ubuntu...

- Is a Debian-based Linux operating system.
- Has *gnome* as its default desktop environment
- Is based on free software.
- Development is led by Canonical Ltd.
- UTF-8 is a default character encoding.
- First release was on October 2004.
- Releases every six month.
- Every fourth release is a so-called LTS(Long Term Support).

## Ubuntu... (Cont.)

- Each Ubuntu release has a version number that consists of the year and month number of the release.
  - i.e. 22.04, 22.10
- Each release has an alliterative code name using an adjective and an animal.
- Code names are in consecutive alphabetic order.
  - i.e. Ubuntu 23.10 (Mantic Minotaur)

# Ubuntu... (Cont.)

Currently supported releases				
Version ↗	Code name ↗	Release date ↗	General support until ↗	Security support (ESM) until ↗
14.04 LTS	Trusty Tahr	2014-04-17 <sup>[96]</sup>	2019-04-25 <sup>[96]</sup>	2024-04
16.04 LTS	Xenial Xerus <sup>[97]</sup>	2016-04-21 <sup>[98]</sup>	2021-04-30 <sup>[99]</sup>	2026-04
18.04 LTS	Bionic Beaver	2018-04-26 <sup>[100]</sup>	2023-05-31 <sup>[101]</sup>	2028-04
20.04 LTS	Focal Fossa	2020-04-23 <sup>[102]</sup>	2025-05-29 <sup>[103]</sup>	2030-04
22.04 LTS	Jammy Jellyfish <sup>[104]</sup>	2022-04-21 <sup>[105]</sup>	2027-06-01	2032-04
23.04	Lunar Lobster	2023-04-20	2024-01-25	unavailable
23.10	Mantic Minotaur	2023-10-12	2024-07-11	unavailable
24.04 LTS	Noble Numbat	2024-04-25 <sup>[106]</sup>	2029-05-31	2034-04-25
Legend: <span style="background-color: #ff9999; border: 1px solid black; padding: 2px;"></span> Old version <span style="background-color: #ffffcc; border: 1px solid black; padding: 2px;"></span> Older version, still maintained <span style="background-color: #99ff99; border: 1px solid black; padding: 2px;"></span> Latest version <span style="background-color: #ccffff; border: 1px solid black; padding: 2px;"></span> Future release				

# Official Documentation

The screenshot shows a web browser displaying the official Ubuntu documentation at [help.ubuntu.com](https://help.ubuntu.com). The page has a red header bar with the text "ubuntu documentation". The main content area features a table showing documentation availability for different Ubuntu releases. Below the table, a section titled "Notes" contains a bulleted list of important information. A sidebar on the left lists "Cloud Tools" such as MAAS, Juju, and Cloud-init. The bottom right corner of the page features a large red "ubuntu" logo.

Ubuntu Documentation

Community Help Wiki | Contribute

ubuntu documentation

Search

## Official Ubuntu Documentation

Documentation developed and maintained by the Ubuntu Documentation Project.

Release	Desktop	Server	Installation Guide
Ubuntu 21.04 (Hirsute Hippo)	<a href="#">HTML</a>	<i>unpublished</i>	<i>unpublished</i>
Ubuntu 20.04 LTS (Focal Fossa)	<a href="#">HTML</a>	<a href="#">HTML and PDF</a>	<a href="#">per architecture</a>
Ubuntu 18.04 LTS (Bionic Beaver)	<a href="#">HTML</a>	<a href="#">HTML and PDF</a>	<a href="#">per architecture</a>

**Notes:**

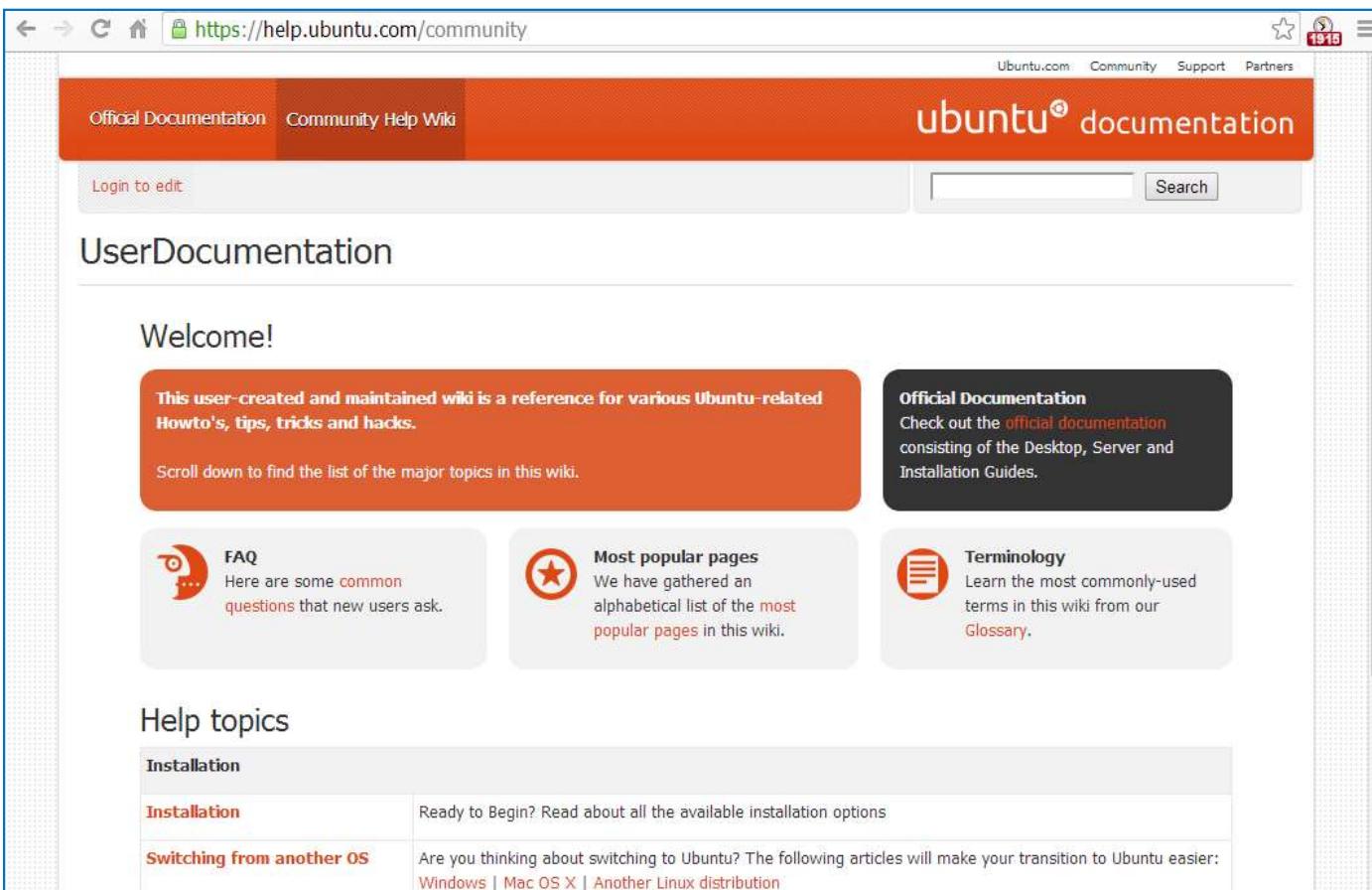
- As of the Ubuntu LTS release in 2020, the server documentation has moved to [a different site](#), and will automatically update when changes are made to the [discourse source code pages](#).
- The Desktop links above are available in many different languages. They will be displayed in the preferred language specified by your browser. If the preferred language is not available they will be displayed in English. The Serverguide and the Installation Guide are available solely in English.
- Unsupported releases are not shown here. See [instructions for upgrading to a supported version](#).
- The Server Guide and the Installation Guide are published only for Long Term Support (LTS) releases.
- Useful information: [LTS details](#) and [release & end-of-life dates](#) (for all versions).

## Cloud Tools

- [MAAS](#)
- [Juju](#)
- [Cloud-init](#)

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# Community Documentation



The screenshot shows the Ubuntu Community Documentation website at <https://help.ubuntu.com/community>. The page has a red header with the title "ubuntu® documentation". It features a navigation bar with links to "Official Documentation" and "Community Help Wiki". A search bar is also present. The main content area is titled "UserDocumentation" and includes a "Welcome!" message. A sidebar on the right provides links to "Official Documentation", "FAQ", "Most popular pages", and "Terminology". Below this, there's a section for "Help topics" with a table for "Installation" and "Switching from another OS".

This user-created and maintained wiki is a reference for various Ubuntu-related Howto's, tips, tricks and hacks.

Scroll down to find the list of the major topics in this wiki.

**Official Documentation**  
Check out the [official documentation](#) consisting of the Desktop, Server and Installation Guides.

**FAQ**  
Here are some [common questions](#) that new users ask.

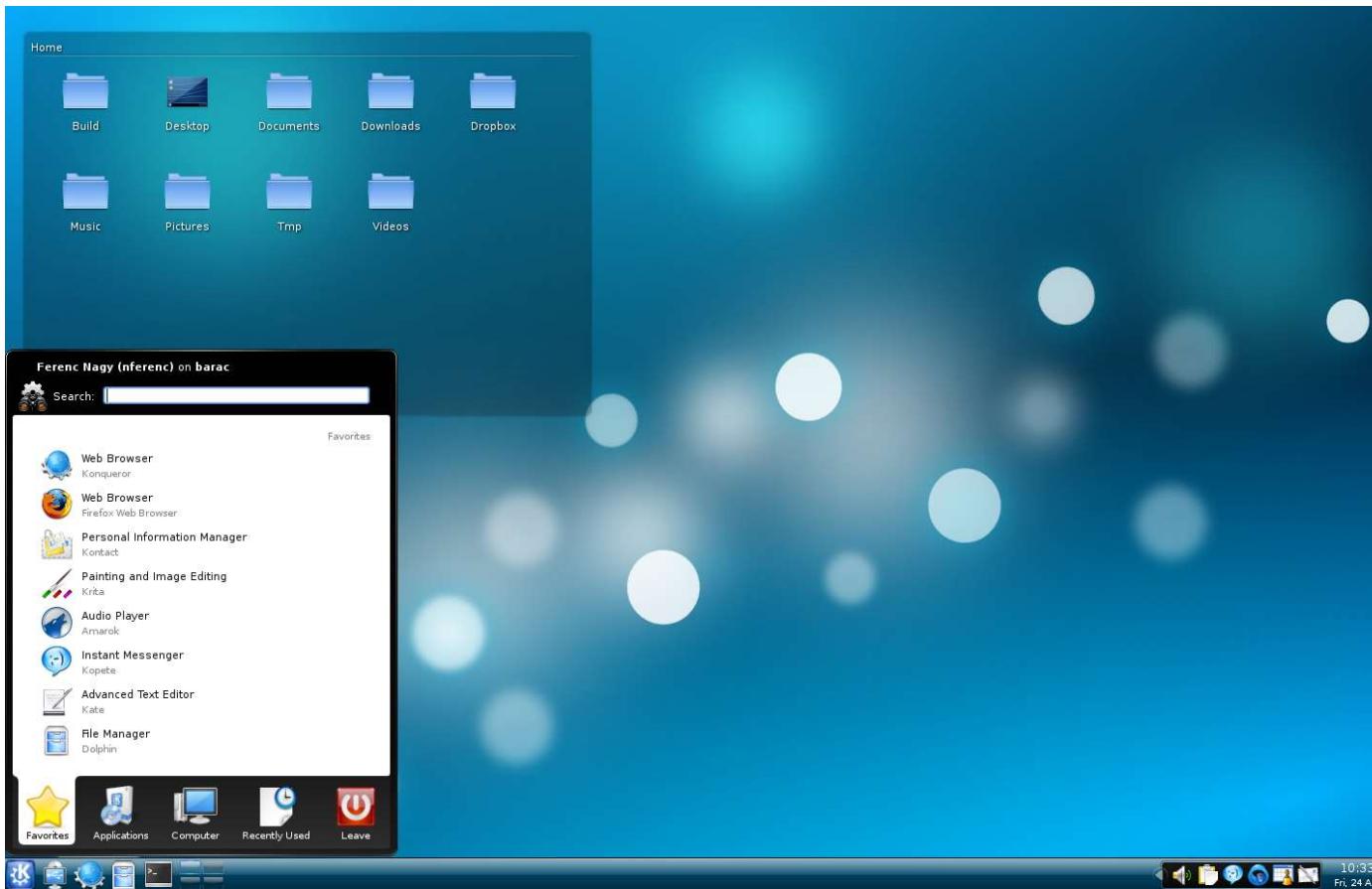
**Most popular pages**  
We have gathered an alphabetical list of the [most popular pages](#) in this wiki.

**Terminology**  
Learn the most commonly-used terms in this wiki from our [Glossary](#).

Installation	
<a href="#">Installation</a>	Ready to Begin? Read about all the available installation options
<a href="#">Switching from another OS</a>	Are you thinking about switching to Ubuntu? The following articles will make your transition to Ubuntu easier: <a href="#">Windows</a>   <a href="#">Mac OS X</a>   <a href="#">Another Linux distribution</a>

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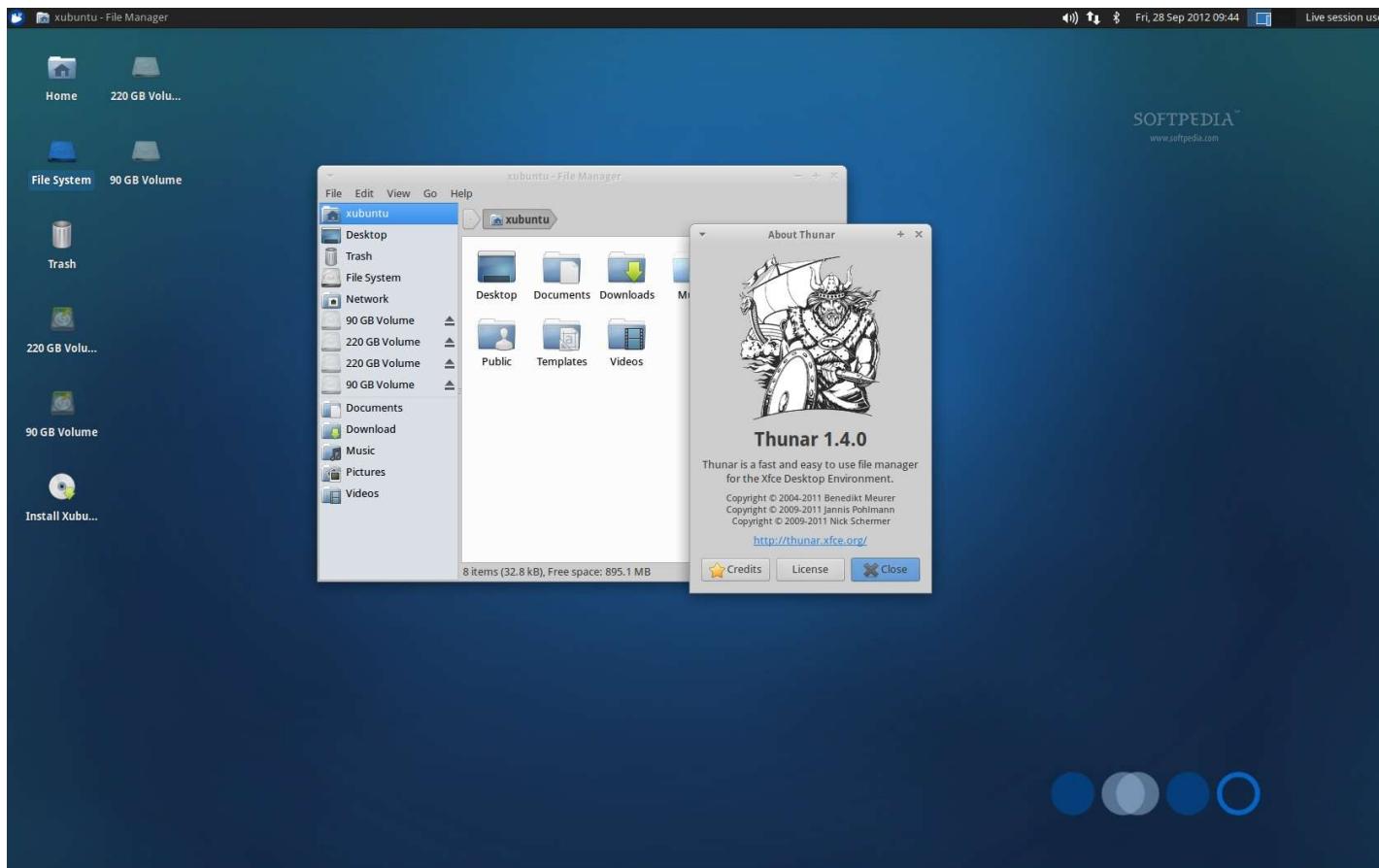
# Ubuntu Brothers - Kubuntu



Downloads from : <http://www.kubuntu.org/getkubuntu>

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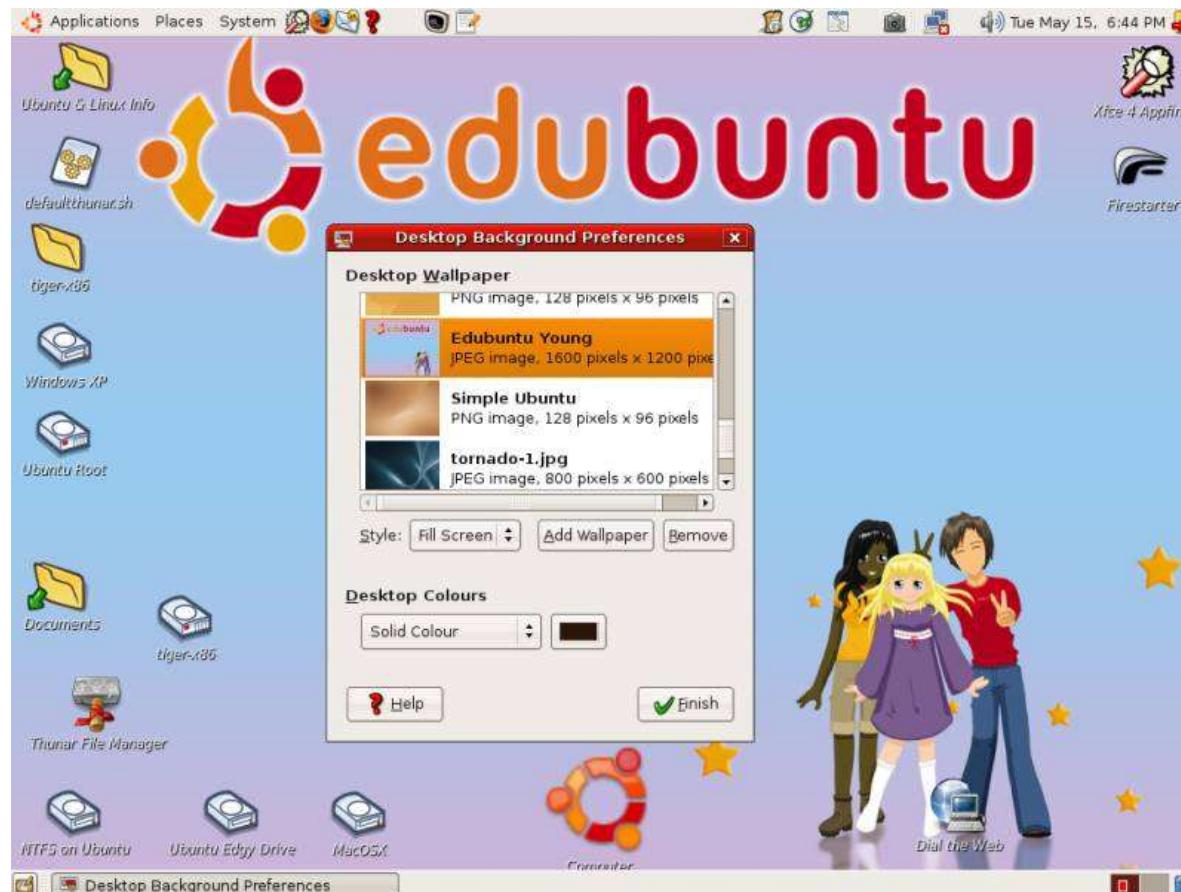
# Ubuntu Brothers - Xubuntu



Downloads from : <http://xubuntu.org/getxubuntu/>

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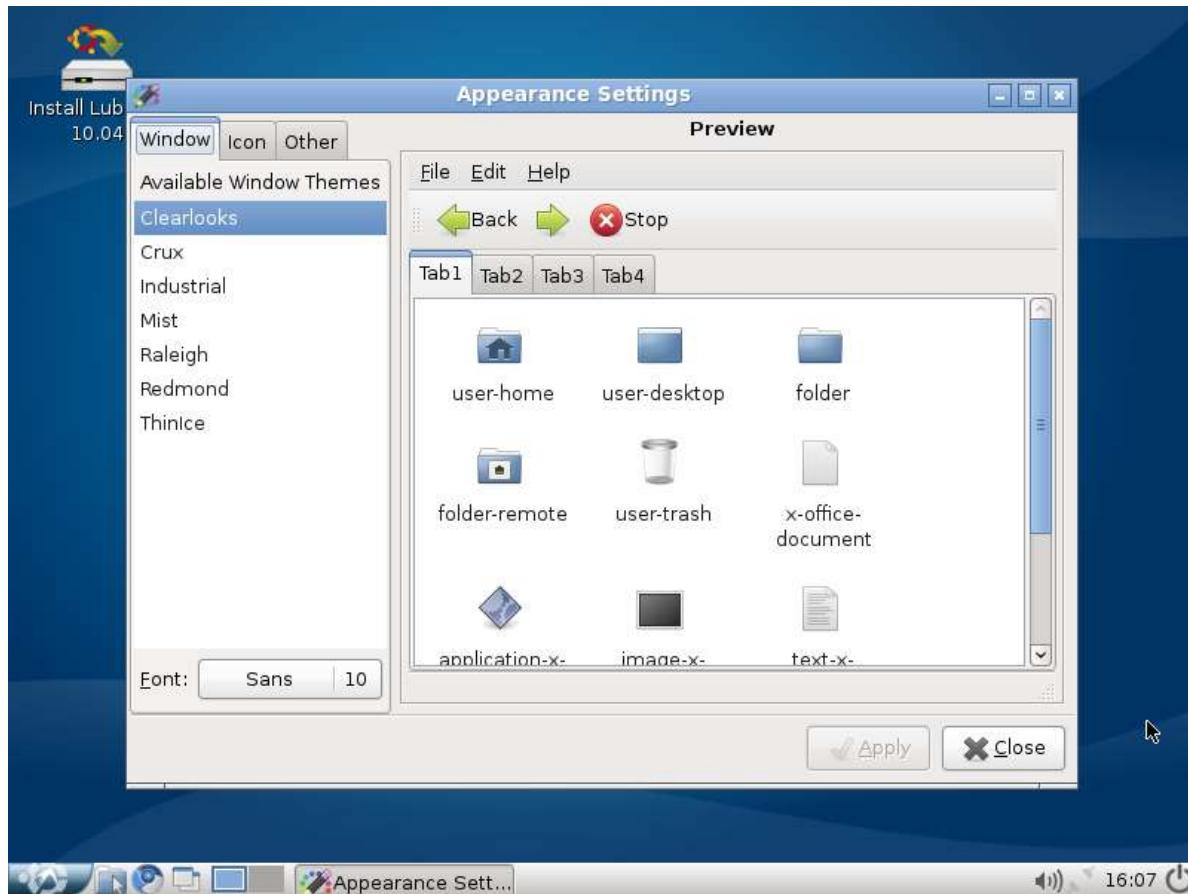
# Ubuntu Brothers – Edubuntu



Downloads from : <http://www.edubuntu.org/download>

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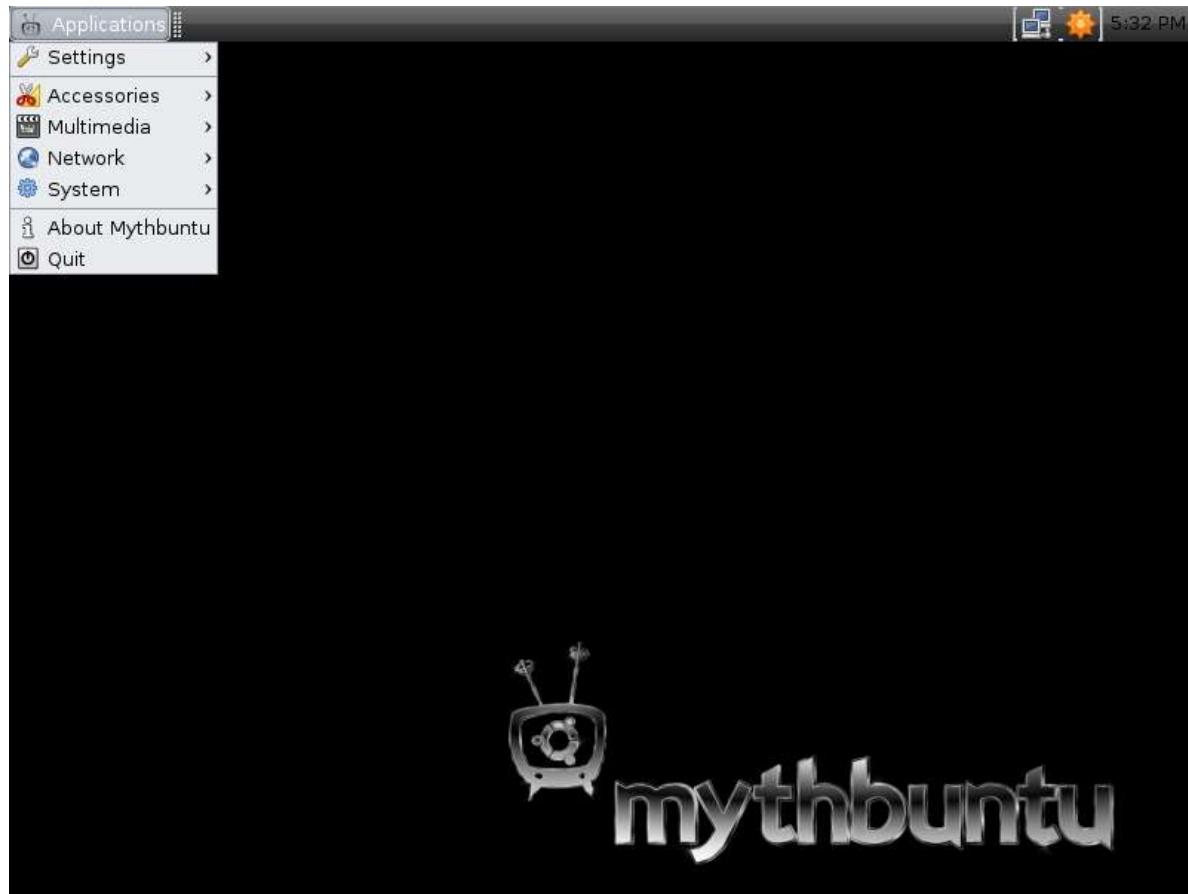
# Ubuntu Brothers – Lubuntu



Downloads from : <https://help.ubuntu.com/community/Lubuntu/GetLubuntu>

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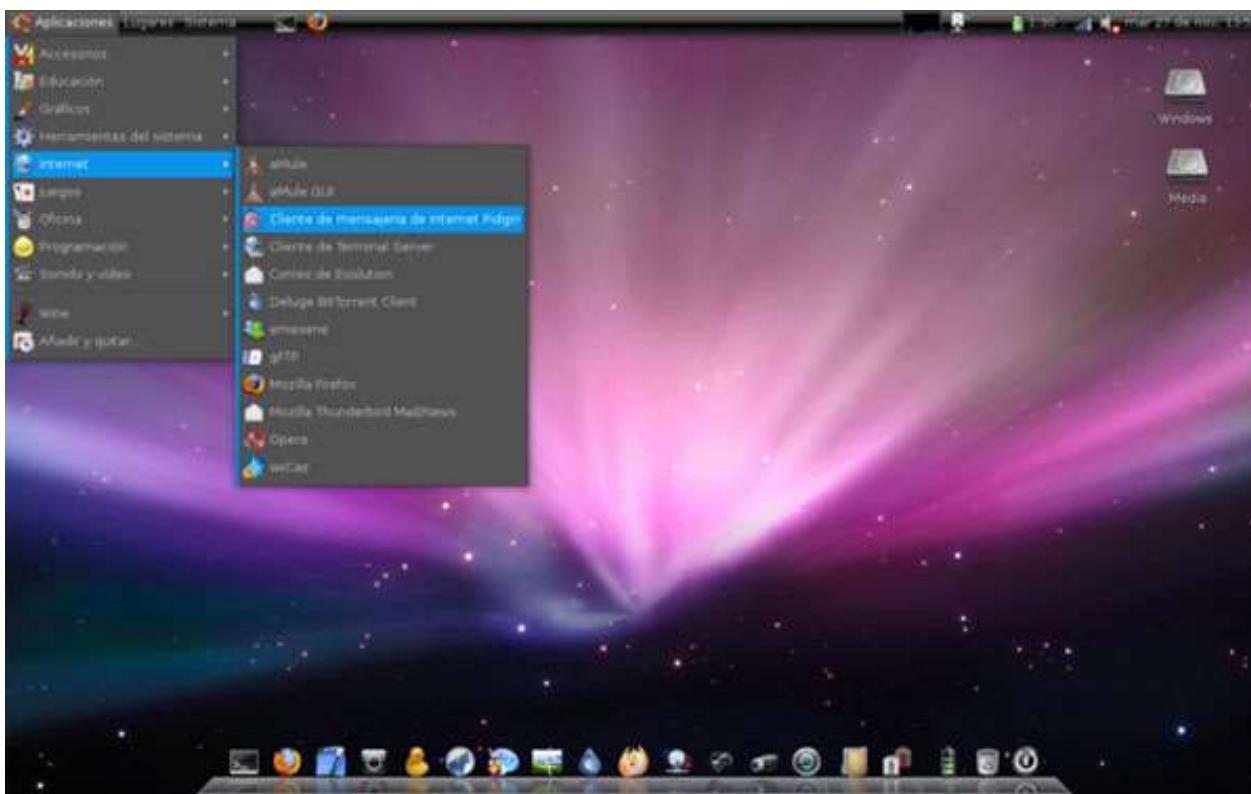
# Ubuntu Brothers – Mythbuntu



Downloads from : <http://www.mythbuntu.org/downloads>

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# Ubuntu Brothers – UbuntuStudio



Downloads from : <https://ubuntustudio.org/download/>

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# Ubuntu Brothers - Mint



Downloads from : <https://www.linuxmint.com/download.php>

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# Ubuntu Brothers – Ubuntu Touch



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# The others – Google Chrome OS



<https://www.chromium.org/chromium-os>

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## The others – Steam OS



<http://store.steampowered.com/steamos/?l=english>

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# The others

ubuntu® releases

## These releases of Ubuntu are available

Standard support	Interim Releases	Extended Security Maintenance (ESM)
LTS Releases		
<a href="#">Ubuntu 22.04.3 LTS (Jammy Jellyfish) ›</a>	<a href="#">Ubuntu 23.10 (Mantic Minotaur) ›</a>	<a href="#">Ubuntu 18.04.6 LTS (Bionic Beaver) ›</a>
<a href="#">Ubuntu 20.04.6 LTS (Focal Fossa) ›</a>	<a href="#">Ubuntu 23.04 (Lunar Lobster) ›</a>	<a href="#">Ubuntu 16.04.7 LTS (Xenial Xerus) ›</a>
		<a href="#">Ubuntu 14.04.6 LTS (Trusty Tahr) ›</a>

There are 2 types of Ubuntu releases: Interim and LTS. Each Ubuntu LTS is maintained for 10 years total: 5 years of standard support + 5 years of ESM. Interim releases are maintained for 9 months.

For the Ubuntu release cycle please see: [The Ubuntu lifecycle and release cadence](#).

We are happy to provide hosting for the following projects via the [cdimage server](#). While they are not commercially supported by Canonical, they receive full support from their communities.

[Kubuntu](#) · [Lubuntu](#) · [Mythbuntu](#) · [Ubuntu Budgie](#) · [Ubuntu GNOME](#) · [UbuntuKylin](#) · [Ubuntu MATE](#) · [UbuntuStudio](#) · [Xubuntu](#) · [UbuntuCinnamon](#) · [Ubuntu Unity](#) ·

<http://releases.ubuntu.com/>



# Linux 사용 설명서 : man

- Linux 설명서 페이지 또는 man 페이지에는 Linux 명령 설명서가 포함되어 있다.
- man 페이지에는 특정 명령과 관련된 목적, 구문, 옵션을 간략하게 소개한다.
- Linux 구문  
\$ **man <CommandName>**

```
MAN(1)                               Manual pager utils                               MAN(1)

NAME
       man - an interface to the on-line reference manuals

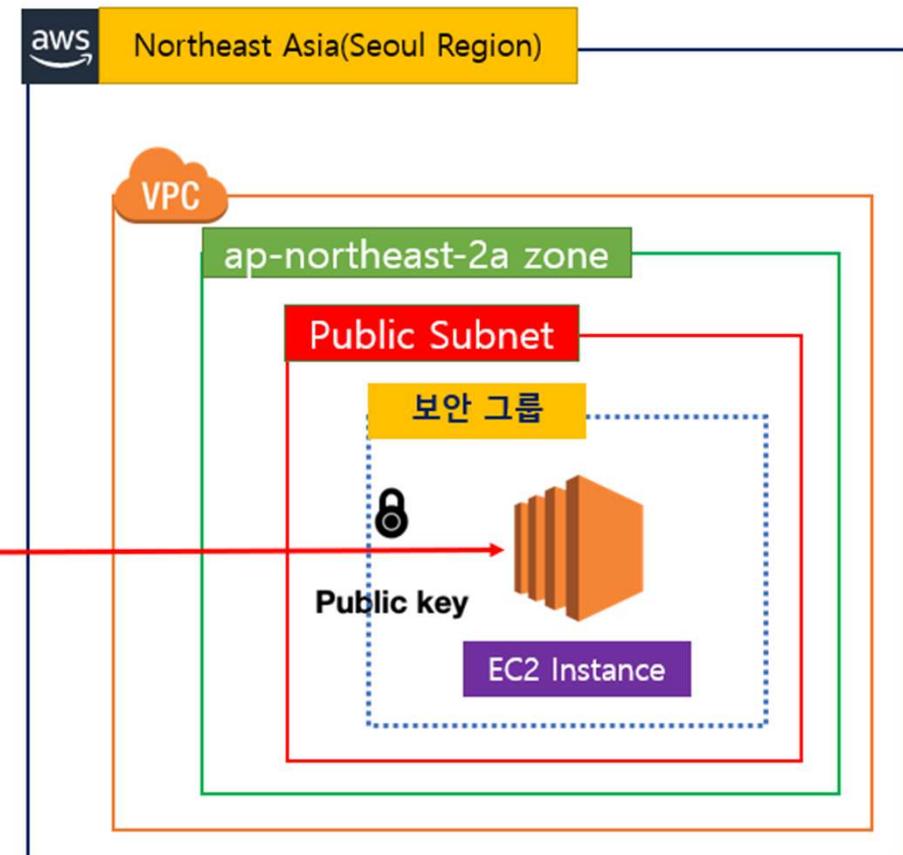
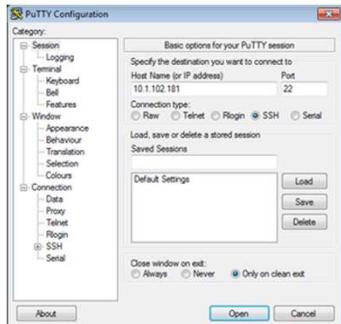
SYNOPSIS
       man [-C file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L locale] [-m
       system[,...]] [-M path] [-S list] [-e extension] [-i|-I] [--regex|--wildcard]
       [--names-only] [-a] [-u] [--no-subpages] [-P pager] [-r prompt] [-7] [-E encod-
       ing] [--no-hyphenation] [--no-justification] [-p string] [-t] [-T[device]]
       [-H[browser]] [-X[dpi]] [-Z] [[section] page ...] ...
       man -k [apropos options] regexp ...
       man -K [-w|-W] [-S list] [-i|-I] [--regex] [section] term ...
       man -f [whatis options] page ...
       man -l [-C file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L locale]
       [-P pager] [-r prompt] [-7] [-E encoding] [-p string] [-t] [-T[device]]
       [-H[browser]] [-X[dpi]] [-Z] file ...
       man -w|-W [-C file] [-d] [-D] page ...
       man -c [-C file] [-d] [-D] page ...
       man [-?V]

DESCRIPTION
       man is the system's manual pager. Each page argument given to man is normally
       the name of a program, utility or function. The manual page associated with
       each of these arguments is then found and displayed. A section, if provided,
       will direct man to look only in that section of the manual. The default action
       is to search in all of the available sections following a pre-defined order ("1
       n 1 8 3 0 2 5 4 9 6 7" by default, unless overridden by the SECTION directive
       in /etc/man_db.conf), and to show only the first page found, even if page
       exists in several sections.

       The table below shows the section numbers of the manual followed by the types
       of pages they contain.

       1 Executable programs or shell commands
       Manual page man(1) line 1 (press h for help or q to quit)
```

# Lab Environment



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# Resources

- <https://www.linux.com>
- <https://www.linuxfoundation.org/>
- <https://help.ubuntu.com>
- <https://ubuntuforums.org>
- <https://askubuntu.com>
- <https://www.ubuntu-manual.org>