

WELCOME TO

Linux

INTRODUCTION TO

LINUX



Freedom. Choices. Beautiful.

WHAT IS LINUX ?

- Linux is, in simplest terms, an operating system. It is the software on a computer that enables applications and the computer operator to access the devices on the computer to perform desired functions. The operating system (OS) relays instructions from an application to, for instance, the computer's processor. The processor performs the instructed task, then sends the results back to the application via the operating system.

WHERE IS LINUX?

- One of the most noted properties of Linux is where it can be used. Windows and OS X are predominantly found on personal computing devices such as desktop and laptop computers. Other operating systems, such as Symbian, are found on small devices such as phones and PDAs, while mainframes and supercomputers found in major academic and corporate labs use specialized operating systems such as AS/400 and the Cray OS.

- Linux, which began its existence as a server OS and Has become useful as a desktop OS, It can also be used on all of these devices. “From wristwatches to supercomputers,” is the popular description of Linux' capabilities.

HISTORY OF LINUX

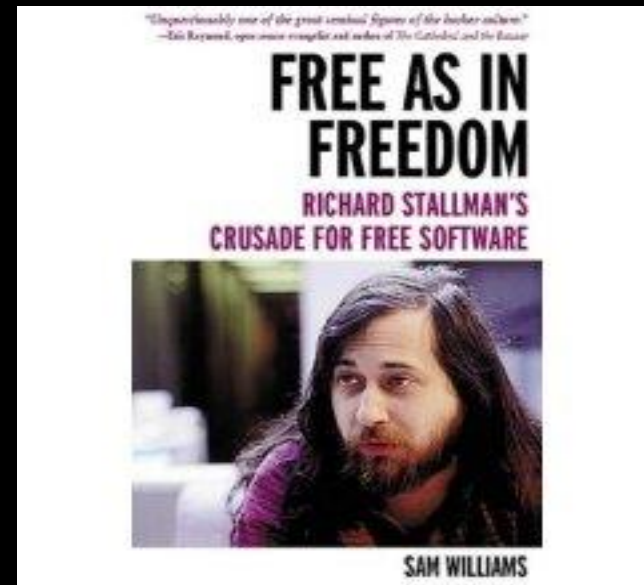
- The History of Linux began in 1991 with the commencement of a personal project by a Finnish student, Linus Torvalds, to create a new free operating system kernel.
- Since then, the resulting Linux kernel has been marked by constant growth throughout its history. Since the initial release of its source code in 1991, it has grown from a small number of C files under a license prohibiting commercial distribution to the 3.10 version in 2013 with more than 16 million lines of source code under the GNU General Public License.

BEFORE LINUX

- In 80's, Microsoft's DOS was the dominated OS for PC
- Apple MAC was better, but expensive
- UNIX was much better, but much, much more expensive. Only for minicomputer for commercial applications
- People was looking for a UNIX based system, which is cheaper and can run on PC
- Both DOS, MAC and UNIX were proprietary, i.e., the source code of their kernel is protected
- No modification is possible without paying high license fees

THE GNU PROJECT

- GNU STANDS FOR(GNU's NOT UNIX)
- Established in 1984 by **Richard Stallman**, who believes that software should be free from restrictions against copying or modification in order to make better and efficient computer programs.



BEGINNING OF LINUX

- A famous professor Andrew Tanenbaum developed Minix, a simplified version of UNIX that runs on PC
- Minix is for class teaching only. No intention for commercial use



FOUNDER OF LINUX

- In sept1991, while attending the University of Helsinki , Torvalds became curious about operating systems and frustrated by the licensing of MINIX, which limited it to educational use only. He began to work on his own operating system which eventually became the Linux kernel.



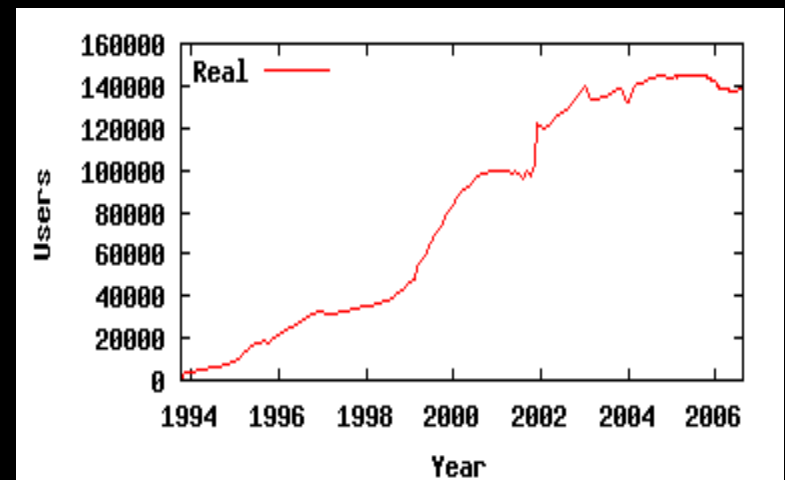
MR: LINUS TORVALDS

LINUX TODAY

- Linux has been used for many computing platforms
 - PC, PDA, Supercomputer,...
- Not only character user interface but graphical user interface is available
- Commercial vendors moved in Linux itself to provide freely distributed code. They make their money by compiling up various software and gathering them in a distributable format
 - Red Hat, Slackware, etc

GROWING AND GROWING...

- In order to encourage wide dissemination of his OS, Linus made the source code open to public. At the end of 1992 there were about a hundred Linux developers. Next year there were 1000. And the numbers multiplied every year.



- Recent estimates say about 29 million people use Linux worldwide. The effects of the dot-com bust, IT slowdown and global economic recession can be clearly seen.

138712

users

registered

155679

machines

registered



LINUX – A FREE SOFTWARE

- Free software, as defined by the FSF (Free Software Foundation), is a "matter of liberty, not price." To qualify as free software by FSF standards, you must be able to:
 - Run the program for any purpose you want to, rather than be restricted in what you can use it for.
 - View the program's source code.

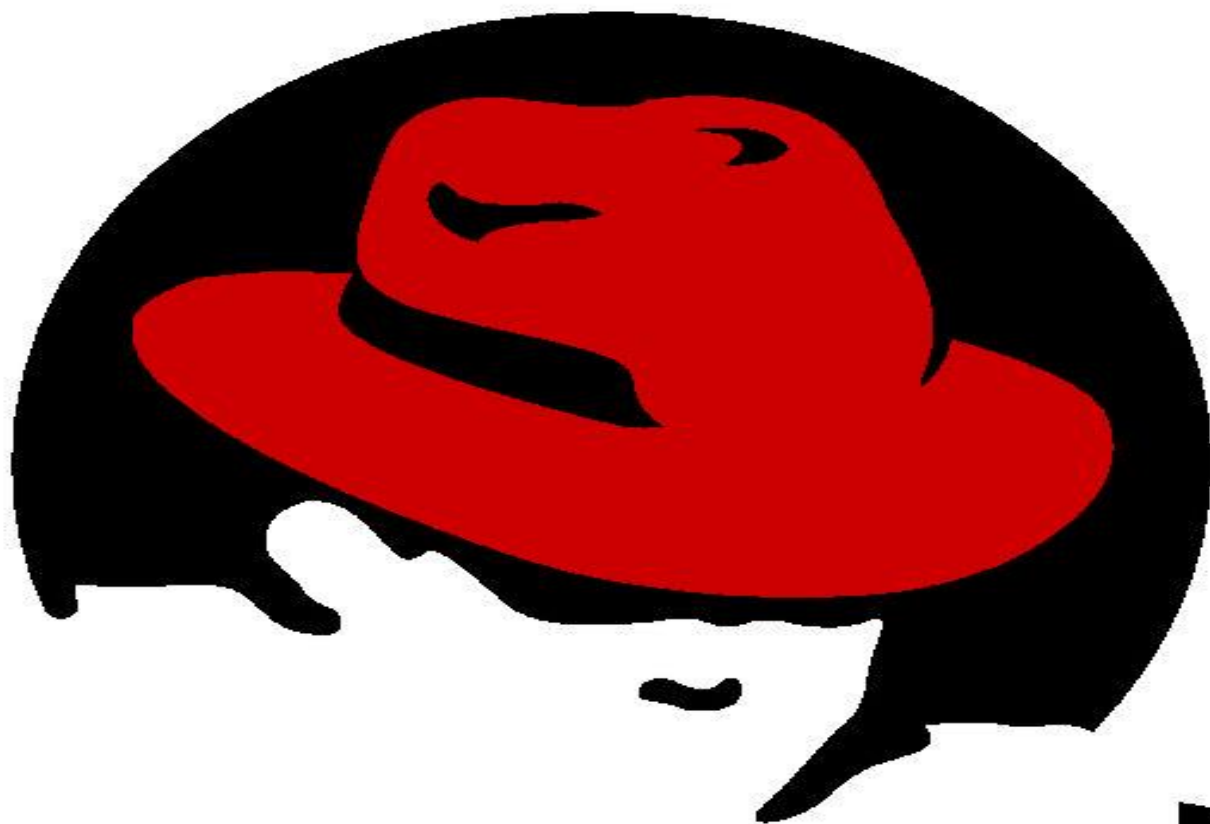
- Study the program's source code and modify it if you need to.
- Share the program with others.
- Improve the program and release those improvements so that others can use them.

TYPES OF SOFTWARE



RED HAT LINUX

- One of the original Linux distribution.
- The commercial, nonfree version is Red Hat Enterprise Linux, which is aimed at big companies using Linux servers and desktops in a big way.
- Free version: Fedora Project.



redhat
LINUX

DEBIAN GNU/LINUX

- A free software distribution. Popular for use on servers. However, Debian is not what many would consider a distribution for beginners, as it's not designed with ease of use in mind.



debian

GNU / LINUX

SUSE LINUX

- SuSE was recently purchased by Novell. This distribution is primarily available for pay because it contains many commercial programs, although there's a stripped-down free version that you can download.



openSUSE™

MANDRAKE LINUX

- Mandrake is perhaps strongest on the desktop. Originally based off of Red Hat Linux.



GENTOO LINUX

- Gentoo is a specialty distribution meant for programmers.



COMPARISON BETWEEN LINUX,MAC(MACINTOSH),WINDOWS



Linux

V/S

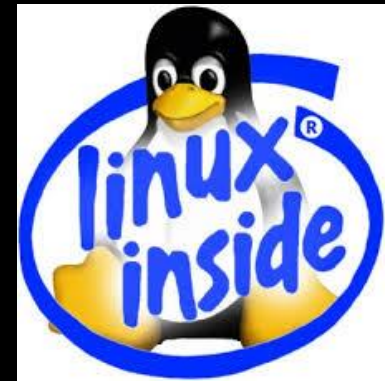


V/S



LINUX

- Linux users have the benefit of having low resource requirements as well. Linux can be installed on a PC just having the bare minimum resources. In fact, Linux is so versatile that almost any type of computer and console can probably support it, except Macintosh computers, which come preloaded with Mac OS X.



MACINTOSH (MAC)

- Macintosh computers come preloaded with the Mac OS X, and this OS can only be installed on the Mac. These computers are considerably more expensive than other PCs. Even an entry level Mac can cost almost twice the amount required to assemble a Windows PC.



WINDOWS

- The Windows operating system is pretty versatile, and can be installed on PCs having variable amounts of resources. There are versions of Windows that can be installed on PCs having as little resource as 233 MHz processor and 64 MB RAM.



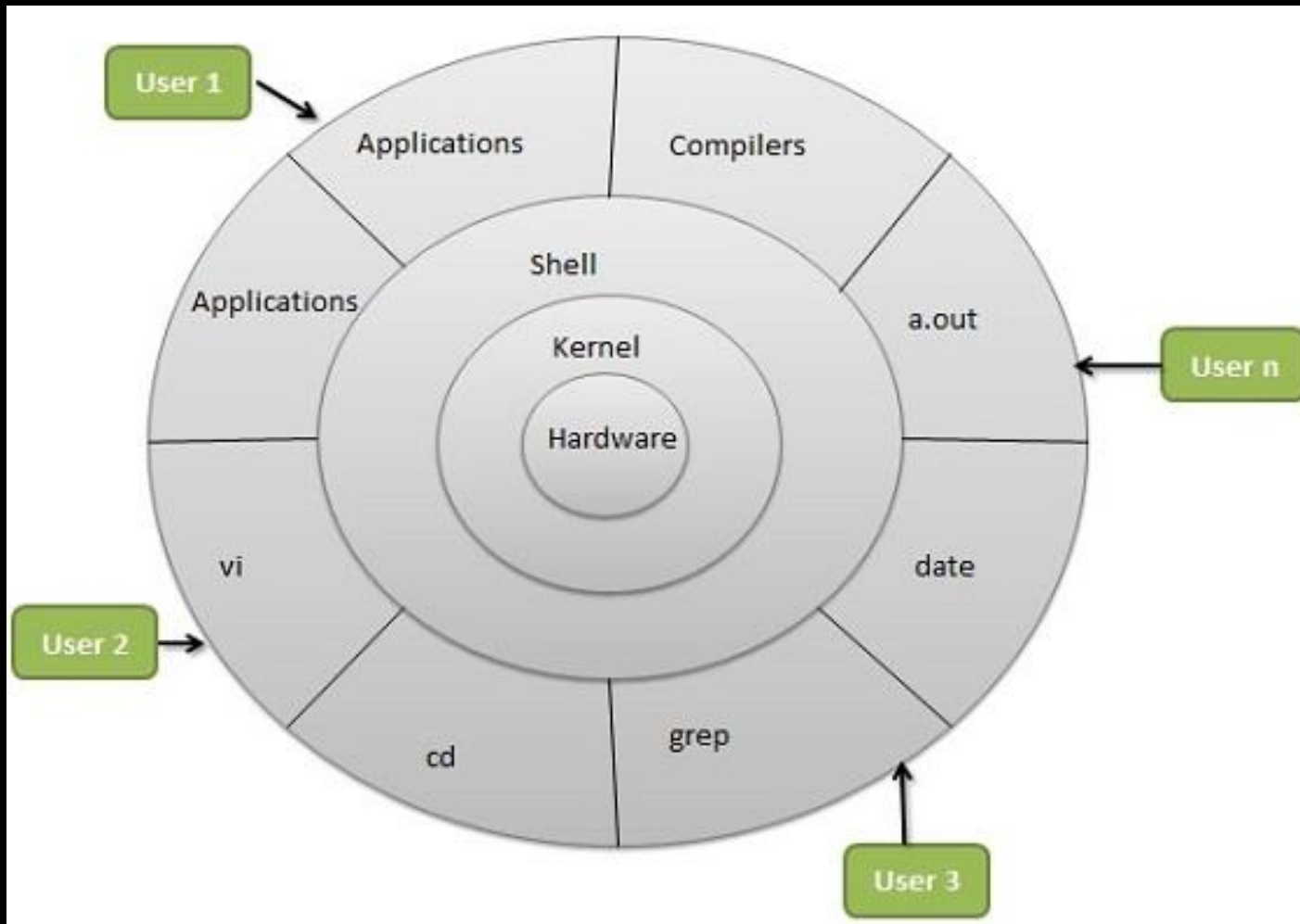
ADVANTAGE OF LINUX

- You don't need to spend time and money to obtain licenses since Linux and much of its software come with the GNU General Public License.
- Linux doesn't need to be rebooted periodically to maintain performance levels.
- Linux provides persistent high performance on workstations and on networks.

- Linux was developed by a group of programmers over the Internet and has therefore strong support for network functionality; client and server systems can be easily set up on any computer running Linux.
- Linux can be used for high performance server applications, desktop applications, and embedded systems.
- It runs all common Unix software packages and can process all common file formats.
- The large number of Linux distributions gives you a choice. Each distribution is developed and supported by a different organization.

- Most Linux distributions come with user-friendly installation and setup programs.
- Linux continues work well even when the hard disk is almost full.
- Linux is designed to do many things at the same time.
- Linux is one of the most secure operating systems. “Walls” and flexible file access permission systems prevent access by unwanted visitors or viruses.

LINUX SYSTEM ARCHITECTURE



➤ Linux System Architecture is consists of following layers:

➤ **Hardware layer** - Hardware consists of all peripheral devices (RAM/ HDD/ CPU etc).

➤ **Kernel** - Core component of Operating System, interacts directly with hardware, provides low level services to upper layer components.

➤ **Shell** - An interface to kernel, hiding complexity of kernel's functions from users.

➤ **Utilities** - Utility programs giving user most of the functionalities of an operating systems.

INTERFACE





User root on slax

Search:

Favorites

- Web Browser
- File Manager
Dolphin
- Advanced Text Editor
- Internet Messenger
- Patience Card Game
- Media Player
- Screen Capture Program

Favorites Applications Computer Recently Used Leave



FALSE MYTHS ABOUT LINUX:

FALSE ASSUMPTIONS ABOUT LINUX:

- **Myth 1:** Linux is too difficult for ordinary people to use because it uses only text and requires programming.
- **Myth 2:** Linux is less secure than Microsoft Windows because the source code is available to anybody

➤ **Myth 3:** It is not worth bothering to learn Linux because most companies use Microsoft Windows and thus a knowledge of Windows is desired for most jobs.

➤ **Myth 4:** Linux cannot have much of a future because it is free and thus there is no way for businesses to make money from it.

➤ **Myth 5:** Linux and other free software is a type of *software piracy* because much of it was copied from other operating systems.

POPULAR COMMANDS IN LINUX

- # 1: cd
- #2: man
- #3: ls
- #4: cp
- #5 mv
- #6 mkdir
- #7 rmdir
- #8 touch
- #9 rm
- #10 tar

```
root@tecmint:~ http://www.tecmint.com
Current Sort Field: K for window 1:Def
Select sort field via field letter, type any other key to return

a: PID          = Process Id          y: WCHAN       = Sleeping in Function
b: PPID         = Parent Process Pid   z: Flags       = Task Flags <sched.h>
c: RUSER        = Real user name
d: UID          = User Id
e: USER         = User Name
f: GROUP        = Group Name
g: TTY          = Controlling Tty
h: PR           = Priority
i: NI           = Nice value
j: P            = Last used cpu (SMP)
* K: %CPU       = CPU usage
l: TIME        = CPU Time
m: TIME+       = CPU Time, hundredths
n: %MEM        = Memory usage (RES)
o: VIRT        = Virtual Image (kb)
p: SWAP        = Swapped size (kb)
q: RES         = Resident size (kb)
r: CODE        = Code size (kb)
s: DATA       = Data+Stack size (kb)
t: SHR         = Shared Mem size (kb)
u: nFLT        = Page Fault count
v: nDRT        = Dirty Pages count
w: S           = Process Status
x: COMMAND     = Command name/line

Note1:
If a selected sort field can't be shown due to screen width or your field order, the '<' and '>' keys will be unavailable until a field within viewable range is chosen.

Note2:
Field sorting uses internal values, not those in column display. Thus, the TTY & WCHAN fields will violate strict ASCII collating sequence. (shame on you if WCHAN is chosen)
```

INTRRESTING FACTS ABOUT LINUX

- 1. Linux is not an OS, but it is the kernel, GNU Linux is the OS and it comes in several hundred flavours.
- 2. Linux Kernel was written by a 21 year finnish college student as a part of his hobby. Yup! His name is Linus Torvalds.
- 3. Torvalds created Linux based on GNU General Public License (GPL). Perhaps Torvalds would have never written his own kernel if GPL would be having it's own kernel and driver.
- 4. Major part of today's Linux kernel is written in C programming language and assembly language and only 2% of today's kernel contains code written by Torvalds.

➤. The **Linux** kernel's official mascot is a **penguin** named **Tux**, abbreviation of **tuxedo**. The idea that **Linux** had a pet **penguin** comes from **Linus Torvalds** himself.

Linux

APPLICATIONS SUPPORTED BY LINUX

- FOR EDITING DOCUMENTS: (OFFICE SOFTWARE)
 - word processor,
 - spreadsheet,
 - presentation and
 - database application

File Edit View Insert Format Tools Data Window Help


 A7 $\Sigma =$

| | A | B | C | D | E | F | G | H | I | J | K |
|----|---------|------------|--------|---------|---|---|---|---|---|---|---|
| 1 | Fruit | Cost/Pound | Pounds | Total | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | Apples | \$1.20 | \$300 | \$3.60 | | | | | | | |
| 4 | Oranges | \$0.80 | \$1200 | \$9.60 | | | | | | | |
| 5 | Bananas | \$1.50 | \$450 | \$6.75 | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | \$22.20 | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
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Sheet1/Sheet2/Sheet3

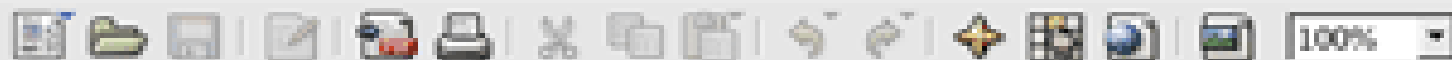
Sheet1/3

Default

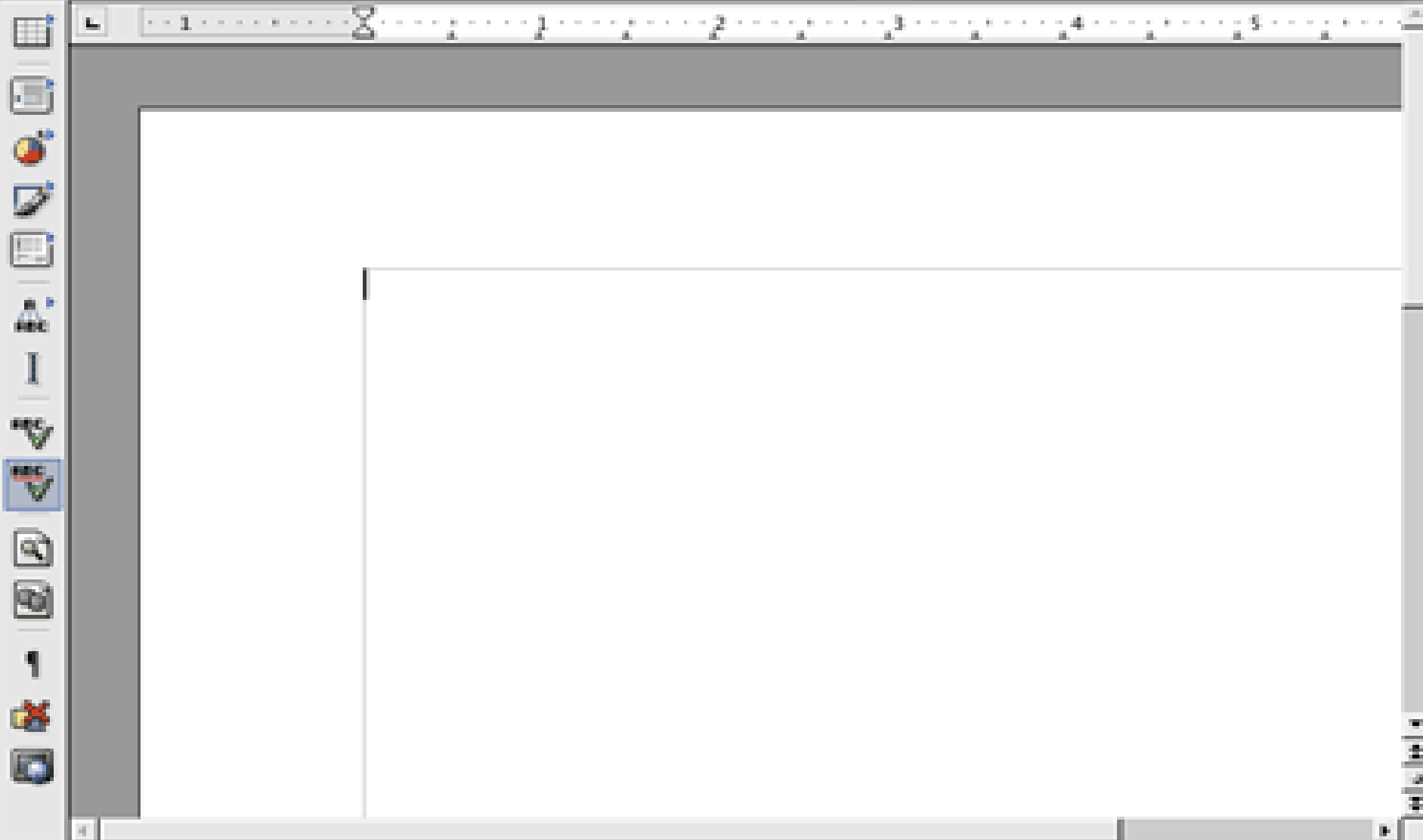
100%

STD

Sum=0



Default Nimbus Roman Nc 12 A A A





APPLICATION SUPPORTED BY LINUX

- FOR DRAWING oOo DRAW IS USED
- FOR SURFING FIREFOX IS USED
- FOR AUDIO THE XMMS (X MULTIMEDIA SYSTEM), WHICH IS USED TO PLAY DIGITAL SOUND FILES
- SOUND JUICER CD RIPPER: BURN YOUR OWN CDS

SUMMARY

- Linux and networking go hand in hand. The Linux kernel has support for all common and most uncommon network protocols. The standard UNIX networking tools are provided in each distribution. Next to those, most distributions offer tools for easy network installation and management.
- Linux is well known as a stable platform for running various Internet services, the amount of Internet software is endless. Like UNIX, Linux can be just as well used and administered from a remote location, using one of several solutions for remote execution of programs.
- We briefly touched the subject of security. Linux is an ideal firewall system, light and cheap, but can be used in several other network functions such as routers and proxy servers.
- Increasing network security is mainly done by applying frequent updates and common sense.



LINUX

Professional Operating System

THANK YOU

THE

END