

Laboratorio reti AA 2008/2009

Dott. Matteo Roffilli

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<http://www.cs.unibo.it/~roffilli/csr.html>

**Ricevimento solo in laboratorio
15 minuti prima e dopo la lezione**

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Per esercitarvi fate SSH su:

alfa.csr.unibo.it

si-tux00.csr.unibo.it

....

si-tux15.csr.unibo.it

Eventuali variazioni di orario/giorno verranno comunicate in anticipo via mail e sul sito web di CSR

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- **Marzo**
- 5 Intro,SSH,VI/VIM,GCC base
- **12 Richiami di C e Compilazione**

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Open Source Initiative (OSI) is a non-profit corporation dedicated to managing and promoting the Open Source Definition for the good of the community, specifically through the OSI Certified Open Source Software certification mark and program. You can read about successful software products that have these properties, and about our certification mark and program, which allow you to be confident that software really is "Open Source." We also make copies of approved open source licenses [here](#).



"Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech," not as in "free beer."

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

The freedom to run the program, for any purpose (freedom 0).

The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.

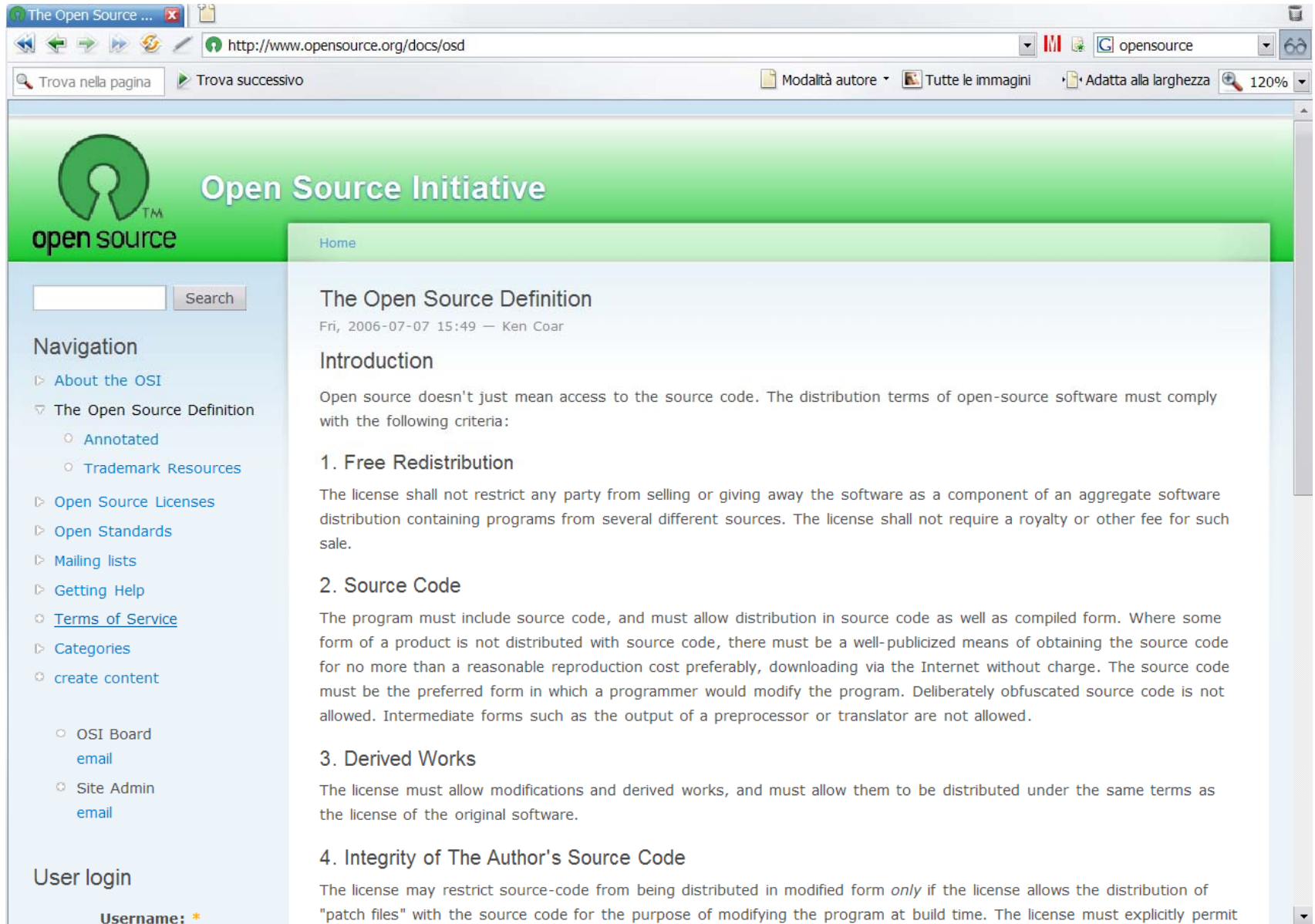
The freedom to redistribute copies so you can help your neighbor (freedom 2).

The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.



Linux is a clone of the operating system Unix, written from scratch by Linus Torvalds with assistance from a loosely-knit team of hackers across the Net. It aims towards POSIX and Single UNIX Specification compliance.

The Open Source Definition



The screenshot shows a web browser window with the address bar displaying <http://www.opensource.org/docs/osd>. The page features the Open Source Initiative logo and a green header. A left sidebar contains a search bar, a navigation menu with links like 'About the OSI', 'The Open Source Definition', and 'Open Source Licenses', and a 'User login' section. The main content area is titled 'The Open Source Definition' and includes an introduction and four numbered criteria: 1. Free Redistribution, 2. Source Code, 3. Derived Works, and 4. Integrity of The Author's Source Code.

The Open Source Initiative

Home

The Open Source Definition

Fri, 2006-07-07 15:49 — Ken Coar

Introduction

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:

- 1. Free Redistribution**

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.
- 2. Source Code**

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.
- 3. Derived Works**

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.
- 4. Integrity of The Author's Source Code**

The license may restrict source-code from being distributed in modified form *only* if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit

Navigation

- ▶ [About the OSI](#)
- ▼ [The Open Source Definition](#)
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 - [Trademark Resources](#)
- ▶ [Open Source Licenses](#)
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- [create content](#)

OSI Board [email](#)

Site Admin [email](#)

User login

Username: *


Free Software Foundation

The Open Source ... x What is free softwa... x

http://www.fsf.org/about/what-is-free-software

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 **FREE SOFTWARE**
FOUNDATION

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[Info](#) → What is free software and why is it so important for society?

What is free software and why is it so important for society?


Free software is software that gives you the user the freedom to share, study and modify it. We call this free software because the user is free.

To use free software is to make a political and ethical choice asserting the right to learn, and share what we learn with others. Free software has become the foundation of a learning society where we share our knowledge in a way that others can build upon and enjoy.

Currently, many people use proprietary software that denies users these freedoms and benefits. If we make a copy and give it to a friend, if we try to figure out how the program works, if we put a copy on more than one of our own computers in our own home, we could be caught and fined or put in jail. That's what's in the fine print of the license agreement you accept when using proprietary software.

The corporations behind proprietary software will often spy on your activities and restrict you from sharing with others. And because our computers control much of our personal information and daily activities, proprietary software represents an unacceptable danger to a free society.

Strumenti personali
Non sei un utente conosciuto
[Accedi](#)
[Conferma l'iscrizione](#)
[I forgot my password](#)

 **libreplanet**
[LibrePlanet Conference](#)
March 21st/22nd 2009,
Cambridge, MA

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Looking for something?

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The Linux Kernel Archives

Welcome to the Linux Kernel Archives. This is the primary site for the Linux kernel source, but it has much more than just Linux kernels. [Frequently Asked Questions](#)

Protocol	Location
HTTP	http://www.kernel.org/pub/
FTP	ftp://ftp.kernel.org/pub/
RSYNC	rsync://rsync.kernel.org/pub/

The latest stable version of the Linux kernel is: [2.6.28.7](#) 2009-02-20 22:48 UTC [F](#) [V](#) [VI](#) [C](#) [Changelog](#)

The latest [prepatch](#) for the stable Linux kernel tree is: [2.6.29-rc6](#) 2009-02-23 04:36 UTC [B](#) [V](#) [VI](#) [C](#) [Changelog](#)

The latest [snapshot](#) for the stable Linux kernel tree is: [2.6.29-rc6-git5](#) 2009-02-28 12:01 UTC [B](#) [V](#) [C](#)

The latest 2.4 version of the Linux kernel is: [2.4.37](#) 2008-12-02 08:13 UTC [F](#) [V](#) [VI](#) [C](#) [Changelog](#)

The latest 2.2 version of the Linux kernel is: [2.2.26](#) 2004-02-25 00:28 UTC [F](#) [V](#) [Changelog](#)

The latest [prepatch](#) for the 2.2 Linux kernel tree is: [2.2.27-rc2](#) 2005-01-12 23:55 UTC [B](#) [V](#) [VI](#) [Changelog](#)

The latest [-mm patch](#) to the stable Linux kernels is: [2.6.28-rc2-mm1](#) 2008-10-29 06:29 UTC [V](#)

F = full source, B = patch baseline, V = view patch, VI = view incremental, C = current [changesets](#)
Changelogs are provided by the kernel authors directly. Please don't write the webmaster about them.
[Customize the patch viewer](#)

The GNU Operating System



GNU Operating System

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What is GNU?

The GNU Project was launched in 1984 to develop a complete Unix-like operating system which is [free software](#): the GNU system.



GNU's kernel isn't finished, so GNU is used with the kernel Linux. The combination of GNU and Linux is the **GNU/Linux** operating system, now used by millions.

Sometimes this combination is incorrectly called [Linux](#). There are many variants or "distributions" of GNU/Linux.

We recommend the GNU/

GNUstep Developers Wanted

GNUstep is a fully-functional object-oriented development environment. We need developers to write and port applications to GNUstep so that we can make it a great experience for users. See <http://www.gnustep.org/> for more information.

Freedom Fry



Mr. Stephen Fry [introduces you to free software](#), and reminds you of a very special birthday.

GNUs Flashes


[GNU Audio/Video](#)
[GNU GPL](#)
[GNU LGPL](#)
[GNU GFDL](#)
[GNU AGPL](#)
[Free Software Licenses](#)
[GNU Packages](#)
[GNU Manuals](#)
[GNU Mailing Lists](#)
[Savannah](#)
[GNU FTP Site](#)
[GNU FTP Mirror List](#)

Linux and the GNU Project

Source ... Linux and GNU - G...
http://www.gnu.org/gnu/linux-and-gnu.html

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Translations of this page

 **GNU Operating System**

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Linux and the GNU Project

by [Richard Stallman](#)

For more information see also the [GNU/Linux FAQ](#), and [Why GNU/Linux?](#)

Many computer users run a modified version of [the GNU system](#) every day, without realizing it. Through a peculiar turn of events, the version of GNU which is widely used today is often called "Linux", and many of its users are [not aware](#) that it is basically the GNU system, developed by the [GNU Project](#).

There really is a Linux, and these people are using it, but it is just a part of the system they use. Linux is the kernel: the program in the system that allocates the machine's resources to the other programs that you run. The kernel is an essential part of an operating system, but useless by itself; it can only function in the context of a complete operating system. Linux is normally used in combination with the GNU operating system: the whole system is basically GNU with Linux added, or GNU/Linux. All the so-called "Linux" distributions are really distributions of GNU/Linux.

Many users do not understand the difference between the kernel, which is Linux, and the whole system, which they also call "Linux". The ambiguous use of the name doesn't help people understand. These users often think that Linus Torvalds developed the whole operating system in 1991, with a bit of help.

Programmers generally know that Linux is a kernel. But since they have generally heard the whole system called "Linux" as well, they often envisage a history that would justify naming the whole system after the kernel. For example, many believe that once Linus Torvalds finished writing Linux, the kernel, its users looked around for other free software to go with it, and found that (for no particular reason) most everything necessary to make a Unix-like system was already available.

Linux distributions

From Wikipedia, the free encyclopedia

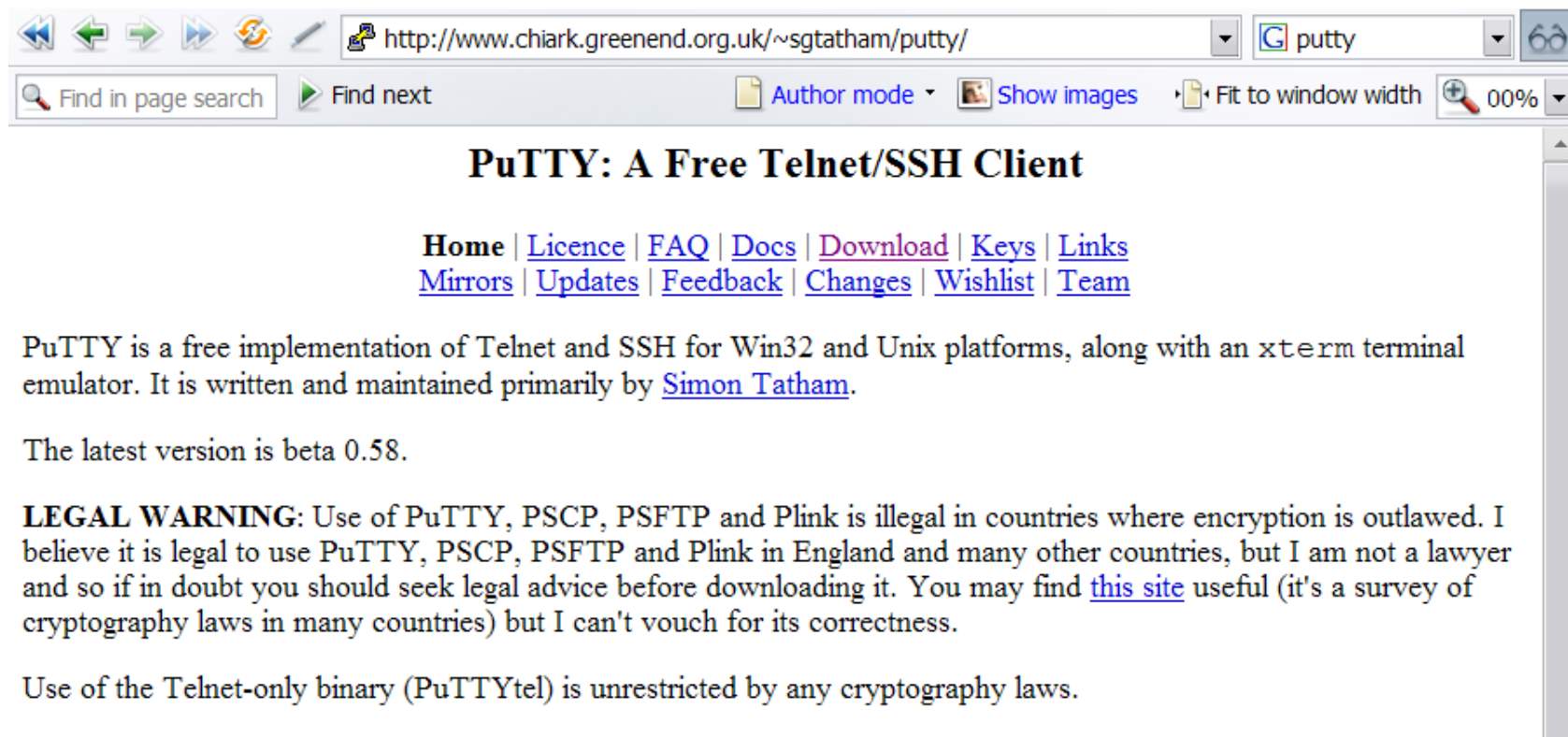
A Linux distribution, often simply distribution or distro, is a member of the Linux family of Unix-like operating systems comprised of the Linux kernel, the non-kernel parts of the GNU operating system, and assorted other software. Linux distributions take a variety of forms, from fully-featured desktop and server operating systems to minimal environments (typically for use in embedded systems, or for booting from a floppy).

To provide a Unix-like environment, Linux distributions contain a set of Unix-like utilities and the libraries needed to support them. In full-featured distributions these are generally taken from the GNU operating system. Distributions optimized for size tend to use more compact alternatives like busybox and uclibc.

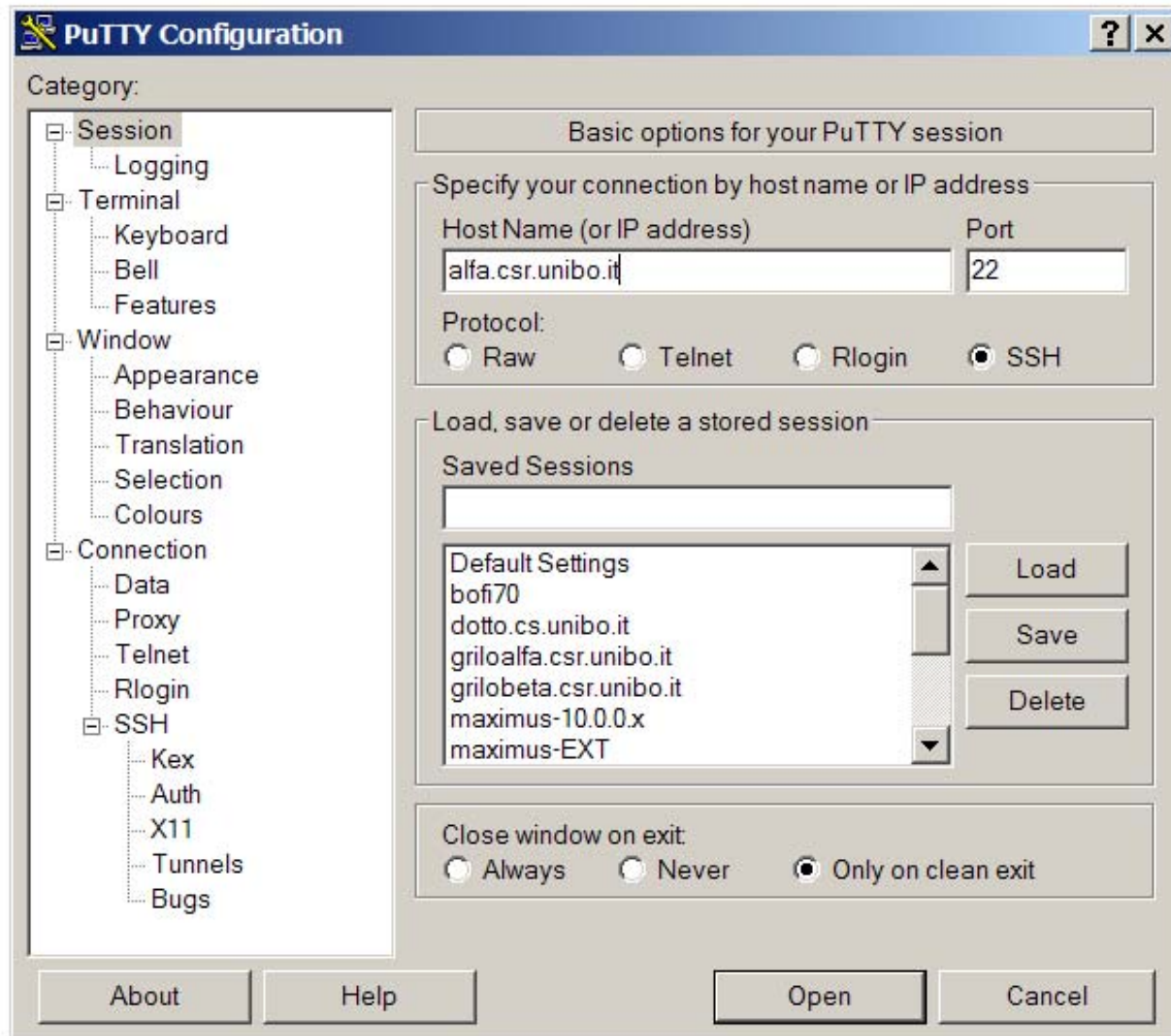
There are currently over three hundred Linux distribution projects in active development, constantly revising and improving their respective distributions. One can distinguish between commercially-backed distributions, such as Fedora Core (Red Hat), SUSE Linux (Novell), Ubuntu (Canonical Ltd.) and Mandriva Linux and community distributions such as Debian and Gentoo. Usually, the procedures for assembling and testing a distribution prior to release are more elaborate the bigger the user base for the distribution is.

SSH

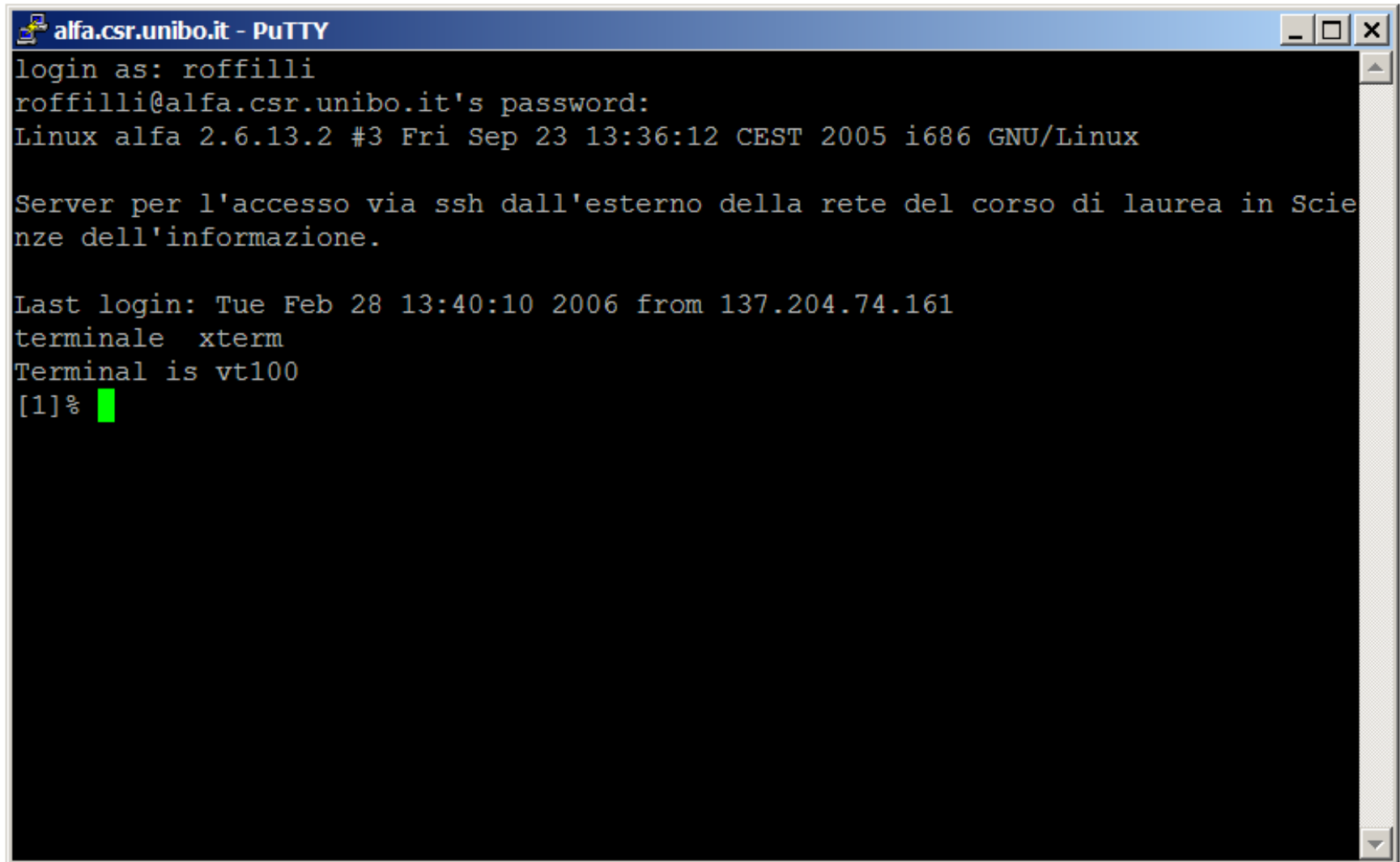
Connettersi a macchine GNU/Linux da macchine Windows



SSH 2



SSH 3



The image shows a PuTTY terminal window titled "alfa.csr.unibo.it - PuTTY". The terminal displays the following text:

```
login as: roffilli
roffilli@alfa.csr.unibo.it's password:
Linux alfa 2.6.13.2 #3 Fri Sep 23 13:36:12 CEST 2005 i686 GNU/Linux

Server per l'accesso via ssh dall'esterno della rete del corso di laurea in Scienze dell'informazione.

Last login: Tue Feb 28 13:40:10 2006 from 137.204.74.161
terminale xterm
Terminal is vt100
[1]%
```

The terminal window has a blue title bar and standard window controls (minimize, maximize, close) in the top right corner. The text is displayed in a monospaced font on a black background. A green cursor is visible after the prompt "[1]".

SSH 4

```

alfa.csr.unibo.it - PuTTY
login as: roffilli
roffilli@alfa.csr.unibo.it's password:
Linux alfa 2.6.13.2 #3 Fri Sep 23 13:36:12 CEST 2005 i686 GNU/Linux

Server per l'accesso via ssh dall'esterno della rete del corso di laurea in Scienze dell'informazione.

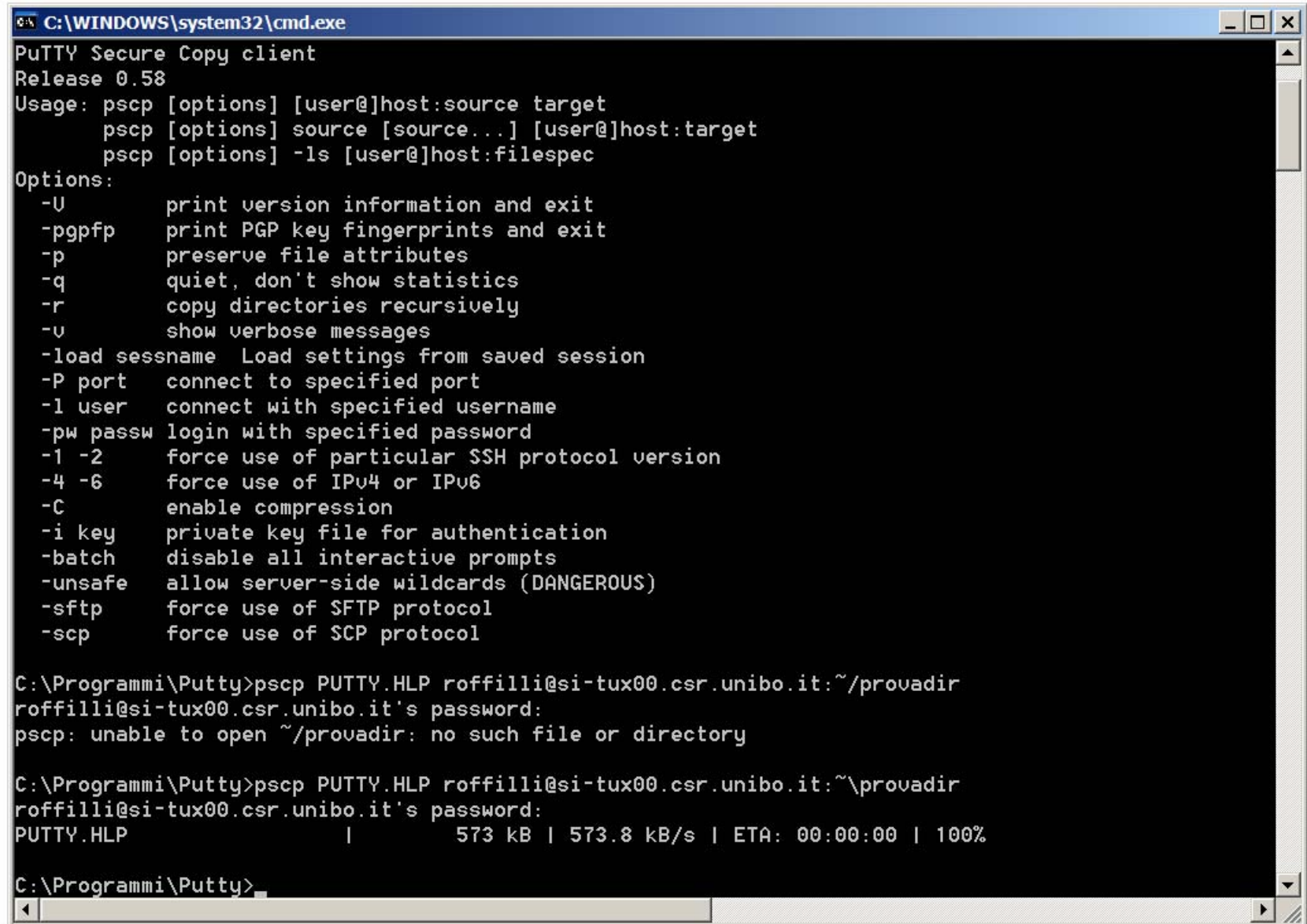
Last login: Tue Feb 28 13:40:10 2006 from 137.204.74.161
terminale xterm
Terminal is vt100
[1]% ssh si-tux00.csr.unibo.it
The authenticity of host 'si-tux00.csr.unibo.it (137.204.72.228)' can't be established.
RSA key fingerprint is 8b:ae:cb:78:fc:a4:fc:c1:25:e0:5a:2b:e5:a4:fb:9f.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'si-tux00.csr.unibo.it,137.204.72.228' (RSA) to the list of known hosts.
roffilli@si-tux00.csr.unibo.it's password:
Linux si-tux00 2.6.15.3 #2 SMP PREEMPT Tue Feb 7 10:45:31 CET 2006 i686 GNU/Linux
x

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Feb 28 18:50:36 2006 from 137.204.72.190
/bin/tty: Comando non trovato.
/bin/who: Comando non trovato.
/bin/who: Comando non trovato.
terminale vt100
Terminal is vt100
[1]% █

```


SSH – copiare file con PSCP



```
C:\WINDOWS\system32\cmd.exe
PuTTY Secure Copy client
Release 0.58
Usage: pscp [options] [user@]host:source target
       pscp [options] source [source...] [user@]host:target
       pscp [options] -ls [user@]host:filespec
Options:
  -U          print version information and exit
  -pgpfp      print PGP key fingerprints and exit
  -p          preserve file attributes
  -q          quiet, don't show statistics
  -r          copy directories recursively
  -v          show verbose messages
  -load sessname Load settings from saved session
  -P port     connect to specified port
  -l user     connect with specified username
  -pw passw   login with specified password
  -1 -2       force use of particular SSH protocol version
  -4 -6       force use of IPv4 or IPv6
  -C          enable compression
  -i key      private key file for authentication
  -batch      disable all interactive prompts
  -unsafe     allow server-side wildcards (DANGEROUS)
  -sftp       force use of SFTP protocol
  -scp        force use of SCP protocol

C:\Programmi\Putty>pscp PUTTY.HLP roffilli@si-tux00.csr.unibo.it:~/provadir
roffilli@si-tux00.csr.unibo.it's password:
pscp: unable to open ~/provadir: no such file or directory

C:\Programmi\Putty>pscp PUTTY.HLP roffilli@si-tux00.csr.unibo.it:~\provadir
roffilli@si-tux00.csr.unibo.it's password:
PUTTY.HLP          |          573 kB | 573.8 kB/s | ETA: 00:00:00 | 100%

C:\Programmi\Putty>
```

SSH – esercizio

- 1) Provate a connettervi ad una macchina linux a scelta tra quelle elencate prima
- 2) Ora provate a connettervi dalla macchina linux ad un'altra macchina linux

NOTA: Se avete problemi con l'account è il momento di risolverli!!!

GNU/Linux comandi base

ls

cat

cd

mkdir

rmdir

rm

ps

VI / VIM

- **Vim** e` una versione potenziata, e un po' piu` user-friendly, di uno dei due editor standard dei sistemi Unix, **vi** (l'altro è Emacs).
- Vim è l'ideale per modificare rapidamente file di testo, cosa necessaria per l'amministrazione di sistema; personalmente consiglio di usare sempre vim come editor per GNU/Linux.
- All'inizio vi sembrerà un po' ostico, ma l'ubiquità degli editor in “stile vi” nei sistemi Unix, e la velocità con cui editerete, vi ricompenseranno dei vostri sforzi.

Download VI / VIM

http://www.vim.org/index.phpElementi: 0/0Modalità autoreTutte le immaginiAdatta alla larghezza120%

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[What is Vim?](#)

Vim is a highly configurable text editor built to enable efficient text editing. It is an improved version of the vi editor distributed

News
Vim 7.2.130 is the current version

Vim 2009 desktop calendar

[2008-12-21] The usual Vim desktop calendar is now available for download and printing: <http://www.moolenaar.net/#Calendar>. If you print it on thick paper you can fold it so that it stands on your desk. One side contains a useful 12-month calendar. On the other side there is brief information about ICCF-Holland, Vim and A-A-P. Happy Vimming in 2009! (*Bram Moolenaar*)

Vim 7.2

[2008-08-09] After fifteen months of work: a brand new Vim release! This is a stable version. There are many bug fixes and updated runtime files. The only new feature worth mentioning is support for floating point. Upgrading from a previous version is highly recommended: a few crashing bugs and several security issues were fixed. For the details see the [announcement](#). Or go directly to the [download page](#). (*Bram Moolenaar*)

[more news...](#)[Get a Vim poster](#)[DVD and video about Vim's charity project](#)

Recent Script Updates
2,548 scripts, 3,090,634 downloads

[2009-03-02] [myprojects](#) : myproject.vim is a clone of project.vim. (0.0.14) Add s:delete() to delete file at current line. - *Frederic Hardy*

Ads by Google

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[Printing Just Got Better](#)
VIM Technologies Ltd. - DP plates for QMDI, Ryobi 3404 and 46Karat
www.vim-technologies.com

VI / VIM startup

Per lanciare vi è sufficiente eseguire

vi [nome file]

A questo punto compare l'interfaccia di vi. Essa è composta dall'area per editare il testo e da uno o due righe in basso. Esse segnalano le informazioni sullo stato attuale e mostrano i comandi quando vengono immessi. Su alcune distribuzioni Linux può essere utile lanciare **vim** invece di **vi**, poiché così si ha un comportamento non standard, ma più intuitivo.

Esistono due modalità di funzionamento per vi:

1. modalità comandi: permette di inserire comandi e scegliere quale azione compiere.

Questa modalità è suddivisa a sua volta in due sottogruppi:

- a) comandi immediati: sono formati da un numero limitato di caratteri.
- b) comandi a linea: sono iniziati premendo i due punti(:) e terminati da INVIO

2. modalità editing: permette di inserire e cancellare il testo. Funziona più o meno come un editor di testo quale blocco note o kate. Va notato che essendo un programma testuale alcune cose non sono fatte nel modo usuale.

Riassunto comandi

esc	Passa alla modalita` comandi
i	Passa in modalita` inserimento nel punto in cui si trova il cursore
o	Apri in inserimento una nuova linea sotto la posizione corrente
x	Cancella un carattere
r*	Sostituisce con * il carattere su cui si trova il cursore
dd	Taglia una riga (vale come selezione)
3dd	Taglia 3 righe (vale come selezione)
yy	Copia una riga
3yy	Copia 3 righe
p	Incolla la selezione nella riga sotto il cursore
/pippo	Cerca le occorrenze di "pippo" nel file
n	Si posiziona sull'occorrenza successiva
N	Si posiziona sull'occorrenza precedente
:s/pippo/pluto/g	Sostituisce "pippo" con "pluto" nella riga corrente
:%s/pippo/pluto/g	Sostituisce "pippo" con "pluto" in tutto il file
:q	Esce (solo se non si sono fatte modifiche)
:w	Salva
:wq	Salva ed esce
:q!	Esce senza salvare

VI – esercizio

- 1) Connettetevi ad una macchina linux a scelta tra quelle elencate prima
- 2) Aprite un file con VI/VIM ed editatelo
- 3) Salvate il file
- 4) Riaprite il file, modificatelo e salvatelo di nuovo