

# Ubuntu 桌面指南

Ubuntu Documentation Project <ubuntu-doc@lists.ubuntu.com>

---

# Ubuntu 桌面指南

由 Ubuntu Documentation Project <ubuntu-doc@lists.ubuntu.com>

版权 © 2004, 2005, 2006 Canonical Ltd. and members of the Ubuntu Documentation Project

## 摘要

欢迎阅读 Ubuntu 桌面指南，这是一份 Ubuntu 桌面环境使用的详尽指南。

## Credits and License

The following Ubuntu Documentation Team authors maintain this document:

- Brian Burger
- Matthew East

The following people have contributed to this document:

- Naaman Campbell
- Milo Casagrande
- Robert Stoffers

The Ubuntu Desktop Guide is based on the original work of:

- Chua Wen Kiat
- Tomas Zijdemans
- Abdullah Ramazanoglu
- Christoph Haas
- Alexander Poslavsky
- Enrico Zini
- Johnathon Hornbeck
- Nick Loeve
- Kevin Muligan
- Niel Tallim
- Matt Galvin
- Sean Wheller

This document is made available under a dual license strategy that includes the GNU Free Documentation License (GFDL) and the Creative Commons ShareAlike 2.0 License (CC-BY-SA).

You are free to modify, extend, and improve the Ubuntu documentation source code under the terms of these licenses. All derivative works must be released under either or both of these licenses.

This documentation is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE AS DESCRIBED IN THE DISCLAIMER.

---

Copies of these licenses are available in the appendices section of this book. Online versions can be found at the following URLs:

- GNU Free Documentation License<sup>1</sup>
- Attribution-ShareAlike 2.0<sup>2</sup>

## Disclaimer

Every effort has been made to ensure that the information compiled in this publication is accurate and correct. However, this does not guarantee complete accuracy. Neither Canonical Ltd., the authors, nor translators shall be held liable for possible errors or the consequences thereof.

Some of the software and hardware descriptions cited in this publication may be registered trademarks and may thus fall under copyright restrictions and trade protection laws. In no way do the authors make claim to any such names.

THIS DOCUMENTATION IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---

# 目录

关于本指南 .....	v
1. Ubuntu 桌面指南简介 .....	vi
2. 排版约定 .....	vii
3. 贡献和反馈 .....	viii
1. 新手上路 .....	1
1. 关于 Ubuntu .....	2
2. 获取 Ubuntu .....	6
3. Linux 基础 .....	7
2. Adding, Removing and Updating Applications .....	13
1. Introduction .....	14
2. Add/Remove Applications .....	15
3. Synaptic Package Manager .....	16
4. Command Line Package Management .....	17
5. Installing a Single Package File .....	18
6. Extra Repositories .....	20
7. 更新 .....	22
3. Common Tasks .....	23
1. Music .....	24
2. Video .....	27
3. Multimedia Codecs .....	30
4. Internet .....	31
5. Office .....	36
6. Graphics & Drawing .....	38
7. Games .....	40
8. Programming .....	42
4. 配置你的系统 .....	45
1. 桌面技巧 .....	46
2. 分区并重启 .....	52
3. 硬件 .....	55
4. Networking .....	61
5. 获取更多帮助 .....	63
A. Creative Commons by Attribution-ShareAlike 2.0 .....	64
B. GNU Free Documentation License .....	71

---

# 关于本指南

## 1. Ubuntu 桌面指南简介

欢迎阅读 Ubuntu 桌面指南，这是一份 Ubuntu 桌面环境使用的详尽指南。

本指南分为下列几章：

1. 新手上路 - 介绍 Ubuntu 世界，还有一些基本概念，有助于您更好的上手 Ubuntu。
2. 添加、删除和更新应用程序 - 在 Ubuntu 中如何管理自己的软件。
3. 常见任务 - 执行 Ubuntu 中的常见任务，诸如播放音乐和视频、使用互联网、办公软件和图形图像处理程序等。
4. 配置您的系统 - 根据您的需求修改自己的 Ubuntu 系统设置。
5. 获取更多帮助 - 如果本指南不能解决您的问题，又该去何处寻求答案？

本指南的 HTML 和 PDF 版本可从 Ubuntu 文档官方网站<sup>1</sup> 获取。

---

<sup>1</sup> <http://help.ubuntu.com>

## 2. 排版约定

本文档将使用下列记号：



备注，一般表示一段有趣的，有时是技术性的，并和上下文相关的信息。



提示，提供有完成某件事情的建议或捷径。



警示，提醒读者可能面临的问题，并给出避免这些问题的帮助信息。



警告，告知读者在特定情形下可能出现的风险。

用于打印的交叉引用排版约定效果如下：

- 到其它文档和网站的链接看上去像这样<sup>2</sup>。



PDF、HTML 以及 XHTML 版本的文档将使用超链接来处理交叉引用。

输入内容的排版约定如下：

- 文件名或者目录路径，将以等宽字体(monospace)显示。
- 您在终端(Terminal)命令提示行里输入的命令显示效果如下：

```
command to type
```

- 您在用户界面上点击、选择或选中的选项，将以等宽字体(monospace)显示。

菜单选择、鼠标动作及键盘快捷键：

- 菜单选择的序列操作显示效果如下：文件(F) → 打开(O)
- 鼠标动作假定您使用右手模式的鼠标设定。文中述及的“单击”和“双击”指的是使用鼠标左键。文中述及
- 键盘快捷键组合显示效果如下：Ctrl-N。根据惯例，“Control”、“Shift”以及“Alternate”按键将以 Ctrl、Shift 以及 Alt 来表示，需要特别指出的是，其中第一个按键在按下第二个键的过程中应该一直被按住。

### 3. 贡献和反馈

本文档由 Ubuntu 文档小组<sup>3</sup>编写。您可以通过 Ubuntu 文档小组的邮件列表发送自己的意见或评论来完善本文档。Ubuntu 文档小组官方网站<sup>4</sup>。本文档的简体中文版由 UbuntuChina 文档组<sup>5</sup>翻译，欲知更多信息或加入我们，请访问 Ubuntu 中文 Wiki<sup>6</sup>。

如果您发现了文档中存在的问题，或者想提些建议，您可以直接在 Ubuntu Bug 跟踪系统<sup>7</sup>上提交一份 bug 报告。您的帮助是这些文档成功的关键！[翻译相关的 bug 可以联系 UbuntuChina 文档组<sup>8</sup>成员。]

非常感谢

– 您的 Ubuntu 文档小组

---

<sup>3</sup> <https://wiki.ubuntu.com/DocumentationTeam>

<sup>4</sup> <https://wiki.ubuntu.com/DocumentationTeam>

<sup>5</sup> <http://wiki.ubuntu.org.cn/UbuntuChina%E6%96%87%E6%A1%A3%E7%BB%84>

<sup>6</sup> <http://wiki.ubuntu.org.cn/>

<sup>7</sup> <https://launchpad.net/products/ubuntu-doc/+bugs>

<sup>8</sup> <http://wiki.ubuntu.org.cn/UbuntuChina%E6%96%87%E6%A1%A3%E7%BB%84>



---

# 第 1 章 新手上路

本章简要介绍了 Ubuntu 世界和一些基本概念，对刚开始使用 Ubuntu 系统很有帮助。

## 1. 关于 Ubuntu

感谢您使用 Ubuntu 6.06 LTS – Dapper Drake 发布版。

Ubuntu 是一款构建于 Linux 内核之上、完全开放源码的操作系统。Ubuntu

社群紧紧围绕着 Ubuntu

理念:的完美理想而而构筑的: 软件应可免费取得, 人们应该能以自己的语言无障碍的使用软件工具, 且不会有

- Ubuntu 永远免费, 即便是“企业版本”也毋需额外费用, 我们要把最好的工作成果免费提供给所有人, 一视同仁。
- Ubuntu 包含了自由软件社区所能提供的极其出色的翻译和易用性架构, 才得以让尽可能多的人用上 Ubuntu。
- Ubuntu 将定期并有计划的不断发布; 每六个月就会有一个新版本。您可以使用当前稳定版本或开发版本, 我们将为 18 个月的支持。
- Ubuntu 完全遵从自由/开源软件开发的的原则; 我们鼓励人们使用、完善并传播开源软件。

Ubuntu

社区由开发人员、程序员、测试人员、技术作家、文档测试人员、翻译人员以及最重要的, 即

Ubuntu 的日常使用者。我们诚挚邀请您加入这个社区, 并帮助我们使 Ubuntu

成为您、您的家人、您的朋友以及您的同事等都会乐于使用的操作系统。请帮助我们

Ubuntu

翻译成您所使用的语言, 帮助我们在新的或不常见的硬件上进行测试, 并通过提示、工具条或者FAQ来帮助他人

Ubuntu 的使用体验, 或者针对自己喜爱的软件提出改进意见, 从而帮助 Ubuntu

迈向更美好的未来。

欲知更多信息, 请访问 Ubuntu 网站<sup>2</sup>。

### 1.1. 关于Ubuntu一词

Ubuntu

是一个南非的民族观念, 着眼于人们之间的忠诚和联系。该词来自于祖鲁语和科萨语。Ubuntu (发音“oo-BOON-too”--

“乌班图”) 被视为非洲人的传统理念, 也是建立新南非共和国的基本原则之一, 与非洲复兴的理想密切相关

Ubuntu

精神的大意是“人道待人”(对他人仁慈)。另一种翻译可以是: “天下共享的信念, 连接起每个人”。

---

<sup>1</sup> <http://www.ubuntu.com/ubuntu/philosophy>

<sup>2</sup> <http://www.ubuntu.com>

“具有 ubuntu 精神的人心胸开阔，乐于助人，见贤思齐而不忌妒贤能，因为她拥有适度的自信，而这源自如下认识：自己乃是属于一个更大的整体，当他人受到伤害或死去时，当  
——大主教 Desmond Tutu

作为一个基于 GNU/Linux 的平台，Ubuntu 操作系统将 ubuntu 精神带到了软件世界。

## 1.2. 自由软件

Ubuntu

项目完全遵从开源软件开发的原则；并且鼓励人们使用、完善并传播开源软件。也就是说 Ubuntu 目前是并将永远是免费的。

然而，这并不仅仅意味着零成本，自由软件的理念是人们应该以所有“对社会有用”的方式自由地使用软件。

欲知自由软件的理念相关的更多信息，请访问这个页面<sup>3</sup>。

## 1.3. 不同之处

目前已有大量各种各样基于 GNU/Linux 的操作系统，例如：Debian, SuSE, Gentoo, RedHat 和 Mandriva。在这业已竞争纷繁的世界里，Ubuntu 是又一个参与者。那么 Ubuntu 何以有所不同？

Debian 是一个广受称道、技术先进且有着良好支持的发行版，Ubuntu 正是基于 Debian 之上，旨在创建一个可以为桌面和服务器的提供一个最新且一贯的 Linux 系统。Ubuntu 囊括了大量精挑细选自 Debian 发行版的软件包，同时保留了 Debian

强大的软件包管理系统，以便简易的安装或彻底的删除程序。与大多数发行版附带数量巨大的可用可不用的软件包清单只包含那些高质量的重要应用程序。

注重质量，Ubuntu 提供了一个健壮、功能丰富的计算环境，既适合家用又适用于商业环境。本项目花费了大量 i386 (386/486/Pentium(II/III/IV)和Athlon/Duron/Sempron 处理器)，AMD64 (Athlon64, Opteron, 最新的64位 Intel 处理器)，以及PowerPC (iBook/Powerbook, G4 and G5) 等。

## 1.4. 长期支持 (Long-Term Support)

Ubuntu 的所有版本至少会提供18个月的安全和其它升级支持。Ubuntu 6.06

LTS有点特别，它已是个准企业级版本，其桌面版本会提供3年支持，而服务器版本则将提供长达5年的支持。Ubuntu 6.06 LTS的开发周期比往常稍长，并专注于诸多领域，罗列如下：

---

<sup>3</sup> <http://www.gnu.org/philosophy/>

- 质量保证
- 本地化
- 认证

所以，和以往版本相比，您可放心长期使用Ubuntu 6.06 LTS，由此该版本也被冠以“LTS”或“长期支持”（Long-Term Support）。

## 1.5. 桌面环境

Ubuntu 默认桌面环境采用 GNOME<sup>4</sup>，一个 UNIX 和 Linux 主流桌面套件和开发平台。

另一个 UNIX 和 Linux 主流桌面是 KDE<sup>5</sup>。Kubuntu<sup>6</sup> 项目为 Ubuntu 用户提供了一个默认 GENOME 桌面之外的选择。由于 Kubuntu 团队的努力，Ubuntu 用户现在可以在自己的系统上轻易安装和使用 KDE 桌面。要在 Ubuntu 系统中得到一个可工作的 Kubuntu，请安装 `application>kubuntu-desktop`

## 1.6. 版本和发布号

Ubuntu

的版本号是根据我们发布一个版本的日期而定。版本号由该次发布的年份和月份组成，并未反映其实际版本。Warthog是在2004年10月，因此该版本为4.10。当前版本(Dapper Drake)于2006年6月发布，因此版本号为6.06 LTS。

## 1.7. 赞助和支持

Ubuntu 由一个快速壮大的社区进行维护。该项目得到了由Mark Shuttleworth创建的控股公司——Canonical Ltd.<sup>7</sup>的资助。Canonical 雇佣了 Ubuntu 核心开发人员，并为 Ubuntu 提供支持和咨询服务。

Canonical Ltd 还资助了其它大量开源软件项目，相关的详细信息请访问 Canonical 网站<sup>8</sup>。

## 1.8. 什么是Linux?

Linux 内核<sup>9</sup>，其发音为 'lee-nucks'，是 Ubuntu 操作系统的核心。内核是操作系统的重要组成部分，它是硬件和软件之间进行通讯的桥梁。

---

<sup>4</sup> <http://www.gnome.org/>

<sup>5</sup> <http://www.kde.org/>

<sup>6</sup> <http://www.kubuntu.org>

<sup>7</sup> <http://www.canonical.com>

<sup>8</sup> <http://www.canonical.com>

<sup>9</sup> <http://www.kernel.org>

Linux 诞生于1991年，由芬兰学生 Linus Torvalds 发起。那时，它只能运行在 i386 系统上，实质上是个独立编写的 UNIX 内核之克隆，旨在充分利用当时全新的 i386 架构。

现如今 Linux

几乎能运行在所有现代架构之上，这要归功于来自世界各地的人们所付出的大量开发工作。

Linux

内核不仅在技术上占有一席之地，还在意识形态上占有重要位置。有一整个社群的人相信自由软件的理念，并

正是这个社群里的人们促使了Ubuntu的出现，促成了标准委员会，它引领着互联网的发展，促成了一些组织如 Firefox，还促成了无数其它软件项目，想必您一直以来就受益匪浅。

开放源码的精神，这通常归因于

Linux，正在深刻影响着各地的软件开发者和用户，他们驱使着各个社区朝着共同的目标前进。

### 1.9. 何谓 GNU?

GNU 项目，其发音为“guh-noo”，于1984年发起，目标是开发一个完整的 UNIX 类的操作系统——GNU 系统，它全部由自由软件组成。使用 Linux 内核的 GNU 操作系统变种已被广泛使用；尽管这些系统常冠以“Linux”，更准确的说它们应称为 GNU/Linux 系统。

GNU 项目和自由软件的理念紧密相连，它也是衍生自 GNU 的、诸如 Ubuntu 等项目的关键所在。自由软件这一概念的说明参见 第 1.2 节“自由软件”。

## 2. 获取 Ubuntu

有多种途径可以获取 Ubuntu 拷贝，各种方法的说明请访问 Ubuntu 官方网站的下载页面<sup>10</sup>。

第一种途径是从离您最近的镜像服务器下载 ISO 映像文件，然后刻录 CD 安装 Ubuntu。CD 种类共有两种：

- 桌面 CD – 允许您体验 Ubuntu，且不用改变自己的计算机系统，并可在体验之后选择正式安装 Ubuntu。这种 CD 能满足绝大部分人的需要。
- 文本模式的安装 CD – 文本模式的安装 CD 允许您执行一些特殊的 Ubuntu 定制安装。这种 CD 主要用来创建预配置的 OEM 系统或进行自动化部署；它还可用作升级旧系统的软件包源。

如果您没有 CD 刻录机或带宽有限或过于昂贵，我们可以免费寄送压制的“桌面 CD”。您可以通过 Ubuntu 的 CD 发布系统 Shipit<sup>11</sup> 申请 CD。



预订的 CD 可能需要数周才能到您手中。

您还可以联系距离自己最近的 Ubuntu 本地社区团队(LoCoTeam)，由 Ubuntu 爱好者自发组织的小组，热衷提供本地支持。许多 LoCoTeam 都有富余的 Ubuntu 拷贝，并会免费进行发放。在 Ubuntu wiki<sup>12</sup> 上您可以找到一份现存 Ubuntu LoCoTeam 的清单。

获取 Ubuntu 的其它途径是加入本地的 Linux 用户组(LUG)，询问是否有人可以为您制作一份拷贝。一般来说，您可能需要支付 CD 和邮寄的成本。

如果您不知道邻近的 Linux 用户组，可以在 Linux Users Groups WorldWide<sup>13</sup> 网站上找到清单。

---

<sup>10</sup> <http://www.ubuntu.com/download>

<sup>11</sup> <http://shipit.ubuntu.com>

<sup>12</sup> <https://wiki.ubuntu.com/LoCoTeamList>

<sup>13</sup> <http://lugww.counter.li.org/>

## 3. Linux 基础

Linux 的灵感源自 1969 年就出现的 Unix 操作系统，时至今日该系统仍被广泛使用，并在不断发展中。Unix 背后的许多设计惯例也同样存在于 Linux 中，对系统基本原理的理解至关重要。

Unix 最初主要使用命令行界面，这在 Linux 中也得到了保留。也就是说，图形用户界面及其窗口、图标、菜单等都构建在基本的命令行界面之上。更进一步 Linux 的文件系统。

### 3.1. 目录和文件系统

Linux 和 Unix 文件系统被组织成一个有层次的树形结构。文件系统的最上层是 /，或称为根目录。在 Unix 和 Linux 的设计理念中，一切皆为文件——包括硬盘、分区和可插拔介质。这就意味着所有其它文件和目录（包括其它例如：`/home/jebediah/cheeses.odt` 给出了正确的完整路径，它指向 `cheeses.odt` 文件，而该文件位于 `jebediah` 目录下，该目录又位于 `home` 目录，最后，`home` 目录又位于根(/)目录下。

在根(/)目录下，有一组重要的系统目录，在大部分 Linux 发行版里都通行。直接位于根(/)目录下的常见目录列表如下：

- `/bin` - 重要的二进制(binary)应用程序
- `/boot` - 启动(boot)配置文件
- `/dev` - 设备(device)文件
- `/etc` - 配置文件、启动脚本等(etc)
- `/home` - 本地用户主(home)目录
- `/lib` - 系统库(libraries)文件
- `/lost+found` - 在根(/)目录下提供一个遗失+查找(lost+found)系统
- `/media` - 挂载可移动介质(media)，诸如 CD、数码相机等
- `/mnt` - 挂载的(mounted)文件系统
- `/opt` - 提供一个供可选的(optional)应用程序安装目录
- `/proc` - 特殊的动态目录，用以维护系统信息和状态，包括当前运行中进程(processes)的信息
- `/root` - `root(root)`用户主目录，读作“斜杠 root(slash-root)”

- /sbin - 重要的系统二进制文件(system binaries)
- /sys - 系统(system)文件
- /tmp - 临时(temporary)文件
- /usr - 包含绝大部分所有用户(users)都能访问的应用程序和文件
- /var - 经常变化的(variable)文件, 诸如日志或数据库等

## 3.2. 权限

Linux

系统上的所有文件都有权限, 以允许或者阻止其它用户查阅、修改或者执行。超级用户“root”则可以访问系统(owner/group)。

所有文件皆有如下三组权限加以保护, 按重要性依次排列:

- 用户(user)  
适用于该文件的所有者
- 组(group)  
适用于该文件所属的组
- 其他(other)  
适用于所有其他用户

上述三组权限信息的每一组都包含了实际权限。这些权限信息, 连同它们对文件和目录具有的不同含义, 概述

- 读(read)  
允许显示/打开该文件  
可以显示目录内容
- 写(write)  
可以编辑或删除该文件  
可以更改目录内容
- 可执行(execute)  
可执行文件可以作为程序运行



可以进入该目录

To view and edit the permissions on files and directories, open the Places → Home Folder and right-click on a file or directory. Then select Properties. The permissions exist under the Permissions tab and allow for the editing of all permission levels, if you are the owner of the file.

欲知 Linux 文件权限的更多细节，请阅读 Ubuntu Wiki 上文件权限页面<sup>14</sup>。

### 3.3. root 用户和 sudo 命令

GNU/Linux 系统的 root

用户具有系统的管理权限。出于安全考虑，普通用户并不具备这一权限。不过，Ubuntu 上并不包含 root 用户，而是将管理员权限授予特定用户，他们可以使用

"sudo"

应用程序来执行管理任务。默认情况下，在您的系统安装过程中创建的第一个用户帐号具有使用 sudo 的权限。您可以通过用户和组（参见 第 3.6 节 “用户和组”）来限制和赋予用户运行 sudo 的权限。

当您运行一个要求 root 权限的应用程序时，sudo

会要求您输入自己的普通用户密码；这样可以确保恶意程序无法损害您的系统，还可以提醒您应该小心谨慎的

在命令行里使用 sudo，只需直接在您想执行的命令前加上"sudo"即可。随后 sudo 会提示您输入自己的密码。

在短时间内 sudo

会记得您输入过的密码。设计这一特性的目的，是为了避免用户在执行多个管理任务时重复输入密码。



执行管理任务时请务必小心，以免损坏系统！

其它一些 sudo 使用技巧：

- 欲使用 "root" 终端，请在命令行里输入 “sudo -i”。
- Ubuntu 里所有图形界面配置工具（启动时）默认已使用sudo，因此如有必要它们会提示您输入自己的密码。
- 关于 sudo 程序及 Ubuntu 里为何默认没有 root 用户的更多信息，请阅读 Ubuntu wiki 上的 sudo 页面<sup>15</sup>。

---

<sup>14</sup> <https://wiki.ubuntu.com/FilePermissions>

## 3.4. 终端

使用命令行并不像您想象的那么困难。使用命令行不需要专门知识，和其它软件一样，它也仅仅是一个程序。中绝大部分工作都可以用命令行完成，尽管大部分程序都有相应的图形工具，但有时这些图形工具会捉襟见肘。

终端常常被称为命令行或者 shell。过去，这就是人机交互的方式。即便现在，Linux 用户还是觉得 shell 比图形方式更快并且仍有一些优势。进下来，您将学习如何使用终端。

终端最初用作文件浏览器，即使现在，遇上图形环境失效时，它仍被用作文件浏览器。您可以将终端作为一个

### 3.4.1. 启动终端

要启动一个终端，可以选择 应用程序 → 附件 → 终端。

### 3.4.2. 常用命令

查看目录: - ls                                   ls (LiSt) 用不同颜色、经过排列的文本列出目录下的文件。

创建目录: - mkdir (目录名)               mkdir (MaKeDIRectory) 命令可以创建目录。

切换目录: - cd                               cd (ChangeDirectory)  
(/directory/location)                   命令可以从您的当前目录切换到您指定的任意目录。

复制文件/目录: - cp (CoPy) 命令会拷贝您指定的任意文件。cp  
cp (源文件或目录名)                   -r  
(目标目录或文件名)                   命令则可以拷贝您指定的任意目录 (注: 包括该目录里的文件和子目录)。

删除文件/目录: - rm                       rm (ReMove) 可以删除您指定的任意文件。rm  
(文件或目录名)                       -rf  
命令则可以删除您指定的任意目录 (注: 包括该目录里的文件和子目录)。

重命名文件/目录: - mv                   mv (MoVe) 命令可以重命名/移动您指定的任意文件或目录。  
(文件或目录名)

查找文件/目录: - locate               locate  
(文件或目录名)                       命令会在您的计算机里搜索您指定的任意文件。它使用您系统中的文件索引  
updatedb  
可以更新该索引。每天您一开机，该命令便会 (在合适的时机) 自动运行。  
(参见 第 3.3 节 “root 用户和 sudo 命令”)。

您还可以使用通配符来匹配一个或多个文件，如 "\*" (匹配所有文件) 或 "?" (匹配一个字符)。

欲知关于 Linux 命令行的详尽介绍，请参阅 Ubuntu wiki 上的命令行介绍<sup>16</sup>。

<sup>16</sup> <https://wiki.ubuntu.com/BasicCommands>

### 3.4.3. 切换到控制台模式

在 Ubuntu 里使用命令行的常见方法是启动一个终端（参见前面的 第 3.4.1 节“启动终端”），但有些时候还是需要切换到真正的控制台下。

1. 使用 `Ctrl-Alt-F1` 快捷键可以切换到第一个控制台。
2. 要切回桌面模式，可以使用 `Ctrl-Alt-F7` 快捷键。



一共可以使用 6 个控制台，分别用快捷键 `Ctrl-Alt-F1` 到 `Ctrl-Alt-F6` 进行切换。

### 3.4.4. 禁止终端模式里的哔哔声

1. 要开启一个 终端 会话，请选择：应用程序 → 附件 → 终端
2. 编辑 → 当前配置文件...。选择 常规 标签页。勾选掉 终端响铃 复选框。

## 3.5. 文本编辑

Linux

中的所有配置和设定都保存在文本文件里。尽管您可以通过图形界面来编辑大部分配置，但有时您还是得手工是 Ubuntu 的默认文本编辑器，您可以通过点击桌面菜单系统中的应用程序 → 附件 → 文本编辑器来启动它。

本指南中，有时为了修改配置文件，会从命令行里使用 `gksudo` 来运行 `Gedit`，这样就能以管理权限来运行 `Gedit`。

如果需要在命令行中使用文本编辑器，那么您可以使用 `nano` 这个用法简单的文本编辑器。如果要在命令行中运行 `nano`，请务必使用如下命令：`Gedit`，它可确保编辑器不会插入断行符。

欲知 `nano` 使用的更多信息，请参考 Wiki 上的指南<sup>17</sup>。

Ubuntu 提供了大量其它基于终端的编辑器，包括流行的 `VIM` 和 `Emacs`（它们各自的赞成者和反对者在 Linux 社区里引发了许多不乏善意的争论）。和 `nano` 相比，通常上述编辑器的用法更为复杂，当然功能也更强大。

## 3.6. 用户和组

要在您的系统中添加用户或组，可以使用 系统 → 系统管理 → 用户和组 中的 用户和组 程序。

---

<sup>17</sup> <https://wiki.ubuntu.com/NanoHowto>

要添加一个新用户，点击 **添加用户**，然后填写各项数据，点击 **确定** 加以确认。要编辑每个用户的属性，点击位于主 **用户 /guiabel1>**

要添加一个新组，选择 **组 标签页** 并点击 **添加组**。为新组选择一个名字，如有必要，还可以改变 **组 ID** 的默认值。如果您试图分配一个正在使用的 **组 ID**，系统会向您发出警告。

通过从左边菜单选择用户并点击 **添加按钮**，您可以将该用户添加到新建组中。删除用户与添加一样简单：从右要编辑组的属性，在组主窗口中，选择一个组名并点击 **属性按钮**。

要从系统中删除一个用户或组，请先选中您要删除的用户或组，然后点击 **删除**。

---

## 第 2 章 Adding, Removing and Updating Applications

This chapter is a complete guide to adding, removing and updating applications on an Ubuntu system.

## 1. Introduction

In order to add or remove applications in Ubuntu you need to use a package manager. A package manager is a tool that makes installing and uninstalling applications easy by handling the software in preconfigured packages that are optimized for Ubuntu. The following package managers are described in this chapter:

- Add/Remove Applications – this is the simplest way to manage programs.
- Synaptic – this graphical program provides a more advanced means of managing programs.
- APT – this is a powerful command line program to manage programs.

You may also wish to increase the number of programs available to install through your package managers. Not all the programs that exist for Ubuntu are available by default. You may have to add extra repositories in order to make them available: that is also described in this chapter.

Finally, this chapter explains how to update your system.



You can only have one package management application running at a time. For example, if you are running Add/Remove Applications and try to launch Update Ubuntu, it will fail with an error. Close the running application before you relaunch the new one.

## 2. Add/Remove Applications

Add/Remove Applications is a simple graphical way of installing and removing applications in Ubuntu. To launch Add/Remove Applications click Applications → Add/Remove Applications on the desktop menu system.



Running Add/Remove Applications requires administrative privileges (see 第 3.3 节 “root 用户和 sudo 命令” ).

To install new applications select the category on the left, then check the box of the application you want to install. When finished click Apply, then your chosen programs will be downloaded and installed automatically, as well as installing any additional applications that are required.

Alternatively, if you know the name of the program you want, use the Search tool at the top.



If you have not activated the online package archive, you may be asked to insert your Ubuntu CD-ROM to install some packages.

Some applications and packages are not available to install using Add/Remove Applications. If you cannot find the package you are looking for, click Advanced which will open the Synaptic package manager (see below).

### 3. Synaptic Package Manager

Synaptic is an advanced package management application that can install and remove every package available to your system. The interface is graphical like Add/Remove Applications but a lot more information is presented to the user, which means that Synaptic gives you complete control over the package management of your system.



Running Synaptic requires administrative privileges (see 第 3.3 节 “root 用户和 sudo 命令” ).

To launch Synaptic, choose System → Administration → Synaptic Package Manager on the desktop menu system.

The Synaptic screen is divided up into four sections, the two most important being the package categories on the left side, and the packages on the right.

To install packages, just choose the category, find the package name in the list, right click on it and choose "Mark this package for installation". Once you are satisfied with your selections click Apply on the top button bar. Synaptic will then download and install the required packages from the online repositories and/or from your Ubuntu installation CD.

Alternatively you can click the Search tool bar button, enter the package name or a short search term in the search text field and click the Search button.

Synaptic will now show you a much shorter list from which to select your application for installation. This is usually much easier than having to look through the very long list of applications on your own.



## 4. Command Line Package Management

### 4.1. APT

APT (Advanced Packaging Tool) is a powerful package management system, on which the graphical programs described above like Add/Remove Applications and Synaptic are based. APT automatically handles dependencies and performs other operations on system packages to allow the installation of the desired package/s.



Running APT requires administrative privileges (see 第 3.3 节 “root 用户和 sudo 命令” ).

Some common commands that can be used with APT:

- Install packages:

```
sudo apt-get install packagename
```

- Remove packages:

```
sudo apt-get remove packagename
```

- Retrieve new lists of packages:

```
sudo apt-get update
```

- Upgrade system with available updates:

```
sudo apt-get upgrade
```

- List further commands and options:

```
apt-get help
```



For further information about the use of APT, read the comprehensive Debian APT User Manual.

## 5. Installing a Single Package File

The preferred method of installing programs is via the package managers described in this chapter. However, although the Ubuntu package archives are very large, it is possible that you may wish to install a package which is not available in the Ubuntu archives. If this happens, you can also download and install files from websites.



It is important to ensure that any files you download come from a safe source before installing them.

There are many different kinds of Linux package files. Most of these are associated with the package managers of specific Linux distributions. Examples are Debian Package files (.deb files), Redhat Package Manager files (.rpm files), and Tarballs (.tar files).

This section deals with installing these single files.



It is not guaranteed that these files will be compatible with your system and you will not receive security updates if you install these files. For these reasons, if you wish to install a program, always use a native Ubuntu package of the application available through a package manager, if there is one available.

### 5.1. Install/uninstall .deb files

These files are Debian packages. The package files associated with Ubuntu have the .deb suffix because of Ubuntu's close relations with the Debian GNU/Linux distribution. You will need administrative privileges to install a .deb file (see 第 3.3 节 “root 用户和 sudo 命令” ).

1. To install a .deb file, simply double click on it.
2. Alternatively, you can also install a .deb file by opening a terminal and typing:

```
sudo dpkg -i package_file.deb
```

3. To uninstall a .deb file, deselect it in your package manager, or type:

```
sudo dpkg -r package_name
```

### 5.2. Convert .rpm files to .deb files

Another type of package files is Red Hat Package Manager files which have the .rpm suffix. It is not recommended to install these on an Ubuntu system. In almost all

cases, a native Ubuntu .deb package is available. However, if absolutely necessary, an .rpm file can be converted to a .deb package using the program alien.

1. Install the alien program (第 2 章 Adding, Removing and Updating Applications).
2. Run the following command in a terminal, with administrative privileges:

```
sudo alien package_file.rpm
```

### 5.3. Install tarballs

Files with the .tar.gz or .tar.bz2 suffix are package files known as tarballs which are widely used in Linux and Unix.

If there is no native Ubuntu package available in any of the Ubuntu repositories, you can use the command line to install or uninstall the Tarball file by following the instructions that come with the package.

Tarballs often contain the source code of the program, and need to be compiled in order to be used. To do this, extra software will generally be needed (see 第 8.1 节 “Basic Compilers” ).

## 6. Extra Repositories

### 6.1. What are Repositories?

There are thousands of programs available to install on Ubuntu. These programs are stored in software archives (repositories) and are made freely available for installation over the Internet. This makes it very easy to install new programs in Linux, and it is also very secure, because each program you install is built specially for Ubuntu and checked before it is installed. To organise the software, Ubuntu repositories are categorised into four groups: Main, Restricted, Universe, and Multiverse.

The rationale used to determine which software goes into which category is based on two factors:

- The level of support software development teams provide for a program.
- The level of compliance the program has to the Free Software Philosophy.

You can find more information about the Repositories available on the website.

The standard Ubuntu Install CD contains some software from the Main and Restricted categories. Once your system is made aware of the Internet-based locations for these repositories, many more software programs are made available for installation. Using the software package management tools already installed on your system, you can search for, install and update any piece of software directly over the Internet, without the need for the CD.

### 6.2. Adding Extra Repositories

To enable the extra repositories:

1. Open System → Administration → Software Properties .
2. Select Add
3. To enable the Universe repository, check the Community Maintained (Universe) button.



Adding this repository will mean that the majority of the Free Software universe will be available to install on your system. This software is

---

<sup>3</sup> <http://www.ubuntu.com/ubuntu/components>

supported by a carefully selected group of volunteers within the Ubuntu Community, but is not supported by the core Ubuntu development team and may not include security updates.

4. To enable the Multiverse repository, check the Non-free (Multiverse) button.



Adding this repository will mean that software which has been classified as non-free will be available to install on your system. This software may not be permitted in some jurisdictions. When installing each package from this repository, you should verify that the laws of your country permit you to use it. Again, this software may not include security updates.

5. 点击 Close 按钮保存所作的更改然后退出。

## 7. 更新

Sometimes the Ubuntu developers release feature and security updates for applications and packages within the Ubuntu system.

When these updates are available, Ubuntu will inform you with a pop-up and a red icon in your notification area. To update your system, click the red button, enter your password and click OK.

The Update Manager program will list the available updates: to download and install these updates click Install Updates. Ubuntu will then download and install the available updates from the Internet.

When Update Manager has finished updating your system, close the pop-up window with the Close button, then close Update Manager to finish updating your system.



当安装某些重要的更新后，有可能需要重启计算机。这时，Ubuntu就会通过通知区的弹出信息框和

---

## 第 3 章 Common Tasks

This chapter contains information on common tasks.

## 1. Music

### 1.1. Playing and Extracting Audio CDs

When you insert an audio CD, the Sound Juicer CD player and ripper opens automatically. To play the CD, click the Play button or press Ctrl-P. To play a particular track, double-click on the track or select the track and click Play.

To extract (rip) your audio CD, make sure the tracks that you want to rip are selected, then click the Extract button or press Ctrl-Enter.



If you are connected to the internet, Sound Juicer will retrieve the CD artist, title, and track data from MusicBrainz.org<sup>1</sup>, a community-maintained database which contains data on over 360,000 albums.

To start Sound Juicer manually, choose Applications → Sound & Video → Sound Juicer CD Extractor.

You can use the preferences window to control where the extracted audio files are stored on your computer, the filename of extracted audio files, and the file format and codec used for the files. In the main window, choose Edit → Preferences.

Sound Juicer can extract audio files to the following formats:

- Ogg Vorbis – Ogg Vorbis is a patent-free lossy audio compression format which typically produces higher quality and greater compression than MP3. See the Vorbis website<sup>2</sup> for more information.
- FLAC – FLAC is the Free Lossless Audio Codec. It can compress audio files up to 50% without removing any information from the audio stream. For more information on this format, see the FLAC homepage<sup>3</sup> on sourceforge.net.
- WAV – Use the WAV format for voice recordings. Sound Juicer uses this format for low quality mono audio files.

You can also extract CD audio files to the proprietary non-free MP3 format.

Instructions on how to rip to the MP3 format are in the help for Sound Juicer. Choose Help → Contents and navigate to the Preferences section.

### 1.2. Burning CDs

When you put a blank CD in the drive Ubuntu will ask if you want to burn an audio or data CD. Clicking on Burn Audio CD will launch Serpentine . To add music to your audio



CD, either drag music from your File Browser or use the Add button. You will also need to select the size of your CD (21, 74, 80 or 90 minutes). Serpentine will warn you if you exceed the set limit.

To make a photo or data CD, click the burn Burn Data CD. Ubuntu will open a CD/DVD Creator window. The CD Creator is built into the File Browser, and it allows you to add any file or folder you have permission to access. When you are ready to burn the CD, click Write to Disc. Ubuntu will then prompt you to select the drive containing the blank CD, and give you the opportunity to name the CD and select the write speed. Finally, click Write to create the new photo or data CD.

### 1.3. Playing and Organising Music Files

To play and organize your music, Ubuntu comes with Rhythmbox Music Player, which looks similar to iTunes. When you first start Rhythmbox, it will scan your home directory for any supported music files you have and add it to the database. To start Rhythmbox, choose Applications → Sound & Video → Rhythmbox Music Player

Ubuntu does not directly support the MP3 format, because it is restricted by patents and proprietary rights. Instead Ubuntu supports the Ogg Vorbis format out of the box, a completely free, open and non-patented format. Ogg Vorbis files also sound better than MP3 files of the same file size and are supported by many popular music players (a list of players is here<sup>4</sup>).

You can still play your old MP3 files by installing MP3 support (see 第 3 节 “Multimedia Codecs” ). Instructions for other formats, such as Windows Media Audio (wma/wmv) and other patent encumbered formats can be found on the Ubuntu Wikis.

The Cowbell ID3 tag editor can edit the metadata on your mp3 and other music files. To use Cowbell:

1. Install the cowbell package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications);
2. To run Cowbell, choose Applications → Sound & Video → Cowbell Music Organizer.

### 1.4. Using your Ipod

You can play music directly off your IPOD with Rhythmbox Music Player. Simply plug your IPOD into the computer, and open Rhythmbox.

---

<sup>4</sup> <http://wiki.xiph.org/index.php/PortablePlayers>

<sup>5</sup> <http://wiki.ubuntu.com/RestrictedFormats>

To transfer music files to and from an IPOD, you can use the program gtkpod:

1. Install the gtkpod package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To run gtkpod, choose Applications → Sound & Video → gtkpod.

## 1.5. Editing Audio Files

Audacity is free, open source software for recording and editing sounds. To use Audacity:

1. Install the audacity package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To run Audacity, choose Applications → Sound & Video → Audacity.
3. For further help about using Audacity, consult the program's help by choosing Help → Contents.

## 2. Video

To play video, Ubuntu comes with Totem Movie Player which looks and functions similar to Windows Media Player. Some features of Totem include custom playlists, DVD playback and more. You can start Totem by clicking: Applications → Sound & Video → Movie Player from the desktop menu system.

To read video files, Totem uses the Gstreamer framework. To play some video formats, you may need to add further codec support (see 第 3 节 “Multimedia Codecs” ).

There are also other multimedia applications available. Examples include Mplayer, Xine and Totem-xine (which uses the Xine framework, instead of the Gstreamer framework. Some users may benefit from trying alternative video players.

### 2.1. DVD Playback

The movie players provided in Ubuntu are capable of reading DVDs that are not encrypted. However, most commercial DVDs are encrypted with CSS (the Content Scrambling System) and currently for legal reasons it is not possible to include support for these DVDs in Ubuntu. However it is possible to enable support as follows:



The legal status of this library is not fully clear. In some countries it is possible that the use of this library to play or copy DVDs is not permitted by law. Verify that you are within your rights in using it.

1. Install the libdvdread3 package (see 第 2 章 Adding, Removing and Updating Applications).



You will need to use Synaptic Package Manager to install this package

2. To activate DVD decryption, type the following line into a terminal prompt:

```
sudo /usr/share/doc/libdvdread3/examples/install-css.sh
```

3. To play DVDs with Totem, you will need to install some extra codecs (see 第 3 节 “Multimedia Codecs” ).
4. However, the Gstreamer framework (used by Totem) does not support menus or subtitles for DVD playback. For this reason, you can install a separate DVD player, Xine, which supports these. To install Xine, install the gxine package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).

5. You can then open `gxine` from the Sound & Video menu.

## 2.2. Backing Up DVDs

Backing up your DVDs to files or onto DVD+/- discs can be done with `DVD::RIP`. To install `DVD::RIP`:



Before backing up a DVD, you must ensure that you are legally permitted to make copies of it.

1. Install the Multimedia Codecs (see 第 3 节 “Multimedia Codecs” ).
2. Enable DVD video playback (see 第 2.1 节 “DVD Playback” ).
3. Install `dvdrrip` and transcode from the Multiverse repository (see 第 2 章 Adding, Removing and Updating Applications).
4. You can run the program using the command `dvdrrip` (see 第 1.2 节 “手动启动一个程序” ). If you wish, you can add a menu entry for the program `dvdrrip` (see 第 1.1 节 “菜单编辑” ). We recommend you enter it in the Sound & Video menu, and that you use the file `/usr/share/pep15/Video/DVDRip/icon.xpm` for the icon.
5. To start `dvdrrip`, choose Applications → Sound & Video → `dvdrrip`.

## 2.3. RealPlayer 10

1. Install the `libstdc++5` package (see 第 2 章 Adding, Removing and Updating Applications).



You will need to use Synaptic Package Manager to install this package

2. Download the Realplayer package from [here](#).
3. Install the package you have downloaded (see 第 5.1 节 “Install/uninstall .deb files” ).
4. To run Real Player 10, choose Applications → Sound & Video → RealPlayer 10.

## 2.4. Video Editing

Kino is an advanced video editor. It features excellent integration with IEEE-1394 for capture, VTR control, and recording back to the camera. It captures video to disk

in Raw DV and AVI format, in both type-1 DV and type-2 DV (separate audio stream) encodings. For more information, see the Kino website<sup>7</sup>. To use it:

1. Install the kino package (see 第 2 章 Adding, Removing and Updating Applications).
2. To run Kino, choose Applications → Sound & Video → Kino Video Editor.

You can also try the PiTiVi video editor by installing the pitivi package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications). PiTiVi is a video editor for the GNOME desktop. It is still in fairly early development, but worth a try.

---

<sup>7</sup> <http://www.kinodv.org/article/static/2>

## 3. Multimedia Codecs

Many applications in Ubuntu use the GStreamer open source multimedia framework. The codec plugins for GStreamer are organised in different packages depending on the licensing that applies to the various codecs. You can see which codecs are contained in which plugin on the GStreamer websites.

Other applications, such as Mplayer and Xine, do not use the Gstreamer framework. Due to patent and copyright restrictions, codecs for these programs are not included at all in Ubuntu. For more information on these read the Restricted Formats<sup>9</sup> wiki page.

### 3.1. Add Codecs to Gstreamer

To install extra codecs for Gstreamer:

- Install the following packages from the Universe and Multiverse repositories (see 第 2 章 Adding, Removing and Updating Applications):

```
gstreamer0.10-plugins-ugly
gstreamer0.10-plugins-ugly-multiverse
gstreamer0.10-plugins-bad
gstreamer0.10-plugins-bad-multiverse
gstreamer0.10-ffmpeg
```



You will need to use Synaptic Package Manager to install these packages



Some of these packages may not be permitted in some countries; you should verify that you are permitted to use them before installing them.

---

<sup>8</sup> <http://gstreamer.freedesktop.org/documentation/plugins.html>

<sup>9</sup> <https://wiki.ubuntu.com/RestrictedFormats>

## 4. Internet

### 4.1. Connecting to the Internet

To connect to the internet, do the following:

1. If you have a Modem or ADSL connection, read 第 3.5 节 “Modems” first.
2. 系统 → 管理 → Networking
3. Select the Connections tab. Select the Ethernet connection interface from the list, then click the Properties button. Ensure that the button marked Enable this connection is checked. From the Configuration drop-list select DHCP/Static IP address, then click OK.
4. Select the DNS tab add or delete DNS Servers in the DNS Servers list.

To activate or deactivate network connections, do the following:

1. 系统 → 管理 → Networking
2. Select Network settings+Connections Tab+Ethernet connection Activate/Deactivate

### 4.2. Browse Network Computers

1. To view computers on the network, open:  
  
Places → Network Servers
2. You may need to enter a username and password, and a domain. You should obtain these from your network administrator.
3. A list of network resources will be displayed.

### 4.3. Email

The Evolution groupware suite can handle all your email, contact lists, tasks and calendar needs. It also can act as a newsreader and also integrates with the Gnome panel clock, giving you one-click access to your task list.

Evolution can be launched by clicking Applications → Internet → Evolution Mail from the desktop menu system.

Alternatively the Mozilla Thunderbird email client is available. To install this popular email client, install the mozilla-thunderbird package (see 第 2 章 Adding, Removing and Updating Applications).

To start Thunderbird, choose Applications → Internet → Thunderbird Mail Client from the desktop menu system.

## 4.4. World Wide Web

The powerful and secure Mozilla Firefox web browser is included in Ubuntu. Firefox features tabbed browsing, pop-up blocking, in-built search facilities, live bookmarks and more. Also supported are popular plug-ins such as Java, Macromedia Flash, and Real Player. Firefox can be launched by clicking Applications → Internet → Firefox from the desktop menu system.

### 4.4.1. Viewing Online Audio and Video in Firefox

In order to view online audio and video streams in Firefox, you may need to install some plugins. Which plugin you choose to install depends on the media player which you prefer (see 第 2 节 “Video” ).

1. For the Totem Gstreamer plugin (the default Ubuntu media player), install the totem-gstreamer-firefox-plugin package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. For the Totem Xine plugin, install the totem-xine-firefox-plugin package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
3. For the Mplayer plugin, install the mozilla-mplayer package from the Multiverse repository (see 第 2 章 Adding, Removing and Updating Applications).
4. The changes will take effect when you close and open Firefox.



These steps will install the plugin for Firefox. However, to play some formats, you may need to add some extra codecs (see 第 3 节 “Multimedia Codecs” ).

### 4.4.2. Macromedia Flash for Firefox

To view flash graphics from the Mozilla Firefox web browser:

1. Install the flashplugin-nonfree package from the Multiverse repository (see 第 2 章 Adding, Removing and Updating Applications).



2. To download and install the plugin, enter the following command in a terminal:

```
sudo update-flashplugin
```

3. The plug-in will be available the next time you start Firefox.

#### 4.4.3. Java plugin for Mozilla Firefox

Some websites require the Java plugin for Mozilla Firefox. There are two ways of enabling support for this plugin. Most users will find that the easiest way is to install the `j2rel4-mozilla-plugin` package from the Multiverse repository.

Alternatively, for a more complete Java installation, see 第 8.2 节 “Java Runtime Environment (1.5)” .

#### 4.4.4. NVU Web Authoring System

NVU is a WYSIWYG (What You See Is What You Get) graphical web design application, similar to Dreamweaver.

1. Install the `nvu` package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Nvu, choose Applications → Office → Nvu from the desktop menu system.

#### 4.4.5. Bluefish Web Development Studio

Bluefish is a powerful editor for web designers and programmers. Bluefish supports many programming and markup languages, and includes many utilities for designers and programmers.

1. Install the `bluefish` package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Bluefish, choose Applications → Programming → Bluefish Editor

### 4.5. Instant Messaging

#### 4.5.1. Gaim

Gaim is the default instant messenger client in Ubuntu. With Gaim you can talk to people who use AIM/ICQ, Gadu-Gadu, GroupWise, IRC, Jabber, MSN, Napster and Yahoo. The ability to use one client instead of several is a great benefit and allows you to have

all of your buddies in one window so you can just click a name and talk. To start Gaim, choose Applications → Internet → Gaim Internet Messenger from the menu.

#### 4.5.2. XChat-GNOME

XChat-GNOME is a advanced, graphical, multi-platform Internet Relay Chat (IRC) client. Its features include advanced scripting support (perl and python) and a clean, easy to use interface.

1. Install the xchat-gnome package from the main repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start XChat-GNOME, choose Applications → Internet → Xchat-GNOME IRC Chat .

##### 4.5.2.1. Joining #ubuntu with XChat-Gnome

One excellent way to get help with Ubuntu or introduce yourself to IRC is to join Ubuntu's official support channel on Freenode.

1. Start XChat-Gnome as above.
2. When you start XChat-Gnome for the first time, it will ask you for an IRC Nickname & your real name. Pick anything you want for your nick (first initial & your last name is good, or be more creative), put your real name or part of it, and press OK.
3. In the Server Window that opens next, select Ubuntu Servers, and press Connect.

## 4.6. Peer To Peer

### 4.6.1. BitTorrent

BitTorrent capability is included in Ubuntu by default. Find a BitTorrent .torrent file online, click on it in Firefox, and the Gnome BitTorrent client should start automatically.

Alternatively, download a .torrent file and double click on it.

### 4.6.2. aMule File Sharing Client

1. Install the amule package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To open aMule, choose Applications → Internet → aMule

## 4.7. News Readers

### 4.7.1. Pan News Reader

1. Install the pan package (see 第 2 章 Adding, Removing and Updating Applications).
2. To open Pan Newsreader, choose Applications → Internet → Pan Newsreader.

### 4.7.2. Liferea News Reader

1. Install the liferea package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To open Liferea Feed Reader, choose Applications → Internet → Liferea Feed Reader.

## 5. Office

### 5.1. Introduction

Ubuntu comes with a comprehensive office suite installed – OpenOffice.org. The OpenOffice.org project is one of the most successful open source projects in the world, and provides a powerful wordprocessor, spreadsheet, presentation designer and database management, and provides support for most languages. The Suite has excellent compatibility with other major Office suites, such as Microsoft Office.

For more information about OpenOffice.org, see the OpenOffice.org website<sup>10</sup>.

However, you may wish to add extra programs to your system. This section outlines a number of other useful office applications.

### 5.2. GNOME Office

The GNOME desktop features a separate office suite. These programs are generally lighter and faster than the programs in the OpenOffice.org suite, and have fewer features as a result. But this may be exactly what you want. The Suite has excellent compatibility with other major Office suites, such as Microsoft Office.

The GNOME Office Suite includes the following software:

- A word processor (Abiword);
- A spreadsheet (Gnumeric);
- A database management program (GNOME-DB);
- A diagram editor (Dia);
- Two graphics applications (Inkscape and The GIMP); and
- A project management application (Planner).



Each of these applications can also be installed separately.

To install the GNOME Office suite:

---

<sup>10</sup> <http://www.openoffice.org/product/index.html>

1. Install the `gnome-office` package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. The Office applications can then be found in the menu at Applications → Office, and the Graphics applications can be found at Applications → Graphics.

### 5.3. GnuCash Accounting Application

GnuCash is a program to manage your personal or business finances. Designed to be easy to use, yet powerful and flexible, GnuCash allows you to track bank accounts, stocks, income and expenses. As quick and intuitive to use as a checkbook register, it is based on professional accounting principles to ensure balanced books and accurate reports.

To find out more about GnuCash, see the GnuCash website<sup>11</sup>.

To use GnuCash:

1. Install the `gnucash` package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. You can open GnuCash by running the command `gnucash` (see 第 1.2 节 “手动启动一个程序” ). If you wish, you can add a menu entry for the program `gnucash` (see 第 1.1 节 “菜单编辑” ).

### 5.4. Scribus Desktop Publishing Application

Scribus is a professional desktop publishing program. For more information, see the Scribus website<sup>12</sup>.

1. Install the `scribus` package (see 第 2 章 Adding, Removing and Updating Applications).
2. To install additional templates, install the `scribus-template` package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).



You will need to use Synaptic Package Manager to install this package

3. To start Scribus, choose Applications → Office → Scribus .

---

<sup>11</sup> <http://www.gnucash.org/>

<sup>12</sup> <http://www.scribus.org.uk/>

## 6. Graphics & Drawing

Ubuntu has some very powerful, world-class graphics and drawing applications available.

### 6.1. gThumb Image Viewer

gThumb is an advanced image viewer and browser. It has many useful features, such as filesystem browsing, slide show, image catalogs, web album creation, camera import, image CD burning, batch file operations and quick image editing features like transformation and color manipulation.

gThumb is included in Ubuntu by default. To start it, choose Applications → Graphics → gThumb Image Viewer .

gThumb's excellent help files are accessible from Help → Contents.

For more advanced photo & image editing, see The GIMP, below.

### 6.2. The GIMP (Gnu Image Manipulation Program)

The GIMP lets you draw, paint, edit images, and much more! GIMP includes the functionality and plug-ins of other famous image editing and processing programs.

The GIMP is installed in Ubuntu by default, and can be started by choosing Applications → Graphics → GIMP Image Editor .

More information is available from the GIMP homepage.<sup>13</sup>

### 6.3. Inkscape Vector Graphics Editor

Inkscape is a powerful editor for working with the SVG (Scalable Vector Graphics) format.

1. Install the inkscape package (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Inkscape choose Applications → Graphics → Inkscape SVG Vector Illustrator .

---

<sup>13</sup> <http://www.gimp.org/>

## 6.4. Blender 3d Modeller

Blender is an integrated 3d suite for modelling, animation, rendering, post-production, interactive creation and playback.

1. Install the blender package (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Blender choose Applications → Graphics → Blender 3d modeller.

## 7. Games

Ubuntu comes with a number of games by default, including Aisleriot Solitaire, Gnometriz, and Mines.

Explore Ubuntu's Games menu at Applications → Games .

### 7.1. Frozen-Bubble

In Frozen-Bubble you attempt to shoot bubbles into groups of the same color to cause them to pop.

1. Install the frozen-bubble package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Frozen-Bubble, choose Applications → Games → Frozen-Bubble.

### 7.2. PlanetPenguin Racer

Race Tux, the Linux mascot, down a snow- and ice-covered mountain as quickly as possible, avoiding the trees and rocks that will slow you down.



Ensure you have hardware accelerated 3D drivers installed for your video card. For more information see 第 3 节 “硬件” .

1. Install the planetpenguin-racer package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start PlanetPenguin Racer, choose Applications → Games → PlanetPenguin-Racer.

### 7.3. Scorched3D

Scorched3D is a 3D remake of Scorched Earth, an artillery duel game.



Ensure you have hardware accelerated 3D drivers installed for your video card. For more information see 第 3 节 “硬件” .

1. Install the scorched3d package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. To start Scorched3D, choose Applications → Games → scorched 3d.



## 7.4. Windows Games

Many games which are available for Windows can be run on Linux through emulators. Examples of these are Wine and Cedega

1. For information about Wine, see the Ubuntu wiki<sup>14</sup>.
2. For information about Cedega, see the Ubuntu wiki<sup>15</sup>

## 8. Programming

### 8.1. Basic Compilers

1. In order to be able to compile programs, some extra packages are necessary. These can be installed all at once, as follows:
2. Install the `build-essential` package (see 第 2 章 Adding, Removing and Updating Applications).

### 8.2. Java Runtime Environment (1.5)



The following instructions are only for i386 and amd64 computers. For PowerPC machines, please look at the Ubuntu Wiki.<sup>16</sup>



At the time of this writing J2SE is at version 5.0 Update 6. This is subject to change. If you do not see this version on Sun's website, download the newest version displayed.

1. Go to <http://java.sun.com/j2se/1.5.0/download.jsp> and click on “Download JRE 5.0 Update 6”. Do not choose the link with the NetBeans bundle.
2. You must first accept the licence, then click on “Linux self-extracting file” and Download `jre-1_5_0_06-linux-i586.bin` to your hard drive.



If you use an amd64 computer, please replace `jre-1_5_0_06-linux-i586.bin` with `jre-1_5_0_06-linux-amd64.bin`.

3. Install the `java-package` package from the Multiverse repository (see 第 6 节 “Extra Repositories”).
4. Make the downloaded file executable. At the command line, change to the directory where you downloaded the file, and type

```
chmod +x jre-1_5_0_06-linux-i586.bin
```

5. To install JRE, first build an Ubuntu package. Type

```
fakeroot make-jpkg jre-1_5_0_06-linux-i586.bin
```

6. Then install the package you have built:

```
sudo dpkg -i sun-j2re1.5_1.5.0+update06_i386.deb
```

7. To get your system to use Sun Java instead of the open-source (but less functional) GIJ that is installed by default, run:

```
sudo update-alternatives --config java
```

and pick the option that has `j2rel5-sun` in it.

### 8.3. Development Tools

A list of handy open source development tools for use on Ubuntu such as Integrated Development Environments (IDEs) and powerful editors.

- Anjuta<sup>17</sup> is an Integrated Development Environment (IDE) for C and C++.
- Bazaar-NG<sup>18</sup> is a decentralised version control system used for Ubuntu development.
- Bluefish<sup>19</sup> is a powerful editor for experienced web designers and programmers.
- Eclipse<sup>20</sup> is an IDE for Java and other programming languages. It forms the basis for closed-source programs such as JBuilder.
- Eric<sup>21</sup> is a fully featured Python and Ruby IDE.
- Glade<sup>22</sup> is a User Interface designer for building GNOME applications.
- IDLE<sup>23</sup> is the Python IDE built with the Tkinter GUI toolkit.
- KDevelop<sup>24</sup> is a IDE for KDE which supports many programming languages.
- MonoDevelop<sup>25</sup> is an IDE for writing mono/.net applications in C# and other languages.
- NetBeans<sup>26</sup> is a Java IDE that features support for CVS and a form builder.

### 8.4. Programming Documentation

Some useful documentation for programming with Ubuntu.

#### 8.4.1. Dive Into Python

Dive Into Python is a book on learning how to program in the preferred Ubuntu language, Python. Aimed at programmers with some previous experience, it comes installed with every Ubuntu installation.

You can read Dive Into Python here<sup>27</sup>.

---

<sup>27</sup> <file:///usr/share/doc/diveintopython/html/toc/index.html>

### 8.4.2. PyGTK Tutorial

PyGTK Tutorial is a tutorial on developing with the graphical toolkit often used for developing Ubuntu applications. It assumes that you have knowledge of Python but not necessarily GTK.

1. Install the `python-gtk2-tutorial` package (see 第 2 章 Adding, Removing and Updating Applications).



You will need to use Synaptic Package Manager to install this package

2. To access the documentation, visit `python-gtk-tutorial28`.

### 8.4.3. Other Documentation

Devhelp is an application to read and search all of the documentation that you install.

1. Install the `devhelp` package (see 第 2 章 Adding, Removing and Updating Applications).
2. Choose: Applications → Programming → Devhelp

---

# 第 4 章 配置你的系统

这一章包含系统配置的一些信息。

## 1. 桌面技巧

这一节详细讲述Ubuntu桌面环境(GNOME)的使用和定制方面的一些技巧，以及文件管理器(Nautilus)

### 1.1. 菜单编辑

Ubuntu 自带了 Alacarte Menu

Editor，因此您可以定制您的菜单，并为那些安装后没有自动出现菜单项的程序添加菜单项。

添加一个新的菜单记录

1. 可以通过 应用程序 → 附件 → Alacarte Menu Editor 或 在任何顶级菜单上右击并选择 编辑菜单 来打开 Alacarte。
2. 在 Alacarte 的左面板中，选择要出现新菜单项的子菜单。
3. 选择 文件 → New Entry。在 New Entry 对话框中选择 Name, Comment, Command 和 Icon。Command 的内容通常是软件包名，Name 的内容将出现在菜单上，Comment 的内容将出现在菜单项附近显示的工具提示中。Icons 的内容默认被添加到 `/usr/share/pixmaps` 目录中，也可以从您文件系统中的任何地方选出。

要改变菜单项的顺序，请使用 Alacarte 窗口右手边的上下箭头。

要阻止菜单项的显示，可以使用每个菜单项旁边的复选框。这并没有删除该菜单项，因此您也可以相同方式

### 1.2. 手动启动一个程序

有时手工启动程序是有用的，例如当程序在菜单中没有菜单项时。这可以通过 Run Applications 对话框轻松做到。

如果您打算象通常那样使用一个没有菜单项的应用程序的话，在 Ubuntu 里为它添加一个菜单项也是非常容易的。(参见 第 1.1 节 “菜单编辑”)

1. 在打开的 运行应用程序 对话框中键入：Alt-F2
2. 输入你想要运行的程序名，然后按Enter键。

### 1.3. 在GNOME启动时自动运行应用程序

1. 选择 系统 → 首选项 → 会话
2. 单击Startup Programs标签。
3. 用添加、编辑和删除按钮来管理启动时运行的程序。有些程序在您配置它们时会自动将其添加到这个列表

## 1.4. 当系统启动时自动登录GNOME环境。

当计算机启动的时候可以使一个用户自动登录，但是对于大多数计算机来说不推荐这样做，因为这样自动使用

1. 系统 → 管理 → 登录屏幕设置
2. 选择 安全 标签页。勾选 启用自动登录 选项。
3. 选择您想自动登录的用户。

## 1.5. 改变 Nautilus 的显示模式

Ubuntu 的文件管理器 Nautilus

为您提供两种与您文件系统交互的模式：空间模式和浏览模式。

- 在 浏览模式  
下，文件管理器窗口看上去象个可以显示任何位置的浏览器。打开文件夹时它会刷新当前的文件管理器窗口。
- 在 空间模式  
下，文件管理器窗口看上去象文件夹。打开文件夹时会为该文件夹打开一个新窗口。每次当您打开一个指定文件夹时，都会打开一个新窗口（这也是该模式为什么叫这个名字的原因）。

浏览器模式是 Ubuntu 的缺省模式，但你可能想改变它：

1. 在 Nautilus 中选择编辑 → 首选项
2. 单击Behavior标签。
3. 取消Always open in browser windows框。
4. 关闭Nautilus，然后重新启动。

## 1.6. 在Nautilus窗口管理器中显示被隐藏的文件和文件夹。

1. 在 Nautilus 中使用快捷键 Ctrl+H  
可以在隐藏和显示隐藏文件和文件夹之间切换，或者选择 查看 → 显示隐藏文件。
2. 要想永久的显示所有隐藏的文件和文件夹，选择Edit菜单， Preferences选项。
3. 单击Views标签。
4. 选中Show hidden and backup files框。

## 1.7. 打开窗口管理器Nautilus中的地址栏。

位置栏 是您文件管理器中可以输入地址的地址栏。可以使用 转到 → 位置... 来开启和关闭该位置栏，您也可以使用 Ctrl+L 快捷键。

## 1.8. 使用 Nautilus 查看远程 SSH、FTP 和 SFTP 服务器。

1. 确保 Nautilus Location Bar 是开启的 (参见第 1.7 节 “打开窗口管理器 Nautilus 中的地址栏。” )。

2. 在 位置栏 中, 输入:

对于 SSH, 可以使用:

```
ssh://username@ssh.server.com
```

对于 FTP, 使用:

```
ftp://username@ftp.server.com
```

对于 SFTP, 使用:

```
sftp://username@sftp.server.com
```

。

将 `username` 替换成您的用户名, 并将 `@` 符号后的字符完全替换成服务器地址。如有需要将提示您输入密码。如果无需用户名 (匿名), 请省略 `username` 和 `@` 符号。

您也可以手工指定您的密码, 将上述语句改成类似下面写法:

```
ftp://username:password@ftp.server.com
```

3. 要通过 Nautilus 访问远程服务器, 通过选择 位置 → 连接到服务器... 并输入远程服务器的细节以添加一个到服务器的固定书签。

## 1.9. 改变某文件类型的默认“打开”程序。

1. 在 Nautilus 中, 右击文件并在出现的菜单中选择 `menuchoice>`
2. 点击 打开方式 标签页会出现一个应用程序列表。
3. 选择你希望默认打开该文件类型的应用程序。如果该应用程序不在列表中, 请使用 添加按钮 将其添加到列表中。

## 1.10. 从文件管理器中使用管理权限打开文件

要启用对从文件管理器里以管理权限打开文件的支持, 您需要添加一个 Nautilus script:



请注意以管理权限打开文件会引起安全问题。请确保您对您正在打开的文件非常熟悉。



1. Open a new file to edit in the relevant directory:

```
gedit $HOME/.gnome2/nautilus-scripts/Open\ as\ Administrator
```

2. Insert the following lines into the new file:

```
for uri in $NAUTILUS_SCRIPT_SELECTED_URIS; do
  gksudo "gnome-open $uri" &
done
```

3. 保存编辑过的文件(示例)

4. 令编辑后的文件可执行:

```
chmod +x $HOME/.gnome2/nautilus-scripts/以管理员权限打开
```

5. You can now open files as root by right clicking on the file and selecting Scripts → Open as Administrator

### 1.11. Install Extra Fonts

This section describes how to install extra fonts from the Ubuntu archives.

1. For international fonts, install the following packages from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications):

```
xfonts-intl-arabic
xfonts-intl-asian
xfonts-intl-chinese
xfonts-intl-chinese-big
xfonts-intl-european
xfonts-intl-japanese
xfonts-intl-japanese-big
xfonts-intl-phonetic
```

2. 对于 Microsoft TrueType core fonts , 可以从Multiverse 软件库中安装 msttcorefonts /application> ()
3. 对于 Ghostscript fonts, 可以安装 gsfonts-x11 软件包 (参见 第 2 章 Adding, Removing and Updating Applications)。
4. 安装任何新字体后, 在终端提示符后输入以下命令来重建字体信息文件:

```
sudo fc-cache -f -v
```

如果您更喜欢手工下载个别字体，您可以简单方便地安装它们：可以打开文件管理器，并在位置栏中输入 `fonts:///`（参见 第 1.7 节

“打开窗口管理器 Nautilus 中的地址栏。”）。然后您可以简单地将您下载的字体拖到已有字体组中。

### 1.12. RAR 压缩包

1. 从 Multiverse 软件库中安装 `rar` 软件包（参见 第 2 章 Adding, Removing and Updating Applications）。

2. 运行：

```
□  
sudo ln -fs /usr/bin/rar /usr/bin/unrar
```

3. 要打开 `rar` 文件，在该文件上双击。

### 1.13. 高级桌面小程序

`gDesklets` is a system for bringing mini programs (desklets), such as weather forecasts, news tickers, system information displays, or music player controls, onto your desktop, in a symbiotic relationship of eye candy and usefulness.

1. Install the `gdesklets` and `gdesklets-data` packages from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).

2. Choose: Applications → Accessories → `gDesklets`

3. 欲知更多信息，请访问 `gDesklets` 网站<sup>2</sup>

### 1.14. Hide Recent Documents in the Places menu

To hide Recent Documents from the Places menu, open a terminal and run the command:

```
chmod 400 ~/.recently-used
```

To enable it again, run the command:

```
chmod 600 ~/.recently-used
```

### 1.15. Show the Computer, Home, and Trash desktop icons in GNOME

1. 通过运行程序 `gconf-editor` 打开配置编辑器（参见 第 1.2 节 “手动启动一个程序”）。

2. Choose apps → `nautilus` → `desktop`.

3. 勾选 `computer_icon_visible`、`home_icon_visible` 和 `trash_icon_visible` 边上的复选框。这些改变将立刻生效。

### 1.16. 将我的首选电子邮件客户端改为 Mozilla Thunderbird

1. 选择 系统 → 首选项 → 首选应用程序
2. 点击 邮件阅读器 下拉框，并选择 自定义 选项。
3. 在 命令 文本框中输入 `mozilla-thunderbird %s`，然后关闭对话框。

### 1.17. 不重启电脑的同时重启 GNOME

1. 保存并关闭所有打开的应用程序。
2. 使用快捷键 `Ctrl-Alt-Backspace` 来重启 GNOME。
3. If `Ctrl-Alt-Backspace` is disabled, type  

```
sudo /etc/init.d/gdm restart
```

(See 第 1.18 节 “不让`Ctrl-Alt-Backspace`组合键重启X” to disable `Ctrl-Alt-Backspace`.)

### 1.18. 不让`Ctrl-Alt-Backspace`组合键重启X

1. Make a backup copy of your existing `/etc/X11/xorg.conf` file:  

```
sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf_backup
```
2. Open `/etc/X11/xorg.conf` for editing:  

```
gksudo gedit /etc/X11/xorg.conf
```
3. Add the following lines to the end of the file:  

```
Section "ServerFlags"  
Option "DontZap" "yes"  
EndSection
```
4. Save the edited file (an example).
5. The change will take effect the next time you log in to GNOME. If you want the change to take effect immediately, restart GNOME manually. (See 第 1.17 节 “不重启电脑的同时重启 GNOME” .)

## 2. 分区并重启

### 2.1. 图形分区编辑器

Gparted 是一个编辑磁盘分区的图形工具。

1. 安装 gparted 软件包 (参见 第 2 章 Adding, Removing and Updating Applications)。
2. 您可以通过 系统 → 系统管理 → Gnome 分区编辑器 来运行该应用程序。

### 2.2. Make partitions available from Ubuntu

Windows 和其它分区应该可以被任何 Ubuntu 系统识别。如果它们没有被识别的话, 您可以使用图形磁盘工具来启用它们。

1. 打开 系统 → 系统管理 → 磁盘
2. 选择当前硬盘, 并点击 分区 菜单。
3. 选择相关分区并点击 激活。
4. To unmount the partition, click Disable.

### 2.3. Make partitions automatically available

Again, Windows and other partitions should be automatically available from Ubuntu. If they are not, the following procedure will make them automatically available:

1. Read 第 3.7.1 节 “Check disk space usage and view the partition table”
2. First make a directory where the partition can be made available ("mounted"):

```
sudo mkdir /media/windows
```

3. Next, backup your disk configuration file and open the file in a text editor with administrative privileges:

```
sudo cp /etc/fstab /etc/fstab_backup  
gksudo gedit /etc/fstab
```

4. 在文件最后添加以下行:

```
/dev/hda1 /media/windows ntfs umask=0222 0 0
```



用您正确的分区名来替换 `/dev/hda1`。

如果您的 Windows 分区使用 FAT32 文件系统，那么在上面的命令上用 `vfat` 替换掉 `ntfs`。

如果你有一个 FAT32 的文件系统，对它的读写也同样是安全的。要做到这一点，需要将 `umask` 改为 `0000`。

5. 保存编辑的文件（一个范例<sup>4</sup>）
6. 所做改动将会在计算机重启后生效。

## 2.4. 在启动时自动运行一个系统命令。

有时它对于将自定义命令添加到启动进程中将是很有用的，这样您的计算机在每次启动时都可以执行它。

1. 以管理权限编辑 `crontab`（参见第 3.3 节“root 用户和 `sudo` 命令”）：

```
sudo crontab -e
```

2. 插入以下内容：

```
@reboot /home/user/command
```



用您命令的绝对路径替换掉 `/home/user/command`。

3. 保存该文件并退出

## 2.5. 改变启动时的默认操作系统

要改变在启动时默认开始的操作系统，必须编辑启动配置文件。

1. 备份您的启动配置文件，并用文本编辑器打开它：

```
sudo cp /boot/grub/menu.lst /boot/grub/menu.lst_backup
gksudo gedit /boot/grub/menu.lst
```

2. 查找该行：

```
...
default 0
...
```

3. 用以下行替换:

```
default X_sequence
```

4. 保存编辑文件 (一个范例<sup>5</sup>)

## 2.6. 永久性地禁用/激活启动服务

这要求管理权限 (参见 第 3.3 节 “root 用户和 sudo 命令” )。

1. 运行 服务设置: 系统 → 系统管理 → 服务
2. 输入您的密码。
3. 勾上/取消标记您想运行的服务, 然后点击OK。
4. For greater control over the boot-up services, install the bum from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications) and run it:  
System → Administration → Boot-up Manager.

## 3. 硬件

### 3.1. 数码相机

Most USB digital cameras will be automatically detected by Ubuntu. Simply plug in and switch on your USB digital camera, Ubuntu will then ask you if you would like to import the photos from your camera. Click on Import, Ubuntu will then show you a preview of your photos. Choose a location to save your photos to, then click on Import, Ubuntu will then save your photos to your hard drive.

If you do not get the auto-import popup with your camera, it might be worth starting gThumb and trying File → Import Photos.... See 第 6.1 节 “gThumb Image Viewer” for more on gThumb.

### 3.2. 3D Graphic Cards

#### 3.2.1. Introduction to 3D Video Acceleration

Most video hardware should work automatically with Ubuntu. However with some types of video hardware, 3D acceleration (which is needed by some games) will not be supported automatically. This section details how to get this working with some popular video hardware.

The first step is to find out whether 3D acceleration is working.

1. 要做到这一点，在终端输入：

```
glxinfo | grep rendering
```

2. 如果 3D 加速工作正常，将会显示以下内容：

```
direct rendering: Yes
```

3. 如果没有的话，请按照下面章节的说明激活 3D 加速。

#### 3.2.2. Nvidia 显卡的 3D 驱动

在 Ubuntu 中 Nvidia 显卡并不会自动启用 3D 加速，因为厂商没有发布开源驱动。然而是可以激活 3D 加速的。这有赖于您的显卡类型。

1. 如果您有一块老的 TNT、TNT2、TNT Ultra、GeForce1 或 GeForce2 卡的话，请从 Restricted 软件库中安装 nvidia-glx-legacy 和 nvidia-settings 软件包（参见 第 2 章 Adding, Removing and Updating Applications）。

2. 或者, 如果您有一个更新的卡的话, 请从 Restricted 软件库中安装 `nvidia-glx` 软件包 (参见 第 2 章 `Adding, Removing and Updating Applications`).
3. 要启用新的驱动, 请在终端运行以下命令:

```
sudo nvidia-glx-config enable
```

4. 您可以通过运行 `nvidia-settings` 应用程序来调整新驱动的设置。如果您想的话, 还可以为该程序添加一个菜单项 (参见 第 1.1 节 “菜单编辑” )。

### 3.2.3. ATI 显卡的 3D 驱动

Many ATI video cards work well with Ubuntu automatically. To check that 3d acceleration works with your card, see 第 3.2.1 节 “Introduction to 3D Video Acceleration”. If it does not work, this procedure should activate it.

1. Install the `xorg-driver-fglrx` package from the Restricted repository (see 第 2 章 `Adding, Removing and Updating Applications`).
2. You now need to configure the computer to use the new driver so run this command in a terminal:

```
sudo dpkg-reconfigure xserver-xorg
```

3. When the dialogue appears and asks whether to do automatic detection of your video, pick Yes.
4. When asked to select a driver, pick `fglrx`.
5. Follow the remaining instructions as appropriate.
6. Restart your machine for changes to take effect.

## 3.3. Keyboard Layouts

This section deals with adding keyboard layouts to your system, and switching between them easily.

### 3.3.1. Add a Layout

To add a keyboard layout to your system:

1. Go to `System → Preferences → Keyboard`



2. Choose Layouts
3. Press Add... to add further keyboard layouts. It is simpler to have two layouts; the maximum is currently four.
4. Close the dialogue.

### 3.3.2. Switch Keyboard Layouts

To switch between keyboard layouts, you can set a key combination:

1. Go to System → Preferences → Keyboard
2. To configure your layouts, choose Layout Options
3. Expand the Group Shift/Lock behaviour option
4. Choose the key combination that enables you to switch between keyboard layouts. The default is by pressing both Alt keys at the same time. A common alternative is to use Alt-Shift.
5. Close the dialogue
6. You can now use your key combination to switch between keyboard layouts.

### 3.3.3. Keyboard Indicator

Alternatively add the Keyboard Indicator applet to your panel:

1. Right-click on an empty space on the panel where you want to add the applet
2. Click Add to Panel...
3. Choose Keyboard Indicator from the Utilities section
4. You can now right-click on the Keyboard Indicator to manage your keyboard layouts.

## 3.4. Wireless Cards

Many wireless cards are automatically detected by Ubuntu during installation. A complete listing of wireless cards which work with Ubuntu can be found on Ubuntu Wiki<sup>6</sup>. Please add your wireless card to the list if it works with Ubuntu.

---

<sup>6</sup> <https://wiki.ubuntu.com/HardwareSupportComponentsWirelessNetworkCards>

Some cards may not work automatically with Ubuntu. If this is the case, please look at the [Wireless Troubleshooting Guide](#)<sup>7</sup> on the Ubuntu Wiki which is an excellent resource for troubleshooting wireless cards.

All information regarding wireless networking on Ubuntu is collected at [Wireless Networking Centrals](#) on the Ubuntu Wiki.

### 3.5. Modems

#### 3.5.1. Winmodems

Most winmodems are not supported by Ubuntu, but drivers can be found that will enable the use of such modems. First you need to identify what chipset your winmodem is using:

```
wget -c http://linmodems.technion.ac.il/packages/scanModem.gz
gunzip -c scanModem.gz > scanModem
chmod +x scanModem
sudo ./scanModem
gedit Modem/ModemData.txt
```

Read this file, it should list what modem chipset you have. Once you are aware of the chipset you have, see <http://www.linmodems.org/> and follow the directions for your modem. More information can be found at [SettingUpModems](#)<sup>9</sup> on the Ubuntu Wiki.

#### 3.5.2. ADSL Modems

All PPPOE and router-style ADSL modems are supported by Ubuntu (that use ethernet for the connections), and some USB ADSL modems are supported too. For router-style ADSL modems, just connect it up, configure the modem as per your ISP's instructions and configure networking in Ubuntu. For information on PPPOE modems see this [guide](#)<sup>10</sup> on the Ubuntu wiki.

### 3.6. Printers

Some printers will be automatically detected by Ubuntu; for those that are not, choose System → Administration → Printing then choose Printer → Add Printer and run the Printer Install Wizard.

---

<sup>7</sup> <https://wiki.ubuntu.com/WirelessTroubleshootingGuide>

<sup>8</sup> <https://wiki.ubuntu.com/WifiDocs>

<sup>9</sup> <https://wiki.ubuntu.com/SettingUpModems>

<sup>10</sup> <https://wiki.ubuntu.com/ADSLPPPoE>

There are some printers that need further setup. Search the databases at [LinuxPrinting.org](http://LinuxPrinting.org)<sup>11</sup> or check the Ubuntu Wiki's Printer page<sup>12</sup> for possible information on your printer.

## 3.7. Other Tips

### 3.7.1. Check disk space usage and view the partition table

1. Launch System → Administration → Disks
2. Select the Harddrive, then the Partitions tab
3. Each partition will be listed under Partition List, with disk space and mount point.

### 3.7.2. List devices

1. To list mounted devices, run the following command in a terminal:

```
mount
```

The listing shows the device (such as a hard disk partition), the mount point (where you access the files), the filesystem type and the mount options.

This example shows the hda2 hard disk partition mounted as '/', with the filesystem type ext3. The partition is mounted with two options, one to allow the device to be read from and wrote to and the other to remount the device as read only in the event of any errors.

```
/dev/hda2 on / type ext3 (rw,errors=remount-ro)
```

2. To list PCI devices:

```
lspci
```

3. To list USB devices:

```
lsusb
```

### 3.7.3. Mount/unmount CD/DVD-ROMs manually, and show all hidden and associated files/folders

1. Assuming that `/media/cdrom0/` is the location of CD/DVD-ROM

---

<sup>11</sup> <http://www.linuxprinting.org/>

<sup>12</sup> <https://wiki.ubuntu.com/HardwareSupportComponentsPrinters>

2. To mount CD/DVD-ROM:

```
sudo mount /media/cdrom0/ -o unhide
```

3. To unmount CD/DVD-ROM:

```
sudo umount /media/cdrom0/
```

## 4. Networking

### 4.1. Change the Computer Name

1. 系统 → 管理 → Networking
2. Select the General tab. Enter the name of the computer in the Hostname field.
3. Click OK, close all open applications and reboot.

### 4.2. Networking Utilities

#### 4.2.1. Firestarter Firewall

A firewall protects a computer system from unauthorized access. It is not normally necessary to install a firewall on an Ubuntu system, because access to the system is closed by default. However, if you run any services which you allow other computers to access (for example, the Apache web server), it is advisable to install a firewall. Firestarter is a program which allows you to control a firewall through a graphical interface.

1. Install the Firestarter package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. After it is installed, run Applications → System Tools → Firestarter to configure your firewall. The firewall will now start in the background when your computer starts.

#### 4.2.2. Graphical Network Monitor

Etherape displays network activity among different hosts using circles of varying size.

1. Install the etherape package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. Choose: Applications → Internet → Etherape

#### 4.2.3. Network Traffic Analyzer

Ethereal is a network traffic analyzer/sniffer that captures packets off the network in real time and displays the contents of them.

1. Install the etherreal package from the Universe repository (see 第 2 章 Adding, Removing and Updating Applications).
2. Choose: Applications → Internet → Etherreal

---

## 第 5 章 获取更多帮助

在很多地方您都可以获取 Ubuntu 桌面系统的帮助，包括：

- Ubuntu 文档网站<sup>1</sup> - 这里包含有本指南及其它由 Ubuntu 文档小组为 Ubuntu 和 Kubuntu 制作的其它指南。
- Ubuntu Wiki<sup>2</sup> - 这里包含了许多由社区贡献的指南。
- Web 论坛<sup>3</sup> - 在这里您可以在论坛上提问并从论坛社区中获得答案。
- 邮件列表<sup>4</sup> - 在这里，您可以使用邮件提问，并通过社区的邮件列表获得答案。
- IRC 聊天室：irc.freenode.net channel #ubuntu - 与 irc 社区实时交流。您需要一个 irc 客户端 来连接。Ubuntu 自带了一款通讯客户端，请打开 应用程序 → 互联网 → Gaim 互联网通讯程序。

要获得更多信息，请访问 [如何获得帮助](https://wiki.ubuntu.com/HowToGetHelp)<sup>5</sup> wiki 页。

---

<sup>5</sup> <https://wiki.ubuntu.com/HowToGetHelp>

---

# 附录 A. Creative Commons by Attribution-ShareAlike 2.0

CREATIVE COMMONS CORPORATION IS NOT A LAW FIRM AND DOES NOT PROVIDE LEGAL SERVICES. DISTRIBUTION OF THIS LICENSE DOES NOT CREATE AN ATTORNEY-CLIENT RELATIONSHIP. CREATIVE COMMONS PROVIDES THIS INFORMATION ON AN "AS-IS" BASIS. CREATIVE COMMONS MAKES NO WARRANTIES REGARDING THE INFORMATION PROVIDED, AND DISCLAIMS LIABILITY FOR DAMAGES RESULTING FROM ITS USE.

## License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

### 1. Definitions.

- a. "Collective Work" means a work, such as a periodical issue, anthology or encyclopedia, in which the Work in its entirety in unmodified form, along with a number of other contributions, constituting separate and independent works in themselves, are assembled into a collective whole. A work that constitutes a Collective Work will not be considered a Derivative Work (as defined below) for the purposes of this License.
- b. "Derivative Work" means a work based upon the Work or upon the Work and other pre-existing works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which the Work may be recast, transformed, or adapted, except that a work that constitutes a Collective Work will not be considered a Derivative Work for the purpose of this License. For the avoidance of doubt, where the Work is a musical composition or sound recording, the synchronization of the Work in timed-relation with a moving image ("synching") will be considered a Derivative Work for the purpose of this License.



- c. "Licensor" means the individual or entity that offers the Work under the terms of this License.
  - d. "Original Author" means the individual or entity who created the Work.
  - e. "Work" means the copyrightable work of authorship offered under the terms of this License.
  - f. "You" means an individual or entity exercising rights under this License who has not previously violated the terms of this License with respect to the Work, or who has received express permission from the Licensor to exercise rights under this License despite a previous violation.
  - g. "License Elements" means the following high-level license attributes as selected by Licensor and indicated in the title of this License: Attribution, ShareAlike.
2. Fair Use Rights. Nothing in this license is intended to reduce, limit, or restrict any rights arising from fair use, first sale or other limitations on the exclusive rights of the copyright owner under copyright law or other applicable laws.
3. License Grant. Subject to the terms and conditions of this License, Licensor hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:
- a. to reproduce the Work, to incorporate the Work into one or more Collective Works, and to reproduce the Work as incorporated in the Collective Works;
  - b. to create and reproduce Derivative Works;
  - c. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission the Work including as incorporated in Collective Works;
  - d. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission Derivative Works.
  - e. For the avoidance of doubt, where the work is a musical composition:

- i. "Performance Royalties Under Blanket Licenses." Licensor waives the exclusive right to collect, whether individually or via a performance rights society (e.g. ASCAP, BMI, SESAC), royalties for the public performance or public digital performance (e.g. webcast) of the Work.
  - ii. "Mechanical Rights and Statutory Royalties." Licensor waives the exclusive right to collect, whether individually or via a music rights society or designated agent (e.g. Harry Fox Agency), royalties for any phonorecord You create from the Work ("cover version") and distribute, subject to the compulsory license created by 17 USC Section 115 of the US Copyright Act (or the equivalent in other jurisdictions).
- f. "Webcasting Rights and Statutory Royalties." For the avoidance of doubt, where the Work is a sound recording, Licensor waives the exclusive right to collect, whether individually or via a performance–rights society (e.g. SoundExchange), royalties for the public digital performance (e.g. webcast) of the Work, subject to the compulsory license created by 17 USC Section 114 of the US Copyright Act (or the equivalent in other jurisdictions).

The above rights may be exercised in all media and formats whether now known or hereafter devised. The above rights include the right to make such modifications as are technically necessary to exercise the rights in other media and formats. All rights not expressly granted by Licensor are hereby reserved.

4. Restrictions. The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:
  - a. You may distribute, publicly display, publicly perform, or publicly digitally perform the Work only under the terms of this License, and You must include a copy of, or the Uniform Resource Identifier for, this License with every copy or phonorecord of the Work You distribute, publicly display, publicly perform, or publicly digitally perform. You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute, publicly display, publicly perform, or publicly digitally perform the Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement. The above applies to the Work as incorporated in a Collective Work, but this does not require the Collective Work apart from the

Work itself to be made subject to the terms of this License. If You create a Collective Work, upon notice from any Licensor You must, to the extent practicable, remove from the Collective Work any reference to such Licensor or the Original Author, as requested. If You create a Derivative Work, upon notice from any Licensor You must, to the extent practicable, remove from the Derivative Work any reference to such Licensor or the Original Author, as requested.

- b. You may distribute, publicly display, publicly perform, or publicly digitally perform a Derivative Work only under the terms of this License, a later version of this License with the same License Elements as this License, or a Creative Commons iCommons license that contains the same License Elements as this License (e.g. Attribution-ShareAlike 2.0 Japan). You must include a copy of, or the Uniform Resource Identifier for, this License or other license specified in the previous sentence with every copy or phonorecord of each Derivative Work You distribute, publicly display, publicly perform, or publicly digitally perform. You may not offer or impose any terms on the Derivative Works that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder, and You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute, publicly display, publicly perform, or publicly digitally perform the Derivative Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement. The above applies to the Derivative Work as incorporated in a Collective Work, but this does not require the Collective Work apart from the Derivative Work itself to be made subject to the terms of this License.
- c. If you distribute, publicly display, publicly perform, or publicly digitally perform the Work or any Derivative Works or Collective Works, You must keep intact all copyright notices for the Work and give the Original Author credit reasonable to the medium or means You are utilizing by conveying the name (or pseudonym if applicable) of the Original Author if supplied; the title of the Work if supplied; to the extent reasonably practicable, the Uniform Resource Identifier, if any, that Licensor specifies to be associated with the Work, unless such URI does not refer to the copyright notice or licensing information for the Work; and in the case of a Derivative Work, a credit identifying the use of the Work in the Derivative Work (e.g., "French translation of the Work by Original Author," or "Screenplay based on original

Work by Original Author"). Such credit may be implemented in any reasonable manner; provided, however, that in the case of a Derivative Work or Collective Work, at a minimum such credit will appear where any other comparable authorship credit appears and in a manner at least as prominent as such other comparable authorship credit.

5. Representations, Warranties and Disclaimer

UNLESS OTHERWISE AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE MATERIALS, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

6. Limitation on Liability. EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. Termination

a. This License and the rights granted hereunder will terminate automatically upon any breach by You of the terms of this License. Individuals or entities who have received Derivative Works or Collective Works from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 5, 6, 7, and 8 will survive any termination of this License.

b. Subject to the above terms and conditions, the license granted here is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, Licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

8. Miscellaneous

- a. Each time You distribute or publicly digitally perform the Work or a Collective Work, the Licensor offers to the recipient a license to the Work on the same terms and conditions as the license granted to You under this License.
- b. Each time You distribute or publicly digitally perform a Derivative Work, Licensor offers to the recipient a license to the original Work on the same terms and conditions as the license granted to You under this License.
- c. If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without further action by the parties to this agreement, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.
- d. No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.
- e. This License constitutes the entire agreement between the parties with respect to the Work licensed here. There are no understandings, agreements or representations with respect to the Work not specified here. Licensor shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Licensor and You.

Creative Commons is not a party to this License, and makes no warranty whatsoever in connection with the Work. Creative Commons will not be liable to You or any party on any legal theory for any damages whatsoever, including without limitation any general, special, incidental or consequential damages arising in connection to this license. Notwithstanding the foregoing two (2) sentences, if Creative Commons has expressly identified itself as the Licensor hereunder, it shall have all rights and obligations of Licensor.

Except for the limited purpose of indicating to the public that the Work is licensed under the CCPL, neither party will use the trademark "Creative Commons" or any related trademark or logo of Creative Commons without the prior written consent of Creative Commons. Any permitted use will be in compliance with Creative Commons' then-current trademark usage guidelines, as may be published on its website or otherwise made available upon request from time to time.

Creative Commons may be contacted at <http://creativecommons.org/>.

---

# 附录 B. GNU Free Documentation

## License

Version 1.2, November 2002

版权 © 2000,2001,2002 Free Software Foundation, Inc.

Free Software Foundation, Inc.

51 Franklin St, Fifth Floor,

Boston,

MA

02110-1301

USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Version 1.2, November 2002

### PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document "free" in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondly, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

### APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not



Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

A section "Entitled XYZ" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "Acknowledgements", "Dedications", "Endorsements", or "History".) To "Preserve the Title" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

#### VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

#### COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

#### MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

## GNU FDL Modification Conditions

- A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.
- C. State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D. Preserve all the copyright notices of the Document.
- E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.
- G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.
- H. Include an unaltered copy of this License.
- I. Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.
- J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.

- K. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.
- L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M. Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.
- N. Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.
- O. Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties—for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements".

#### COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

#### AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

#### TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

#### TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

#### FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <http://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of

that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

### Sample Invariant Sections list

Copyright (c) YEAR YOUR NAME. Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with...Texts." line with this:

### Sample Invariant Sections list

with the Invariant Sections being LIST THEIR TITLES, with the Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.