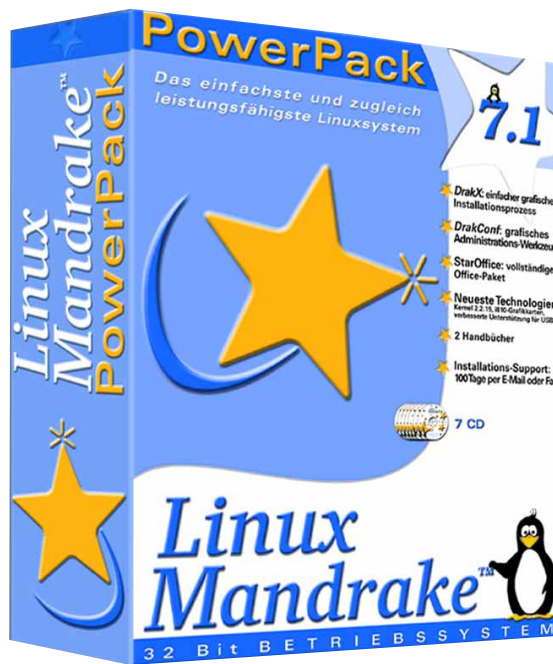


Installing Mandrake 7.1

LINUX MANDRAKE 7.1



Mandrake 7.1 is the latest release of what is becoming one of the most popular Linux distributions. Reviewed elsewhere in this issue, the GPL version is on your cover CD so you have no excuse for not trying it for yourself.

This version of Mandrake is fully functional. It supports virtually all current hardware and includes the kernel 2.2.15 which has been optimised for Pentium systems. As an extra treat it offers the option of using the **Reiser file system** for all partitions.

In addition, Mandrake 7.1 supports Universal Serial Bus (USB) devices and mice with a centre wheel can now be used in most applications. XFree86 version 4.0 is included which should enable many 3D graphics cards to run. However, you may find a few problems (such as with the NVidia Riva TNT 2.) If this is the case you will probably need to look for updates on the Internet.

Preparing for installation

If your computer is currently running Windows you will probably have to start by making space on the hard disk for Linux. The program *fips.exe* was a standard part of many distributions provided to shrink DOS. Instead, Mandrake provides *DiskDrake*, its own alternative.

It's always a good thing to back up important files before using any utility like this, so do so before even reaching for the Linux disc. In order to run Linux properly you should make at least 500MB available for the installation – but more would of course be better still.

It doesn't matter whether you want to start the Linux installation from the CD or using a diskette, as

Reiser file system: The Reiser file system was developed by the file system specialist Hans Reiser and enables rapid recovery after a system crash by means of accurate logging of open files. The data is also packed more efficiently onto the hard disk so that small file fragments no longer waste as much space. Previously, it was possible to store everything except the boot directory in the Reiser file system because previous boot managers could not read the kernel from a Reiser partition. Mandrake provides a boot manager that can handle this.

BIOS (Basic Input Output System): The BIOS enables the computer to communicate with its peripherals. After the BIOS has started, it loads the operating system from the storage medium. Under normal circumstances, this is the hard disk, but it is also possible to boot from floppy disk and, in the case of most modern computers, from CD-ROM. From the BIOS setup screen you can specify whether the diskette, the hard disk or CD-ROM drive is to be searched first for a bootable system.

Packages on the CD (Technical Support see page 113)

If you are already using another distribution and are happy with it you may not want to install Mandrake 7.1. In that case you may still find many useful packages on the CD. The packages that make up the Mandrake distribution are in binary RPM format and should run with most other distributions based on recent versions of Red Hat and other derivatives.

long as the boot sequence of your computer is set up correctly. To check this and if necessary to change it you must take a quick look at the **BIOS** setup program.

To do this, immediately after starting the computer press the [Delete] or [F2] key; this should take you to the BIOS settings. Virtually every BIOS menu looks different so it is impossible at this stage to define a general procedure. However, only ever alter something if you know what it does! The potential for damage is high if you play with BIOS settings you don't understand.

As an alternative you can start the installation of Linux from another operating system. Later on we will describe the method used to start installation from Windows and or DOS.

Installation direct from CD

If your computer is set up properly you just have to put the CD in the drive. On starting up you will see the Mandrake welcome screen. You can obtain further information about the installation by pressing the [F1] key or just carry straight on with installation by pressing the [Enter] key.

Starting with a boot diskette

If your computer is unable to boot from a CD-ROM you must create a boot diskette under Windows. This is done as follows. Switch to the *dosutils* directory on the CD and start *rawwritewin.exe*. Put a blank disk into the drive. Click on the *Image file* button in the lower section of the Rawwrite dialog and navigate to the *images* directory on the CD. There you will find five files with the extension *.img*. All image files can be written byte-by-byte to a data medium such as a floppy disk using the command *Write*. The image we're interested in is *cdrom.img* which will let us install from the cover CD. If you require PCMCIA support for the installation (if you're using a laptop), you should choose *pcmcia.img* instead. You should only select the file *hd.img* if you have copied the data from the CD-ROM to a local hard disk before starting. The file *rescue.img* is of no use during the installation.

Next click on the correct drive letter in the *Floppy Drive* field (in most cases this is A:.) Then start the procedure by clicking *Write*. Once the program has finished, start the Linux installation by leaving both the CD and the diskette in their respective drives and restarting your computer.

Starting installation from Windows or DOS

Under Windows 95/98 look on the CD for the directory called *dosutils* and then start the file *autorun.exe*. If you are using DOS as your operating system look for the file *autoboot.bat* on the CD in the *\dosutils\autoboot* directory.

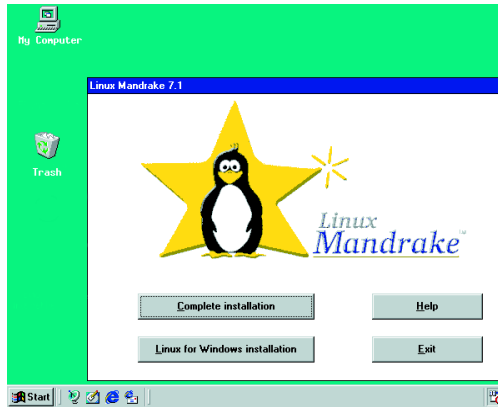


Fig. 1: Installation under Windows 98

If you're using DOS, the installation procedure should start straight away. In the case of Windows a starting screen is displayed. Select *Complete installation* if you've already provided a separate partition for Linux. Otherwise you can install Linux in two files under Windows by selecting the *Linux for Windows Installation* option. We will look at this option in greater detail later.

Everything in one go

After the first welcome screen you will be asked to specify the language. After this, you can choose between three installation classes: automatic, user-defined or expert mode.

The automatic installation automatically shrinks your Windows partition (if one is present), creates new Linux partitions and installs a selection of the most useful packages. Until the program gets to network installation and printer configuration your intervention is not needed so you can go off and have a cup of tea.

Questions about the network and printer, when you come to them, are explained in detail so you shouldn't have any trouble here. You will be

DiskDrake offers you the possibility of automatically creating partitions for Linux. However, if you have only a limited amount of space for your whole Linux system the default setting is not ideal (you get a very small /root partition along with equally sized /usr and /home partitions.)

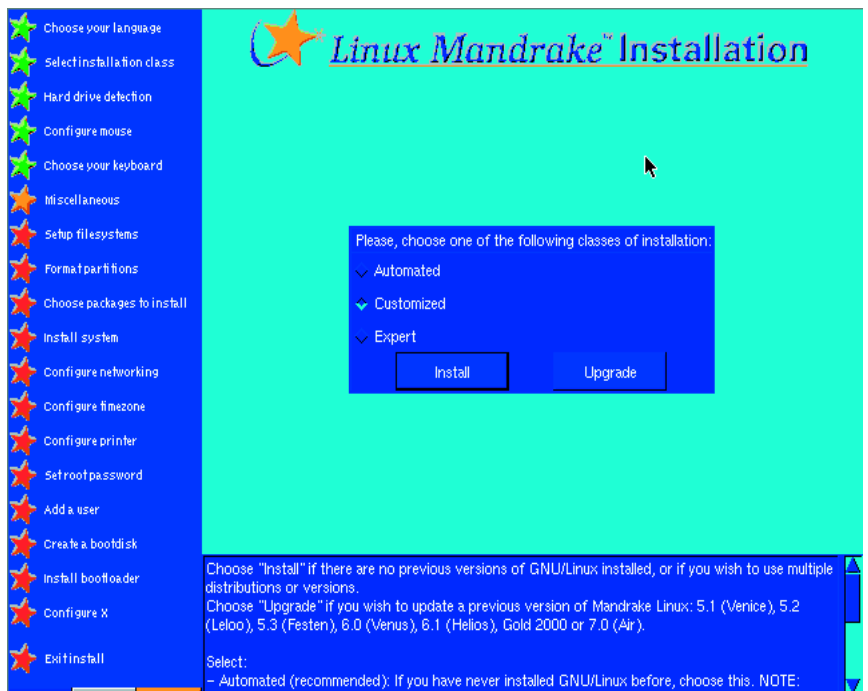


Fig. 2: Choosing the installation class

Root user: The root user is the user you log in as to perform system administration. The root user is all-powerful and can read and write to any file on the system. Because of this, it is dangerous to run as root unless you need to. When using your Linux system normally you should log in as an ordinary user.

Boot manager: A boot manager is a small program which loads the actual operating system. It is usually located in either the Master Boot Record (MBR) on the hard disk – in other words the main boot sector (which is called by the BIOS during startup) – or in the boot sector of the Linux partition.

Swap partition: The Swap partition is where the operating system stores data from main memory that is not urgently required – this happens if the main memory is almost full. It's similar to the swap file in Windows but it is more efficient by virtue of using a dedicated partition.

requested to enter a password for the **root** user and are then given the option of creating further users. You should create at least one ordinary user for yourself. After that you will have to set up the graphics card, monitor and display resolution, after which you have finished.

Linux and Windows co-existing

After rebooting, the **Boot manager grub** should start and offer you a choice between Linux, Windows, a safe start with a minimum configuration of Linux, or starting from a diskette.

An alternative and more traditional boot manager is *lilo*. This does the job just as well but does not offer you a graphical menu for the various boot options. Instead the *boot:* prompt appears and you must type in the name of the operating system you want to boot (i.e. "linux" or "windows").

After boot-up has been completed the operating system switches into graphical mode and displays a log-in dialog with a selection of penguin icons for the user. To log in, click on one of these icons and enter the appropriate password.

Three star menu

The user-defined installation and expert modes give you more options for configuring your system during setup. Be careful about choosing these because you have to know exactly what you are doing. The menu-driven installation procedure is an improvement over many earlier Linux distributions. On the left-hand side you will see the individual options for installation (don't be frightened by the quantity – they're carried out very quickly.) Beside each option is a star. This shows you the current status. A red star means that the option is still waiting to be completed. A yellow star indicates the option is being carried out. Completed options are given a green star. Should you wish to go back to any point in the installation, perhaps because you want to change something, all you have to do is click on the relevant item in the list.

Development or server

At the start of the user-controlled installation you will be asked what your computer's purpose in life will be. At this point, you should click *Development*, even if you have never written a program in your life and have no intention of ever doing so. This will save you having to install packages needed to compile programs that are distributed in source code form later on. The *Server* option makes available a large number of services which the ordinary user will not need.

File system

Again, in the case of a user-defined installation Mandrake asks you to specify the size of the **Swap partition**. Linux uses the Ext2 file system as standard for the other partitions. As mentioned above, when choosing a file system you also have the option of switching to the Reiser file system.

Mandrake includes the *DiskDrake* tool. You can use it to delete, create and modify partitions. The user interface of the program is simple. Disk space is shown in the form of a bar, broken up into different coloured boxes representing the partitions.

If you click on the empty area, a button appears with the name *Create*. If you click it you can then select not just the size but also the type of file system. One of the options you are offered should be *ReiserFS*.

Spoil for choice

After partitioning the hard disk you can install an initial selection of packages. A menu offers you various choices such as *KDE*, *Gnome* or *Communication Facilities*. By clicking on them you can bring-up individual selections. You then select or deselect each individual package directly.

The setup program takes package dependencies into consideration but this can result in some strange decisions. For instance, when we selected



Fig. 3: Partitioning with DiskDrake

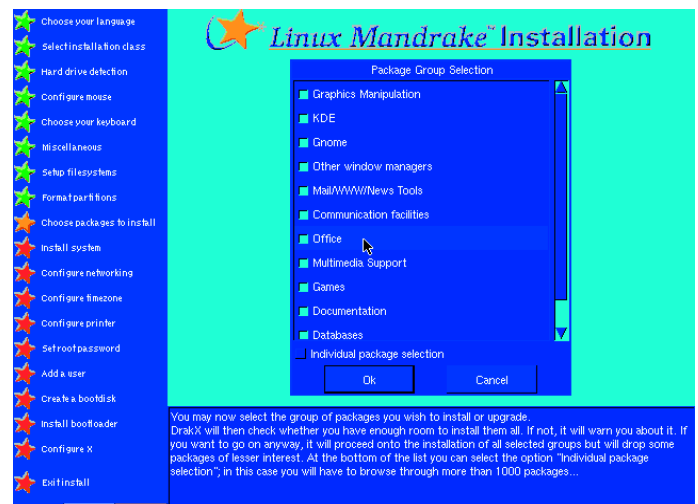


Fig. 4: Initial package selection

and then unselected *lynx*, it also wanted to remove the HTML help pages, even though another browser had been selected. However, on the whole the individual packages are well organised and the tree structure makes navigation easy.

You may find it confusing that when specifying the sizes of individual programs, kilobyte and megabyte are mixed up in the lists. Sizes of 11534Mb are, of course, unrealistic, and anyone would realise this but not everyone would recognise that a size of 53Mb for a package was wrong.

KDE and GNOME

As standard, Mandrake sets up the KDE desktop as the graphical user interface. Right from the start the desktop shows its best side: icons are created to give quick access to your floppy and CD-ROM drives, and even Windows partitions if you have them.

Among the other icons on the desktop, DrakConf is worthy of note. It conceals a configuration tool which can be used to manage the X (display) settings, mouse, printer and network. It also provides a graphical interface for installing further program packages (*rpm*drake). The *kpackage* package manager is also present (if you chose to install it) and does much the same job, although *rpm*drake already knows what packages are on the Mandrake CD making it more convenient for browsing.

Another useful tool is *DrakFont*. You use it to control the fonts on your computer. If you have a Windows partition on your hard disk then *DrakFont* offers you the option of installing the Windows TrueType fonts from it.

Setting up ISDN

Mandrake 7.1 conveniently takes care of setting up a modem for dial-up Internet access but it is a bit lacking in support for setting up ISDN. The distribution includes the *ISDN4Kernel* utilities which permit manual configuration, at least in principle – the required kernel modules are present and capable of functioning. The convenient front-end *kISDN* is not there, however. In the *isdn4net* package you will find a script `/usr/local/bin/isdn` which guides you through the ISDN configuration process in text mode, however, this process is laborious and requires spot-on answers to many questions. If the configuration is successful, the same script enables you to set up and terminate an ISDN connection. To make life easier for the ISDN user we have included the latest free version of *kISDN* on the CD.

“Are you ready to boot Linux?”

Linux Mandrake 7.1 offers you the option of running Linux without actually creating Linux partitions. During installation you'll see a *Linux for Windows installation* option. The program creates two files in your Windows partition, to which the Linux

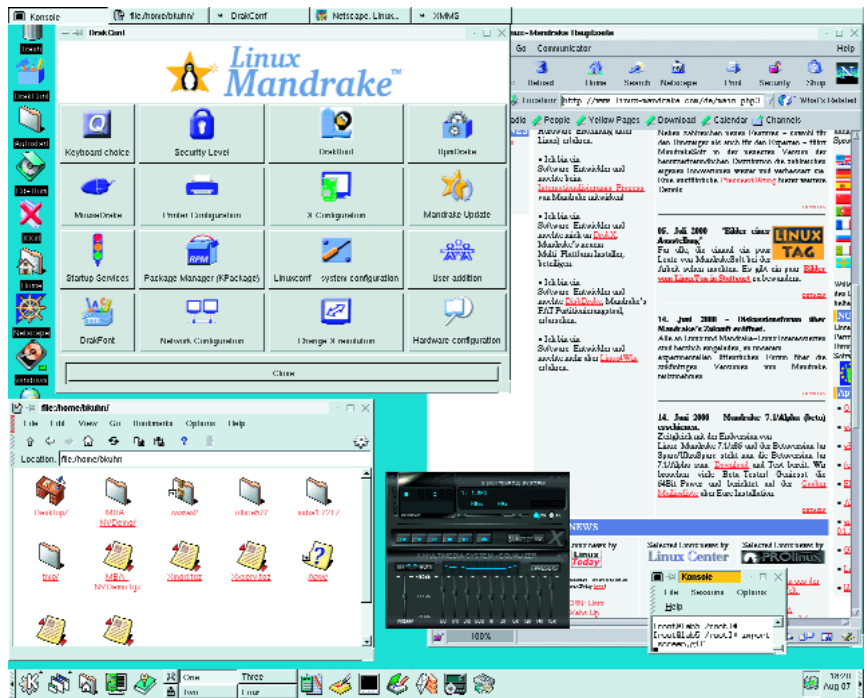


Fig. 5: Mandrake's standard KDE desktop

installation will be written. One of these files is used for the root file system and the other for the **Swap partition**.

The actual installation takes place just like an installation in a separate partition, just more slowly. There is no difference as far as the functionality of the resulting Linux system is concerned. Should the Windows partition prove too small to accommodate the Linux installation *DiskDrake* is called automatically to create more disk space.

After the installation you will find two extra directories on your hard disk: one is called *lnx4win* and the other **Mandrake**. Saved in the first one is the installation information for both of the files that contain the Linux installation. You will also find in it a script called *Uninstall* which deletes the *Linux for Windows installation* without any problems. But who would want to?

Technical Support

Neither the publishers nor the editorial staff of Linux Magazine can provide technical support for any of the software on the cover CD, nor do they accept responsibility for any loss or damage to your computer or data files that might occur as a result of using it. Your entitlement to support is exactly the same as if you downloaded the software from the developer's web site. Most of the software on this CD is released under the GNU General Public License which sets out in full your rights and warranty entitlement.

There are, however, many resources available on the Internet which you can use to get help with any problems. For more information read the article "How to get help with Linux" in this issue. Other help resources specific to Linux Mandrake which are not mentioned in the article include the MandrakeSoft Support Forum on MandrakeSoft's homepage, the mailing lists (<http://www.linux-mandrake.com/de/flists.php3>) and the FAQs (<http://www.linux-mandrake.com/de/faq.php3>).