The Definitive Guide to SUSE Linux Enterprise Server

Sander van Vugt

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Exploring SUSE Linux Enterprise Server

In the first chapter of this book, you learned how to install SUSE Linux Enterprise Server. Assuming that this is your first time on Linux, this chapter will help you get familiar with the Linux operating system. I'll teach you the most essential skills to allow you to manage a SUSE server. Specifically, in this chapter you'll take a tour of the server desktop from a graphical perspective, and you will learn how to work from the GNOME graphical environment that is installed by default. Also, you will learn what default directories are installed on SUSE Linux Enterprise Server. Basically, I'll introduce many topics in this chapter to get you going as fast as possible in the SUSE Linux Enterprise Server desktop. Already know how it is organized? In that case, you can safely skip this chapter.

Logging In

Linux is a multiuser operating system. This means several users are defined on it, and several users can be logged in to it at the same time. So, before you can work on a Linux box, you must tell the system what user account you want to use for logging in. Therefore, the first screen you will see after your server has successfully booted after installation is a graphical login prompt. At this prompt, you will specify who you are, and if you like, you can also choose the graphical environment from which you want to work. In this chapter, I won't make it any more difficult than necessary, so I'll show just how to work with the GNOME environment, which is loaded by default.

■**Tip** Don't like the graphical login? No problem, you can change your server so it will boot with a text interface by default. Check Chapter 10 for more details on how to do that.

Exploring the Linux User Accounts
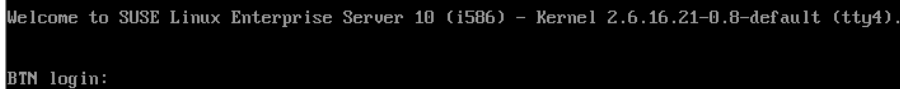
To log in to your system, you need a valid user account. Although you are the administrator of your server, it is not too sensible to make a habit of logging in with the account of the user root, the administrator for your server. The most important reason for this is to protect you from making mistakes. This is because in most situations your Linux operating system will not ask you whether you are sure you want to perform a certain action. If you give a command and hit the Enter key, your Linux operating system will just do as asked. Linux assumes you know what you're doing. Therefore, to protect yourself, it is a good idea to log in as a regular user and become the administrative user root only if you really need to do so.

Working with Virtual Consoles

After booting your server, you'll see a graphical login screen. But what if something is wrong with your graphical environment and you can't log in from there? In that case, it is nice to know you can work from six virtual consoles as well. These are like physical monitors connected to your server that are hidden under some key sequences. You can open these consoles by pressing the Ctrl+Alt+F1 to F6 keys. (In the nongraphical environment, you would access them with the Alt key only.) From there, you can work from a text-based environment, which can help you if your graphical environment is broken or if you want to experiment while being logged in as another user on your server. You'll learn more about this in Chapter 4.

You can activate the text-based virtual consoles whenever you want. You can do it when you see the graphical login screen, but you can also activate them after you have logged in to the system. If you want to leave the text-based virtual console and return to your graphical environment, you can press Ctrl+Alt+F7.

When you are working with more than one virtual console, it's easy to get confused about the console you are actually using. If this is the case, there are some means to find your way back. The first help is the login prompt you see when activating the virtual console; it will say which console you are working with by means of something like (tty2), as shown in Figure 2-1. Specifically, tty2 means that this is the second terminal (virtual console) attached to your computer. You have activated it with the Ctrl+Alt+F2 key combination.


```
Welcome to SUSE Linux Enterprise Server 10 (i586) - Kernel 2.6.16.21-0.8-default (tty4).

BTN login:
```

Figure 2-1. *When you activate a virtual console, you see the* tty *number of the virtual console.*

You can also find out which console is active while you are working. Whenever you get confused about your identity, you can open the GNOME terminal from the GNOME menu (click Computer in the lower-left part of the screen) and from there enter the command who am i (basically if you do that, you use the command who followed by the options am and i, which in fact is a clever trick to refer to the option -m for who). This command will always show you the console you are using. Don't confuse who am i with whoami; the latter will just show you your login name and nothing else.

Getting Administrative Access

As I said before, it is good practice *not* to log in as an administrative user to your server but as a normal user. However, what if you need administrative access to perform some task? In that case, you can use the command su from a text-based console or a GNOME terminal. When you enter the command su, you will be prompted for a password. The server expects you to enter the password of the user root now. Once finished, you are temporarily root, and you can perform any task you like with the privileges of this system administrator account. Done with your work as root? Then you can use exit to return to the environment in which you started.

It might sound cool to become root from a text-based console, but this is not the only way you can work. Another option is to work from the graphical environment. Sometimes when you start a tool that usually needs root access, such as the configuration utility YaST, you will be prompted for root's password, although this works only for programs that have been programmed to do this. Once you have entered the password for user root, you will have root privileges for that program only; in other programs, you will have the permissions only of your regular user account.

One of the characteristics when working with su is that it doesn't overwrite the environment variables of the original user who was logged in before you used su to become root. This could lead to problems, especially when you try to start a graphical program from your su console window in a graphical session. To prevent these problems, on SUSE Linux you can use sux – instead. This command is typical for SUSE and doesn't work on other Linux distributions. If you use sux –, all the environment variables will be set correctly. The result is that this prevents you from getting error messages when you are trying, for example, to start graphical programs from a console window.

If you want to start an administrative program such as the overall SUSE configuration tool YaST, you don't have to think hard how to do that. If you start YaST as a normal user, it will prompt you to enter the root password (see Figure 2-2).

■Note Ever heard about KDE? KDE is one of the graphical interfaces you can use on any kind of SUSE Linux. In earlier releases of SUSE Linux Enterprise Server, KDE was the default interface. Since Novell has a lot of knowledge about the GNOME desktop because of its acquisition of Ximian in 2001, SUSE Linux Enterprise Server defaults to the GNOME desktop. If you really want, you can select KDE to be your default desktop environment when performing an installation; however, for the topics discussed in this book, it doesn't really make a difference. The key components to administer SUSE Linux Enterprise Server are YaST and the command line, and these are always the same, no matter what graphical environment you are using. When I'm discussing the graphical desktop in this book, it will be the GNOME desktop environment since it's the default.
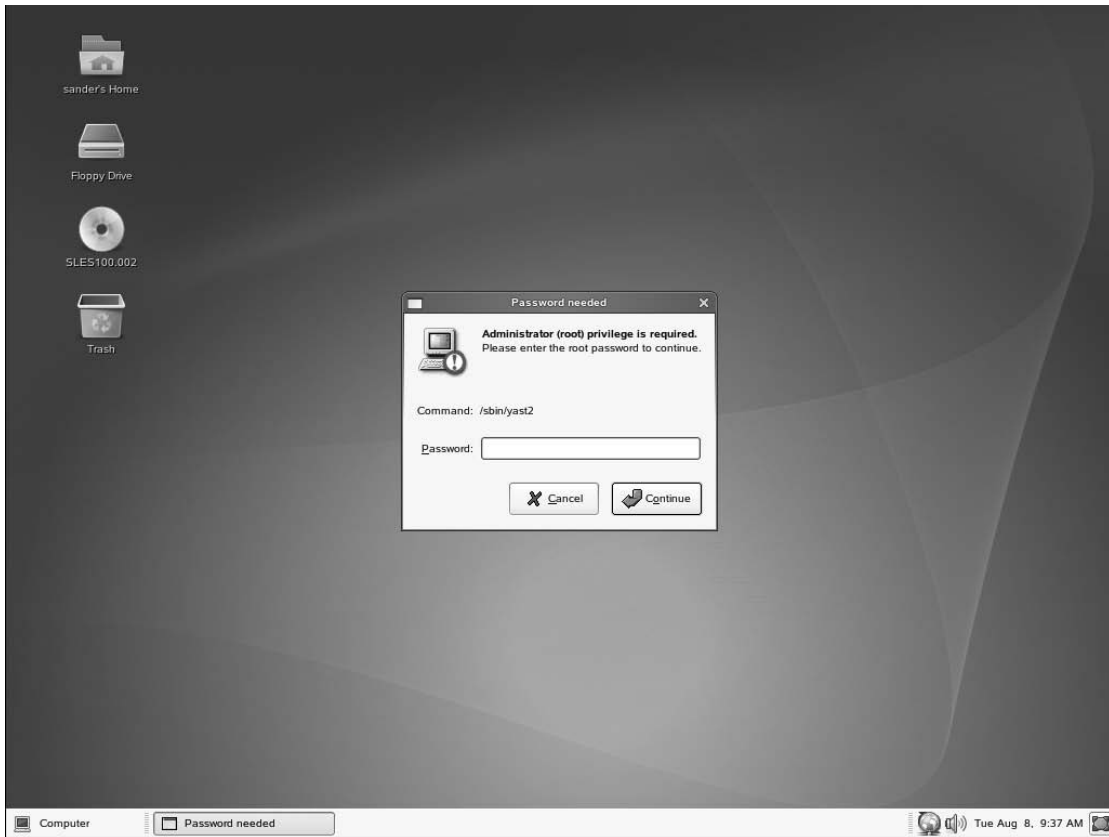

Figure 2-2. *When you start YaST as a user other than* root*, you are prompted for the password of the user* root*.*

Finding Your Way in the File System

Now that you know how to log in to your server, it is time to get more familiar with the structure used in the file system on your server. Even nowadays, it is still important you know your way around the file system; this is because Linux is still a file system–centric operating system. Even if you want to work from only the graphical environment, you must know where you can find all the important files on your server. If you know how to handle the files on your server, you know half of what you need to know to manage your Linux server. On Linux, everything is a file. Even devices that are connected to your server are managed as files. Therefore, knowing how the file system works and is organized is of the highest importance.

Exploring the Default Directories

If this is your first introduction to Linux, you might be surprised by the way the file system is organized. In this section, you'll read about the default directories that are used by almost all Linux systems.

First, if you want to grasp the way a Linux file system is organized, you must understand that in the Linux file system structure, a clear distinction is made between files that are accessible to

ordinary users and files that are accessible to the system administrator. If these are program files, you will find the former in a directory called bin (binary) and the latter in a directory called sbin (system binaries). You will find these directories at different levels in the file system.

Second, you need to understand that on a Linux server it is quite usual to work with more than one partition. This is because your server is hosting a multitude of files for the services that it offers. Linux also has different file systems that all have their own advantages; for example, you could use a different file system for the volume where your mail server stores its files than for the volume where your company database is stored. In Chapter 8 you will learn more about the organization of your server in different partitions.

No matter how many partitions you use, the start of the file system structure on any Linux system is the root partition. This is the partition on which you will find the root directory, and it is referred to with a slash (/).

Tip Don't confuse the root directory with the directory /root. The root directory (/) is the starting point of your file system under which you'll find all other directories. The directory /root is one of these directories. /root is the home directory for the user root, the administrator of your system.

As I said before, it is possible to separate the contents from different directories from this root partition and split off other partitions or volumes. (Chapter 8 covers the difference between these two.) The reason why you want to do this is obvious: if you have separated, for example, the directory /home in which you will find user home directories from the rest of the directory structure, it is impossible for a user who has no limitations set to fill up the entire file system. Also, different types of files need different types of file systems than you've just read about.

Now, it is good to work with more than one partition, but it also implies a certain risk. It could, for example, happen that one of these partitions is damaged and impossible to mount when you start your server. For this reason, you will find program files on many levels. Most essential utilities that are needed to maintain and repair your system are directly in the root partition. You will find, however, less critical programs and utilities one level lower, under /usr, for example. This /usr directory also has the subdirectories bin and sbin (and some others), and you can find them under the root of the file system.

On SUSE Linux Enterprise Server, you'll find the following default directories:

/bin: This is the location where you'll find binaries accessible to all users. These are essential binaries that must be available at all times, even if other partitions on your system have a problem. For that reason, the directory /bin is always on the root partition. In it you will find essential utilities and commands such as /bin/bash (the shell), cp (used to copy files), and many more. Some of the more complicated items, however, are elsewhere on your system.

/sbin: In this directory you will find binaries for system administration. These are critical binaries that must be available at all times in case you need to repair your system. You will also find commands and utilities you'd rather not see in the hands of your users, such as the launcher for the general system management tool yast2 or the partitioning tool fdisk.

/boot: The directory /boot contains your secondary boot loader. A boot loader consists of two parts. The first part of it is installed in the master boot record and—depending on your configuration—in the boot sector of an active partition. The second part, the so-called secondary boot loader, is in the directory /boot. For more details on its contents, read Chapter 10. The directory /boot is critical for booting your system, so don't touch it. Under normal circumstances, there is absolutely no need to modify anything in this directory.

/dev: On a Linux system, all the hardware you work with corresponds to a file on your system. If you want to address the hardware, you have to address the corresponding file. You can find these device files in the directory /dev. You will find, for example, a device called /dev/fd0 that refers to a floppy drive, if that is present in your system. On SUSE Linux you will have the device file only if the device is really present on your server. Amongst the properties of these device files are the so-called major and minor numbers. You will find them if you look at the properties of the file by using the command ls -l (see Figure 2-3). These major and minor numbers indicate to the kernel what device it actually is. Apart from the major and minor numbers, all devices are of a certain type. The most common types are block and character devices. Whether a device is a block or a character device is indicated with a b or a c in the properties of the device file. You can see these properties by using the command ls -l.

■**Tip** One of the nice features of Linux is its flexibility. I once lost my device /dev/hdc, which I needed to address my CD drive. I did, however, find out from another Linux system that the associated major and minor numbers were 22 and 0. If you have this information, you can use the command mknod to create your own devices. In this case, I used mknod /dev/hdc b 22 0 to restore access to my CD drive. You can even use mknod to create entirely new devices.

```
crw-rw-rw-  1 root tty      3,   49 Aug  8  2006 ttys1
crw-rw-rw-  1 root tty      3,   50 Aug  8  2006 ttys2
crw-rw-rw-  1 root tty      3,   51 Aug  8  2006 ttys3
crw-rw-rw-  1 root tty      3,   52 Aug  8  2006 ttys4
crw-rw-rw-  1 root tty      3,   53 Aug  8  2006 ttys5
crw-rw-rw-  1 root tty      3,   54 Aug  8  2006 ttys6
crw-rw-rw-  1 root tty      3,   55 Aug  8  2006 ttys7
crw-rw-rw-  1 root tty      3,   56 Aug  8  2006 ttys8
crw-rw-rw-  1 root tty      3,   57 Aug  8  2006 ttys9
crw-rw-rw-  1 root tty      3,   58 Aug  8  2006 ttysa
crw-rw-rw-  1 root tty      3,   59 Aug  8  2006 ttysb
crw-rw-rw-  1 root tty      3,   60 Aug  8  2006 ttysc
crw-rw-rw-  1 root tty      3,   61 Aug  8  2006 ttysd
crw-rw-rw-  1 root tty      3,   62 Aug  8  2006 ttyse
crw-rw-rw-  1 root tty      3,   63 Aug  8  2006 ttysf
crw-r--r--  1 root root     1,    9 Aug  8 09:34 urandom
crw--w----  1 root tty      7,    0 Aug  8  2006 vcs
crw-rw----  1 root tty      7,    1 Aug  8  2006 vcs1
crw--w----  1 root tty      7,   10 Aug  8 09:36 vcs10
crw--w----  1 root tty      7,    2 Aug  8 09:34 vcs2
crw--w----  1 root tty      7,    3 Aug  8 09:34 vcs3
crw--w----  1 root tty      7,    4 Aug  8 09:34 vcs4
crw--w----  1 root tty      7,    5 Aug  8 09:34 vcs5
crw--w----  1 root tty      7,    6 Aug  8 09:34 vcs6
crw--w----  1 root tty      7,    7 Aug  8 09:36 vcs7
crw--w----  1 root tty      7,  128 Aug  8  2006 vcsa
crw-rw----  1 root tty      7,  129 Aug  8  2006 vcsa1
crw--w----  1 root tty      7,  138 Aug  8 09:36 vcsa10
crw--w----  1 root tty      7,  130 Aug  8 09:34 vcsa2
crw--w----  1 root tty      7,  131 Aug  8 09:34 vcsa3
crw--w----  1 root tty      7,  132 Aug  8 09:34 vcsa4
crw--w----  1 root tty      7,  133 Aug  8 09:34 vcsa5
crw--w----  1 root tty      7,  134 Aug  8 09:34 vcsa6
crw--w----  1 root tty      7,  135 Aug  8 09:36 vcsa7
crw-------  1 root root    10,  130 Jun 16 15:07 watchdog
pr--------  1 root tty            0 Aug  8 09:38 xconsole
crw-rw-rw-  1 root root     1,    5 Jun 16 15:07 zero
BTN:/dev #
```

Figure 2-3. *A device has some special properties that help the kernel understand what the device's purpose is.*

/etc: Most services running on Linux use an ASCII text file to store all necessary configuration information (although more services have started using XML also). These text files are kept in the directory /etc. In this directory, you will find some important configuration files such as /etc/passwd, which contains the database of local Linux users (see Figure 2-4). You will also find configuration files for all other important services such as dhcpd.conf, which stores the configuration of your DHCP server. In /etc you will find a lot of subdirectories. If a service uses more than one configuration file, it will usually create a subdirectory in which all these files are stored. For example, the Apache 2 web server configuration is in the subdirectory /etc/apache2/.

```
Terminal                                                                    _ □ X
File  Edit  View  Terminal  Tabs  Help
BTN:/etc # cat passwd
at:x:25:25:Batch jobs daemon:/var/spool/atjobs:/bin/bash
bin:x:1:1:bin:/bin:/bin/bash
cyrus:x:96:12:User for cyrus-imapd:/usr/lib/cyrus:/bin/bash
daemon:x:2:2:Daemon:/sbin:/bin/bash
dhcpd:x:103:65534:DHCP server daemon:/var/lib/dhcp:/bin/false
ftp:x:40:49:FTP account:/srv/ftp:/bin/bash
games:x:12:100:Games account:/var/games:/bin/bash
gdm:x:50:105:Gnome Display Manager daemon:/var/lib/gdm:/bin/false
hacluster:x:90:90:heartbeat processes:/var/lib/heartbeat/cores/hacluster:/bin/false
haldaemon:x:101:102:User for haldaemon:/var/run/hal:/bin/false
ldap:x:76:70:User for OpenLDAP:/var/lib/ldap:/bin/bash
lp:x:4:7:Printing daemon:/var/spool/lpd:/bin/bash
mail:x:8:12:Mailer daemon:/var/spool/clientmqueue:/bin/false
mailman:x:72:67:GNU mailing list manager:/var/lib/mailman:/bin/bash
man:x:13:62:Manual pages viewer:/var/cache/man:/bin/bash
messagebus:x:100:101:User for D-BUS:/var/run/dbus:/bin/false
mysql:x:60:108:MySQL database admin:/var/lib/mysql:/bin/bash
named:x:44:44:Name server daemon:/var/lib/named:/bin/false
news:x:9:13:News system:/etc/news:/bin/bash
nobody:x:65534:65533:nobody:/var/lib/nobody:/bin/bash
ntp:x:74:103:NTP daemon:/var/lib/ntp:/bin/false
oracle:x:105:109:Oracle user:/opt/oracle:/bin/false
postfix:x:51:51:Postfix Daemon:/var/spool/postfix:/bin/false
quagga:x:104:107:Quagga routing daemon:/var/run/quagga:/bin/false
root:x:0:0:root:/root:/bin/bash
squid:x:31:65534:WWW-proxy squid:/var/cache/squid:/bin/false
sshd:x:71:65:SSH daemon:/var/lib/sshd:/bin/false
suse-ncc:x:102:104:Novell Customer Center User:/var/lib/YaST2/suse-ncc-fakehome:/bin/bash
uucp:x:10:14:Unix-to-Unix CoPy system:/etc/uucp:/bin/bash
vscan:x:65:106:Vscan account:/var/spool/amavis:/bin/false
wwwrun:x:30:8:WWW daemon apache:/var/lib/wwwrun:/bin/false
+:::::::
BTN:/etc #
```

Figure 2-4. *Important configuration files such as the user database* /etc/passwd *are stored in* /etc *or one of its subdirectories.*

/home: Every server must have a place for the user home directories. On Unix, the directory /home is used for this purpose. To prevent a user from filling up the entire file system by accident, in most cases a separate partition is created for this directory.

/lib: Many programs that are used in a Linux environment share some of their code. This shared code is stored in different library files. All the libraries needed by binaries that are in a subdirectory of your file system root are in the directory /lib. You will also find some other important modules in this directory, such as the driver modules that are used by the kernel of your server.

■**Tip** You want to know which modules are used by a certain binary? Use `ldd`. For example, you can find out exactly which libraries are used by `/bin/bash` by typing `ldd /bin/bash`. This will show you that all the libraries it uses are in `/lib` (see Figure 2-5).

Figure 2-5. *With* `ldd` *you can find out exactly which libraries are used by a certain command.*

/media: On a Linux system, to access files that are not on the hard disk of your computer, you need to mount the media they are on. When you mount, for example, a CD, you connect it to a directory on your file system. This must be a directory that exists before you start mounting anything. The default directory that is used for regular mounts is /media. In this directory, a subdirectory is created automatically when a new removable device is detected. CDs, DVDs, and USB sticks will appear here (and on the graphical desktop) once they are mounted with the label of the device used as the name of the directory where the device is mounted. Check Chapter 4 for more information about mounting devices.

/mnt: On older Linux systems, /mnt was the default directory for mounting devices. On more recent systems, this has been replaced by the /media directory. However, /mnt still has a purpose: it is used for mounts that don't occur often, such as a mount to a server that has to be accessed only once.

/usr: The directory /usr is probably the largest directory on your system. In it you'll find almost all the user-accessible files. Because so many files appear in this directory, you will find an entire structure of subdirectories in this directory. There is, for example, /usr/bin, where most programs are stored; /usr/X11R6, where your graphical user environment resides; and /usr/src, where you can put the source files of the open source programs and kernel you use. Because there are so many files in /usr, it is usual to put /usr on its own partition.

■**Tip** Have you always wanted to find out how much space a directory occupies on your hard disk? Use du -hs from a console environment. It will show you the disk usage of a specified directory. The normal output of this command is in blocks; the parameter -h presents the output in a human-readable form, and the parameter -s summarizes a directory's totals instead of showing individual subdirectory entries. Use, for example, du -h /usr to find out exactly how much space /usr occupies.

/opt: In /usr you will find a lot of binaries. Many of these are small software packages. Usually large software installations, such as office suites, are stored in /opt. On SUSE Linux Enterprise Server, you will find, for example, the GNOME graphical interface and the Oracle database (if installed) as subdirectories of this directory.

/proc: The directory /proc is a strange directory. This is because it doesn't really exist on the hard disk of your computer. /proc is an interface to the memory of your server; consider it the location where the operating system gives information about how it works to the user. An advanced administrator can use it to tune how the server works and get information about its current status. You can find a lot of information about your server in the files in this directory. Try, for example, the command cat /proc/cpuinfo to show the contents of the text file /proc/cpuinfo (you must be root to do this). This command will show you a lot of information about the processors in your server (see Figure 2-6).

/root: Ordinary users have their home directories in /home. A system administrator is not a normal user; in a Unix environment, a system administrator is therefore respectfully called the *superuser*. Since this user may have some important tools in the home directory, this directory is not in /home with those of the other users. Instead, the user root uses /root as the home directory. This is for good reason: on many servers, the directory /home is on a separate partition. If, for any reason, you cannot access this partition anymore, at least user root has still access to the home directory, which probably contains some important files.

/srv: You will find all the files from some important services in this directory. This directory is, for example, used to store your entire web server and FTP server file structures. If you want to configure your server as an installation server, /srv is the place to put the installation files needed by this server.

/sys: You can use the directory /sys to store information about the state of your system. Its use is like the use of /proc, with the difference that the information in /sys is kept on the hard disk of your server, so it is still available after you have rebooted it. The information in /sys is more directly related to the hardware you are using on your server, whereas /proc is used to store information about the current state of the kernel.

/tmp: As the name suggests, /tmp is used for temporary files. This is the only directory on the entire system that every user can write to. This is a bad idea, however, because the content of this directory can be wiped automatically by any process or root without any warning being issued before that happens.

```
BTN:/proc # cat cpuinfo
processor       : 0
vendor_id       : GenuineIntel
cpu family      : 6
model           : 13
model name      : Intel(R) Pentium(R) M processor 2.00GHz
stepping        : 8
cpu MHz         : 598.995
cache size      : 2048 KB
fdiv_bug        : no
hlt_bug         : no
f00f_bug        : no
coma_bug        : no
fpu             : yes
fpu_exception   : yes
cpuid level     : 2
wp              : yes
flags           : fpu vme de pse tsc msr mce cx8 apic sep mtrr pge mca cmov pat clflush dts acpi mmx fxsr sse s
se2 ss
bogomips        : 1201.50

BTN:/proc #
```

Figure 2-6. *You can get a lot of information about your system from the files in* /proc.

/var: The last directory you will find on any Linux server is /var. This directory contains mostly files that are created by your server and whose content can grow very fast; think of the mail folders of users when the server is used as a mail server. Because /var is so dynamic, it is a good idea to keep /var on a separate partition. The exact contents of /var depend on what you have installed on your system. In most cases, you will find a directory called /var/spool in which print jobs are spooled before they are processed by your server. Another important subdirectory of /var is the directory /log in which you will find several log files, such as the main system log file in /var/log/messages.

Performing Essential Tasks in the File System

Now that you know which directories are important on your server, the next step is to find out how to manage the files in these directories. The easiest way to do this is by means of a graphical file manager such as GNOME's Nautilus. You don't need a book to learn how to work with it; just click the icon of your home folder on the desktop, and it will start, displaying the contents of your home folder to you. As an alternative, you can also select the Computer menu (from now on, I'll call it the GNOME menu) and then select More Applications ➤ Browse ➤ File Manager ➤ Nautilus, which will also open the file manager for you, as shown in Figure 2-7. An alternative file manager is KDE's Konqueror, which you can start from the same menu, if you have chosen to install the KDE software on your server.
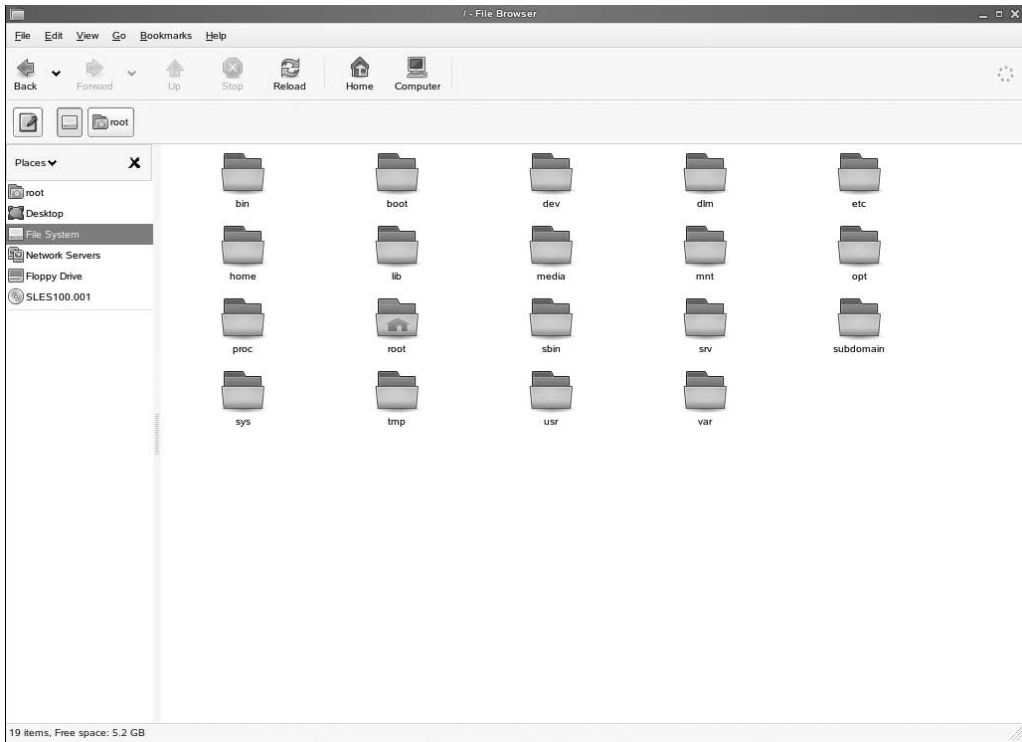
Figure 2-7. *In GNOME, you can use Nautilus for file management.*

After starting the Nautilus file manager, you have three ways of working with your files. First, you can right-click items displayed by the file manager. This will open a quick menu (see Figure 2-8). This menu gives you access to the most common options for that particular item, as well as the properties of the item. By selecting Sharing Options, for example, it is easy to share the file across the network. Next, you can use the buttons in the button bar, although they are not as useful as the other options. Last, you can work from the Nautilus menus, where all options that are available for the selected item are offered as well. In these menus, you will find options to copy or move files, as well as options to make a connection to other servers in your network.
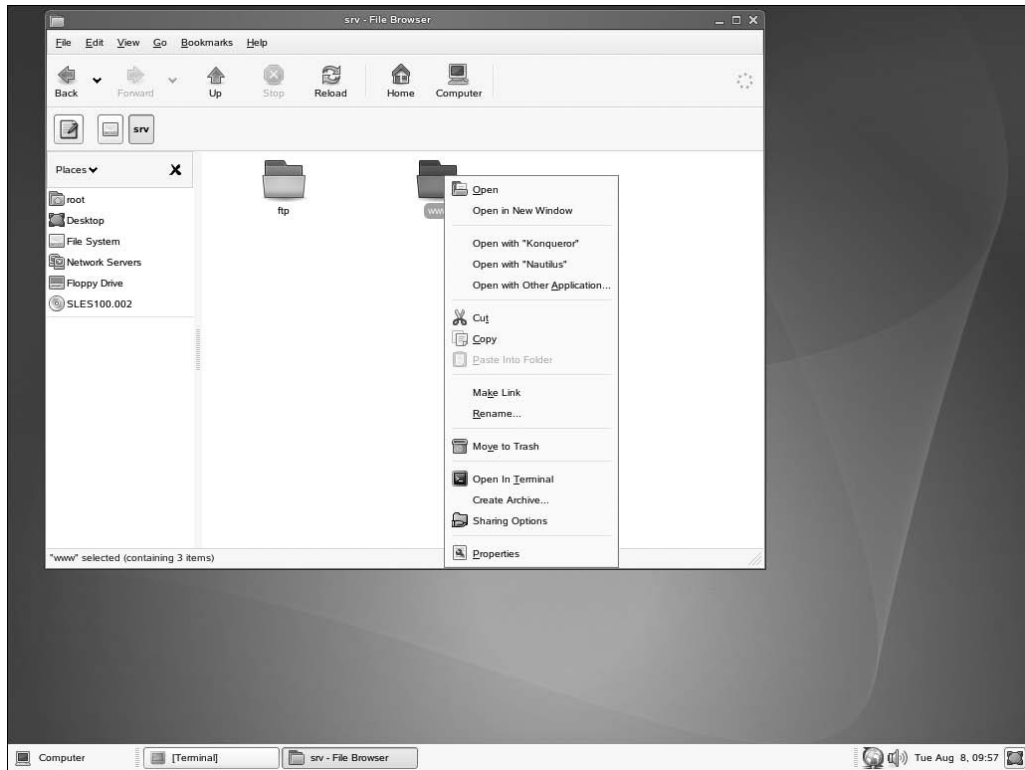
Figure 2-8. *You can access the most relevant file management options by right-clicking the file or directory.*

Working with the GNOME Interface

On the GNOME desktop, a few application icons give you access to some important utilities, such as the home folder and the trash bin. You'll also see the GNOME menu in the lower-left part of the screen. This menu gives you access to most applications that are installed on your server.

Using the GNOME Menu

On SUSE Linux Enterprise Server, Novell provides a completely redesigned menu that allows you to access graphical applications. Its new layout, which you can see in Figure 2-9, allows you to find the information you need as fast as possible. On top, you'll see the Show drop-down list. This list gives you access to your Favorite Applications list. Immediately after installation, these are Firefox, YaST, the GNOME terminal, and the Home Folder application. A list of all available applications appears after clicking the More Applications button; you'll learn how to install these applications in the section.

Also available from the Show drop-down list are the options Recently Used Applications and Recently Used Documents. These give you access to applications and documents that you've accessed recently from the GNOME menu.

Figure 2-9. *In SUSE Linux Enterprise Server 10, you can work with a completely redesigned graphical menu.*

In the upper-right part of the GNOME menu, you'll find some system items. The following items are available:

Help: This gives you access to the Help interface. Click it for help on many features.

Control Center: Use this to start the GNOME Control Center. From there, you can tune almost all the GNOME settings.

Install Software: Use this to start the interface from which you can install software. Check Chapter 9 for more details on that.

Lock Screen: Use this to lock your screen. You can unlock it by providing the password of the user who is currently logged in.

Log Out: This logs you out from the graphical interface. It will return you to the login screen from where you can log in again or shut down or restart your server.

In the lower-right part of the GNOME menu, you see a quick status overview. From this overview, you can see how you currently are connected to the network and how much disk space still is available on your hard drive. You can click both icons for more details and management options.

Working with More Applications

To get access to most graphical applications that are installed on your server, you can click the More Applications button in the GNOME menu. This will show a long list of graphical applications, divided into several categories (see Figure 2-10). An item that you will definitely appreciate is the Filter option in the upper-left part of the window; type the complete or partial name of the application you are looking for, and it will show up immediately (provided it is installed in the graphical menu).
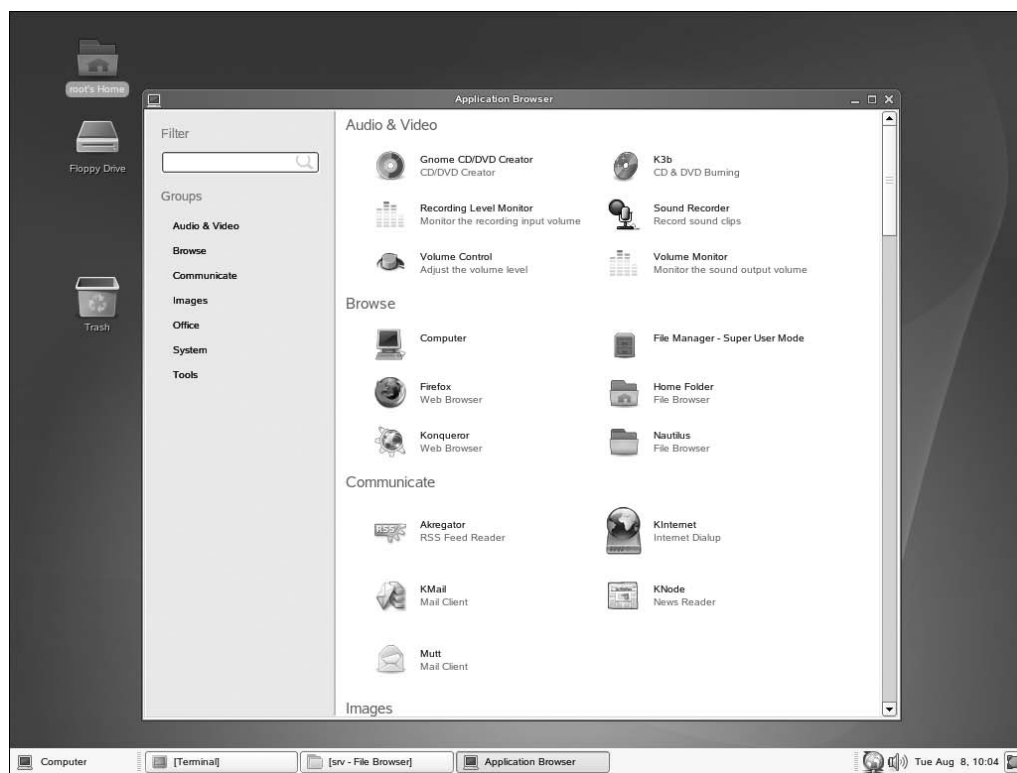

Figure 2-10. *The More Applications button gives you access to all the graphical applications installed on your server.*

All sorts of applications appear here; some of them are used for useful things such as administering your server, and others are a bit less relevant, such as the group Audio & Video that offers, in addition to some useful utilities, a utility to manage the volume of the sound system in your server. Next, you will find a short description of the submenus of the Applications menu and their contents.

Audio & Video

In the Audio & Video submenu, you find some useful programs. Most important is the GNOME CD/DVD Creator (a plug-in to Nautilus) that you can use to burn CDs and DVDs on your system. You'll also find the recording tool Sound Recorder, which helps you record audio streams on your server, and the Volume Control program, which helps you control the sound volume of your server, provided your server has a speaker.

Browse

The Browse submenu gives you access to the Nautilus file manager and a file search utility. You'll also find a shortcut to the Mozilla browser that you can use to browse the Internet. For help in your work as a system administrator, you may find the File Manager – Super User Mode useful. After starting it, enter the password of the root user to manage all the files on your server.

Communicate

In the Communicate submenu, you'll find several items after installation. From KDE (if installed) come some useful programs such as a newsreader, mail client, and Internet dial-up program. If KDE is not installed, you'll see only the Akregator RSS reader and a GUI front end to the Mutt mail client.

Images

In the Images menu, you won't find much. The Eye of GNOME item is an image viewer you can use to locate and display graphical images on your system.

Office

You won't find any OpenOffice item in the Office submenu. You'll just find a dictionary and the Envince document viewer, which allows you to look at the content of documents such as PDF files. If installed, the KDE address book KAddressBook and the contact manager Kontact appear on this menu.

System

The System submenu is what you will like most as an administrator. You'll find SUSE's YaST utility, as well as a whole lot of other utilities that you can use for system management. For example, the GNOME terminal and the X terminal both give you access to a console on your server, you can use the Configuration subsection to configure the GNOME desktop completely the way you need it, and you can use the GNOME System Monitor to monitor current process activity and the general system status (see Figure 2-11).

In the System submenu, you'll find the most important application that is available on your SUSE Linux Enterprise Server: the terminal. From the terminal window (also referred to as the *console*), you get fast access to a command-line environment. From the command line, you will be able to unleash the complete power of Linux. In later chapters in this book, you will learn about most important tasks that you can perform from the command line.
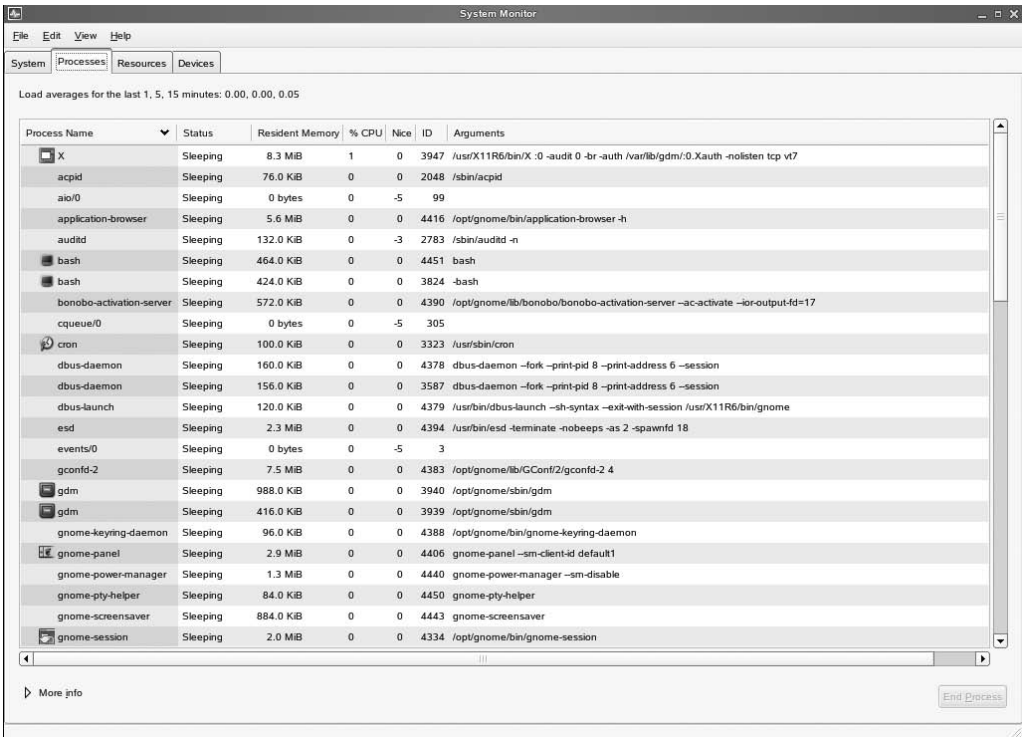
Figure 2-11. *The GNOME System Monitor helps you monitor all the important aspects of your server's performance.*

Tools

The Tools subsection is the last section in the administration menu. In it you'll find useful tools such as the archiving utility, the GNOME Calculator, and the editor gedit, which you will probably use often when tuning configuration files on your server (see Figure 2-12). Also in this menu, the Printing application helps you print all different kinds of documents and set up new printers on your server.
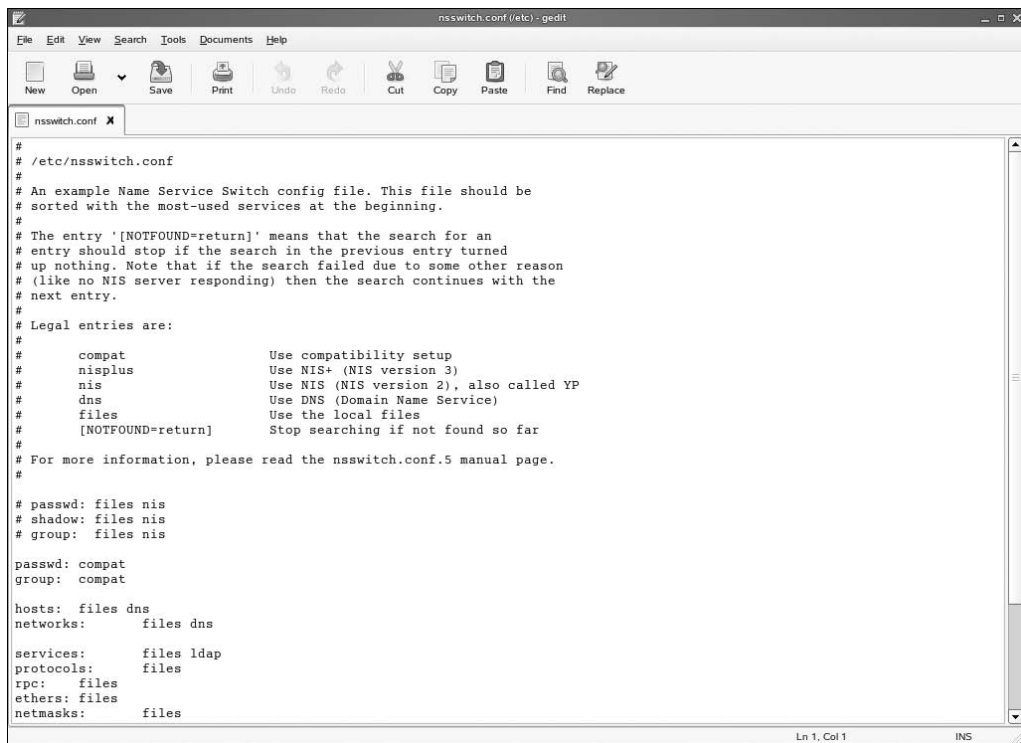
Figure 2-12. *If you are new to Linux, you will probably use the editor gedit a lot to create and modify all kinds of configuration files.*

Modifying the GNOME Desktop

Like any other computer desktop, GNOME offers some options to modify the look of the desktop. For example, you can add new items to the desktop, the desktop menus, and the panel (which is the toolbar you see on the bottom of the screen). Other options are available as well, such as the option to change the background of your graphical desktop. The following sections describe some of the most common tasks.

Adding Items to the Desktop

Adding items to the desktop can be easy enough: select the item you want to add from the Nautilus browser, and drag and drop it on the graphical desktop. This automatically creates a shortcut if you have all the necessary rights to the desktop and the item you want to put on the desktop. You can also right-click somewhere on the desktop, and from the pop-up menu select Create Folder, Create Launcher, or Create Document. In the window that pops up (see Figure 2-13), enter all the information that is required to create the item. If, for example, you want to create a shortcut to an application, select Create Launcher, browse to the application you want to add, and click OK to create it. You now have a shortcut to your application. If needed, you can also click the Icon button to change

the icon for your application. Most buttons are created in the PNG format, because it offers a good compression ratio. You can use other file formats as well. For your convenience, copy the file you want to use for the application icon to the directory `/opt/gnome/share/pixmaps/`, and once you have copied it there, select it when creating the shortcut to the application.
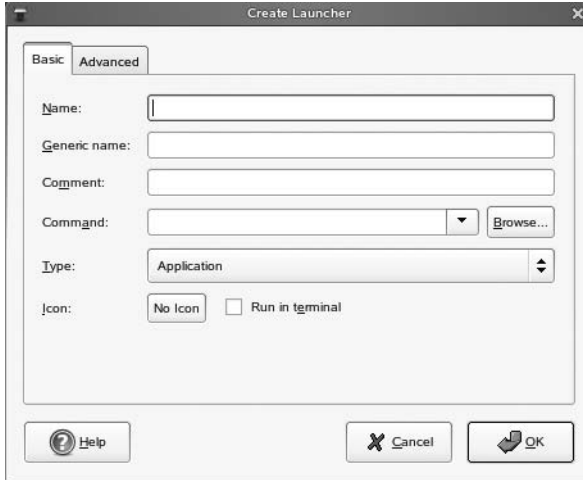

Figure 2-13. *The Create Launcher dialog box gives access to a detailed interface you can use to create shortcuts on your desktop.*

Changing the Menu

Novell spent a lot of time making a menu that is easy to use. You do have, however, some options to modify it. Most important, you can add one or more applications to the list of favorite applications. This is easy to do; first click More Applications to browse to the application you want to add. Then right-click it. This opens a small menu from which you can select the Add to Favorites option. The next time you open the GNOME menu, you will see that your application is listed amongst your other favorites.

Modifying Other Desktop Items

I could write an entire book about configuring the desktop, but that's not what I want to do here. To finish this short introduction to the GNOME desktop, let's look at the GNOME Control Center utility (see Figure 2-14). With it, you can change all aspects of the GNOME desktop. For example, from the Hardware section, it is easy to change the keyboard settings or screen resolution, and the Look and Feel options allow you to change the look of the desktop quickly. Some personalization options are available from the Personal section. For example, you can change your default language or password here or create shortcuts to start programs you need often. Last, the System section helps you set generic system settings, such as setting the date and time you want to use, setting the Power Management options, or setting up access to the desktop of your server by means of a Remote Desktop Protocol.
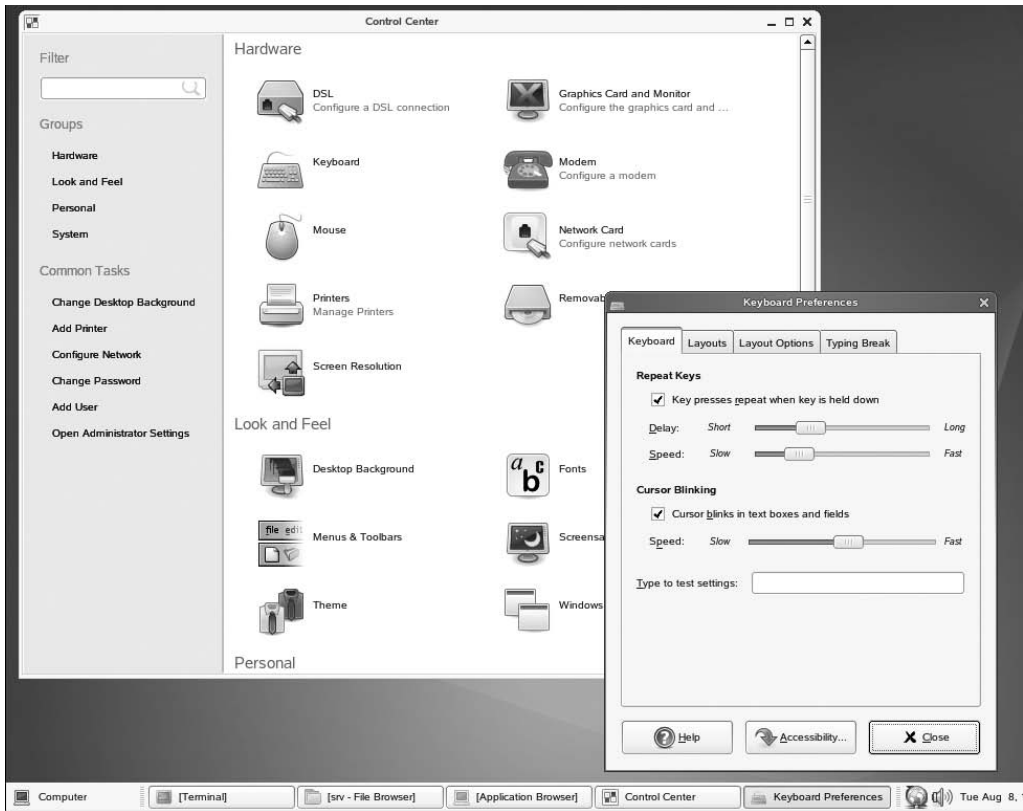
Figure 2-14. *Use the Control Center application to change any desktop setting you want.*

Summary

In this chapter, you were introduced to working with the Linux graphical desktop. It was by far not a complete overview of all the items offered by the GNOME desktop, which is used as the default desktop on SUSE Linux Enterprise server; it should, however, be enough to get you started. Also, you learned how to find your way in the file system from the discussion of the directories that are created on a SUSE Linux server by default. In the next chapter, you will learn how to manage your server from the YaST graphical management utility.