

Mastering Linux, part 4

In part 3 of his Mastering Linux series, *Jarrod Spiga demystified the command line console. This month he turns his attention to the X Windows desktop.*



Skill level

Beginner

Requirements

PC with DVD drive
• Internet connection
• printer (optional).

Time to complete

2 hours (approx)

Bonus DVD software

Linux commands
cheatsheet • Mastering
Linux PDFs, parts 1, 2 and 3.

In most cases, you'll be taken to the Linux Graphical User Interface upon booting. And even though part 3 of this guide steered clear of the GUI when it looked at the command line console, by now you've probably logged into the GUI a few times and experimented with a few of its features.

This fourth instalment details some of the basic aspects of the Linux GUI. This may include things you've already discovered yourself, but there are also nuggets of information that will help you use the GUI more effectively.

THE ENVIRONMENT

Unless you've customised your Fedora installation, the default X Windows environment should be the GNU Network Object Model Environment (GNOME). An X Windows environment can be thought of as the graphical equivalent to the shell under the command line. An environment is a skin that defines how windows in the GUI are handled, how the user can interact with the windows, and what functionality is available to the user.

There are a number of environments that can be used with X Windows (sometimes

these are called Windows Managers). The default is GNOME, but the K Desktop Environment (KDE) is another that can be installed with Fedora. As with shells, there are differences between each environment.

■ On the Fedora installation, the actual difference between GNOME and KDE is minimised by design. Red Hat has specifically retooled both KDE and GNOME so that they look and behave very similarly to make using Linux much easier. However, load the two environments on a different distribution of Linux and it won't take long to find dozens of differences.

The primary reason GNOME is used as the default graphical environment from within Fedora Core is because most of its administrative tools have been specifically developed for use with GNOME. But that's not to say that they won't run under KDE. One of the reasons Red Hat retooled KDE for Fedora Core was so the administrative tools would also run. KDE is available with a number of other distributions of Linux, as well as most instances of Unix, which allows people who use a number of different Unix/Linux machines to have some familiarity between them.

For the most part, this instalment focuses on GNOME, though most of what is described should also work under KDE. Any major differences between methodologies using each environment will be highlighted.

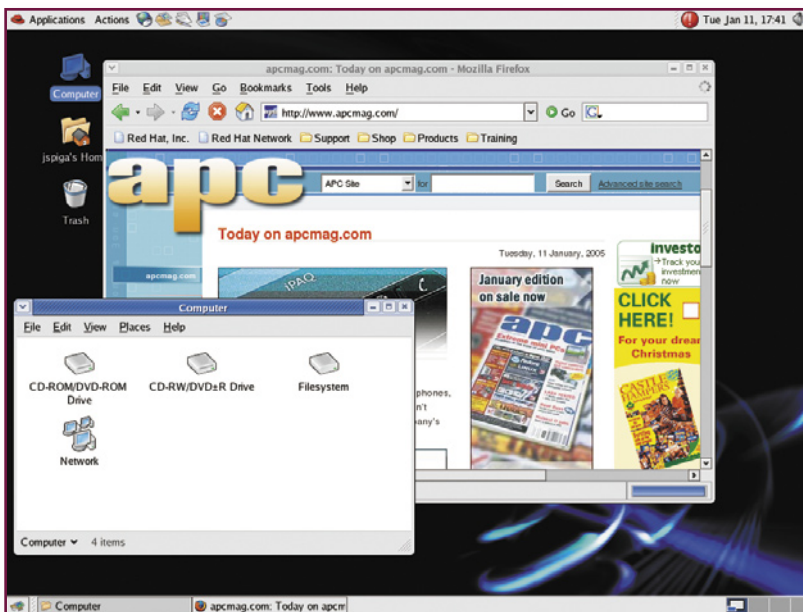
LOGGING IN

Log in to X Windows in exactly the same way as you had to log in to the command line console to start using it. In most cases, the Linux system should boot up to the Fedora Core graphical login screen.

As described in part 2 of this series, logging in is as simple as typing a valid user name, hitting Enter, then the corresponding password, followed again by Enter. However, there are a number of other buttons at the bottom of this screen worth mentioning. They are:

■ **Language:** allows a user to change the language for their desktop session. This is useful for computers with several users who speak different languages.

■ **Session:** lets users select the environment for your session. This option lets you quickly switch to a different desktop environment. If you select an environment that's different from your default, a list of instructions will appear telling you what to do to set your newly selected environment as



1 GNOME is the environment that will load up by default under Fedora Core 3. KDE is the other environment that is often used, and is similar in most aspects.

► the default.

■ **Reboot:** allows users reboot the system without having to log in, unless the system has been configured so that you can't do so.

■ **Shut down:** lets you to shut down the system in a similar manner to the Reboot button.

YOUR DESKTOP

Once you've logged on to the system, the desktop should display. The main components of the GNOME desktop are:

■ **The GNOME menu:** the Red Hat icon that appears in the top left-hand corner is the GNOME menu (it should also have a text label of Applications). It acts like the Start button within Windows — click on it and a menu drops down containing the launch applications.

■ **The Actions menu:** among other things, this button allows you to log off, switch off or restart the system, lock the screen, take screenshots and run other applications.

■ **Application launchers:** much like Windows' Quick-Launch bar, application launchers allow you to load frequently used programs with a single mouse click. By default, you'll be able to launch the Mozilla Web browser, Ximian Evolution email client, and OpenOffice.org's Writer (similar to Microsoft's Word), Impress (a presentation package similar to PowerPoint) and Calc (a spreadsheet application like Excel).

■ **The notification bar:** appearing in the top right-hand corner of the screen, the notification bar displays the current system time as well as icons designed to display information about your system, or to give you easy access to frequently changed settings.

■ **The taskbar:** with every application you open on your current virtual desktop, a button that represents it will appear on the taskbar at the bottom of the screen.

■ **The workspace switcher:** four squares used to represent the four workspaces set up for you by default. You can increase or decrease the number of virtual desktops available.

■ **Desktop icons:** a few desktop icons are also present for quick access to certain aspects of the file system. The "Computer" icon is designed to mimic the My Computer icon under Windows. The Home and Trash directories are also easily accessible

from your desktop, as is an icon for any removable media you may have on your system. For example, if you insert a CD or DVD into the optical drive, an icon for it will appear on the desktop.

WINDOW CONTROLS

2 The basic controls in the title bar of most windows within GNOME are usually the same as Microsoft Windows'. The Windows Management Menu button (at the top left) has typical move, resize, maximise/restore, minimise and close options, but there are a couple more. These are:

■ **On Top:** this forces the current window to always be on top of any other windows.

■ **Put on all workspaces and Move to another workspace:** these affect which workspaces the current window is visible on.

The Minimise, Maximise and Close buttons are also present in the title bar. Double-clicking on the title bar will maximise/restore the window by default, as it does under Windows. However, if you're used to using a Mac, you can change this behaviour so that double-clicking the title bar rolls the window up by going to GNOME > Preferences > Windows.

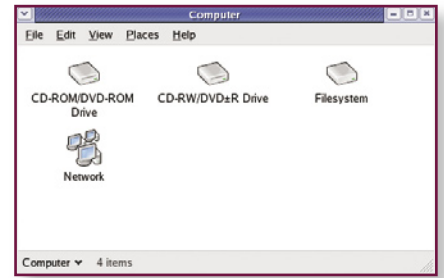
From this same preferences screen, you can also change the way windows are selected. By enabling Select windows when the mouse moves over them, you can flick through open windows at a much faster rate, although it takes some getting used to.

VIRTUAL WORKSPACES

In the bottom right-hand corner of the screen are four rectangular boxes side-by-side in the taskbar. These four panes represent the four default virtual workspaces running under X Windows.

Under Windows, even features such as application grouping within the taskbar and tabbed Web browsers often don't quite do enough to minimise the layers of open windows on the desktop. Using GNOME, the virtual workspaces feature makes all these windows easier to manage by giving you a set of unique desktops that can be worked with at any given time. Imagine virtual workspaces as the GUI versions of the virtual consoles covered in part 3 of this guide. Each virtual workspace can hold its own applications, have its own desktop wallpaper, and so on.

3 When you first log in to Fedora Core, all



2 Double-clicking on the Computer icon on your desktop loads a File Manager window that contains icons for the drives in your system along with a network browser icon.



3 The Workspace Switcher Preferences let you create additional workspaces to go with the four that are set up by default. You can also specify the manner in which workspaces are arranged and assign a unique name to each workspace.

applications will run on the left-most virtual workspace. To switch to a different workspace, simply click one of the other three virtual workspace boxes. Alternatively, Ctrl+Alt+Left arrow switches to the workspace to the left of the current one, Ctrl+Alt+Right arrow switches to the workspace to the right, and so on.

WORKSPACE BEHAVIOUR

If you switch to a different virtual workspace and launch an application, that application should be visible only on that workspace. Switch to a different workspace and your application will no longer be visible, nor will it appear in your task bar. But the program is still running — if you switch back to the workspace from which you launched it, you should be able to work with it again. ►

► If you want to move an application from one virtual workspace so that it's visible on another, click on the Window control menu (in the top left corner of the window) and select Move To Another Workspace, followed by the workspace you want to move the window to. Other options usually available in this same control menu include Move to Workspace Left/Right/Up/Down and Put on All Workspaces. The last option allows your window to be visible across all virtual workspaces.

If you prefer the speed of using keyboard shortcuts, Shift+Ctrl+Alt+Left arrow will move the current window to the workspace to the left, and so on.

WORKING WITH FILES AND DIRECTORIES

The command line allows you to perform a variety of file and directory management tasks, while the X Windows File Manager also lets you to perform all of the functions from within X Windows.

The File Manager is running whenever you are logged in to X Windows, even if you can't see it in the taskbar. The desktop itself is one of the forms that the File Manager can come in, because each file or directory created on your desktop is stored on the file system beneath the Desktop directory located under home.

Under GNOME, the File Manager is an application named Nautilus; under KDE it's called Konqueror. Since this guide assumes that you're running GNOME, it's based on the use of Nautilus. However, most of the steps described also apply to Konqueror. Sufficient differences between

the applications are pointed out.

4 & 5 To view a more traditional File Manager window, double-click the icon on the desktop that represents the home directory. A new window pops up that will most likely contain a number of files and directories, depending on how much you've been using the Linux system.

Most of the actions performed under Windows Explorer also apply to the Linux File Manager — double-clicking on a file opens it with the application associated with the file's extension, Ctrl+C copies a file, Ctrl+X cuts a file (for moving) and Ctrl+V pastes the copied or cut file in the current directory.

Each file and directory has its own icon representing the type of object. For instance, each directory is represented by a folder icon, compressed files are normally represented by an icon of files inside a box, and My Documents are represented by pen and paper icons.

Icon overlays can also be applied in certain circumstances. The jspiga home directory (see below), has a symbolic link that points to another directory on the file system. A small green arrow overlay appears on the bottom right corner of the directory icon, indicating that this is a symbolic link and not an actual directory. Similarly, if you navigate to an area of the file system you don't have access to, the icons in that directory will have a "forbidden" overlay.

ICON DO THAT

You can bring up a context menu for any icon by simply right-clicking on it.

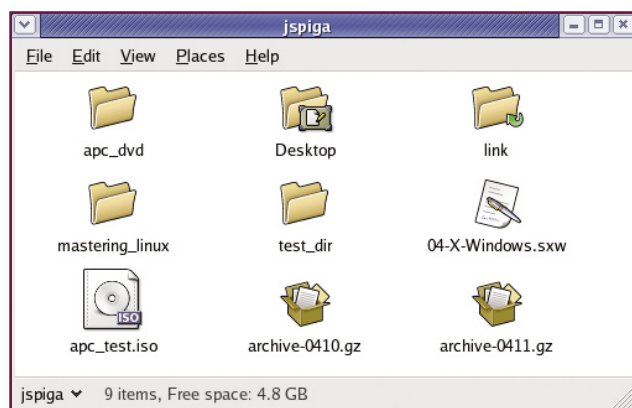
This menu normally allows you to perform a

number of functions. For example, if you want to open a file with an application not associated with the file's extension, you can select Open with Other Application. You can also view the properties of a file or directory by selecting the Properties option in the context menu.

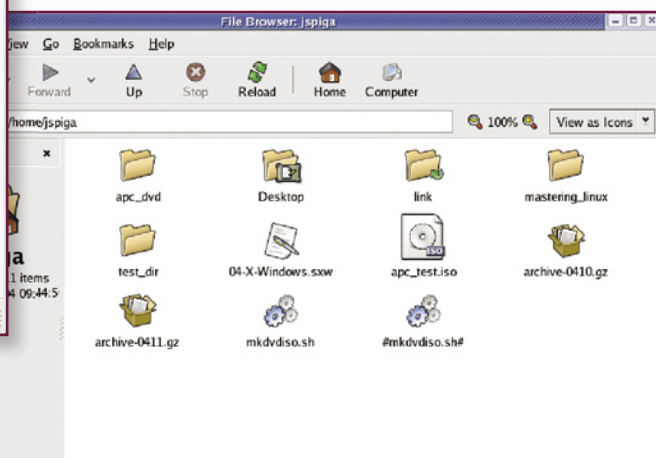
6 When the Properties screen comes up, you can see the size of the file, its location, and when it was last accessed and modified. The next tab permits you to attach an emblem to the file or directory. An emblem is a mark that can be applied to a file system object only in the GUI to help users identify the object more easily. It has no real purpose other than to assist with usability.

7 The Permissions tab is the most important as it allows you to quickly and easily define the permission for the file system object — no more remembering number codes for setting permissions (although it's still a good idea to remember how to set the permissions from the command line, in case you don't have access to X Windows). The permissions screen also lets you change the file owner and file group, should you have sufficient access to do so. Some special flags can also be selected, but don't worry about these for the moment — the use of these flags is an advanced topic that will be covered in the future.

The remaining tabs don't really affect the file system object directly. The Open With tab allows you to define what additional applications can be used to open a file, while the Notes tab gives you the chance to write any additional notes about the file. These notes are actually stored outside the file.



4 & 5 The Nautilus file browser and file manager screens — the file browser acts more like Windows Explorer, with an information pane that provides information on the current or selected items.



NATURAL SELECTION

8 Multiple files can be selected at once within the File Manager in a number of ways. One is to click on a space in the File Manager that isn't occupied by an icon, then drag a box around all of the files you wish to select. Alternatively, Shift+clicking an icon selects all icons located between the previously selected icon and the icon you clicked on, while Ctrl+clicking adds or removes icons from the selected list one at a time.

DRAGGING AND DROPPING

While some users prefer to use keyboard shortcuts or context menus, dragging and dropping is a quick and powerful method — especially when it comes to copying or moving files or directories.

A quick way to move a file from one directory to another is to load up two File Manager windows, with one looking at the source directory and the other at the destination directory. Then simply drag the file from the source directory into the destination directory.

If you only want to copy the file to the destination directory, follow the same steps while holding down the Ctrl key. If you hold down the Alt key while doing this drag-and-drop action, a context menu will appear which includes the ability to create a link to the file in the destination directory.

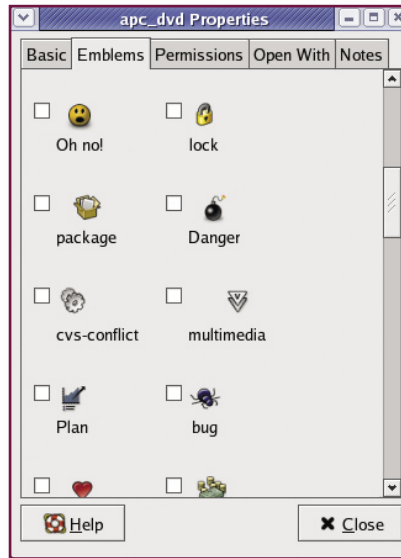
DELETING FROM THE GUI

One of the caveats in part 3 of this guide in relation to working with the command line console was that many actions are permanent. In particular, when you delete something from the command line, it's gone forever. Things are a little different from the X Windows GUI though. Delete a file from anywhere in the file system and instead of being transformed into the ether, it will be moved to the Trash folder on your desktop.

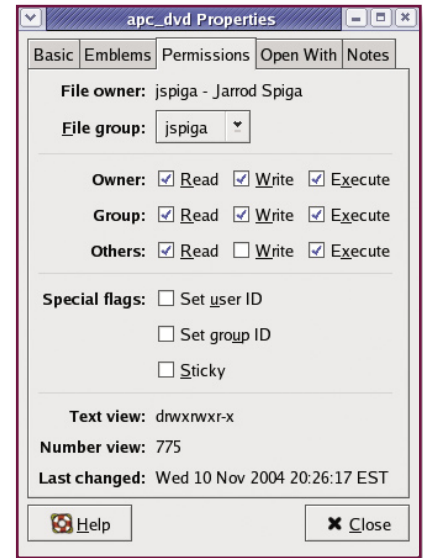
The Trash folder behaves in much the same way as the Recycle Bin folder under Windows. Open it and you'll be able to see all deleted files and directories. This gives you a second chance to restore files to their original location if they're accidentally deleted from within the GUI. However, once you delete an item from the Trash folder, it's gone for good.

LOGGING OUT

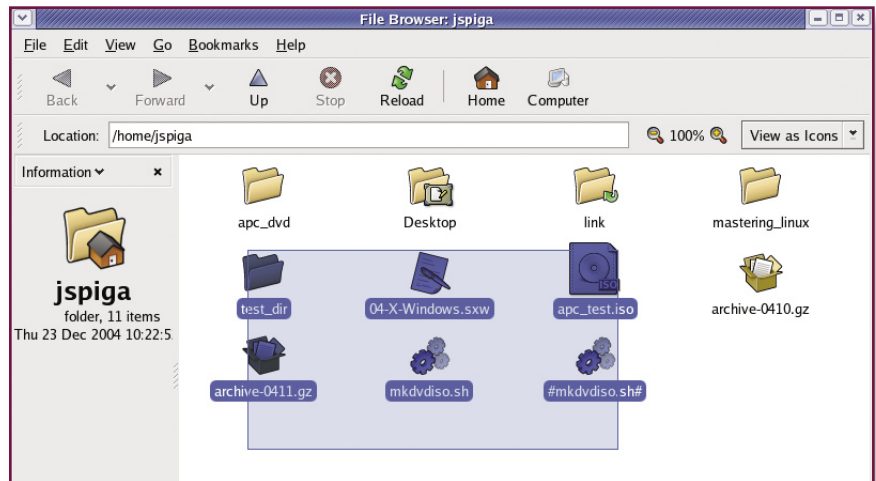
When you've finished your Linux session, it's always a good idea to log out of the



6 Emblems (or Icon Overlays) can be applied as a symbolic note on file system objects. These overlays are only visible within the GUI — from a command line you won't see any difference.



7 Use the permissions properties tab to set the ownership and permissions for each, or a group of file system objects, allowing you to forget about the permissions numbering convention.



8 Drag a box around multiple items to select them. Use the Ctrl key to select/deselect single items, and use the Shift key to select/deselect all items between the last selected item and where you click.

system to prevent another user exploiting the open session and messing around with your data.

To log out, select the Actions menu option followed by Logout. You'll be given three options: to completely shut down the system, reboot it, or just log out. It's up to you, but all three options log you out of the system. The check box that appears just above these options permits you to save your current desktop setup.

When selected, the location of all icons and desktop items are saved in your user

profile, and will display the next time you log in to X Windows. **BTG**

Next month . . .

Next month's *Mastering Linux* guide goes back to the command line and explains how to create, edit and save files with text editors.

It also begins to demonstrate some of the administrative tasks that will allow you to use your Linux PC to its full potential.