Twin

XFree-free

Composing messages, reading news, writing CDs or even image processing – none of these tasks requires a GUI on Linux. And Twin even provides a window manager for the console. BY ANDREA MÜLLER

Command-line based windowing may sound like a bonfire at the bottom of the ocean to some. But this is exactly what *Twin*, *Textmode Windows Environment* [1] by Massimiliano Ghilardi, provides. The console-based window manager allows you to juggle windows, just like on **X**. If you do not have an X server running, you no longer need to switch between consoles, and Twin will even run on a GUI.

Window-Fitting

Don't expect to find Twin on your distribution CDs. Instead, you will need to fire up your compiler and create the program from the source code, which is available from [1]. To compile Twin, you need only your standard development tools, the *ncurses*, and *zlib* libraries, and the appropriate development packages. If you want to launch a Twin session on X, you will also require the XFree development packages (*XFree86-devel* for SuSE, or *xlibs-dev* for other distributions).

You can also install *gpm* and *gpm-dev* to provide mouse-based window browsing. This step is not required for SuSE, as the *gpm* package is pre-installed by default and also contains the developer files.

Twin includes a CD player called *twcd* in the *contrib* subdirectory below the source code directory. To use this application, you will need to install *libcdaudio* [2] from the DVD or [3]. Of course there are any number of useful console-based CD players such as *cdp*, so you may not really need *twcd*.

Unpack the Twin source code and change to the directory created by this step, *twin-0.5.1*. The usual three-card trick, *./configure*; *make*; *make install* will take care of compiling and installing the software. To also compile *twcd*, issue a *make -C contrib* after the *make* step. This worked in our lab suite, provided that *libcdaudio* and the appropriate header files were available in */usr/lib/* and */usr/include*.

Twin will install to directories below */usr/local* by default, so will need to be *root* to run *make install*. You can then go on to introduce your system to the libraries you installed by entering *ldconfig* with *root* privileges. Before doing so, make sure that */etc/ld.so.conf* has a line for */usr/local/lib*. SuSE has this by default, but Mandrake and Red Hat users will need to add the line manually.

Getting Started

It makes no difference whether you launch Twin in a console or on X. The program will automatically choose the appropriate output mode. On a GUI-based system, Twin will open its own desktop in a normal window. In a text-based console, Twin will occupy the whole screen and provide genuine window manager look and feel.

Before launching Twin, remember to enable the *gpm* service, which provides mouse support in text mode. Mandrake and Red Hat Linux enable *gpm* by default; SuSE users can *su* to *root* and enter */etc/init.d/gpm start*. If the mouse support causes trouble with X, you can disable *gpm* by entering */etc/init.d/gpm stop*.

Once your window manager is running, there is nothing to stop you populating the desktop with program windows. Pressing the [Break] key or right clicking will display the Twin menu at the top of your screen. You can then select *File / New Term* to launch *twterm*, Twin's *xterm* counterpart, although you may prefer to use the shortcut, [Alt-Up Arrow].

Twin adds a title bar to each window. The buttons in the bar provide useful

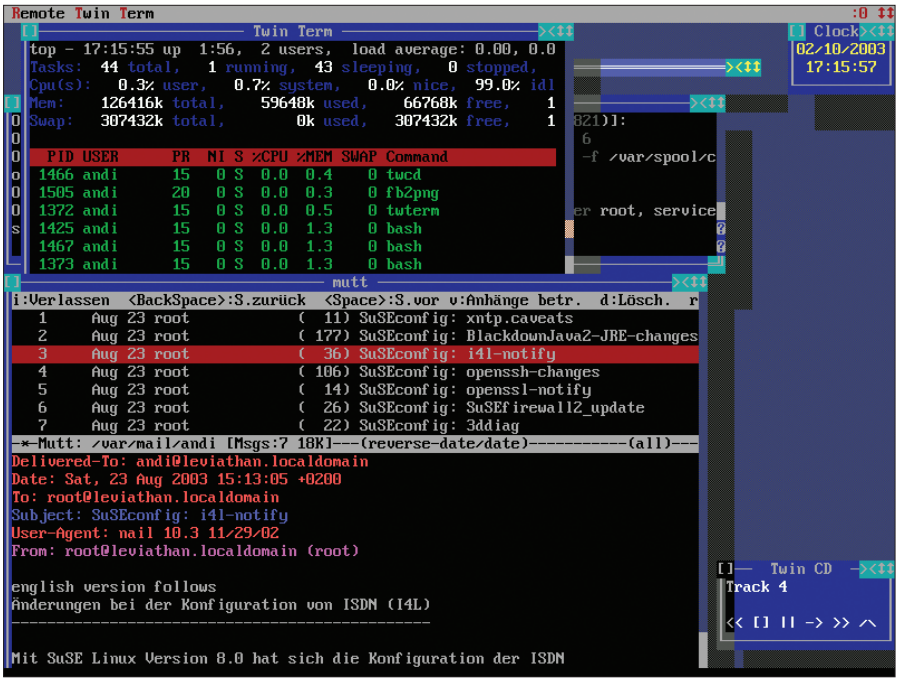

Figure 1: Keep track on your applications, from the system monitor to your mail client, with Twin

Desktopia

Only you can decide how your desktop looks. With deskTOPia we regularly take you with us on a journey into the land of window managers and desktop environments, presenting the useful and the colorful viewers and pretty toys.

functionality. The left button closes the window, the second button collapses the window, leaving only the bar on display, and toggles to expand the window again. The third button (on the right) shifts the **focus** to the next open window or the desktop. This is useful, as Twin only provides access to the menu for the object that is currently active – Macintosh users will be familiar with this behavior.

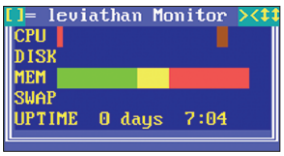

Figure 2: Twsysmon uses a bar graph to visualize resource use

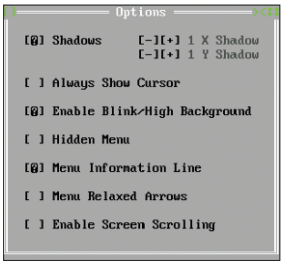

Figure 3: Configuration in the Options menu

As an alternative, you can left-click an empty space on the desktop to tell Twin to display the main menu. [Alt-Tab] will switch between windows.

Just like many other window managers, you can tell Twin to move a window by clicking and holding down the left mouse button. Click on the anchor in the lower right corner of the window, and drag the mouse, to scale the window. You can use the keyboard to do this. Select *Window / Resize*, and then use the arrow keys to scale the window. Press [Enter] when you are finished.

Of course, a single *twterm* is no improvement over the normal console, so will you need to launch a few more terminals, and assign programs to them, to monitor multiple applications.

File / Execute launches a program directly without taking a detour via the command line. In the case of interactive applications like the *mutt* mail client, you can check the *Run in Terminal* checkbox to provide the support the application needs.

As you can see from Figure 1, Twin does allow you to keep an eye on your critical applications. Should you start to lose track, the window list, which you can drop down onto the desktop by clicking the center mouse button, will help you resolve the muddle.

All Inclusive

Twin comes with a selection of tools. To use these goodies, first launch a Twin **socket**, by selecting *Modules / Run Socket Server*. Twin uses a client/server approach, just like the X Window System. Some Twin applications use a socket to talk to the desktop.

The *? / Clock* menu entry launches Twin's integrated clock. The *twsysmon* command launches a graphical system monitor that provides statistics on system resources and uptime (see Figure 2). *twcat* is an alternative to the *cat* command; the syntax is just like the original's, *twcat filename*, but it also provides convenient scroll bars that allow you to scroll the output.

Options

The first place to go, when configuring Twin to suit your requirements, is the *? / Options* menu entry, which opens the *Options* menu (see Figure 3).

If the preset window shadows are too big for your liking, you can select *Shadows* to re-size them, or remove the checkmark to do without shadows. Selecting *Hidden Menu* will hide the menu. Right click to display the menu in this case.

If you intend to run a dozen or more windows on a single Twin desktop, you will want to *Enable Screen Scrolling*. This lifts the visible desktop area restriction and allows you to hold down the left mouse button to scroll outside of the visible screen area, for example while moving windows.

A text editor allows for more individual Twin configurations. Copy the */usr/local/lib/twin* file to *~/.twinrc*, and edit the well-commented file to suit your requirements. The file helpfully provides details on the available color combinations and keyboard shortcuts.

Listing 1 shows you how to change the Twin color scheme, and add quick launch buttons for *mutt* and the *top* monitor. *\xb1* in the *Background* section is the **hexadecimal notation** for the asterisk (*), which Twin uses to form a background image. You can optionally use **octal notation** for individual characters, such as *\100* for @. If you find these notations too complicated, you can alternatively use normal text to brighten up your background. The following entry produces the results shown in Figure 4:

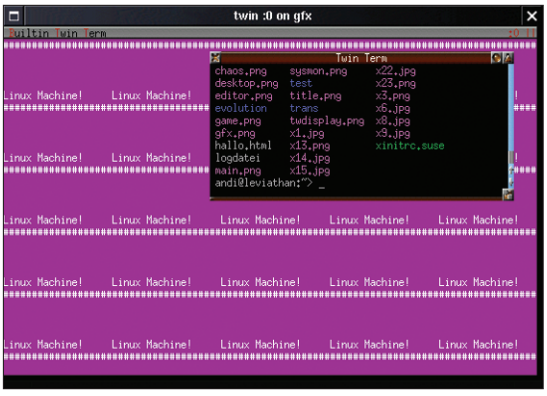

Figure 4: An individual background for the Twin desktop

```
Background 1 High White
on Magenta (
    "Linux Machine!      "
    "####################"
    "  "
    "  "
    "  "
)
```

If whiter than white is not to your liking, you can omit the *High* parameter.

The *ExecTty* keyword in quick launch commands tells

GLOSSARY

X: *The graphic user interface for Unix operating systems; also known as X11, or the X Window system. The most prevalent Linux variant is called XFree86.*

Focus: *Shifting the focus to a window, allows the window to accept user input via the mouse or keyboard.*

Socket: *Unix domain sockets are like contact addresses for programs. When a program is launched in the GUI, it uses a socket file that will typically reside in the /tmp/ directory to talk to the X server.*

Hexadecimal, octal notation: *Characters are translated to numbers to allow computers to understand them. There are a number of common notations; our decimal system includes 10 numbers (0-9), the octal system only has 8 (0-7), and the hexadecimal system has 16 (0-F). To count in hex notation, we say 1,2,3,4,5,6,7,8,9,A,B,C,D,E,F,10,11,12,13,14,15,16,17, 18,19,1A,1B,1C,1D,1E,1F,20,21 and so on.*

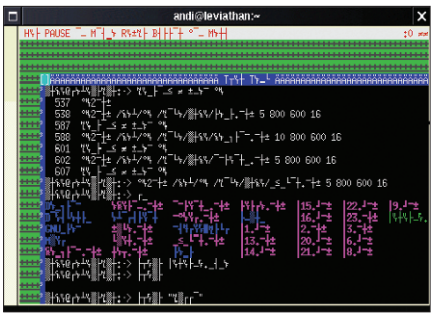

Figure 5: twattach will not restore a Twin session you launched in the command line to an X session

Twin to launch a program in a terminal. Make sure that any keyboard instructions except *Ctrl*, *Alt* and *Shift* are placed in quotes.

Twin Mobile

It always seems that, as soon as you launch the GUI, or turn to another console or machine to do something else, you just happen to need one of the applications currently running on Twin, like the mail program. Fortunately, Twin's developers have thought of that. The Twin desktop is available wherever you need it, even if you logged out in the meantime.

detach is the magic word: Twin detaches itself from the console on which you launched it, and goes on running in the background. Launch the socket server first, and then select *File / Detach*. Without the socket server, Twin disappears into the background where you can no longer talk to it.

You can now log out, launch the GUI or another application. Whenever you need the Twin session, type the *twattach* or *twdisplay* command to put Twin back on your screen. *twattach* uses less resources, the disadvantage being that you only have read access to the current Twin session. Attempting to to restore a

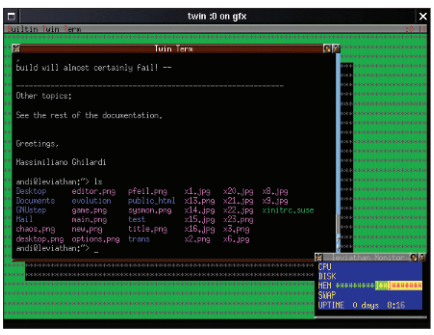

Figure 6: gfx display output makes Twin presentable on X

console-based Twin session to the GUI using *twattach* will corrupt the display, however (see Figure 5).

As *twattach* occasionally caused errors when restoring the original display mode in our lab tests, *twdisplay* is preferable for computers with enough power. The following command restores your Twin session on X:

```
twdisplay --twin@:0 --hw=X
```

--twin@:0 specifies the Twin display; the first Twin session launched is always *:0*. If you are not sure of the number, the *twfindtwin* tool will tell you the right one.

If you do not specify a hostname, *twdisplay* will assume that the session is running on the local host. If you want to assume control of a session that was launched on another computer on your network, the command is as follows, assuming the IP address 192.168.0.1:

```
twdisplay -twin@➥
192.168.0.1:0 --hw=X
```

The value for *--hw=* specifies the output mode that Twin will use. If you are working on the console, *tty* is the correct value. Use *X* or *gfx* for X; the latter will add some window dressing to your Twin window (see Figure 6).

Listing 1: Different colors and new shortcuts for Twin

```
01 #This entry, approx. line 23
   in ~/.twinrc
02 #defines a green background
   for Twin.
03 Background 1 High Black On
   Green (
04          "\xb1"
05 )
06
07 #mutt keyboard shortcut
   [Shift-Tab]
08 Key Shift "Tab" ExecTty "mutt"
09
10 #top Quick launch via [F1]
11 Key "F1" ExecTty "top"
```

If your network connection is slow – this could be the case, if you launch a Twin connection across the Internet – *zlib* compression can help. Specify additional comma-separated connection options for the *--hw=X* parameter, as follows

```
twdisplay -twin@➥
192.168.0.1:0 --hw=X,gz
```

to tell the window manager to compress the data to be transferred, thus making optimum use of the network connection. The additional overhead required for compression should be no problem, even for older machines.

Figure 7: The Twin calculator, twkalc

Toolbox

The *twutils* package on the Twin homepage is designed for storing future Twin tools. Currently, it contains only a scientific calculator. After unpacking, change to the *twutils-0.2* directory and issue *./configure* and *make* to compile. Su to *root* and enter *make install* to make *twkalc* available in a Twin session (see Figure 7).

Trusty Companion

Twin provides a display manager, like other desktop environments, *twdm*. This login screen for text mode provides a pseudo-graphical login window that prompts you to enter your username and password before logging you on to a Twin session. *root* can enter */usr/local/sbin/twdm* to launch the display manager.

The Twin tutorial, which is located in the *doc* subdirectory below the source code directory, contains a how-to on integrating *twdm* at system startup. Use a test machine, however: After booting to *twdm*, we were unable to use the keyboard, which made it rather difficult to log on. ■

INFO

[1] Twin: *http://linuz.sns.it/~max/twin/*

[2] libcdaudio: *http://cdcd.undergrid.net/libcdaudio*

[3] libcdaudio rpm: *ftp://194.199.20.114/linux/contrib/libc6/i386/libcdaudio-0.99.9-1.9.0.i386.rpm*