3d-Desktop
The Third Dimension

Humans perceive their surroundings in 3D. So why not add a spatial component to your daily work at the computer console? 3d-Desktop adds just that needed third dimension to your desktop. Taking you beyond a flat screen and into a more intuitive world of virtual desktops for you to navigate with ease. BY HAGEN HÖPFNER
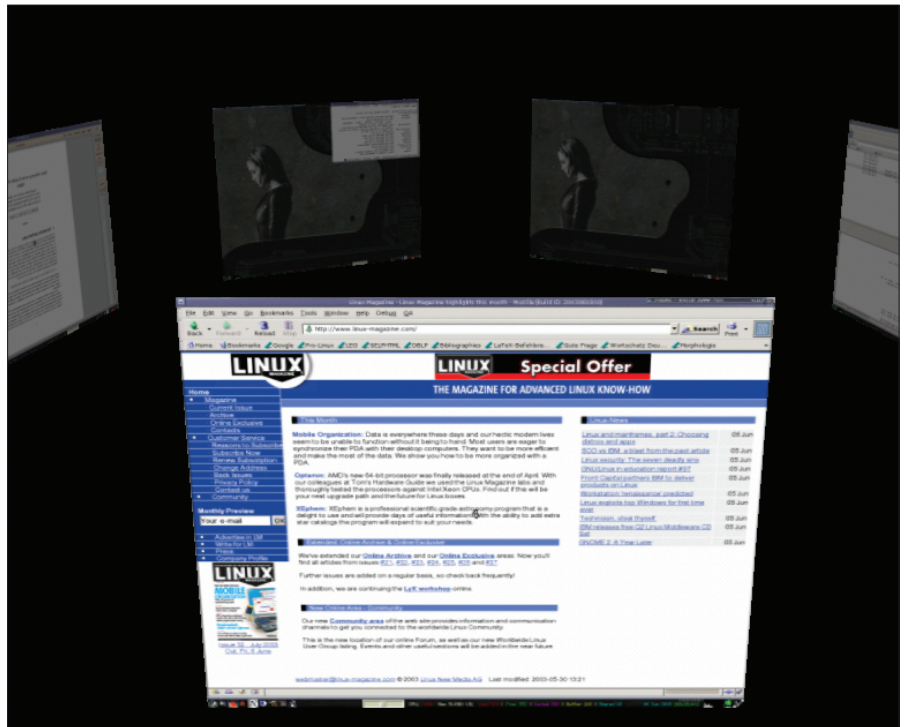

Figure 1: Default display mode *carousel*

You use it every day on the GUI desktop, but it has never caught your eye till now – the pager. This is a small tool that allows you to switch back and forth between the virtual desktops your window manager provides. More comfortable versions even display thumbprints of the current windows.

But 3d-Desktop [1] provides far more than this run-of-the-mill offering, and a can be combined with more-or-less any window manager to visualize 3D switching from one desktop to another. In contrast to other pagers, 3d-Desktop does not look like just another window; instead it enables a full-screen mode where your desktops are arranged in different spatial perspectives.

Getting Started

Of course, if you want to run an exotic pager, you will have to put in some work up front; for example getting your graphics adapter to support 3D acceleration.

If you do not know whether 3D support has been enabled on your machine, you can use the *3Ddiag* tool to test for this. Consult your distribution manuals if in doubt, or check your video adapter manufacturer's site.

3d-Desktop will work without hardware acceleration, of course, but this will impact smooth transition from one desktop to another.

In our lab environment the program refused to cooperated with some window managers, such as KDE's *kwin* and *fluxbox*. It worked quite well,

although somewhat slowly, with *waimea*, however.

Installation

Although *http://rpmseek.com/* will lead you to packages for Mandrake and a few other distributions, you might prefer to compile 3d-Desktop yourself, to make the most of the numerous individual configuration preferences. To compile the sources you will need the Mesa and *freetype* developer packages, the *imlib2* library and accompanying development archive. SuSE 8.2 does not provide these

Table 1: *3ddeskd* Parameters	
--acquire=#	The number entered for the pound sign # specifies the interval in milliseconds before the daemon will switch desktops to fetch a current screenshot.
--dir=/path	Replace */path* with the directory containing the help files in your installation. This defaults to */usr/local/share/3ddesktop*.
--texturesize=#	Replace the pound sign with the texture size and thus the level of detail for the screen shot display. 256, 512 and other powers of two are valid.
--wm=windowmanager	*Specifies the window manager to use. The following assignments are valid in the current version: kde2, kde3, gnome1, gnome2, ewmh, fluxbox, windowmaker, enlightenment, sawfishonly.*
--fastest	Assigns highest possible priority to 3d-Desktop.

packages, although they are available from [2]. If you intend to use 3d-Desktop with KDE, you will additionally need the developer packages for the desktop environment.

Go on to unpack the 3d-Desktop [3] sources. To enable 3D hardware suport, change to the directory created by the last step and type:

```
./configure --with-Mesa=no
```

This command is slightly longer on SuSE:

```
./configure --with-Mesa=no ⏎
--with-kde-libraries=/opt/kde3/⏎
lib --with-kde-includes=/opt/⏎
kde3/include
```

as the *configure* script will fail to find the KDE developer files, otherwise.

```
make
su (Enter your root password)
make install
```

will then compile and install 3d-Desktop in directories below */usr/local*.

First Steps

The directory should now contain two program files the *3ddeskd* daemon that needs to be running to allow the pager proper, *3ddesk*, to switch between virtual desktops. You only need to launch the daemon manually if you require special settings. The parameters shown in Table 2 can be used to influence the daemon's behavior in this case. Otherwise, *3ddesk* will typically launch the daemon automatically when started.

Just like for the daemon, there are numerous parameters available for the pager (Table 2). Not all of them are useful for every window manager, as they tend to group virtual desktops differently. WindowMaker and *kwin* organize desktops in a row, *fvwm* and *enlightenment* use a kind of table with multiple rows and columns. Being a universal pager, 3d-Desktop supports both approaches.

If a window manager does not understand a specific parameter, the call will simply fail. Therefore, the parameter --*gotodown* will have no effect on *kwin*, as *kwin* has no concept of "down". You can experiment with individual parameters to find out which options are useful with your favorite window manager.

The --*goto** parameters described in Table 2 allow you to access your desktops. If you want to skip to the next desktop but one, you might prefer to use interactive mode.

This mode is enabled by calling *3ddesk* without a target. You can then use the arrow keys to select the desktop you required. This mode also supports the mouse and assigns the mouse buttons to the directions currently available.

Box 1: Lab Environment

We tested hardware acceleration on a nVidia GeForce2 MX/MX 400 under Gentoo Linux, on an Ati Rage Mobility under Mandrake 9.0, and with various adapters on SuSE 8.2 (GeForce2 MX/MX 400, ATI Radeon M7, GeForce TNT2).

There are two obstacles that you will need to overcome

- **SuSE 8.2/ATI Radeon M7**: On SuSE the Direct Rendering Infrastructure Device (*/dev/dri/cardo*), that is the hardware interface for direct access to the video adapter belongs to the *video* group. Users who want to access this interface must be added to the group.

- **SuSE 8.2/nVidia-Card:** nVidia no longer supplies the current driver as an RPM package, instead providing a proprietary installation routine. Make sure that you use this routine, as the older driver provided by YaST Online Update caused problems while compiling *3ddesk*.

An alternative approach is to jump directly to the target desktop by entering a number between 0 and 9. When you reach your target, you can select the desktop by pressing the [Space] or [Escape] key, or hit [q] or click once with the center mouse button.

3ddesk defaults to *carousel* display mode (Figure 1), where the desktops circle round the screen. The --*mode* = *displaymode* parameter allows you to change the view; our personal favorites
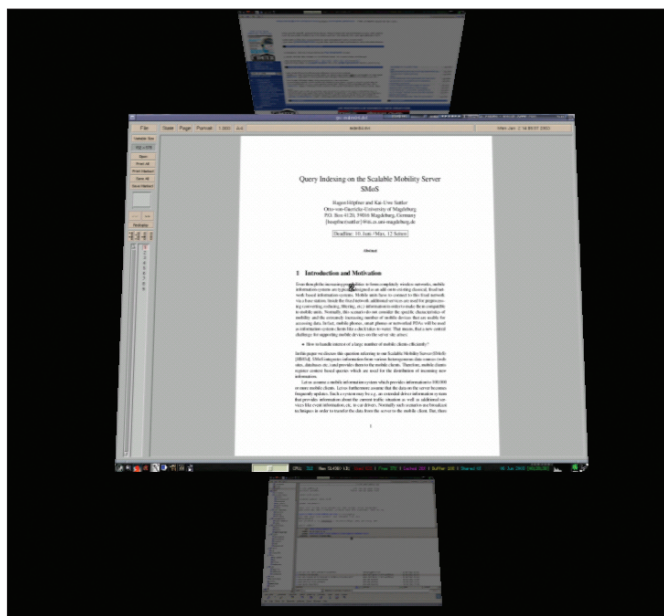

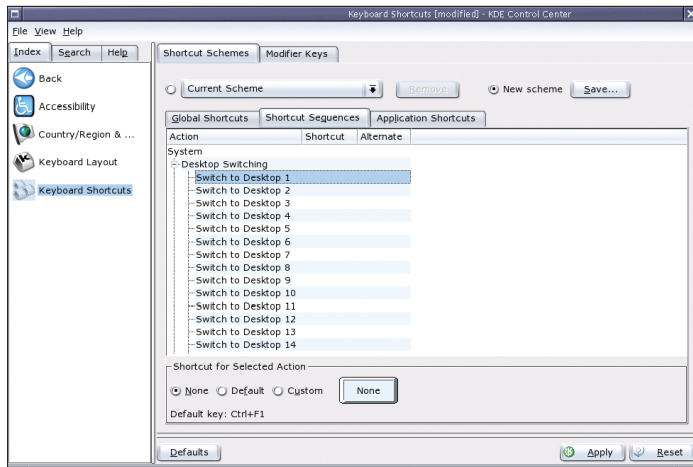**Figure 2:** *priceisright* **display mode**

Figure 3: *flip* **display mode**

Figure 4: Modifying shortcuts on KDE

Figure 5: Menu entry for 3ddesk in interactive mode

are *3ddesk --mode = priceisright* (Figure 2) and *3ddesk --mode = flip* (Figure 3).

The *--view* option creates even more spectacular effects. The definitions of these modes are stored in the *3ddesktop. conf* file of the source archive and should be copied to *~ /.3ddesktop/3ddesktop. conf*.

Using *less* to inspect the contents of this file reveals the full range of options for *--view*. For example, you can use *3ddesk --view = bigmoney* to turn your virtual desktops into the spinning wheels of a slot machine.

Integration with KDE

Having to enter *3ddesk* in the command line can be a nuisance after a while. It would be useful to have a shortcut or a menu entry to launch the program automatically. At the same time this would disable your current environment's default pager, to prevent the desktop selectors from colliding.

To do so, select *Regional settings & accessibility / Shortcuts* (Figure 4), and disable the following entries:
- *Global Shortcuts / Navigation / Walk through desktops*
- *Global Shortcuts / Navigation / Walk through desktops (reverse)*
- and all the sub-items below *Shortcut sequences / Desktop Switching* To create the new shortcuts for *3ddesk*, launch the KDE menu editor viea the K button pull-down menu. You can then define entries for moving left (*3ddesk --gotoleft*) and right (*3ddesk --gotoright*), for interactive mode (*3ddesk*) and for direct desktop access (*3ddesk --goto = #*).

To do so, first create a new menu item and type the required *3ddesk* syntax in the entry mask in the right-hand panel; this would be *3ddesk* for interactive mode (Figure 5), for example. Now define the shortcut; to do so, click on the button in the bottom right corner and
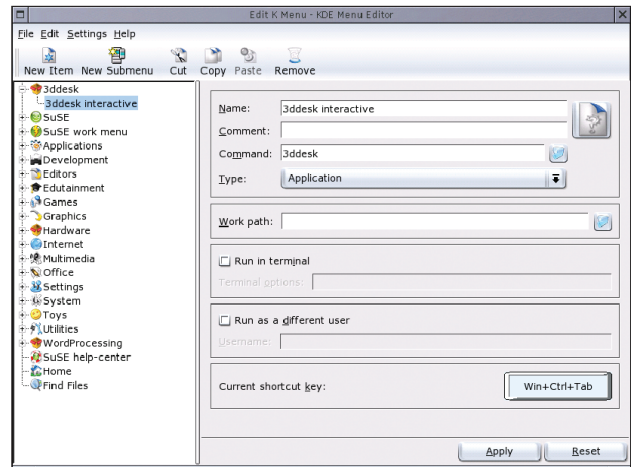
then press the required shortcut e.g. *[Windows]-[Ctrl]-[Tab]*. Of course, this is a question of personal taste, however, you should avoid reassigning shortcuts that are already in use. There are other window managers that allow you to edit the menu and assign shortcuts. For example, WindowMaker provides an integrated menu editor with the *wprefs* tool.

GUI Overkill?

Of course the usefulness of three dimensional, rotating, virtual desktops is debatable. But 3d-Desktop will at least "amaze friends and neighbors". ■

INFO

[1] 3d-Desktop homepage: *http://desk3d. sourceforge.net/*

[2] Additional SuSE packages: *http:// packman.links2linux.de/index. php4?action=222*

[3] 3d-Desktop download: *http:// prdownloads.sourceforge.net/desk3d/ 3ddesktop-0.2.5.tar.gz?download*

THE AUTHOR

Hagen Höpfner has a higher degree in Computer Science and is a member of scientific staff at the Otto-von-Guericke University of Magdeburg, Germany. Between time spent tinkering with his collection of Linux computers, Hagen likes to direct his creative energy into song-writing, composing lyrics, and playing the guitar for a rock band called "Gute Frage !?" (This means "Good Question").

Tabelle 2: *3ddesk* Parameters

--view=xxx	Uses the *view* options specified in *3ddesktop.conf*.
--mode=xxx	Sets the display mode; the values for *xxx* are: *carousel, cylinder, linear, viewmaster, priceisright, flip,* or *random*.
--acquire=#	Type a number for # to overwrite the daemon's *--acquire* value (Table 1).
--acquirecurrent	Creates a snapshot of the current virtual desktop.
--gotoright	Moves one virtual desktop to the right.
--gotoleft	Moves one virtual desktop to the left.
--gotoup	Moves up one virtual desktop.
--gotodown	Moves down one virtual desktop.
--goto=#	Moves to the virtual desktop with the number #.
--gotocolumn=#	Moves to the virtual desktop in the same line but in column #.
--gotorow=#	Moves to the virtual desktop in the same column but in line #.
--stop	Quits *3ddeskd*.
--reload	Forces *3ddeskd* to reload *3ddesktop.conf*.