

Answers

Got a question about open source? Whatever your level, email it to lxformat@futurenet.co.uk for a solution.

This month we answer questions on:

- 1 Missing command line
- 2 TV on the Raspberry Pi
- 3 Netgear firewall
- 4 Wireless networks
- 5 Running Mint on an iBook
- ★ Unidentified file format

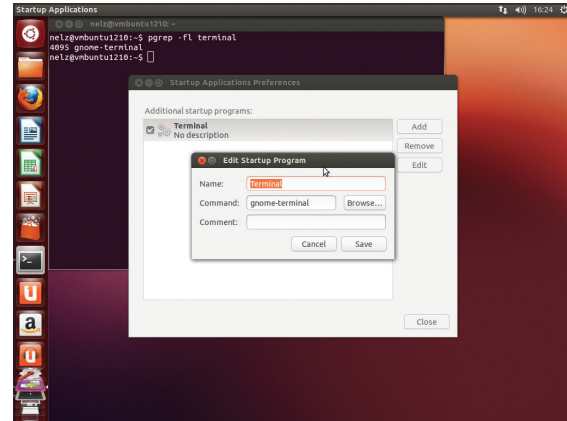
1 Where is my terminal?

Q I have been happily running Ubuntu on my ageing laptop for a while, and a friend just gave me his Sony Desktop Vaio, with Windows Vista slowed by a virus. So I installed Ubuntu 12.10 from your DVD and I'm typing on it now. I have no problems, except that I cannot find the damn terminal. I don't mind them pinging for Amazon so much. I dislike icons, but that's the way things are headed. But I cannot use the computer without a CLI.

John Wagner

A Ah, the joy of Unity. There is no longer a menu containing all your programs, that you can browse through. Instead, click on Dash home at the top-left of the screen, click in the search box and start typing 'terminal'. You'll soon see the icon appear. When the terminal is running, you will see an icon for it in the Launcher. Right-click on this and select Lock to Launcher to make it a permanent resident. Then you can drag it to a more prominent position within the Launcher.

As you use the terminal so much, there are a couple of options you may want to consider. The first is to launch a terminal automatically when the desktop loads. Go back to the Dash and find Startup Applications. Click New and add **gnome-terminal** as a command to run. You can add extra options, such as sizing: `gnome-terminal --geometry 80x25` gives an 80x25 terminal. To see the available



► Unity may hide programs, but it is also easy to have it run them automatically.

options, run `gnome-terminal --help`

Another option is a *Quake*-style drop-down terminal. As a KDE user, I use *Yakuake* for this, which drops down a *Konsole* terminal when I press its hotkey (KDE also remembers my open terminals and restores them the next time I log in, but that's another story); but there is a similar program for the Gnome terminal, *Guake*. Try it, it really improves productivity to have a spare terminal available on demand.

2 Telly Pi

Q I've been trying for days to get my Raspberry Pi (version 2, currently running Raspbmc) to work with my TV tuner. I purchased a K-world KW-UB499-2T T09 because, according to http://linuxtv.org/wiki/index.php/DVB-T_USB_Devices, it is compatible, provided you have a recent kernel, and I found it quite affordable on eBay. However, I really cannot get it to work, the adapter just won't appear in *tvheadend*'s adaptor list when I visit the web interface. I've trawled through page after page of guides and forums, most of which seem to be aimed at x86 or x64 systems. I'm completely out of my depth at the moment because I don't really understand kernel modules and drivers and such (I've had the luck of everything 'just working' until now). Please could you give me some help as to how to get this working, as I can't afford another adaptor right now – and I'd all but given up until Graham's tutorial in LXF169 made me want to have another go at it.

Mark Skinner

Terminals and superusers

We often give a solution as commands to type in a terminal. While it is usually possible to do the same with a distro's graphical tools, the differences between these mean that such solutions are very specific. The terminal commands are more flexible and, most importantly, can be used with all distributions. System configuration commands often have to be run as the superuser, often called root. There are two main ways of doing this, depending on your distro. Many, especially Ubuntu and its derivatives, prefix the command with **sudo**, which asks for the user password and sets up root privileges for the duration of the command only. Other distros use **su**, which requires the root password and gives full root access until you type **logout**. If your distro uses **su**, run this once and then run any given commands without the preceding **sudo**.

A This device is indeed supported with the current Raspbmc kernels, but you need more than the kernel modules to make it work. In common with many such devices, you also need a firmware file. This is a small piece of code that would otherwise be stored in the device's chips, but manufacturers prefer to include it with the Windows driver instead.

It makes updating easier, and also means that bugs can be fixed without replacing the hardware (which makes it easier for them to release the hardware early, with less testing). To use it with Linux, you need this firmware in a file in `/lib/firmware`. If you look at the output from **dmesg** with

```
sudo dmesg | grep -C 5 -i dvb
```

you will probably see complaints about the missing firmware. There are two ways to install the firmware. If you have the kernel sources installed, run these commands to automatically download, extract and install the firmware.

```
cd /usr/src/linux/Documentation/dvb
sudo ./get_dvb_firmware it9135
```

This will download and install the firmware

for the it9135 chipset, the one in your device. Alternatively, if you do not have the kernel sources installed, you can do this manually by running these commands in a terminal or SSH session

```
wget http://www.ite.com.tw/uploads/firmware/v3.6.0.0/dvb-usb-it9135.zip
unzip dvb-usb-it9135.zip
sudo dd if=dvb-usb-it9135.fw ibs=1 skip=64 count=8128 of=/lib/firmware/dvb-usb-it9135-01.fw
sudo dd if=dvb-usb-it9135.fw ibs=1 skip=12866 count=5817 of=/lib/firmware/dvb-usb-it9135-02.fw
```

The **unzip** command is not installed on Raspbmc by default. You can either install it with

```
sudo apt-get install unzip
```

or download and unzip the file on your desktop computer and copy the contents, the **dvb-usb-it9135.fw** file, to your Raspberry Pi before running the two **dd** commands. Now plug in the USB tuner and it should appear under `/dev/dvb` and in *tvheadend*.

3 Double firewall

Q I use a Netgear DG834G v5, and have for some years been relying on that for my firewall. This is set up to block all inbound traffic and allow all outbound traffic. At present, I do not set up firewalls on my Linux systems. Am I unwise to rely on the Netgear firewall? With these default firewall settings, would the Linux firewall make the setup more secure?

My wireless network is set up so that only known MAC addresses can log in, and all MAC addresses (cable and wireless) are pre-allocated specific IP addresses, which my children and grandchildren moan about when they come with their latest 'iToys', because they cannot use them until they have given me all the gory details.

Michael Dyer

A In general, a separate firewall appliance, like your router, is preferable. If the firewall is running on the computer it is protecting, there is the possibility of some sort of compromise allowing an attacker to disable the firewall. A firewall on the router protects all devices, not just the computer. On the other hand, if you are allowing devices you have no control over to connect to your network, a firewall on the computer will help protect it if one of those is infected with malware. There is no problem with running multiple firewalls, and the belt and braces approach works, as the two firewalls are providing protection at different levels.

You should also make sure that you are not running any unnecessary services that open network ports and don't forward any ports through your router unless they are needed. There are websites that will scan your network from outside, which effectively tests your router's setup – such as *Shields Up!* at <http://www.grc.com> and the port scanners at <http://www.whatsmyip.org>. The same applies to your computer on the network, don't run any unnecessary services and run a port scanner from another computer on your local network. You can use **nmap** on a Linux machine, or there are port scanners you can run from an Android phone or tablet. To scan with **nmap**, use this command `nmap -v -sT 192.168.1.0/24` where **192.168.1.0/24** represents your network. This example means all addresses starting with **192.168.1** – tweak it for your network. If you want to use an Android device, *Net Scan* and *Network Discovery* have both worked well for me.

Using MAC addresses to restrict access is poor security, as it is very easy to spoof a MAC address. It doesn't hurt to use it as an extra layer of security, but do not rely on it. Make sure you use WPA or WPA2 encryption and use a long passphrase, that gives far more security. ►

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A quick reference to...

Don't panic

Occasionally, the Linux kernel hits a situation it just cannot handle and, ignoring the advice on the cover of the greatest book ever written, it panics. This manifests itself as a cryptic message output to the console (or hidden behind a pretty boot splash screen if you are really unlucky) and a blinking caps lock LED.

If it has got as far as mounting the root filesystem read/write, it can also write diagnostic information, a "core dump" to the disk.

In theory, you should never see one of these using the kernel your distro provides. If you are using a hand-rolled kernel, it usually means you have forgotten to build in support for the disk drive controller and filesystem used by the root filesystem, meaning it cannot be mounted.

You'd be forgiven for thinking that once this happens, all is lost, but the kernel can still manage one last act of dignity, even if you kill it like this.

The kernel can be told to reboot after a panic. Adding **kernel.panic=10** to `/etc/sysctl.conf` will reboot after 10 seconds, but requires that the system gets as far as

mounting the root filesystem to read this file. More robustly, you can add **panic=10** to the kernel parameters in your *Grub* menu.

You may wonder about the point of forcing a reboot if it will only panic again and reboot again, ad infinitum. The answer lies in *Grub*'s ability to set up a fallback boot. Set up like this, a kernel panic will cause a reboot back into the fallback kernel, which is hopefully one that you know works. This is a godsend when trying a new kernel on a remote computer – far less embarrassing than having to phone and ask someone to reboot because you messed up a kernel config.

