

The Graphical Installer of PC-BSD 10.1: The ISO image I downloaded is the DVD/USB image that weighs in at 3.7 GB. For installations on real hardware, I transferred it to a USB stick using the `dd` command and worked from there. Figure 1 shows the distribution's boot menu.

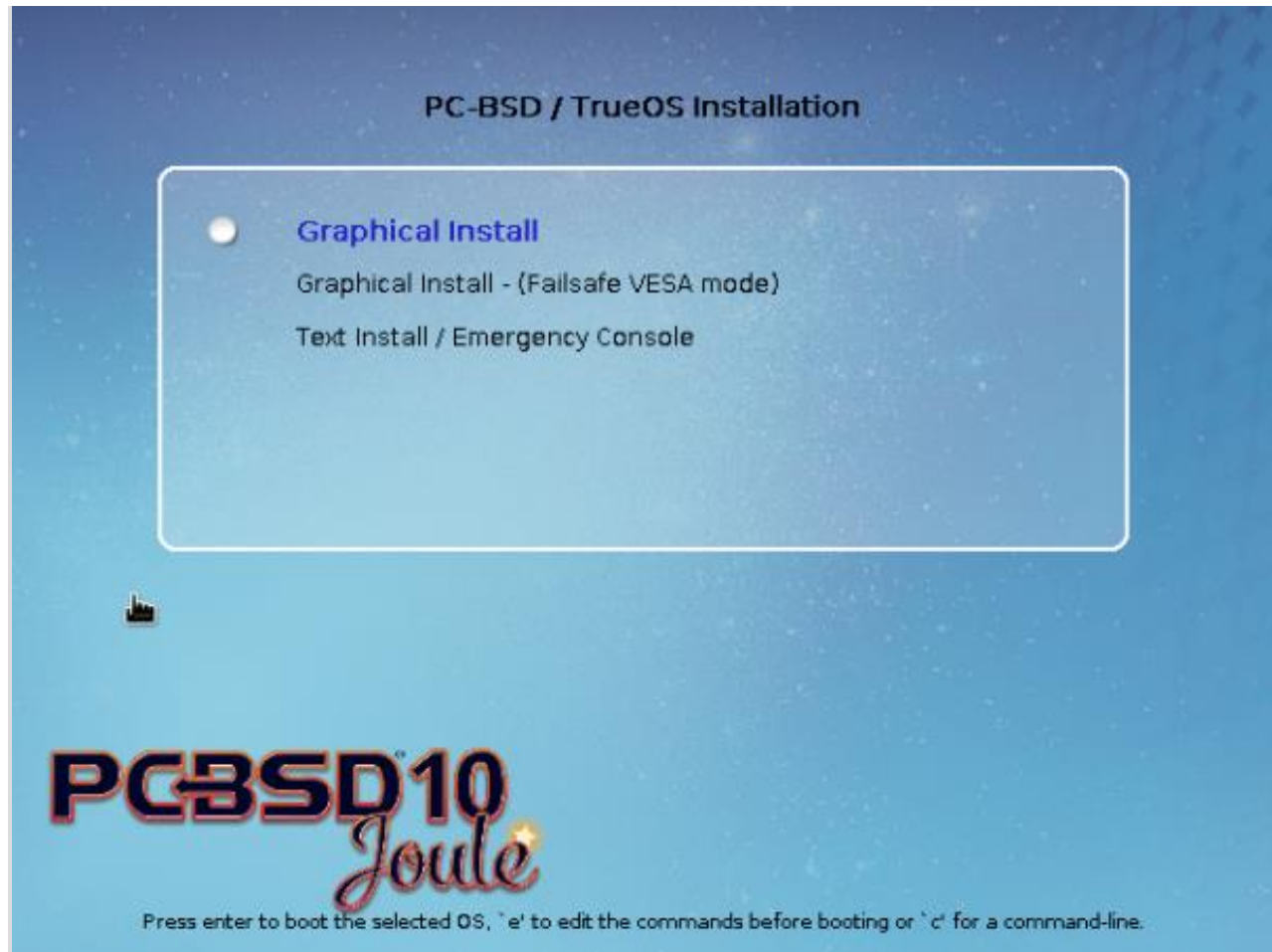


Figure 1: The boot menu of PC-BSD 10.1.

The image I used does not offer the option of booting into a live desktop, so it boots straight into the graphical installer. Figure 2 shows the default options for a desktop installation. The installer also offers the option to install a server edition of PC-BSD called TrueOS. I never tried that option and so I won't write about TrueOS again in this review.

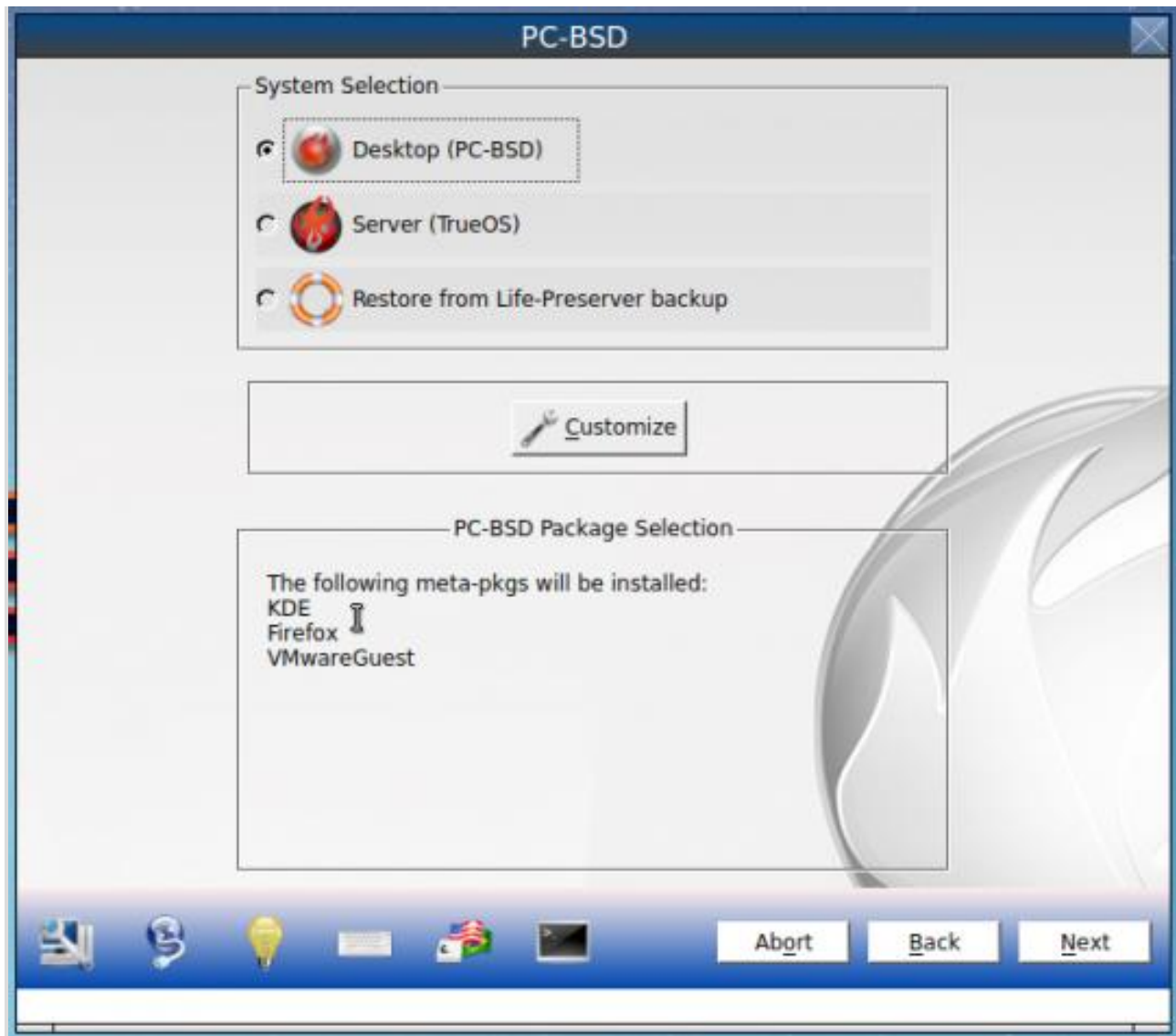


Figure 2: Graphical installer of PC-BSD 10.1.

Aside from KDE, other supported desktop environments are shown in Figure 3. There's GNOME, Cinnamon, MATE and Lumina, a new desktop environment from the developers of PC-BSD. For this review, I only test-installed the Cinnamon, GNOME, KDE and Lumina desktops.

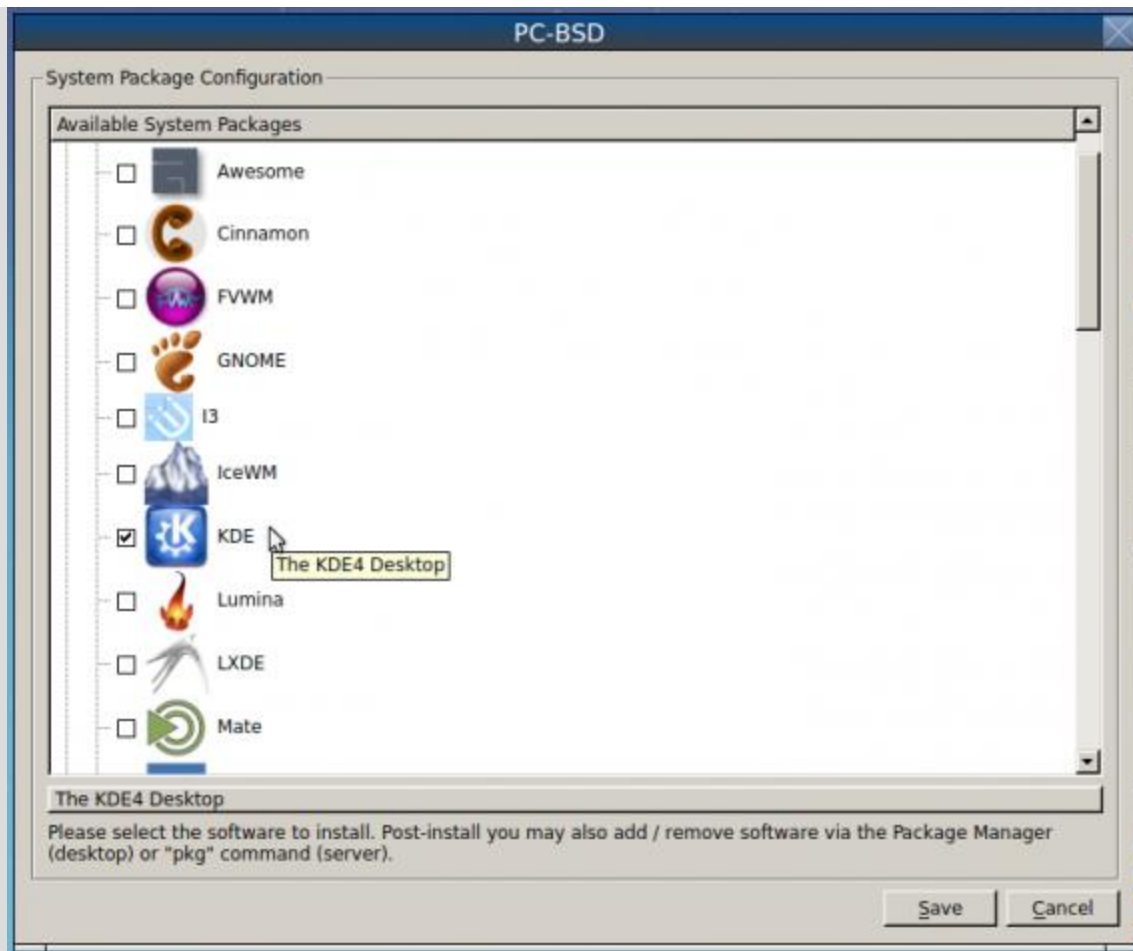


Figure 3: Desktop options available on PC-BSD 10.1.

You also have the option to customize the applications that will be installed. There's really not a lot to choose from, but for the few there are, you do get to choose what to install and what to skip.

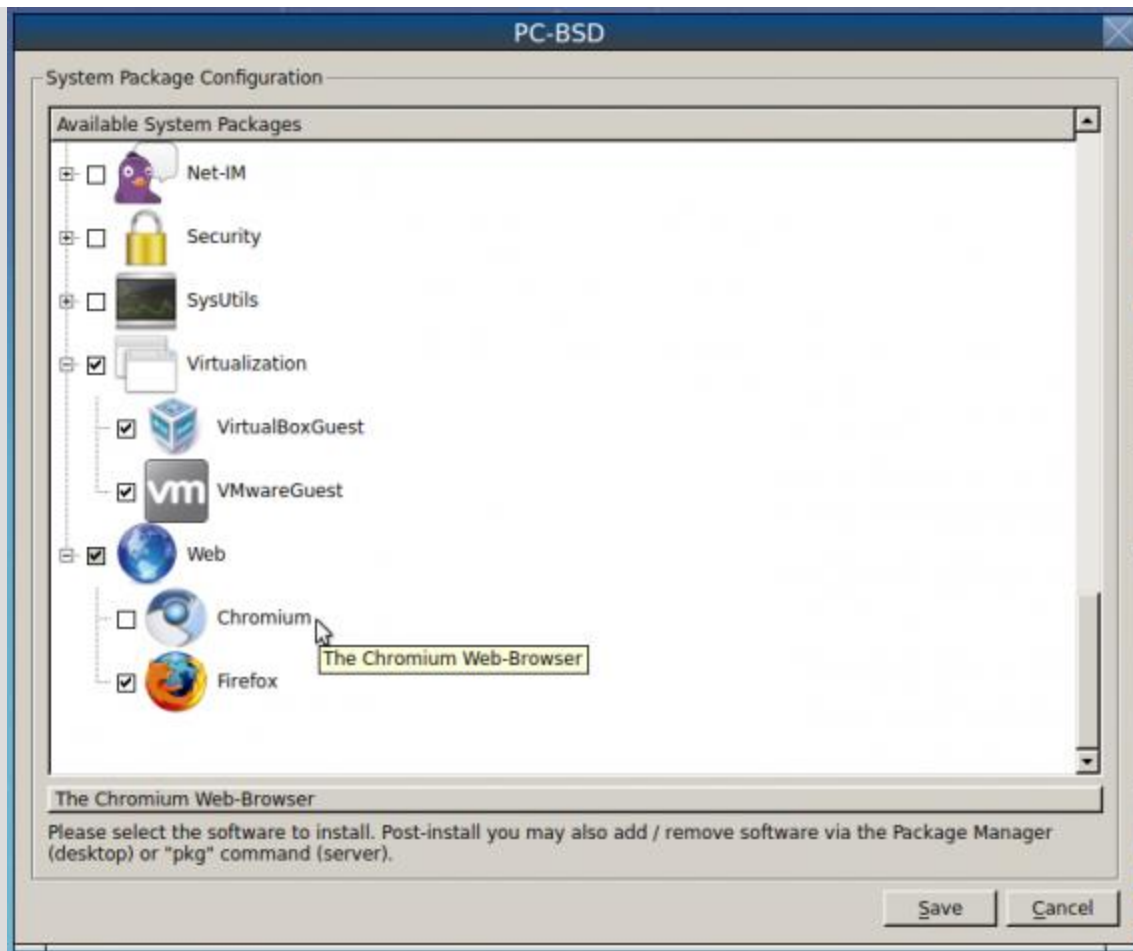


Figure 4: You can customize software for the installer of PC-BSD 10.1.

For disk partitioning, the installer offers basic, Advanced, and Expert modes. Basic and Advanced are via a graphical interface, while Expert is via a command line interface.

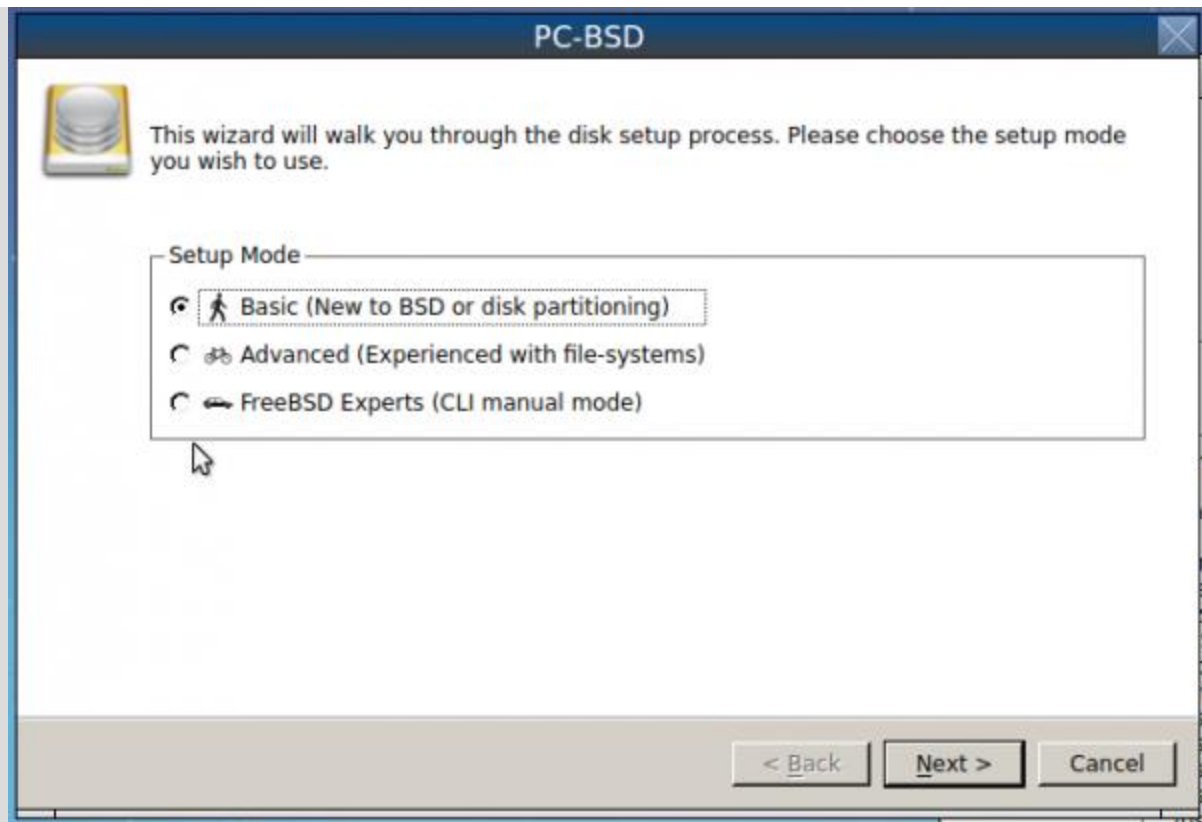


Figure 5: Basic, Advanced and Expert disk partition options of PC-BSD 10.1 installer.

The default mode of disk partitioning is Basic, with ZFS as the file system. With an existing operating on the target disk, the installer is unable to perform an automated dual-boot setup, so any attempt to dual-boot PC-BSD 10.1 with another OS on the same disk has to be done manually. The last time I attempted to dual-boot a PC-BSD release with another OS on the same disk was back in February 2011, and that was between **PC-BSD 8.2** and **Windows 7**, long before this era of computers with UEFI firmware, Windows 8 and **Restricted Boot**. I'm yet to attempt the same using PC-BSD 10.1, but I'll give it a try before the end of this month. However it goes, you can be sure that I'll blog about it.

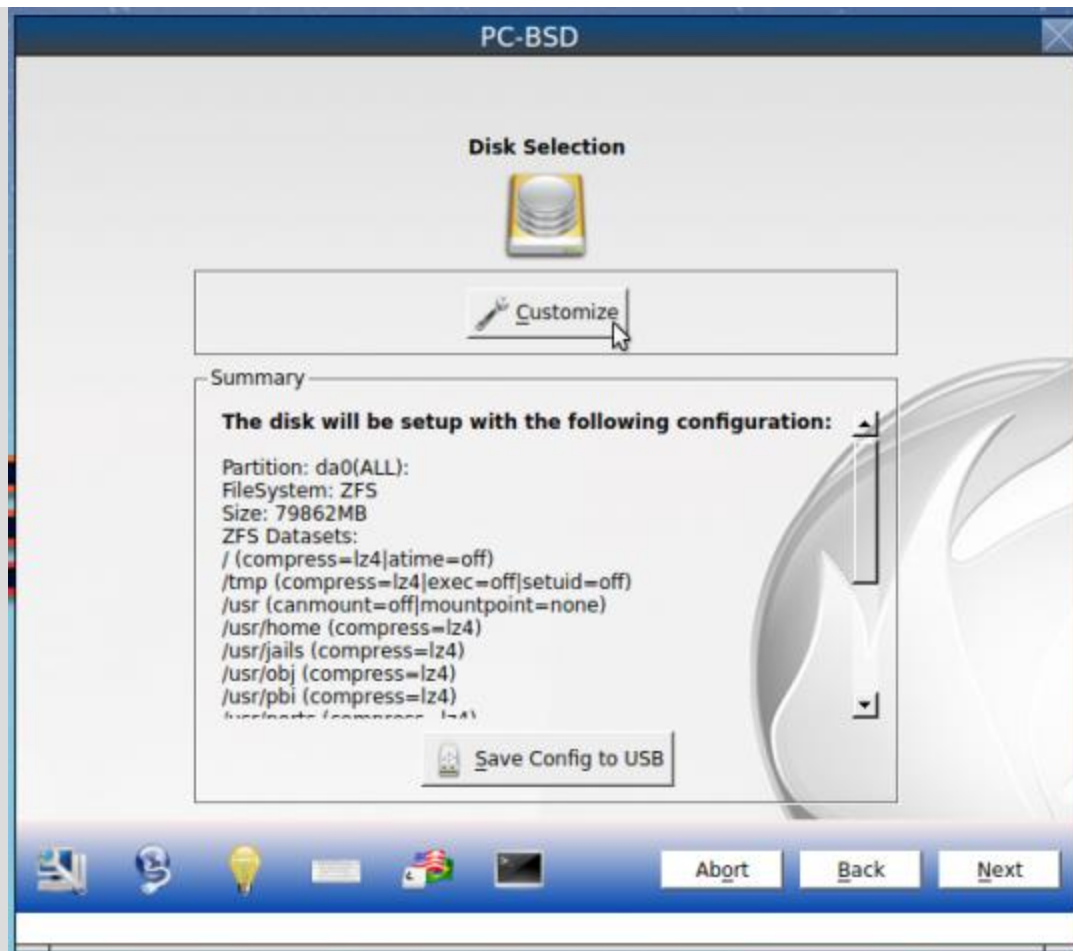


Figure 6: Default disk partition of PC-BSD 10.1. ZFS is the default file system.

Figure 7 shows some of the Advanced disk partitioning options. In this mode, you can customize the pool name. The default is tank, and the default boot loader is GRUB.

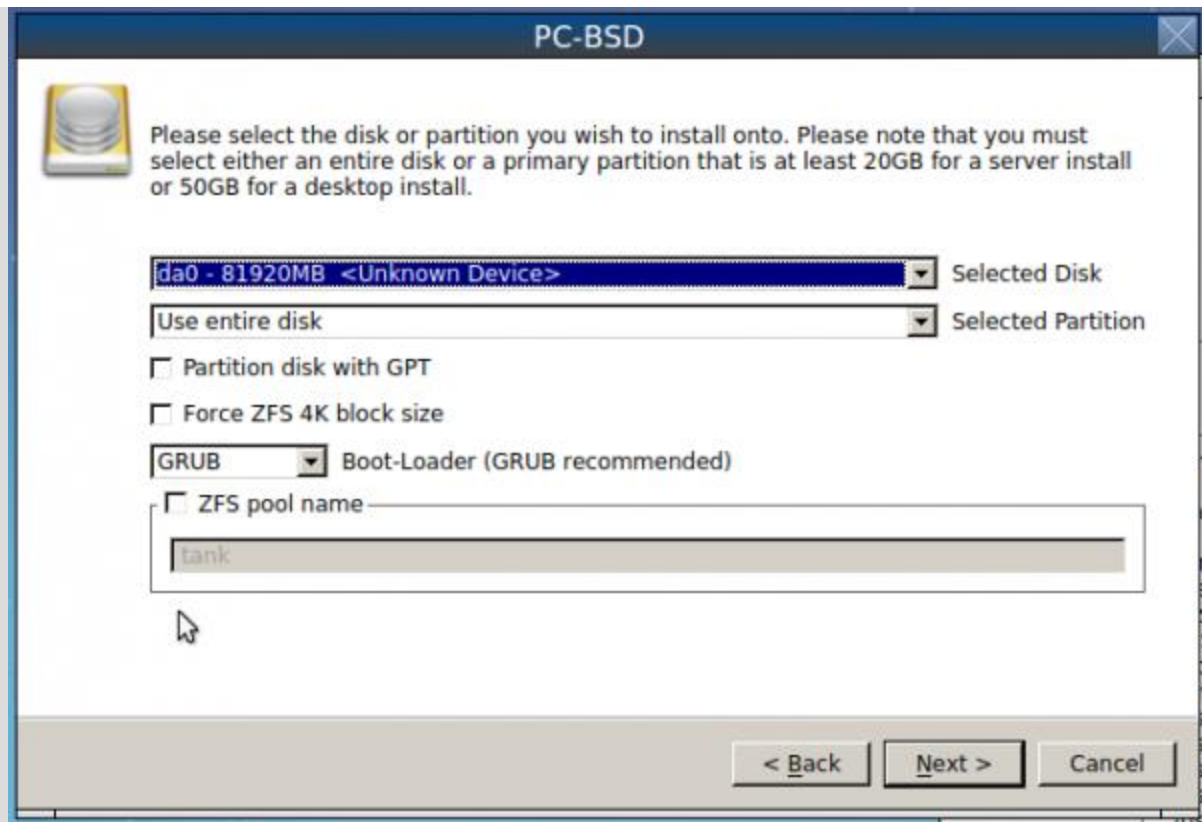


Figure 7: Advanced disk partition options of PC-BSD 10.1 installer.

If you have the required hardware, you can have a system installed on basic RAID or any one of the supported RAIDz options. For the record, I am writing this review on a PC-BSD 10.1 KDE system installed on basic RAID, and the system is running nice and smooth. You'll see a couple of screenshots showing the file system setup in the RAID system further down. On desktop installations, I'm not a fan of RAID and don't recommend it, because it's just a waste of disk space.

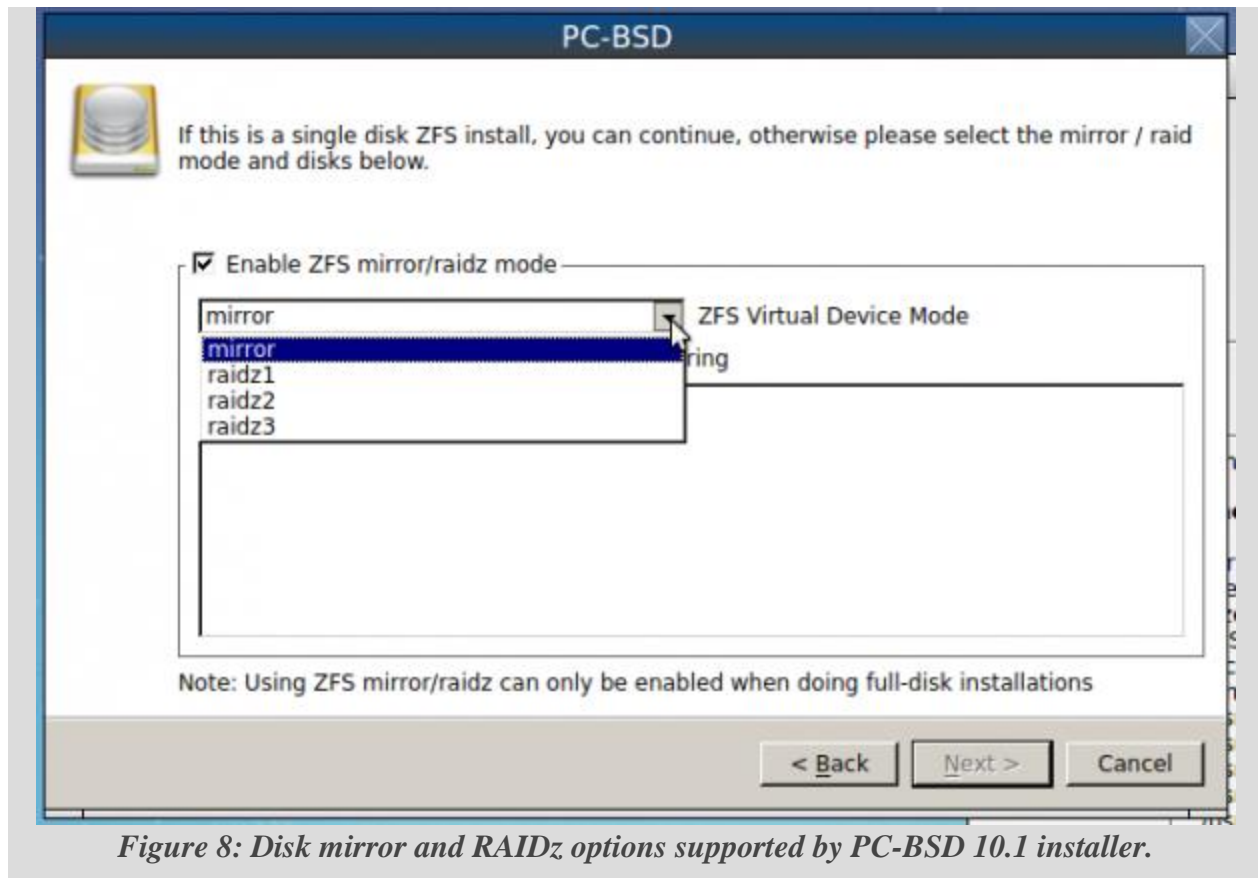


Figure 8: Disk mirror and RAIDz options supported by PC-BSD 10.1 installer.

On all the test systems that I set up, whether on real hardware or on VMware Player, I never encountered a single problem with the installer. And that brings me to booting into a newly installed PC-BSD 10.1.

PC-BSD 10.1 Boot Loader: Figure 9 shows what the boot loader's menu looks like. And the boot loader is, of course, GRUB, the same GRUB that's the default on virtually all Linux distributions. The default boot delay is just two seconds and you'll have to hold down the left Shift key for about 5 seconds to see the GRUB menu.

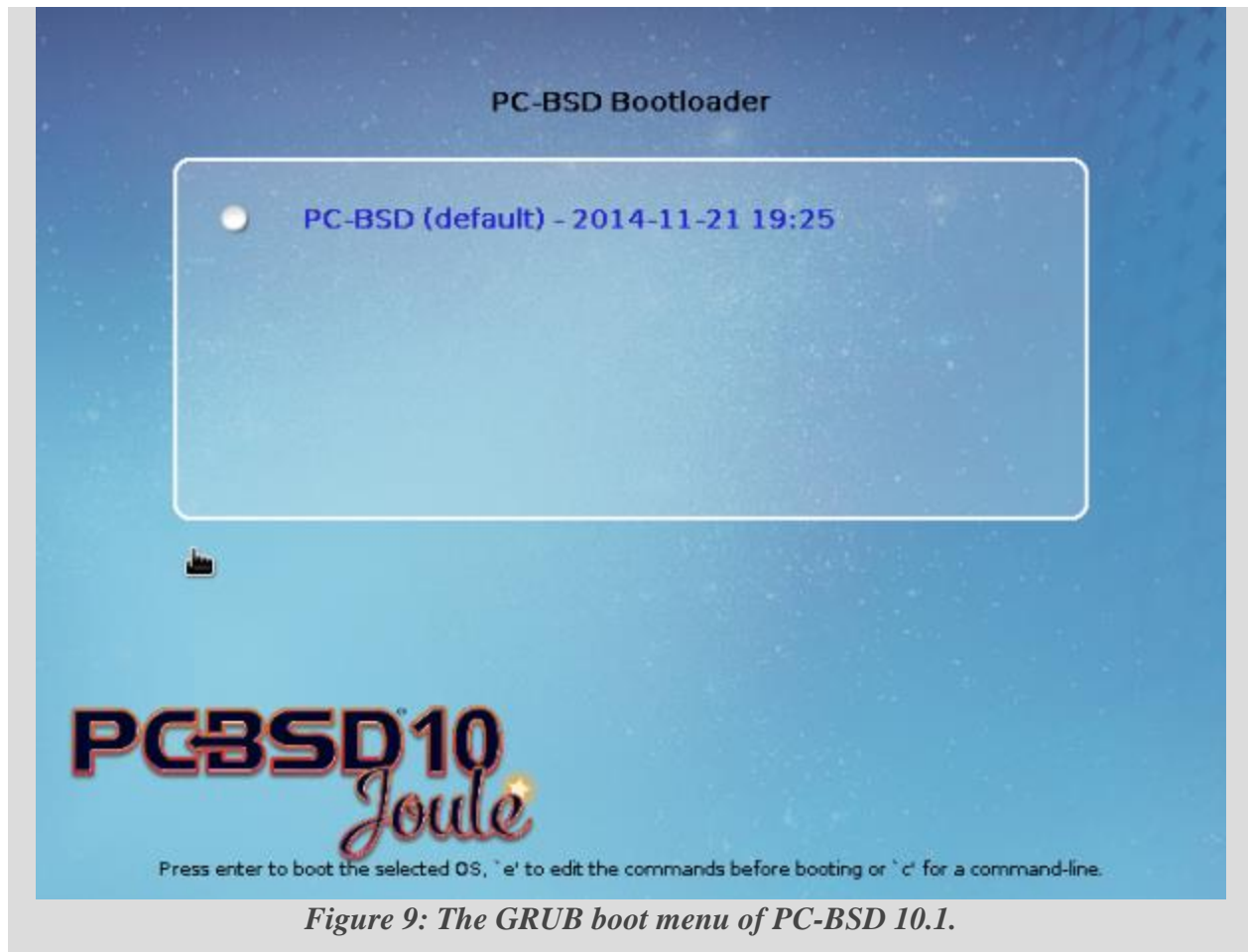


Figure 9: The GRUB boot menu of PC-BSD 10.1.

Accessing the GRUB menu and pressing the Enter brings up the options shown in Figure 10. Booting into Single User Mode, like the default on Linux distributions, is unprotected. That, by the way, is a physical security risk.

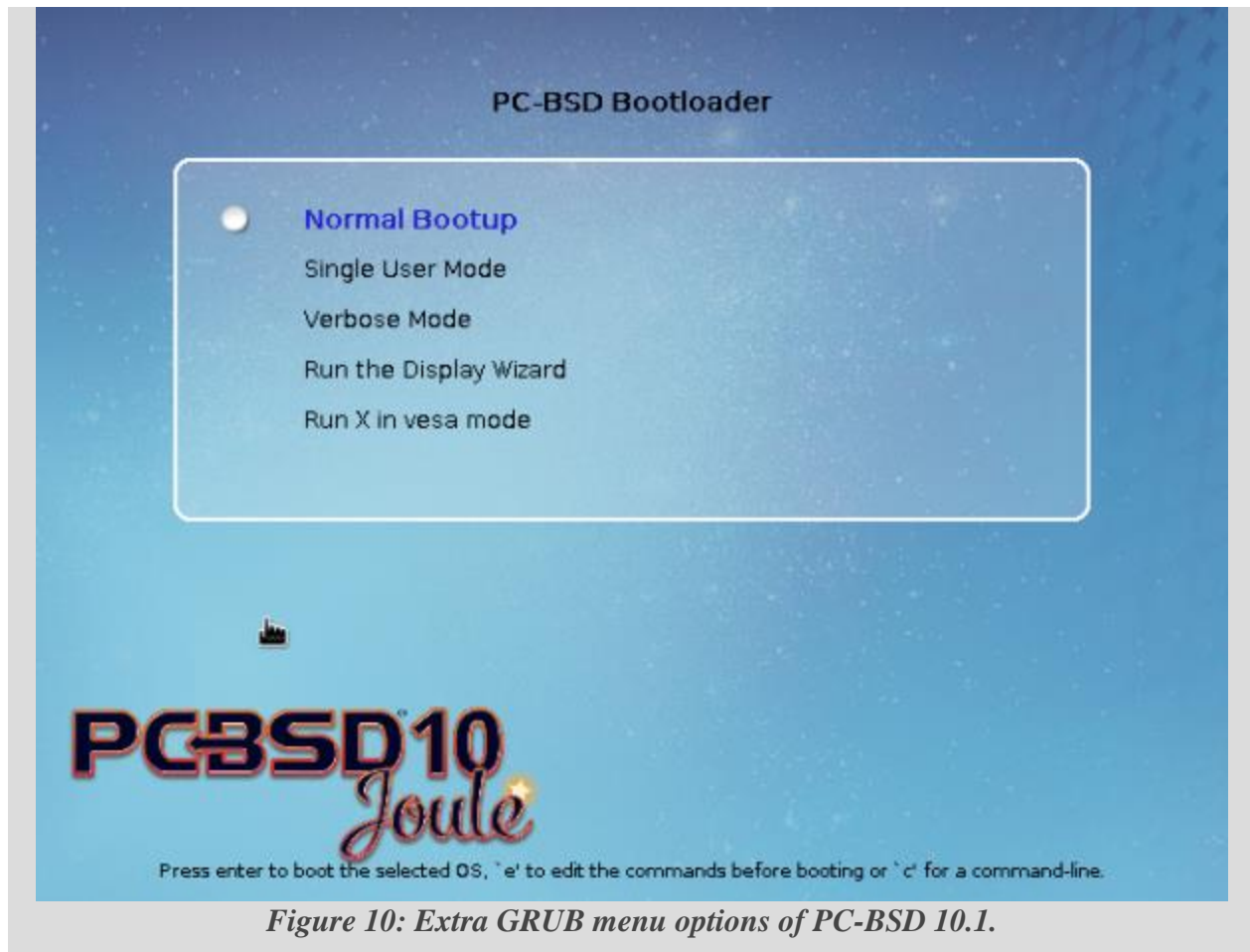


Figure 10: Extra GRUB menu options of PC-BSD 10.1.

The Desktop Environments: As I wrote earlier, I only test-installed the Cinnamon, GNOME, KDE and Lumina desktops. KDE, because it is the default; Lumina, because it's a new desktop environment and I wanted to see how it's coming along first-hand; Cinnamon and GNOME because they are two of the most popular desktops around. Test installations of the Cinnamon and GNOME desktops on VMware failed to boot.

Cinnamon on real hardware did boot, but I decided against installing a GNOME desktop on real hardware after the terrible experience with the Cinnamon desktop. I figured that if the Cinnamon desktop is that bad, the GNOME desktop couldn't be any better. I could be wrong on that front, but I didn't want to spend a whole week on a single review.

In any case, most of the remaining part of this review is based on materials taken from a KDE installation on real hardware and on VMware Player, but I'll start off with a short section on Lumina, then Cinnamon. If you want to skip the "negative" part of this review, skip to the section from a KDE installation by clicking [INSERT A LINK HERE](#).

PC-BSD 10.1 Lumina: The Lumina desktop is a PC-BSD project that's still in beta stage. I only test-installed it in a virtual environment, but I wasn't impressed by what I saw, so I never bothered to install it on real hardware. I think it's worth keeping an eye on, though. For now, however, it's a desktop you want to use for bug-reporting purposes only. Figure 11 shows the default interface. The menu does look like it will have a lot in common with the Cinnamon desktop.

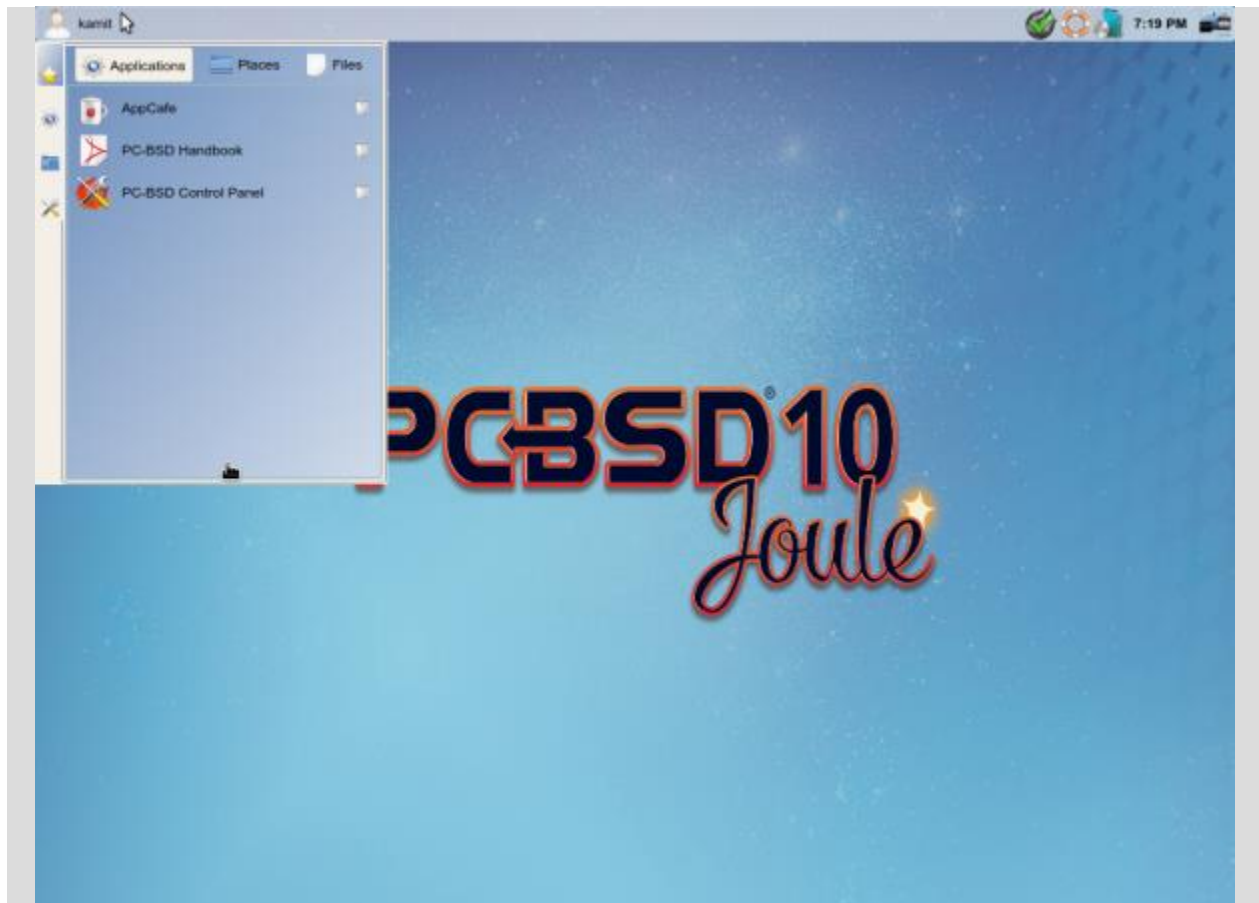


Figure 11: Default Lumina desktop on PC-BSD 10.1.

PC-BSD 10.1 Cinnamon: The Cinnamon desktop is a project of [Linux Mint](#)'s developers, a desktop distribution that's based on [Ubuntu Desktop](#). I have Linux Mint Cinnamon installed on my laptop and I like it a lot. The laptop is in fact running Cinnamon 2.4, which was released on November 1 (2014). (See [Preview of Cinnamon 2.4. Features desktop slideshow](#).)

An installation of PC-BSD 10.1 with Cinnamon as the desktop will give you Cinnamon 2.2.16, so Cinnamon 2.4 has not hit the PC-BSD repos yet. But I don't think it will make any difference considering how buggy an installation of PC-BSD 10.1 Cinnamon is. And it's not just one or two bugs, the whole desktop is a mess. Test installations of it in a virtual environment always crashed when attempting to login, so I couldn't really test it in that environment. Past the login screen, Figure 12 shows my only encounter with PC-BSD 10.1 Cinnamon in a virtual environment.

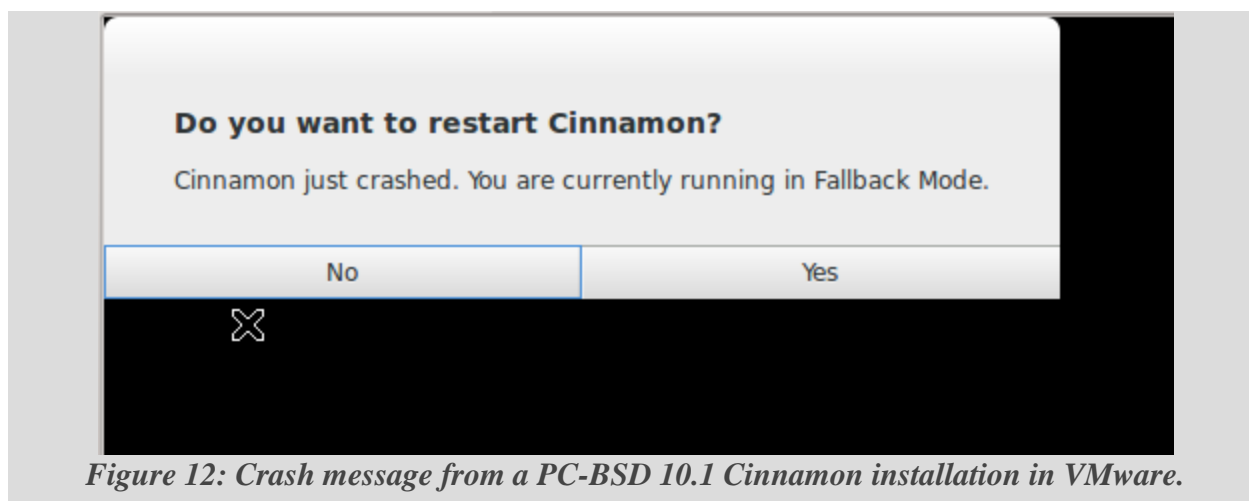


Figure 12: Crash message from a PC-BSD 10.1 Cinnamon installation in VMware.

A test installation on real hardware did not crash, but it only gave me an opportunity to experience how buggy the system is. For starters, the PC-BSD greeter application, which is the first application to start on first boot, lacked titlebar buttons. If it were only at first boot, it wouldn't be such a bad thing, but it always launched when logging in from a locked screen. Yep, I could have disabled it, but that still doesn't explain why it always launched when logging in from a locked screen.



Figure 13: PC-BSD 10.1 greeter application missing its titlebar buttons.

The system was missing applications that you would normally find on a default Cinnamon installation on any Linux distribution, like a standard shell terminal and the screen capture application. But it only got worse. Nemo, the file manager, could not start from the menu. And attempts to start it from the command line generated the error output shown below.

That's an error that should not be too difficult to fix, but I didn't want to bother about it, so I let it go.

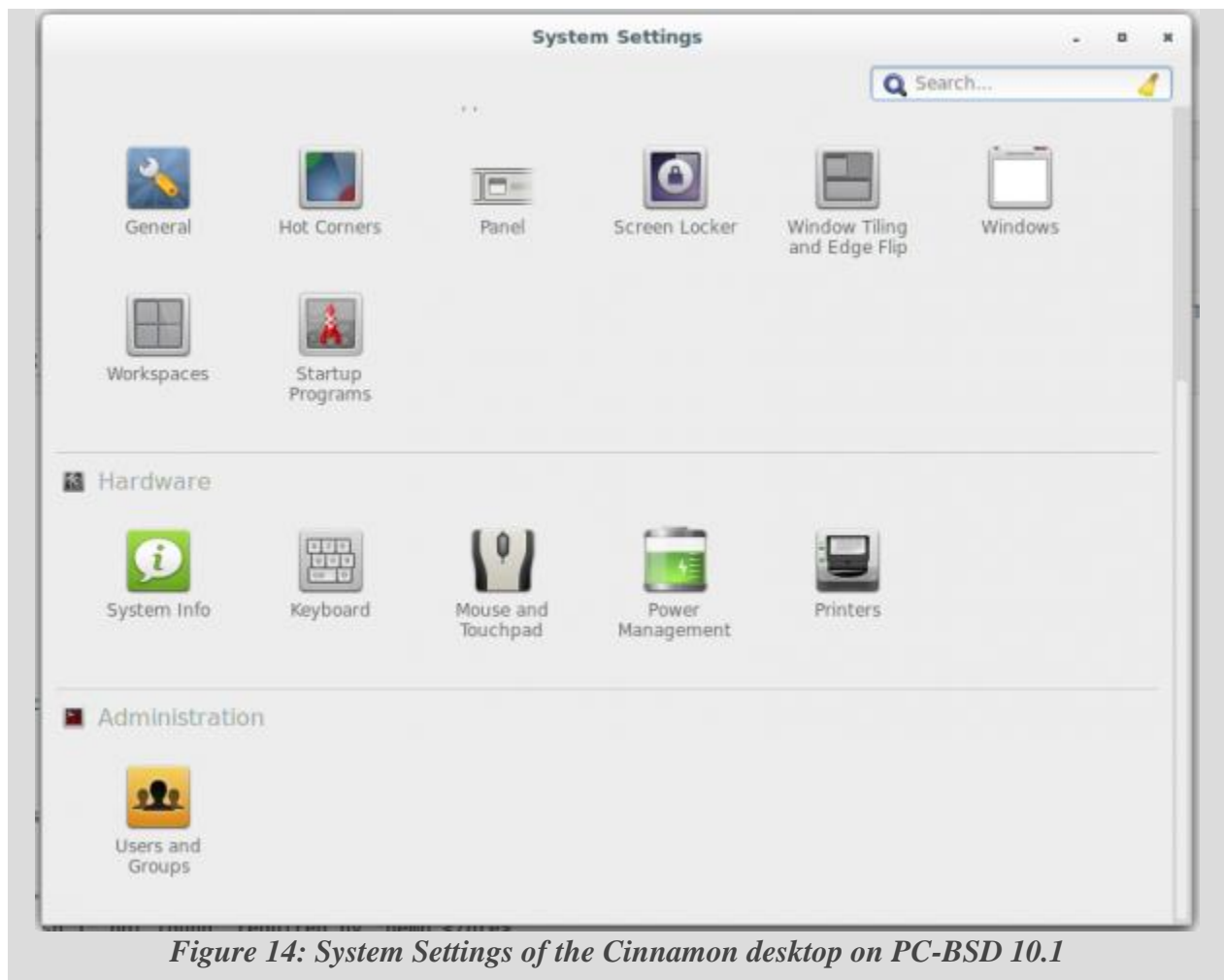
Output of 'nemo'
Shell

```
0 [kamit@ham ~]$ nemo
```

```
1
```

```
2 Shared object "libnemo-extension.so.1" not found, required by "nemo"
```

Figure 14 is a screenshot of the Cinnamon System Settings. It looks like the Cinnamon System Settings on any other distribution, but looks can be deceiving, which is true for the Cinnamon System Settings on PC-BSD 10.1. When clicked the Users and Groups module does not open. Others, like the Power Management and System Info modules, only open to a blank window.



The Power Management module opens to a blank window, but I still could click back to the main window.

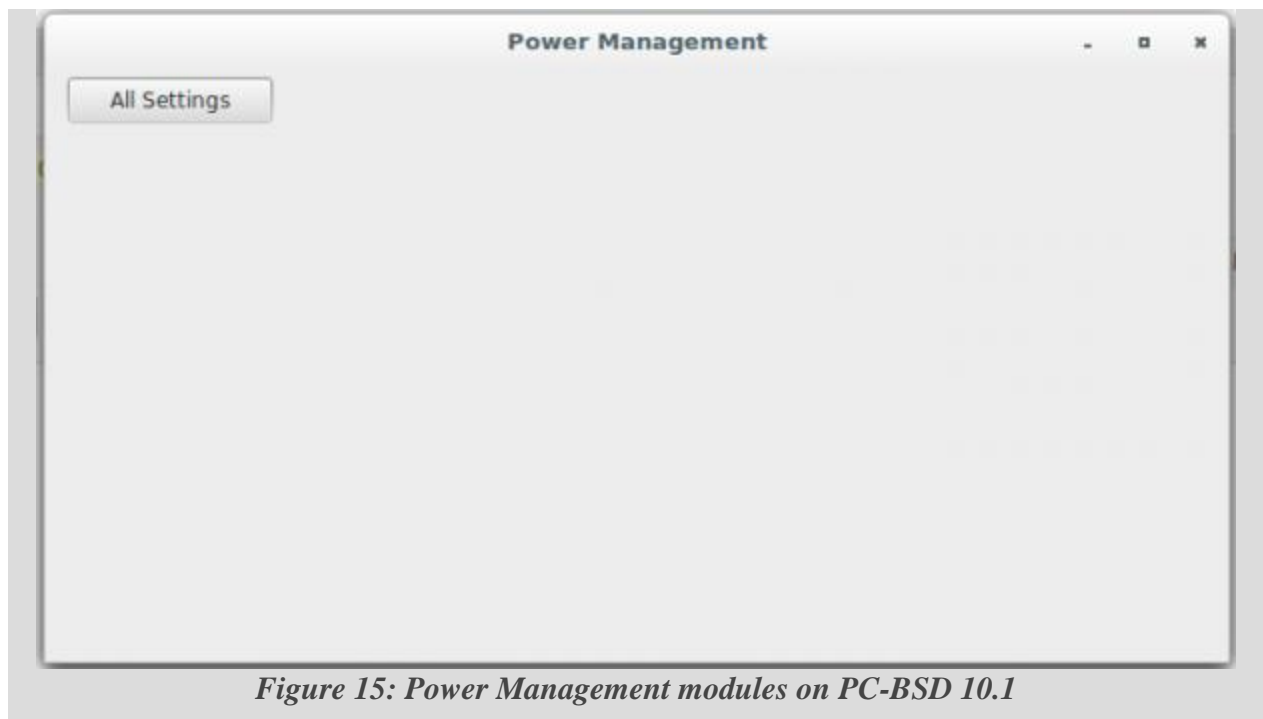


Figure 15: Power Management modules on PC-BSD 10.1

With the System Info module, my only option was always to close the window by clicking the titlebar's Close button.

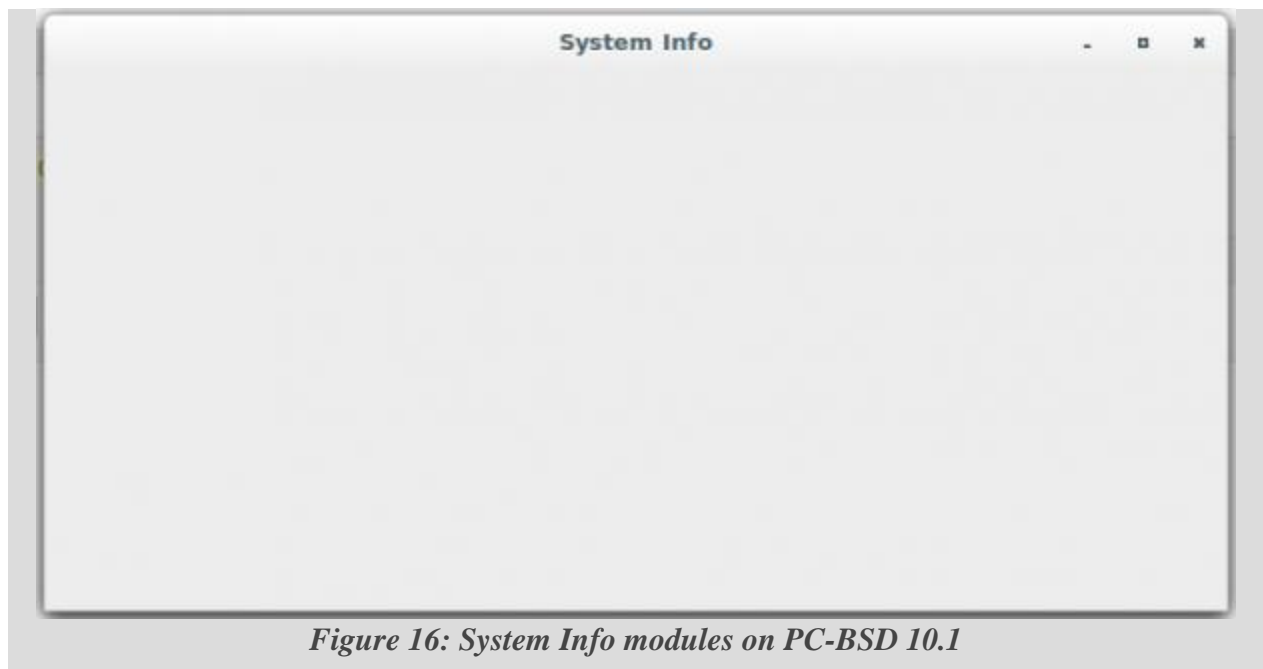


Figure 16: System Info modules on PC-BSD 10.1

At this point, I think you've probably had enough of the problems with the Cinnamon desktop on PC-BSD 10.1, but wait, because there's one more. And if you love Emacs, this next one will put a smile on your face.

In the PC-BSD Control Panel, clicking on any module, including the AppCafe, EasyPBI, and Update Manager modules, caused it to open in an Emacs editing window. That's the

weirdest thing I've ever experienced on any desktop distribution. Even Windows 8 is not this bad. For the record, those three modules open when launched from Menu > Administration. Can you tell the module I clicked that opened in the Emacs editing window shown in Figure 17?

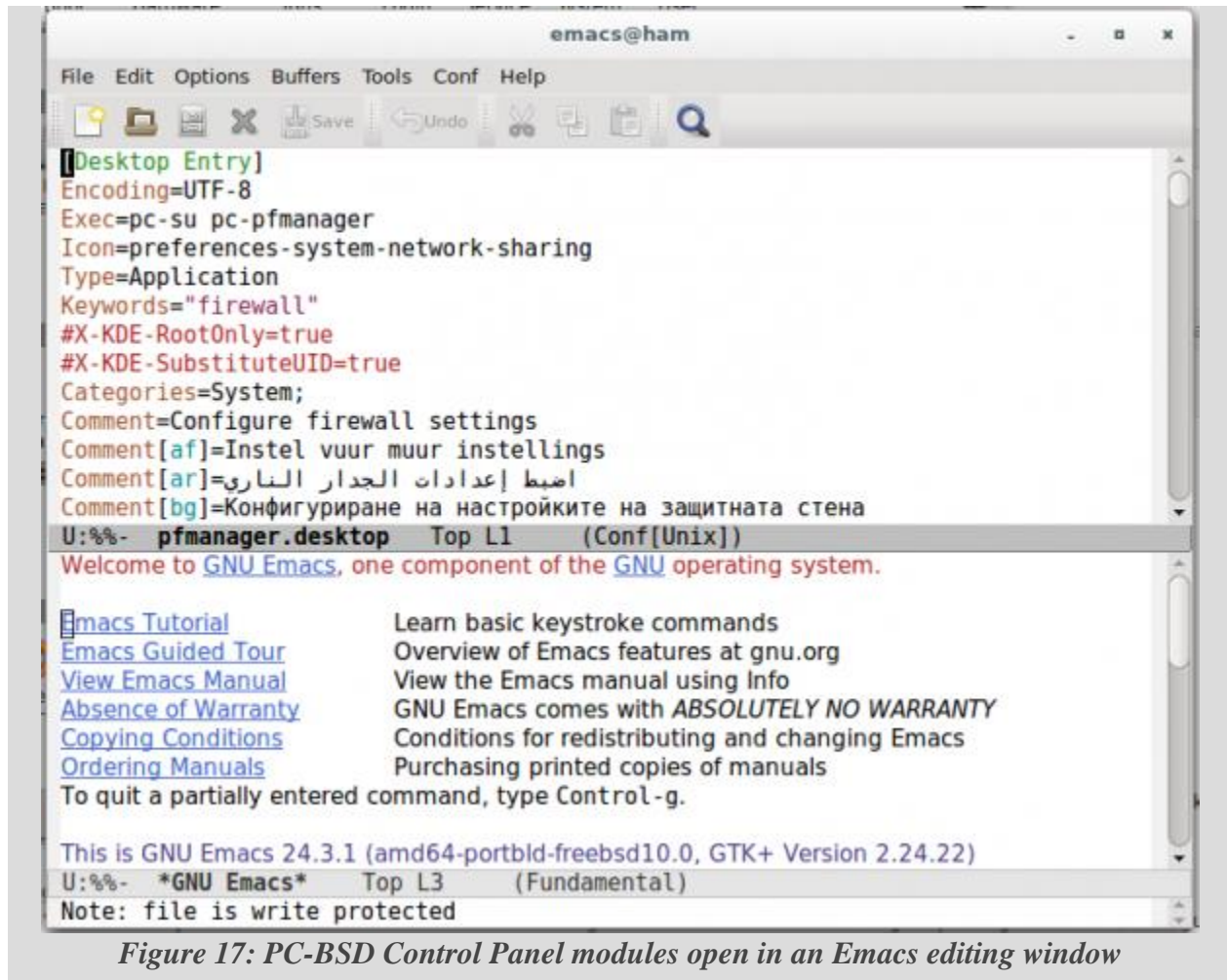
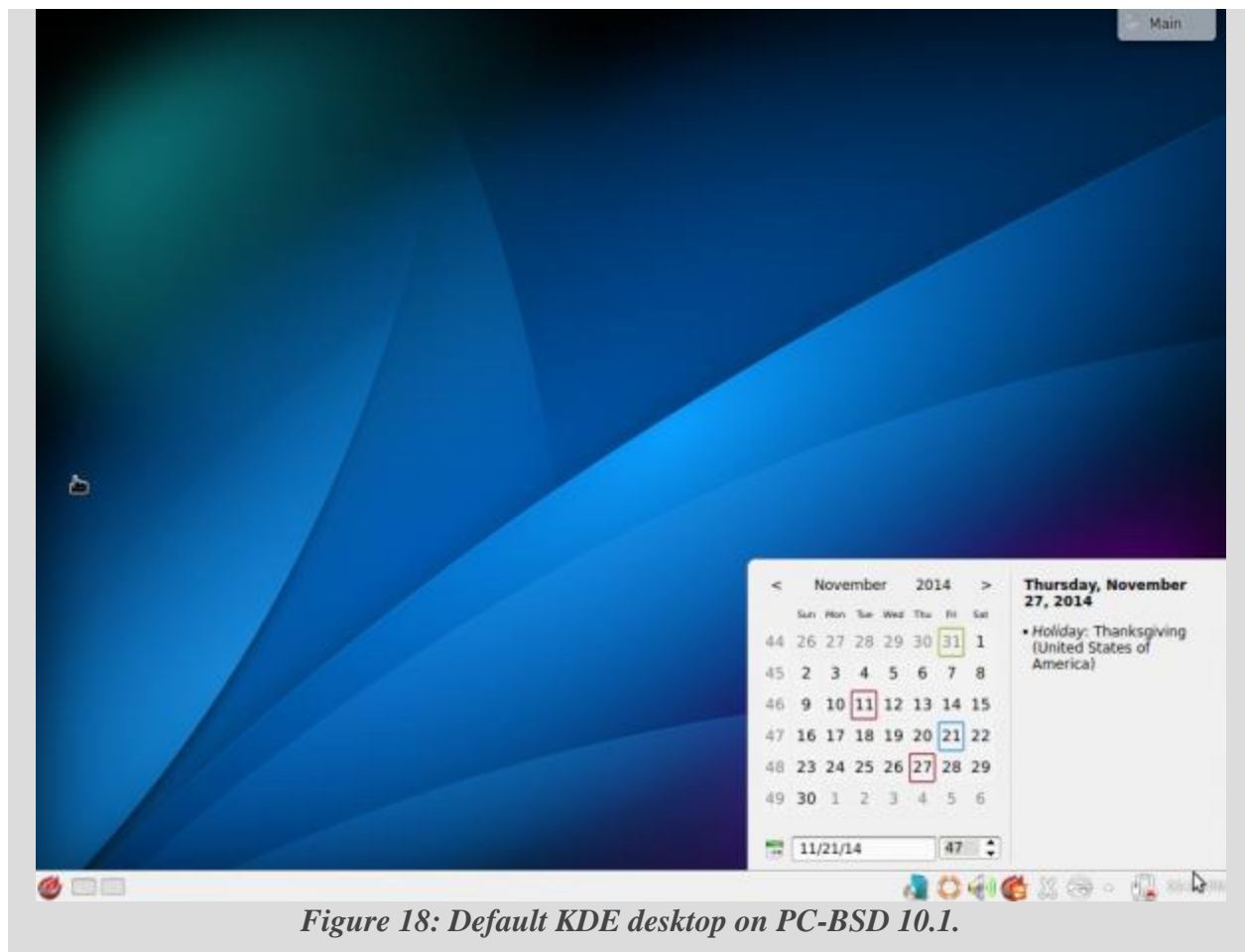


Figure 17: PC-BSD Control Panel modules open in an Emacs editing window

PC-BSD 10.1 KDE: The KDE desktop offers a far more positive look into the awesome features available on PC-BSD 10.1. It has its fair share of issues, but they are minor compared to the mess that's the PC-BSD Cinnamon desktop. Figure 18 shows the default KDE desktop, courtesy of KDE 4.14.2.



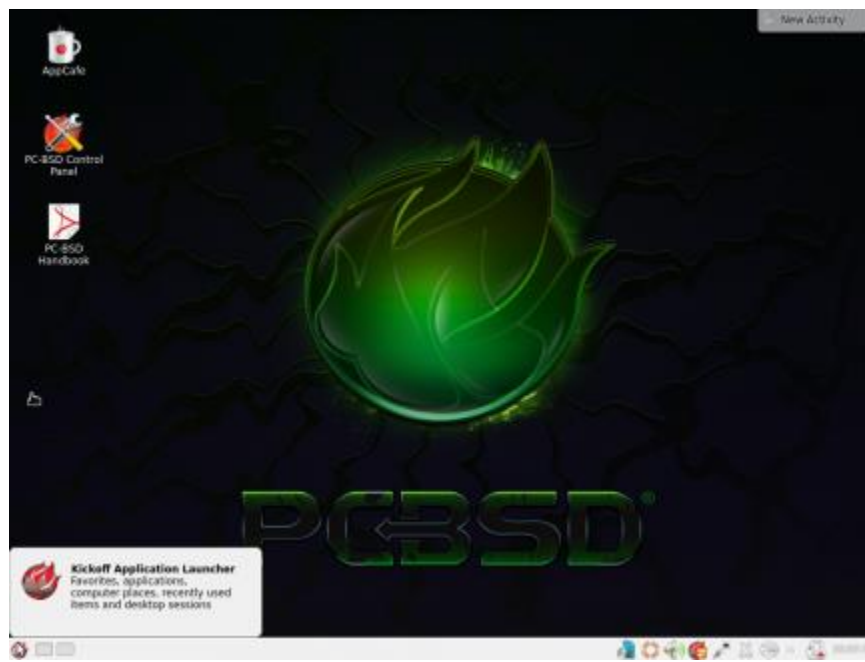
And Figure 19 shows the same desktop with the Kickoff menu. For fans of fullscreen menus, the **Homerun Launcher** in the repository. You just need to install it by typing `pkg install homerun` before you can add it to the panel. Using the graphical manager is another method of installation, if you don't want to operate from the command line.



Figure 19: Default KDE desktop on PC-BSD 10.1 showing the Kickoff menu.

That old-looking wallpaper is the same on a default installation of Kubuntu 14.10, which I recently reviewed (see [Kubuntu 14.10 review](#)). The wallpaper is not that much of an issue, it's just that there are better ones in the system.

It's about putting your best foot forward, making the default configuration better. Click [this gallery](#) to see some of the wallpapers I think are better candidates as the default on an installation of PC-BSD 10.1. Note that aside from a plain wallpaper, you could also enable a slideshow any other cool features instead.





The point of the developers not putting their proverbial best foot forward extends beyond the choice of a wallpaper. For example, the Network Manager applet is not in the system tray. However, the battery indicator is, even on a desktop installation. Figure 20 shows the Network Manager utility. I think the “Display system tray icon” option should be enabled out of the box.

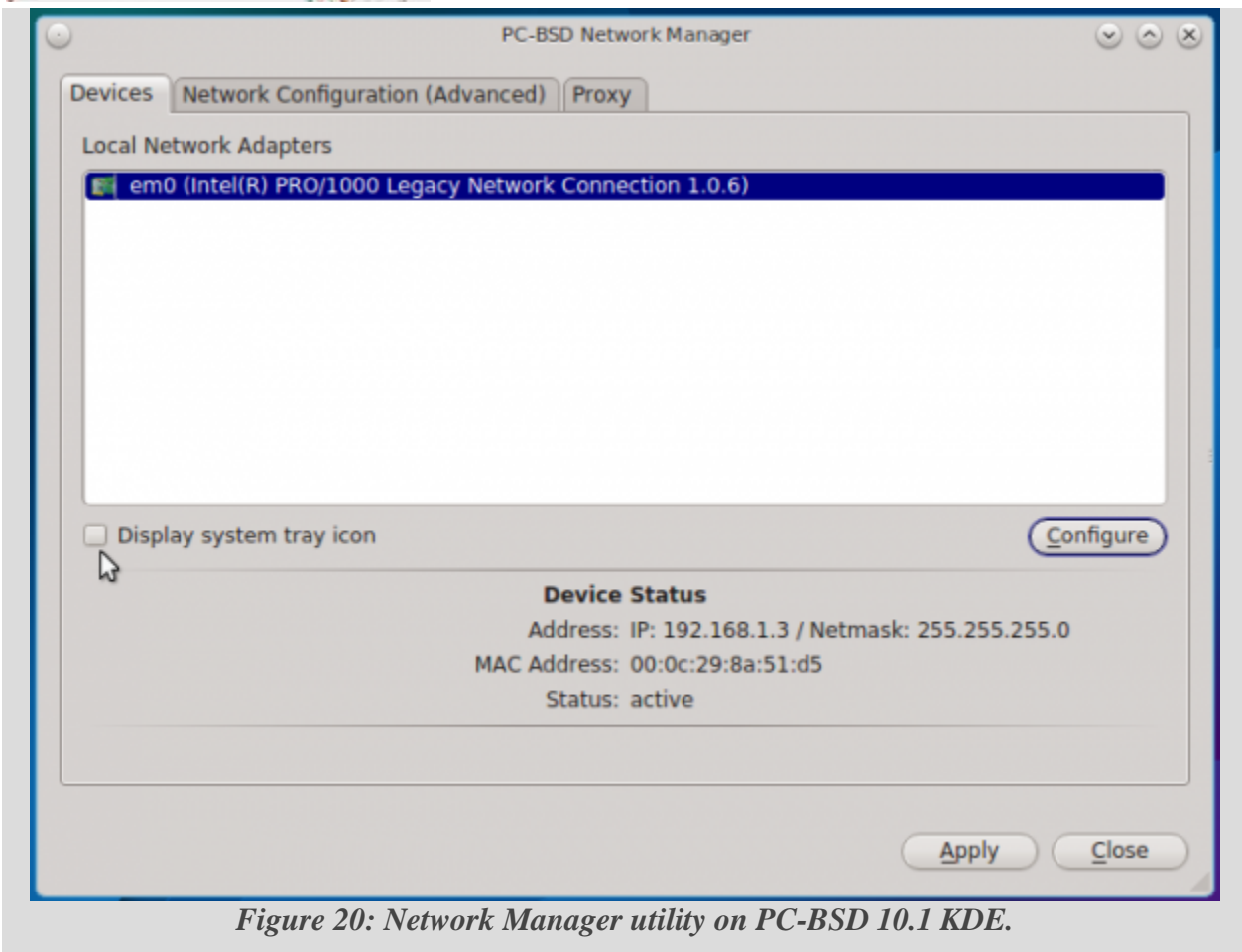


Figure 20: Network Manager utility on PC-BSD 10.1 KDE.

Figure 21 shows another neat feature that should have been enabled out of the box. Who wouldn't want wired/wireless failover to be enabled. Most Linux users enjoy it without even knowing how it works.

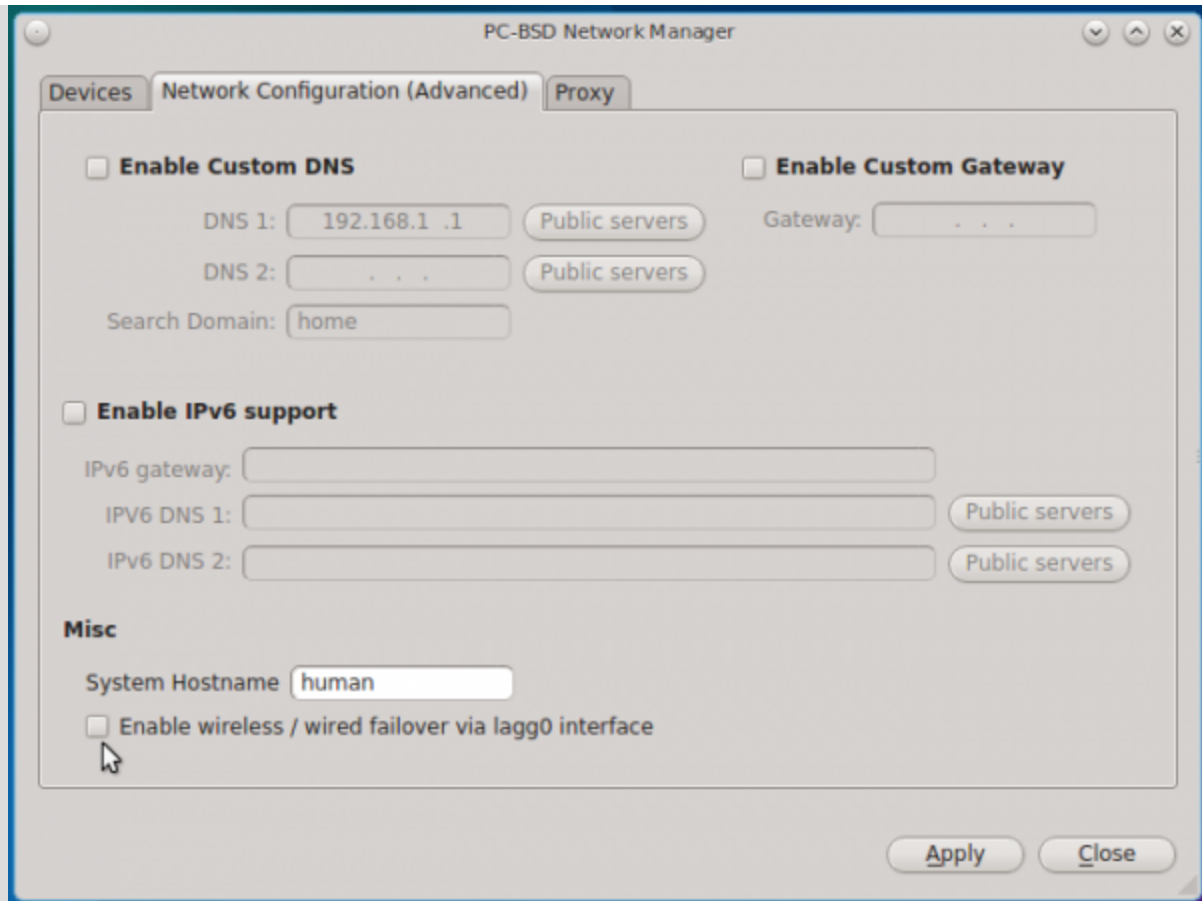


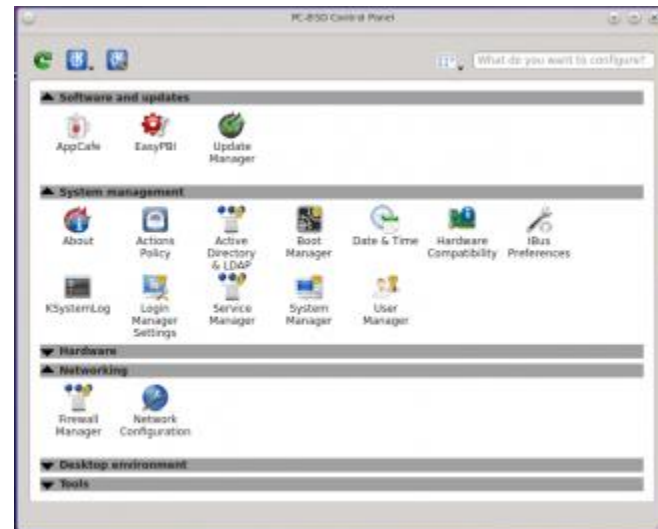
Figure 21: Network Manager utility on PC-BSD 10.1 KDE showing disabled wired/wireless failover option.

One last issue I had with the KDE installation: The automatic suspend mode feature does not work, and any attempt to put the system in Sleep or Hibernate mode activated the lock-screen instead. The only solution was to power it off.

Those minor issues aside, PC-BSD 10.1 does come with some very powerful graphical management utilities. And you'll find them in the PC-BSD Control Panel, the distribution's custom version of the KDE System Settings. System Settings is still installed, but the best tools are to be found in the Control Panel, which does look better than System Settings. Figure 22 shows what the Control Panel looks like. Unlike in the KDE System Settings, the sections can be collapsed. KDE developers should try implementing that in System Settings.



The rest of this review provides information about some of the powerful features and graphical management applications available on PC-BSD 10.1.



Pkg – The Package Manager: The last time I used PC-BSD, the *pkg_** family of tools were the package management applications. But they have since been replaced with the **pkg**, a utility for installing and managing binary packages. It's always nice to have a single command that does a whole range of things. In looking through the commands options available for *pkg*, I saw one that does not have a Linux equivalent, at least none that I am aware of. And that is the **audit** command. The description says that it “Audits installed packages against known vulnerabilities.



So a binary package manager find installed packages with security risks. To see what it about a new installation of PC-BSD 10.1 Cinnamon, the one that was a mess, I ran **pkg audit**. But that returned an error, with a hint. Then I ran **pkg audit -F**. That produced the output shown in this code block.

Output of 'pkg audit -F' on PC-BSD 10.1 Cinnamon Shell

```
0 [kamit@ham] ~# pkg audit -F
1 pkg: vulnxml file up-to-date
2 dbus-1.8.8 is vulnerable:
3 dbus -- incomplete fix for CVE-2014-3636 part A
4 CVE: CVE-2014-7824
5 WWW: http://portaudit.FreeBSD.org/c1930f45-6982-11e4-80e1-bcaec565249c.html
6
7 1 problem(s) in the installed packages found.
```


That's a pretty powerful feature to have in a package manager. It definitely deserves more attention and I'll write more about it in a future article.

The Graphical Package Manager: The last time I reviewed PC-BSD, the graphical package manager was ok. But now, it is better than ok. A lot better. It is now far better than any Linux distribution's graphical package manager. Yep, that includes **Deepin's Deepin Software Manager**. Figure 23 shows its main interface. It offers a single interface for interacting with nearly every aspect of software management on the system, including installing applications into Jails.

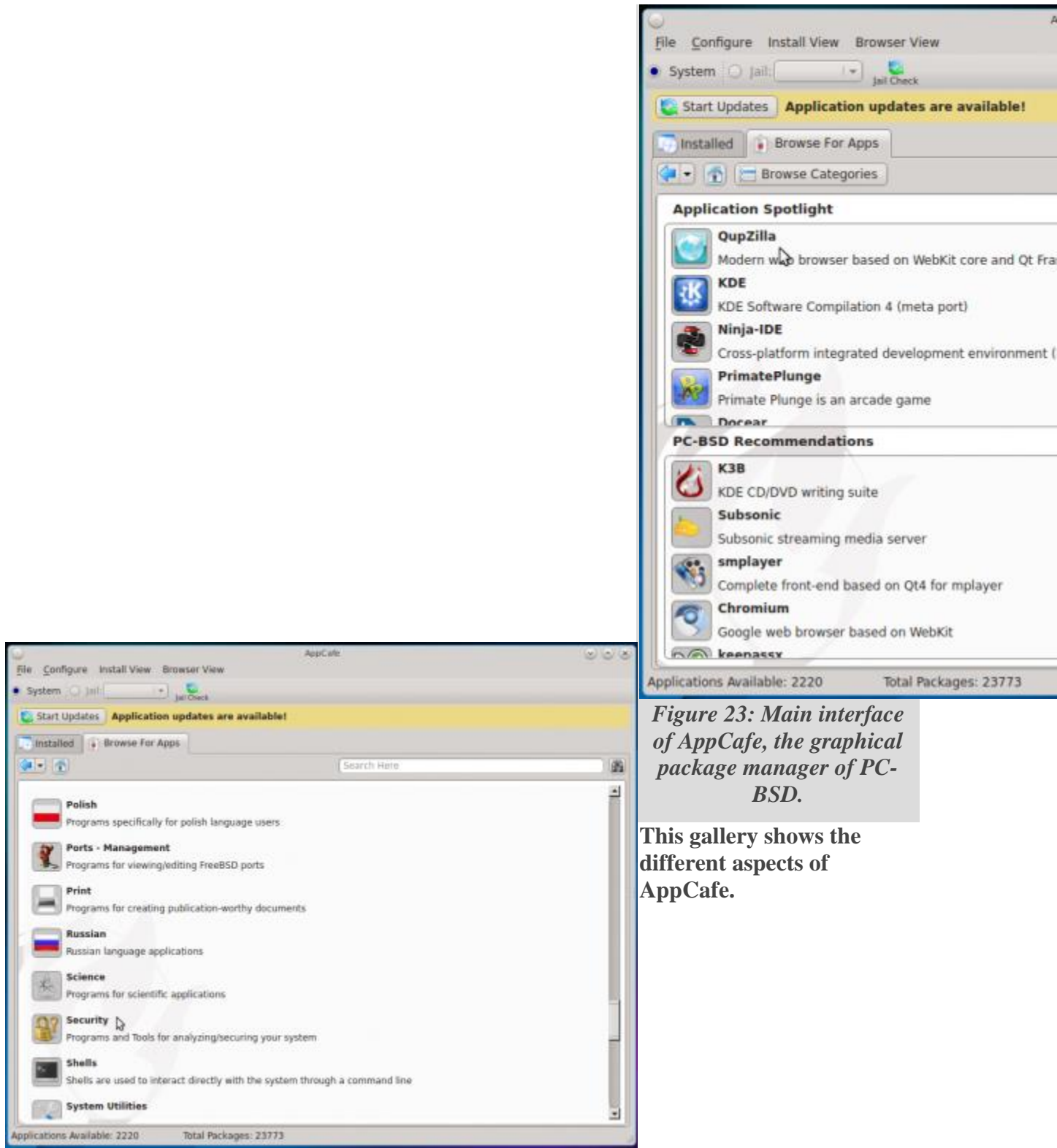
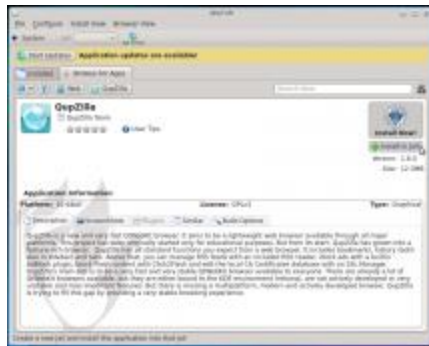
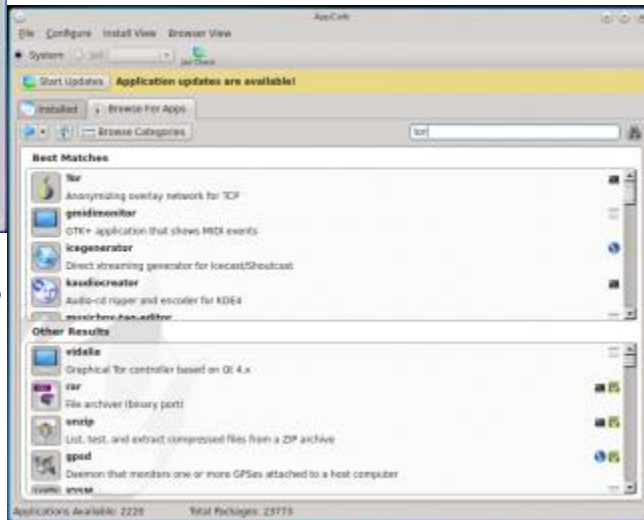


Figure 23: Main interface of AppCafe, the graphical package manager of PC-BSD.

This gallery shows the different aspects of AppCafe.



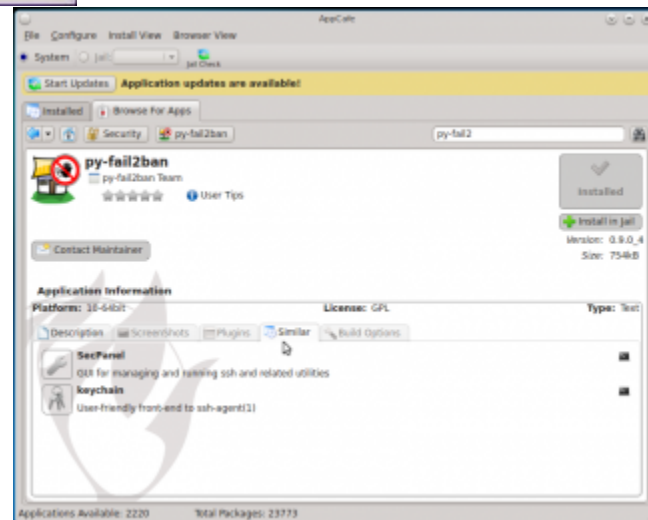
boot environments and GRUB, loader, on PC-BSD 10.1. Boot Environments was introduced in a 2012 release. To borrow [description](#) of a Boot Environment from Oracle, a boot environment is a bootable an installed PC-BSD image plus any other application software packages installed into that image. It simply makes recovery from a corrupted system a breeze.



Boot Manager:
This is the graphical management utility for the boot

in PC-BSD the **official**

boot instance of



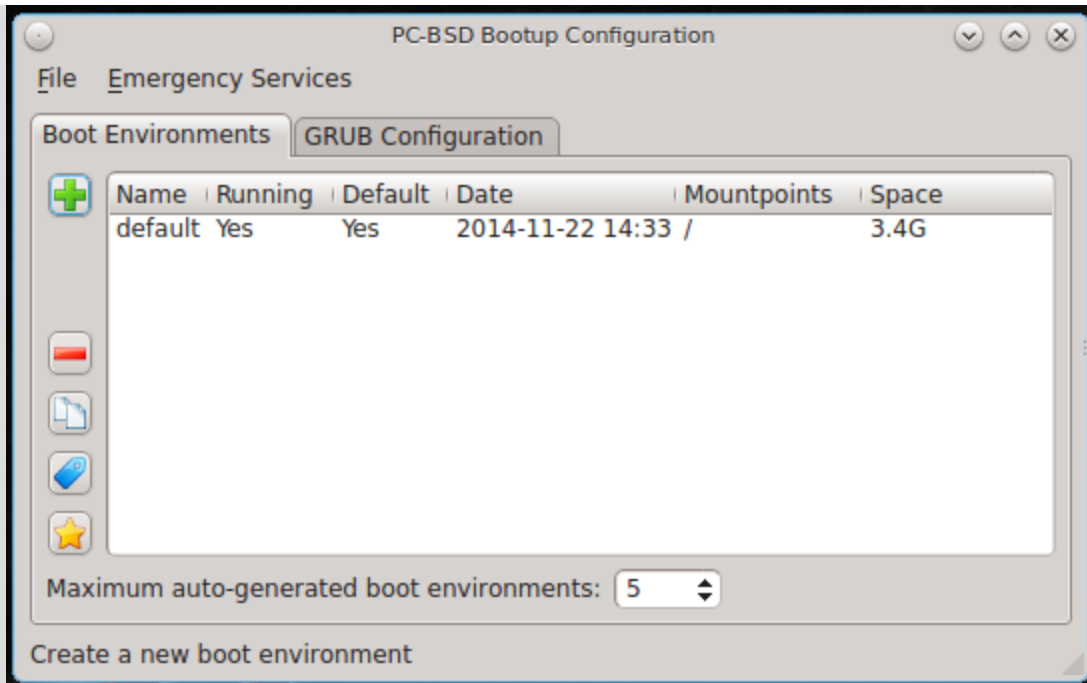


Figure 24: Boot Manager on PC-BSD 10.1 KDE showing the default boot environment.

Figure 25 shows the GRUB settings that can be managed from the GRUB Boot Manager tab. The boot manager graphical utility on OpenSUSE 13.2 offers an option to set a password for single user mode, a very nice touch. PC-BSD's boot manager could use the same option. When configured, protecting single user mode with a password gives the system a better physical security profile. Used together with full disk encryption, unauthorized physical access to your system will take some effort.

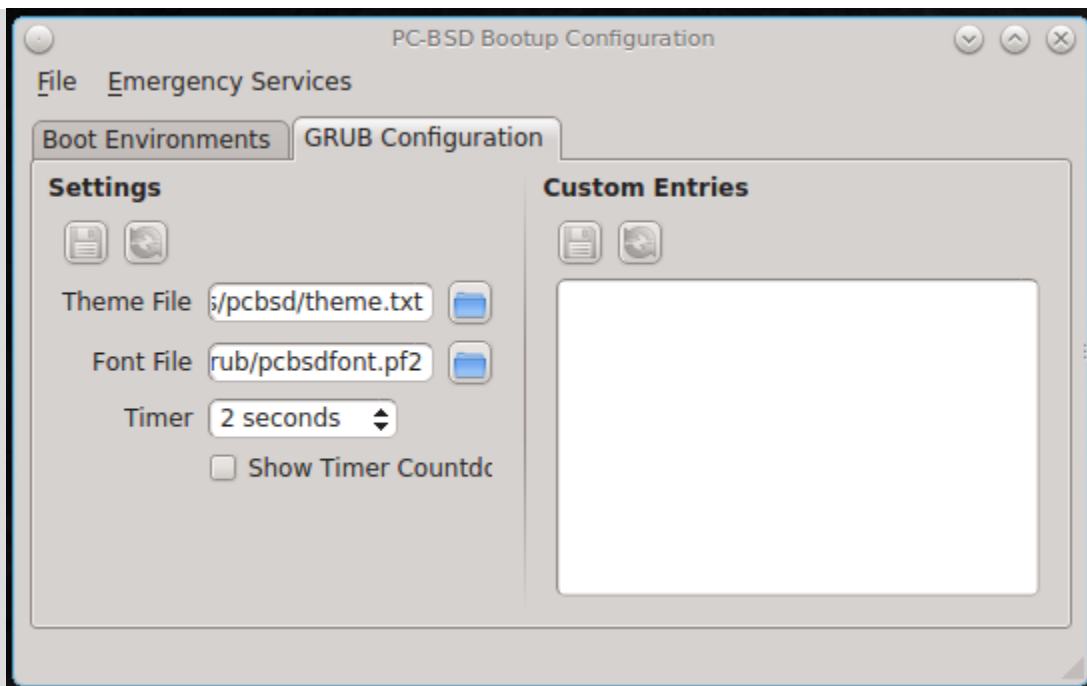


Figure 25: Default GRUB settings on PC-BSD 10.1 KDE.

Firewall Manager: Out of the box, a new installation of PC-BSD 10.1 has a good network security posture, in part due a firewall application that's enabled by default. And that's exactly how I like it (see [Why your computer needs a firewall enabled](#)). A good thing about the firewall is that it comes with a graphical interface. Figure 26 shows the graphical firewall manager's main interface in its default state.

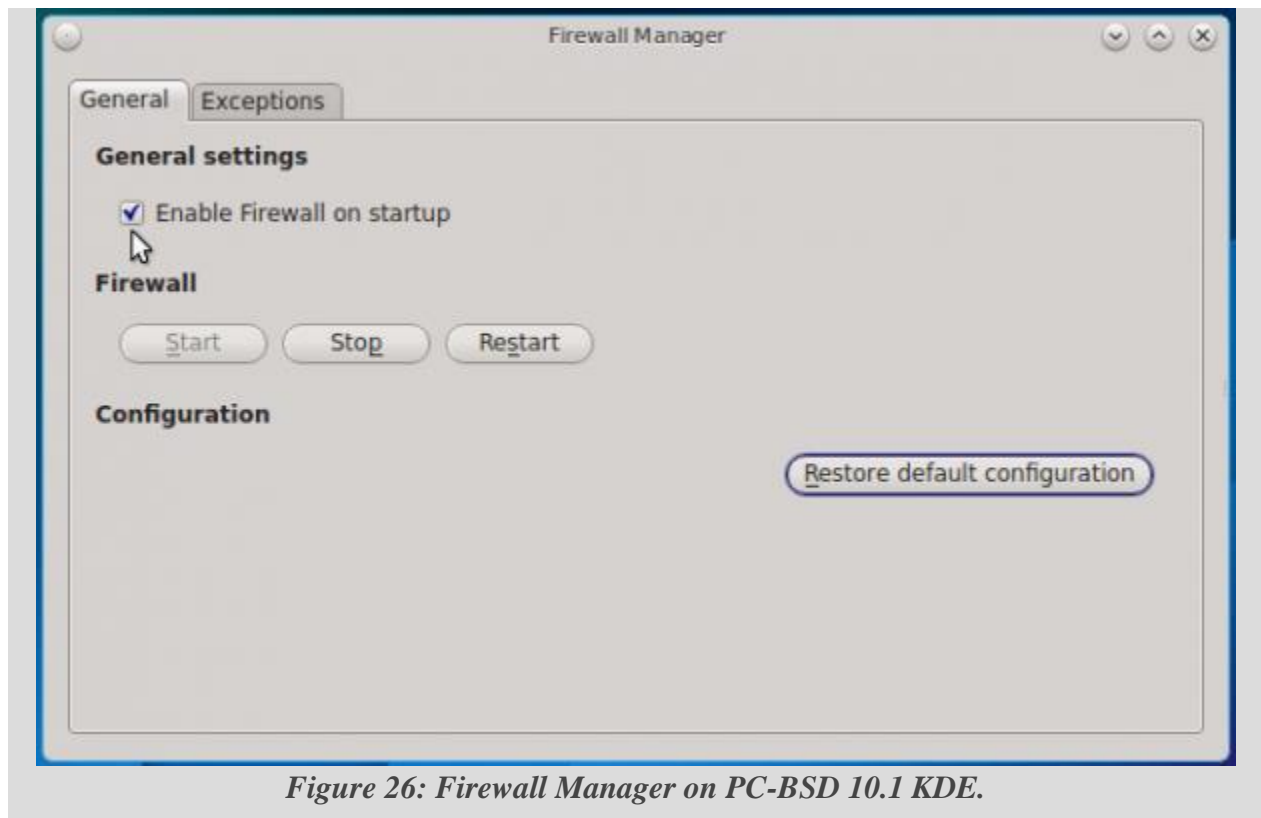


Figure 26: Firewall Manager on PC-BSD 10.1 KDE.

And this shows the default allowed ports and the ports editing window.

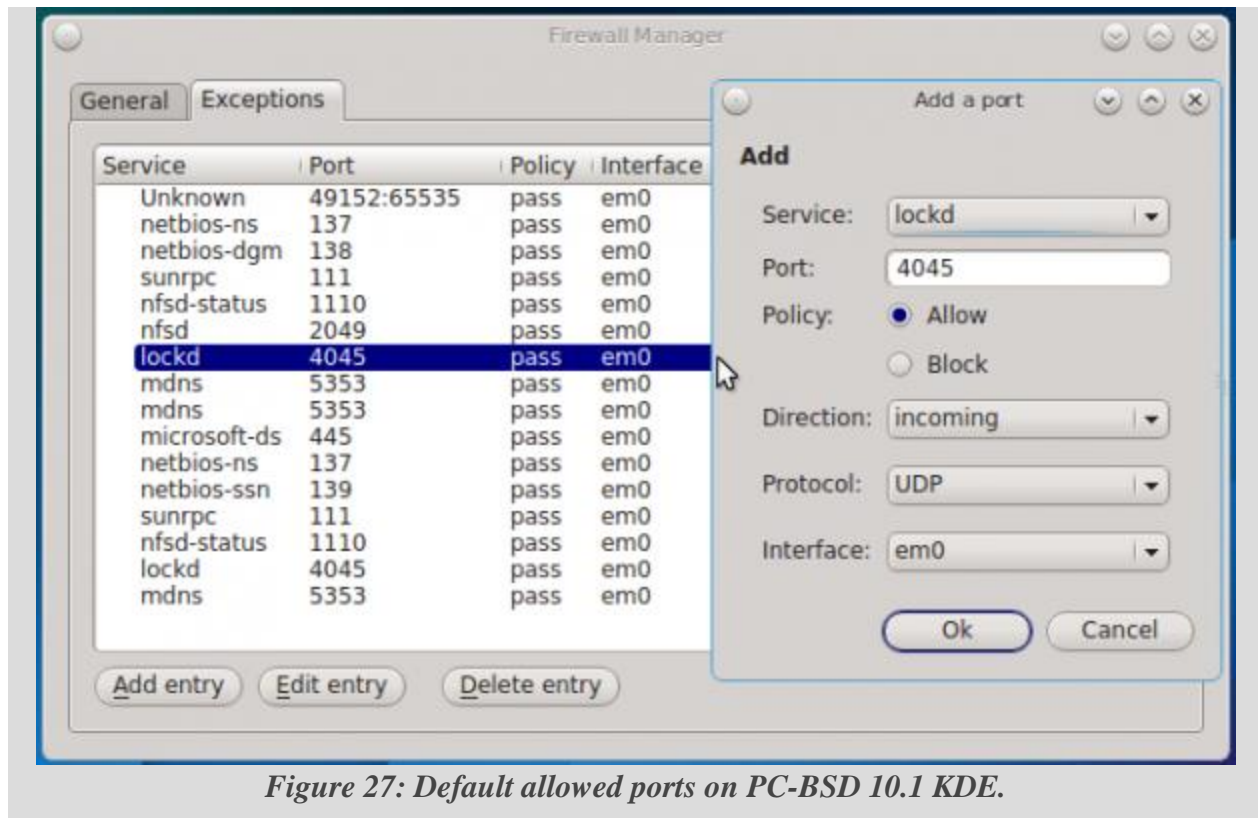


Figure 27: Default allowed ports on PC-BSD 10.1 KDE.

Disk Manager: Managing a ZFS system from the command line entails using the `zfs` and `zpool` commands. But in PC-BSD, you don't have to do everything from the command line. That's because the Disk Manager offers a point-and-click interface for performing most, not all, ZFS management tasks.

Figure 28 shows the disk partitions (slices) on an installation of PC-BSD on a single hard drive.

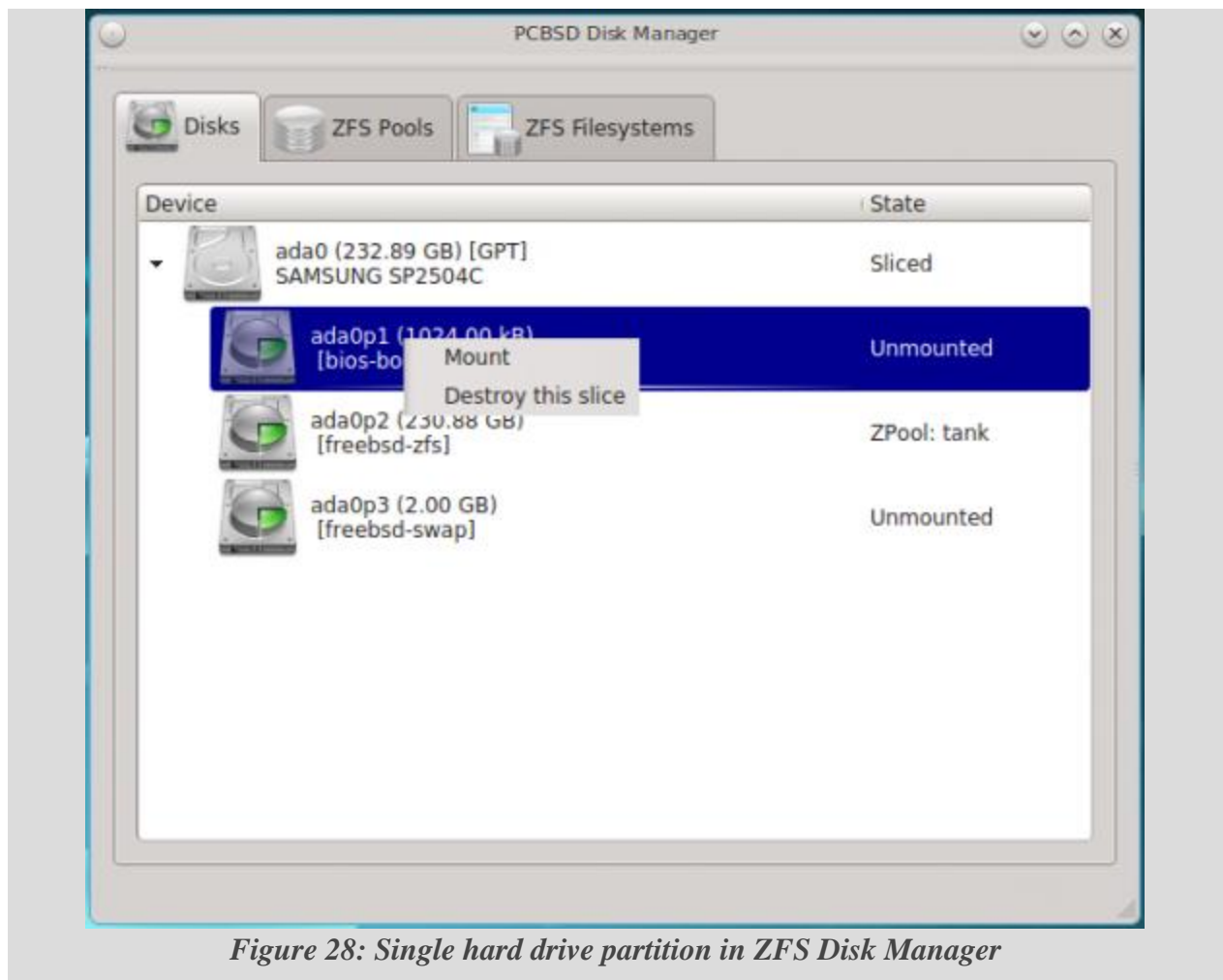


Figure 28: Single hard drive partition in ZFS Disk Manager

And this shows the configured pool. On a default installation, there is, of course, just one pool configured.

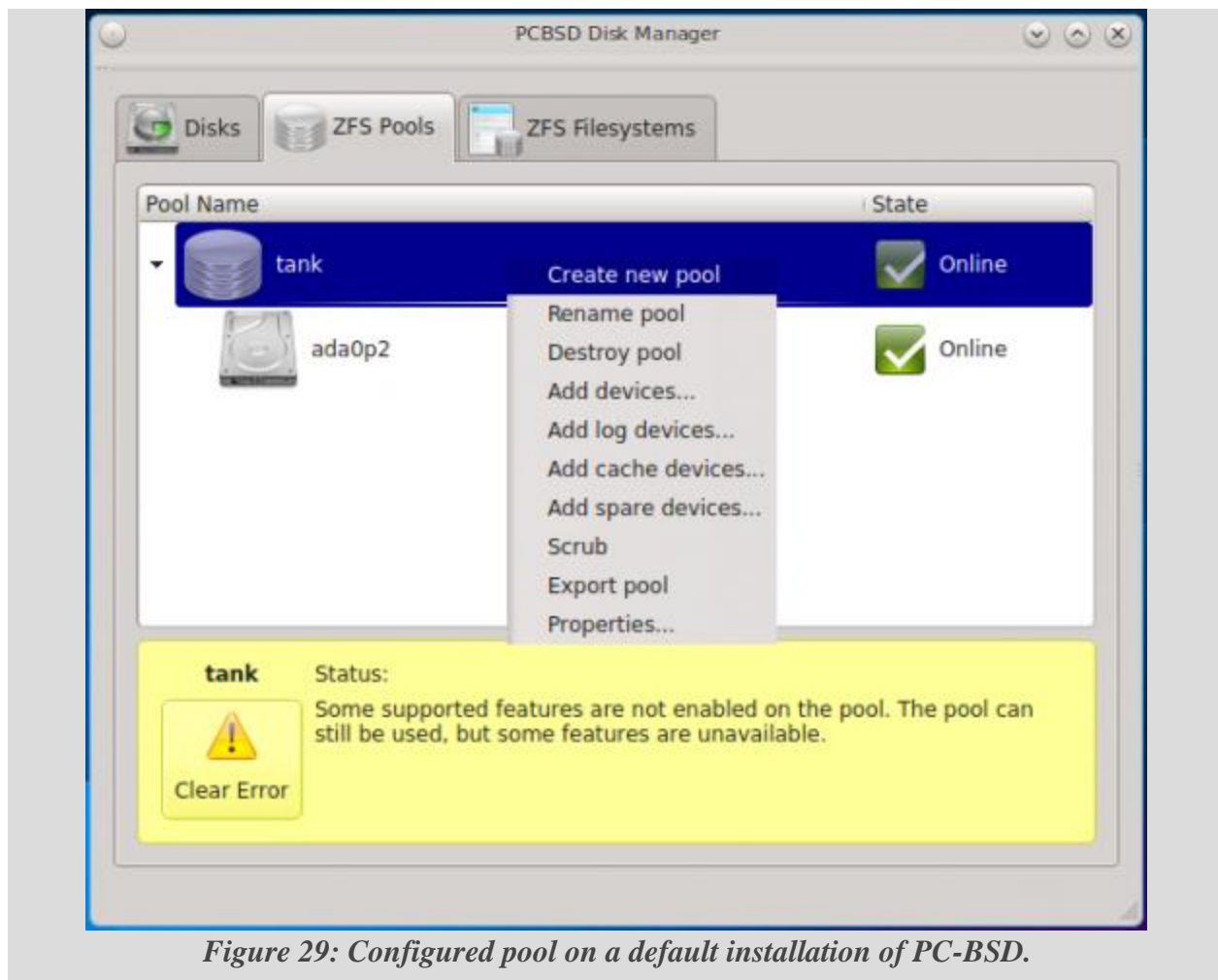


Figure 29: Configured pool on a default installation of PC-BSD.

And Figure 30 shows some of those features that are not available from Disk Manager.

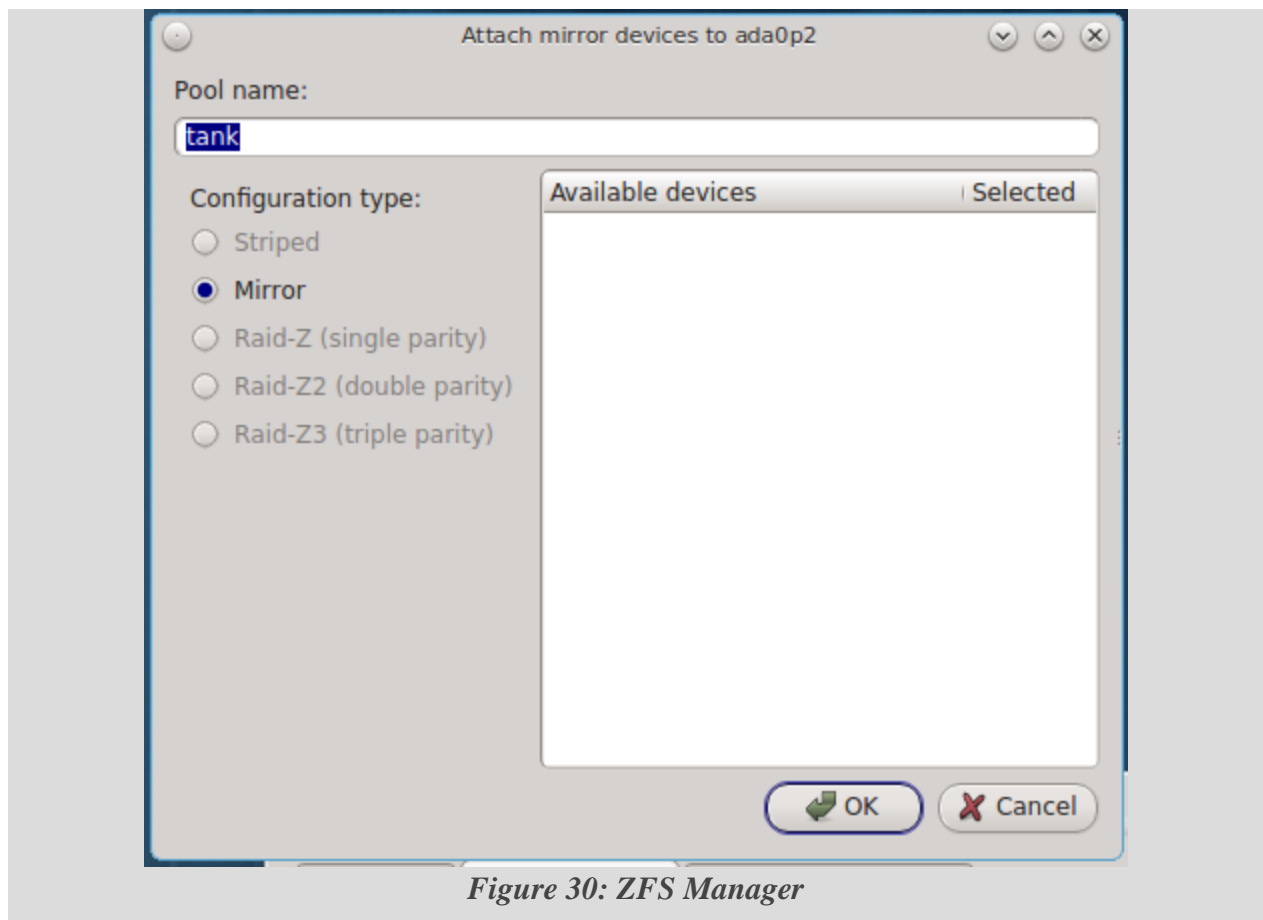


Figure 30: ZFS Manager

For an installation on a RAID system, the one I'm writing this review from, Figure 31 shows the partition layout. You can tell that the hard drives are not the same size, but the installer still managed to sort things out.

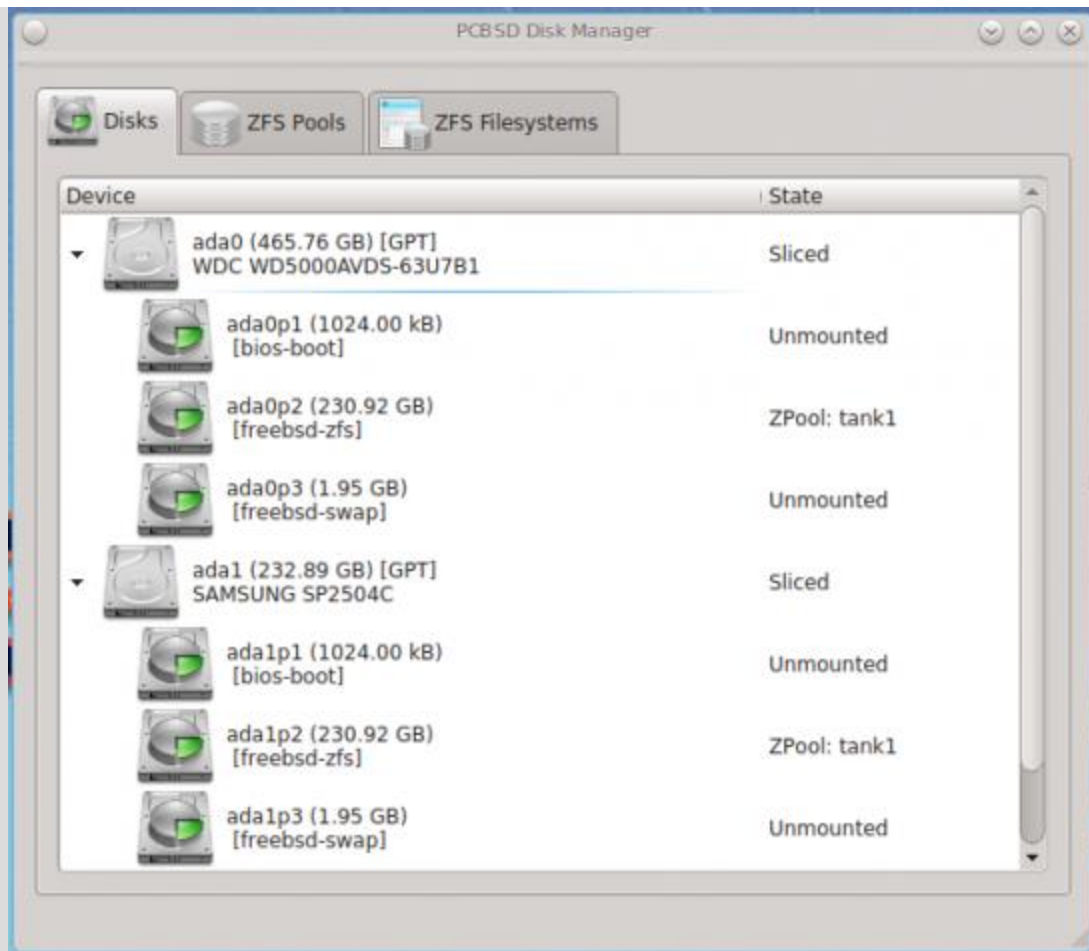


Figure 31: Partition layout on PC-BSD 10 installed on a RAID system.

And this, shows the configured pool. Again, this is a default installation, so only one pool was configured.

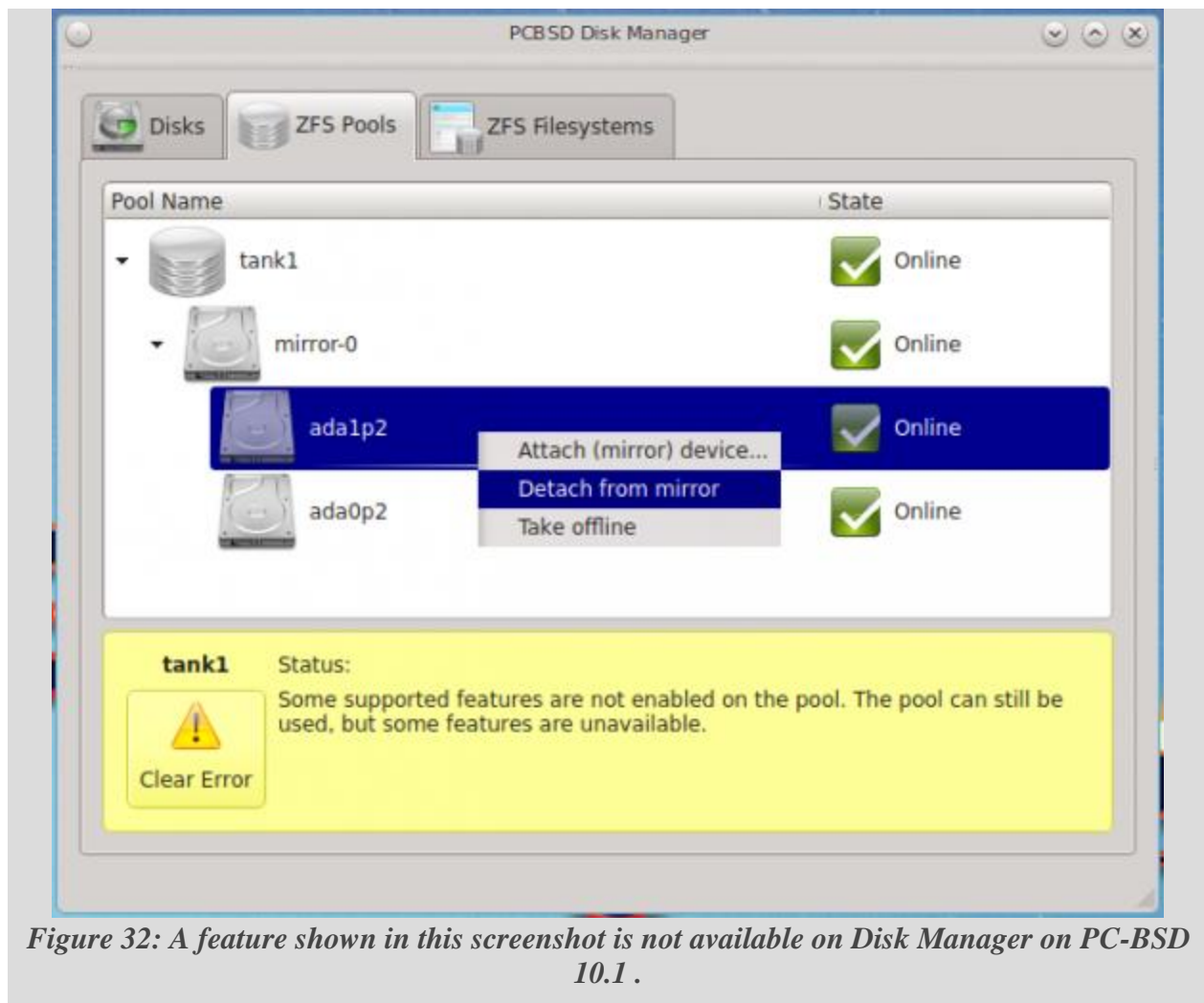


Figure 32: A feature shown in this screenshot is not available on Disk Manager on PC-BSD 10.1 .

Something I like to do on a new installation of any distribution is to see what ports are open. So I did an nmap-scan of a test installation of PC-BSD 10.1 KDE. The output is shown in this code block.

Output of 'nmap localhost' on PC-BSD 10.1 KDE
Shell

```
0 [kamit@ham ~]$ nmap localhost
1
2 Starting Nmap 6.47 ( http://nmap.org ) at 2014-11-22 21:40 CST
3 Nmap scan report for localhost (127.0.0.1)
4 Host is up (0.000033s latency).
5 Not shown: 998 closed ports
6 PORT      STATE SERVICE
7 631/tcp   open  ipp
8 9000/tcp  open  cslistener
```

Hmm... Why is the system running cslister. I remembered that that service is associated with a PHP package, because it is installed on the server hosting this website. Why would a desktop distribution be running PHP-FPM, a PHP FastCGI Process Manager bundled with PHP since about PHP 5.3? It is especially useful for very busy websites, but why on a desktop system? I had to find out more, so I ran *lsuf*.

Output of 'lsuf | grep -i listen' on PC-BSD 10.1 KDE
Shell

```
[kamt@ham ~]$ lsuf | grep -i listen
lsuf: WARNING: compiled for FreeBSD release 10.0-RELEASE-p19; this is 10.1-
RELEASE-p8.
lsuf: WARNING: access /root/.lsuf_ham: No such file or directory
0 lsuf: WARNING: created device cache file: /root/.lsuf_ham
1 php-fpm 1042 root 7u IPv4 0xfffff80119038400 0t0 TCP
2 localhost:9000 (LISTEN)
3 php-fpm 1043 www 0u IPv4 0xfffff80119038400 0t0 TCP
4 localhost:9000 (LISTEN)
5 php-fpm 1044 www 0u IPv4 0xfffff80119038400 0t0 TCP
6 localhost:9000 (LISTEN)
7 cupsd 1274 root 7u IPv6 0xfffff80119e3d800 0t0 TCP localhost:ipp
8 (LISTEN)
9 cupsd 1274 root 8u IPv4 0xfffff80119e3d400 0t0 TCP localhost:ipp
10 (LISTEN)
11 nginx 1299 root 6u IPv4 0xfffff80119038000 0t0 TCP *:8885
(LISTEN)
nginx 1300 www 6u IPv4 0xfffff80119038000 0t0 TCP *:8885
(LISTEN)
lsuf: WARNING: /usr/home/kamt/.lsuf_ham was updated.
```

Hmm... Nginx, too! Interesting. I verified that Nginx is installed but not enabled. I could not make anything of this, so I let it go. One item that caught my attention in the Release Notes says that: “New AppCafe HTML5 web/remote interface, for both desktop/server usage.” Perhaps that has something to do with PHP-FPM and Nginx. It’s material for another blog post.

In conclusion, PC-BSD obviously brings a lot to the table, but what happened to the Cinnamon desktop? For now, that’s one desktop that I will not recommend that you install for normal use. For bug-hunting purposes, sure, but for anything else, try the KDE desktop. That’s what I writing this from and I’m loving it. It just requires more time to customize than should be necessary had the default settings been better. A feature for software installation called Roles has been proposed. (see [video explanation](#) and [blog post](#)). If implemented correctly, Roles will likely give much better default installations than the present system. Until then, a default installation, that means a KDE installation, is the best desktop for experiencing all the awesome features that PC-BSD 10.1 has to offer.