Failed attempts to dual-boot PC-BSD 10.1 with Windows 8

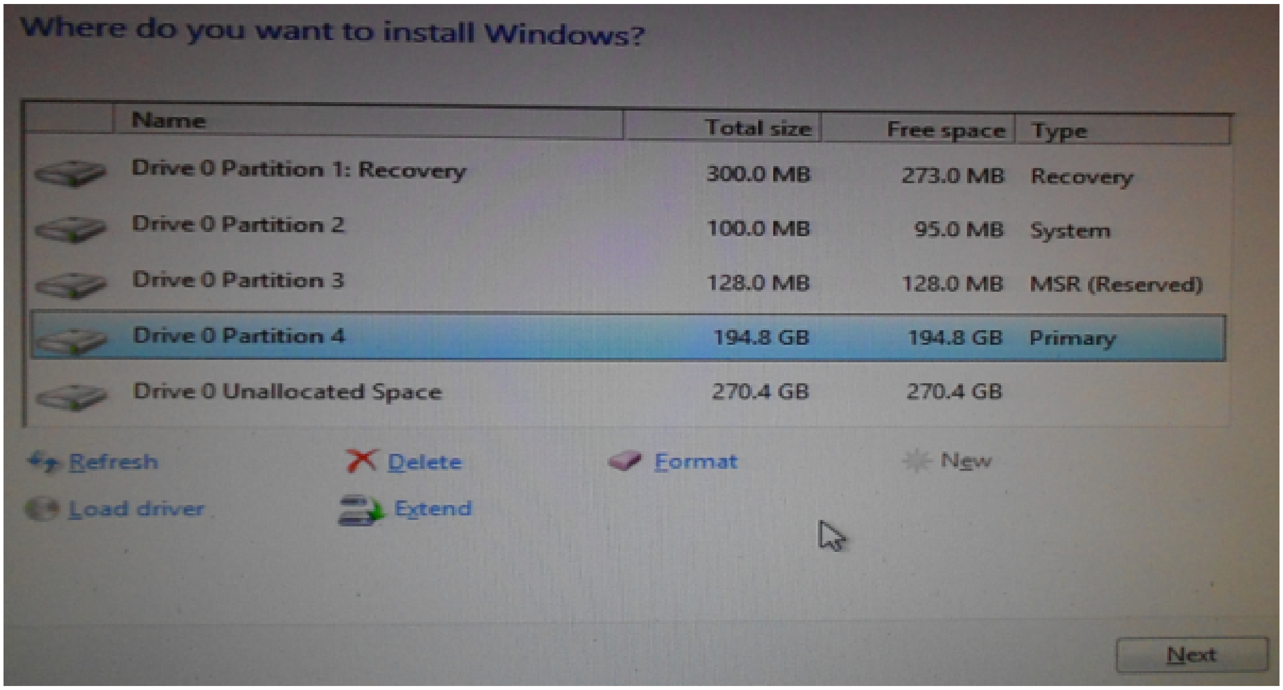
IN **PC-BSD**, **TUTORIALS/TIPS** / ON NOVEMBER 27, 2014 AT 11:23 PM /

After **reviewing PC-BSD 10.1** and **installing it on an encrypted hard drive**, the next logical thing to do is attempt a dual-boot setup between it and Windows 8 and publish an article showing how to go about it.

Unfortunately, multiple attempts to setup such a system failed, so instead of writing about how to set up a dual-boot system between PC-BSD 10.1 and Windows 8, I can only write about those attempts failed.

The test system I used is the same one I used to install PC-BSD 10.1 on an encrypted disk. And that system has a UEFI firmware. Because it is a self-built unit, I had to install Windows 8 before attempting to install PC-BSD 10.1 alongside it on the same hard drive.

There was no problem installing Windows 8. However, during the disk selection step, I chose to assign the amount of disk space that Windows 8 should use manually. That was just to make up for the inability of the PC-BSD 10.1 installer to auto-shrink an existing partition that has another OS on it. Figure 2 shows how the Windows 8 installer partitioned the disk – a 500 GB unit. **Drive 0 Unallocated Space** was intended for use by PC-BSD's installer.

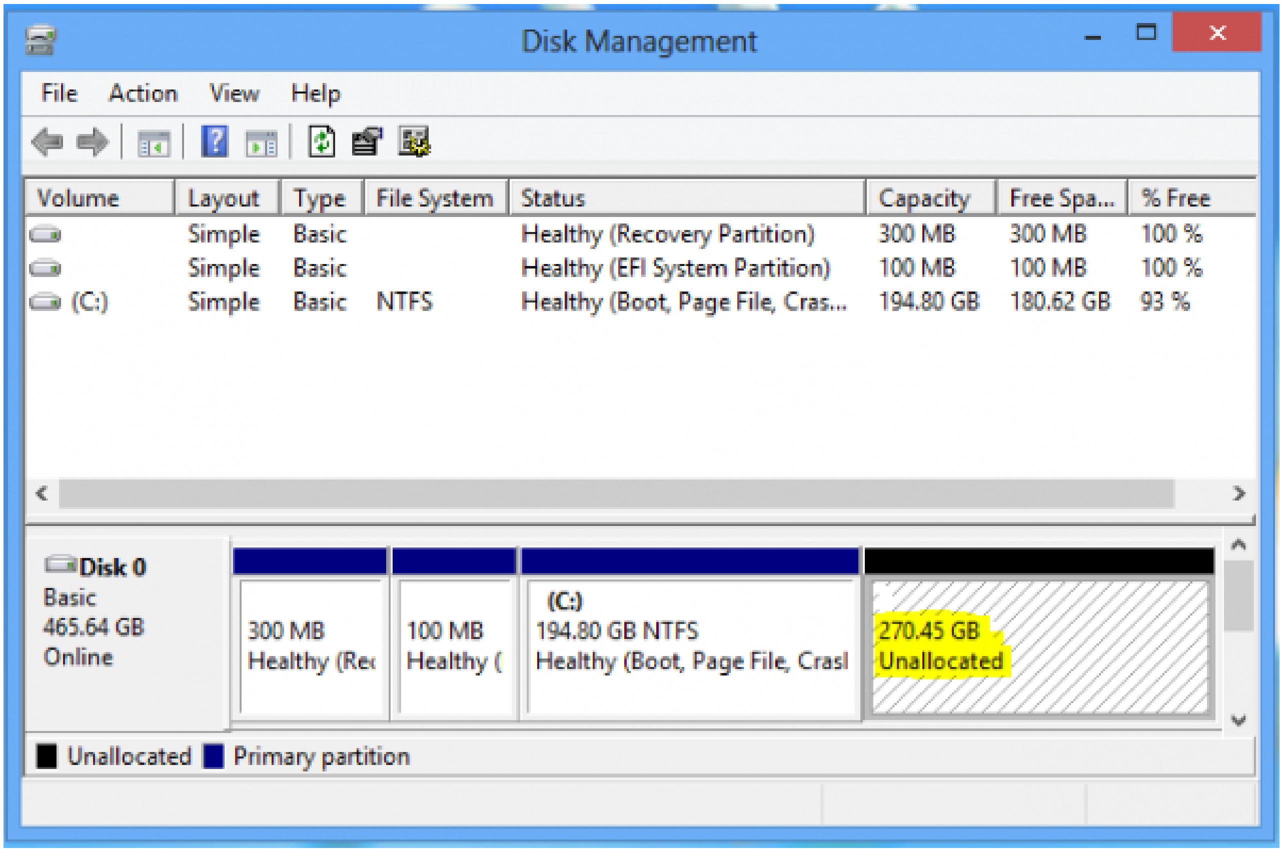


Where do you want to install Windows?

Name	Total size	Free space	Type
Drive 0 Partition 1: Recovery	300.0 MB	273.0 MB	Recovery
Drive 0 Partition 2	100.0 MB	95.0 MB	System
Drive 0 Partition 3	128.0 MB	128.0 MB	MSR (Reserved)
Drive 0 Partition 4	194.8 GB	194.8 GB	Primary
Drive 0 Unallocated Space	270.4 GB	270.4 GB	

Figure 1: Manual disk setup during Windows 8 installation.

After the installation of Windows 8, Figure 2 shows the partitions on the target disk as seen from Windows 8's partition manager. Again, that **Unallocated** space (highlighted) was intended for PC-BSD 10.1.



Volume	Layout	Type	File System	Status	Capacity	Free Spa...	% Free
	Simple	Basic		Healthy (Recovery Partition)	300 MB	300 MB	100 %
	Simple	Basic		Healthy (EFI System Partition)	100 MB	100 MB	100 %
(C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Cras...	194.80 GB	180.62 GB	93 %

Disk 0 Basic 465.64 GB Online	300 MB Healthy (Rec	100 MB Healthy (	(C:) 194.80 GB NTFS Healthy (Boot, Page File, Crasl	270.45 GB Unallocated

■ Unallocated ■ Primary partition

Figure 2: Windows 8 partition manager showing Windows partitions and unallocated space.

Time to install PC-BSD 10.1. The installation image, downloaded from **here**, was transferred to a USB stick using the **dd command**. With Linux distributions that have support for installation on computers with UEFI firmware, accessing the computer's boot menu with the installation media attached allows one to choose what version of the installer to use for installation – the standard version or the UEFI-aware version. In Figure 3, the **PNY USB 2.0 FD 1100** entries are the options for the installation media, where the **UEFI PNY USB 2.0 FD 1100** entry should give access to the UEFI-aware version of the installer.

However, with PC-BSD 10.1, selecting that option leads to a boot failure and a GRUB error. Selecting the **USB: PNY USB 2.0 FD 1100** entry does the trick. And it boots into a UEFI-aware installer.

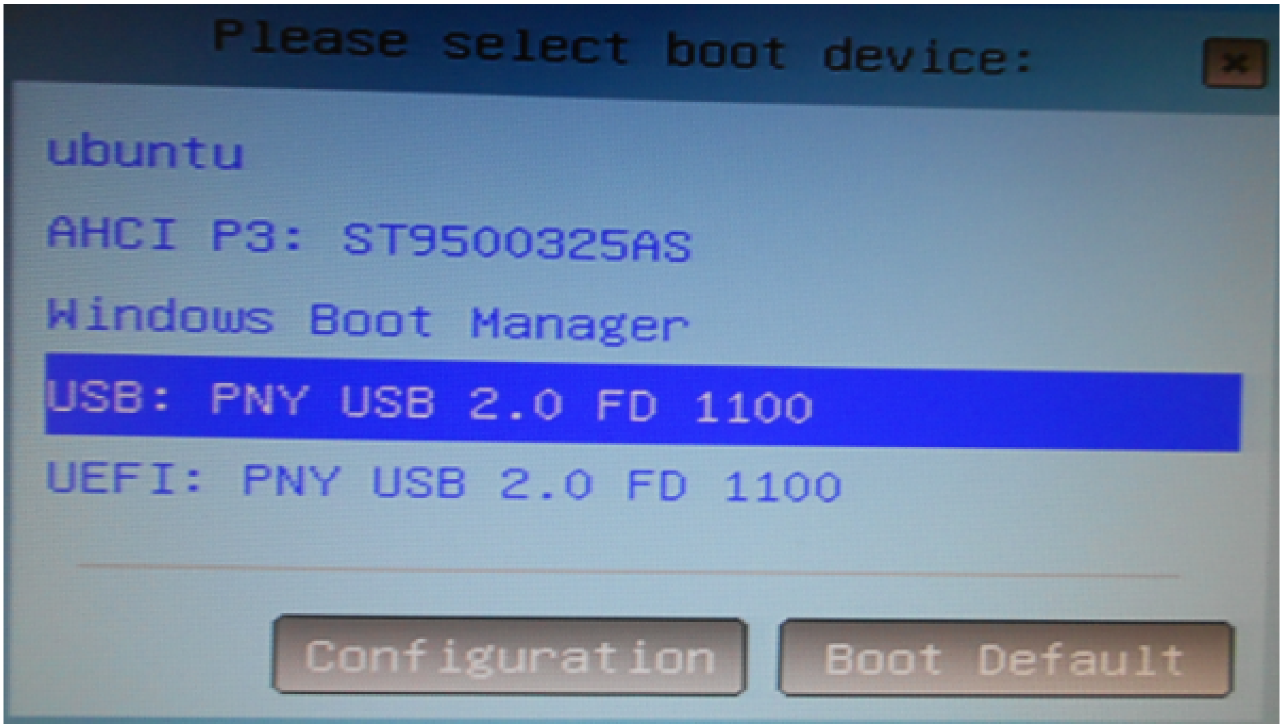
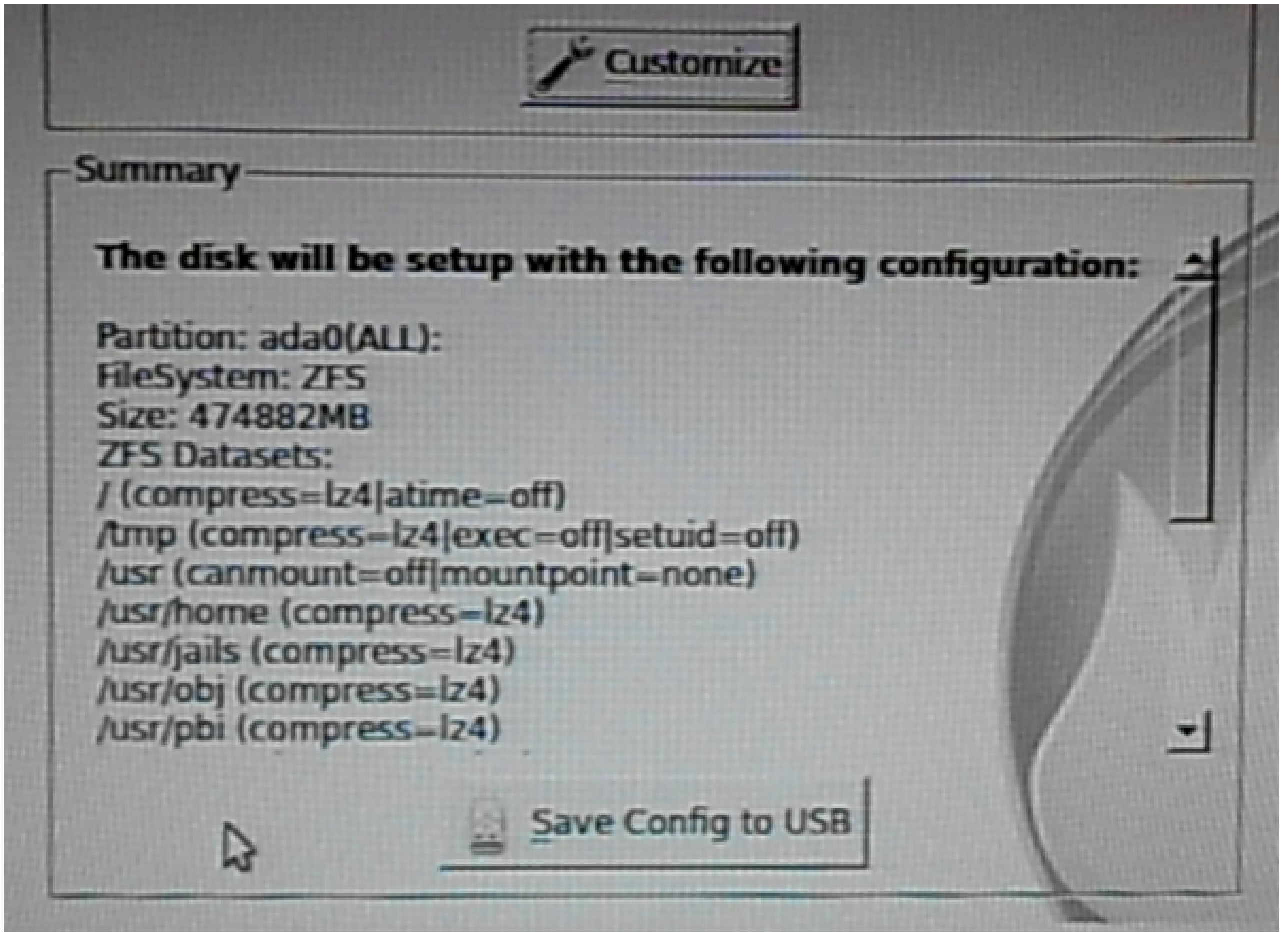


Figure 3: Computer's boot menu showing the boot options.

Figure 4 shows the **Disk Selection** step of the PC-BSD 10.1 installer. Because the installer cannot auto-shrink a partition that has another operating system's data on it, I had to click on the **Customize** button to select the unallocated space that I had prepared for it. I was actually surprised that the installer did not find that space automatically.

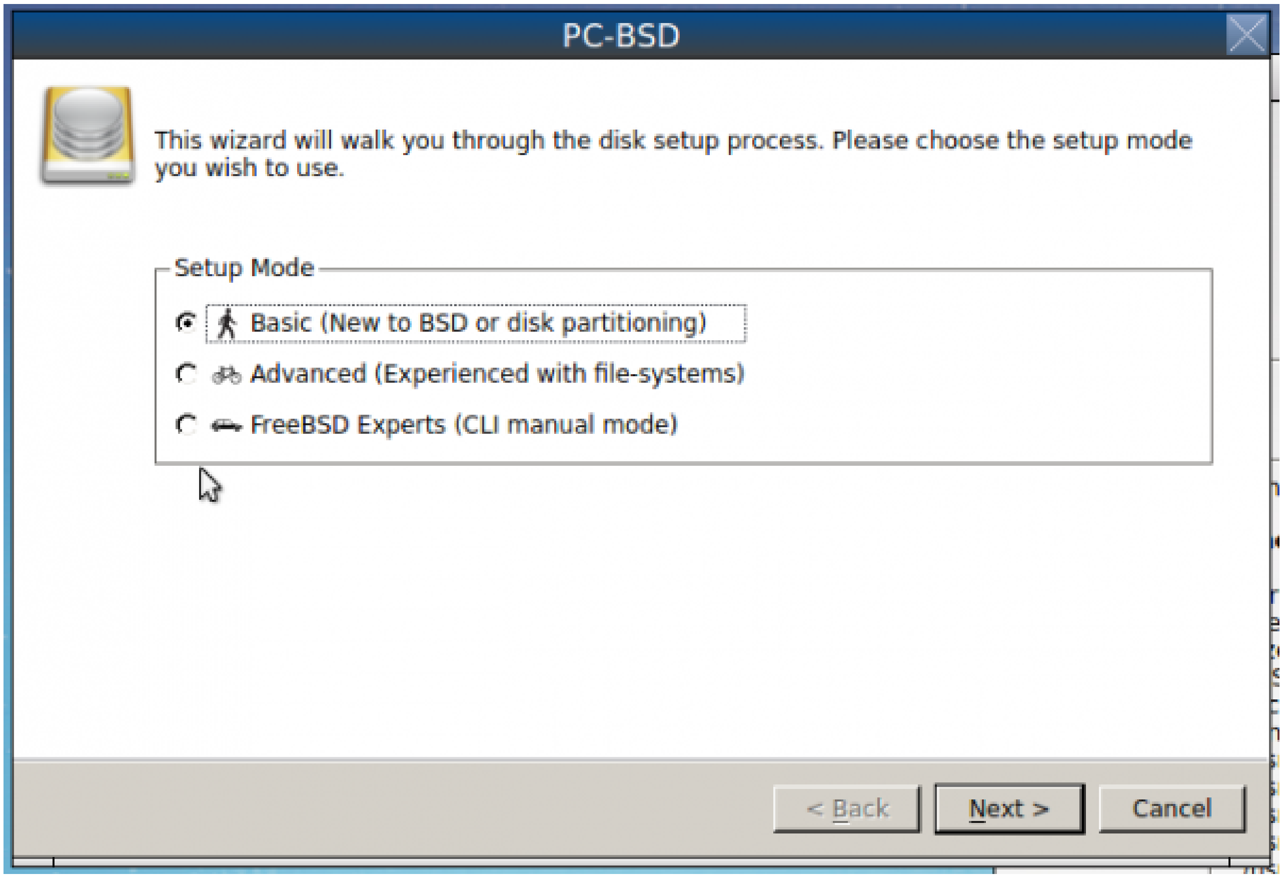


The disk will be setup with the following configuration:

Partition: ada0(ALL):
FileSystem: ZFS
Size: 474882MB
ZFS Datasets:
/ (compress=lz4|atime=off)
/tmp (compress=lz4|exec=off|setuid=off)
/usr (canmount=off|mountpoint=none)
/usr/home (compress=lz4)
/usr/jails (compress=lz4)
/usr/obj (compress=lz4)
/usr/pbi (compress=lz4)

Figure 4: Disk Selection step of PC-BSD 10.1 installer.

Clicking Customize opened the window shown in Figure 5. Whether I selected **Basic** or **Advanced** and clicked the **Next**button, the unallocated space was missing from the list of partitions detected by the installer. Consequently, there was no place to install PC-BSD 10.1. I thought that if I logged back into Windows 8 and formatted the unallocated space as a Windows partition using either NTFS or exFat, that perhaps the installer (PC-BSD's) will be able to detect it. So that's exactly what I did.



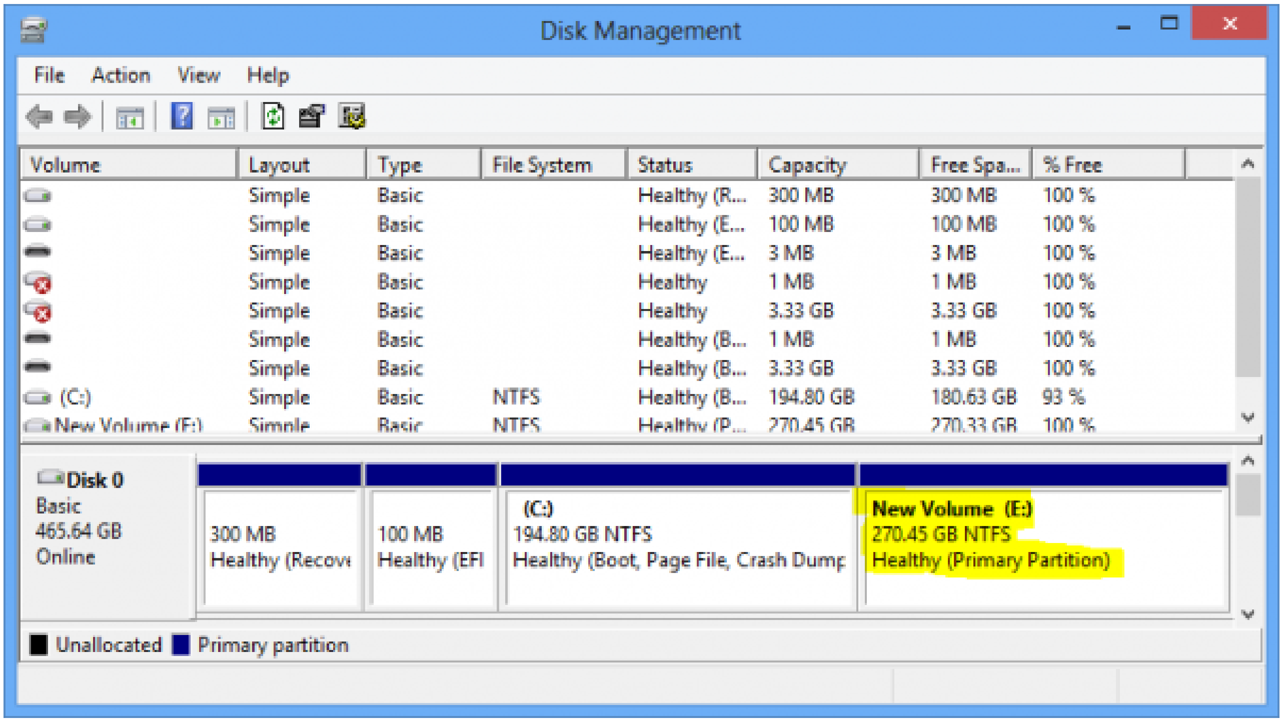
This wizard will walk you through the disk setup process. Please choose the setup mode you wish to use.

Setup Mode

● Basic (New to BSD or disk partitioning)
○ Advanced (Experienced with file-systems)
○ FreeBSD Experts (CLI manual mode)

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

Figure 6 shows the now formatted space (highlighted) as seen from Windows 8's partition manager.

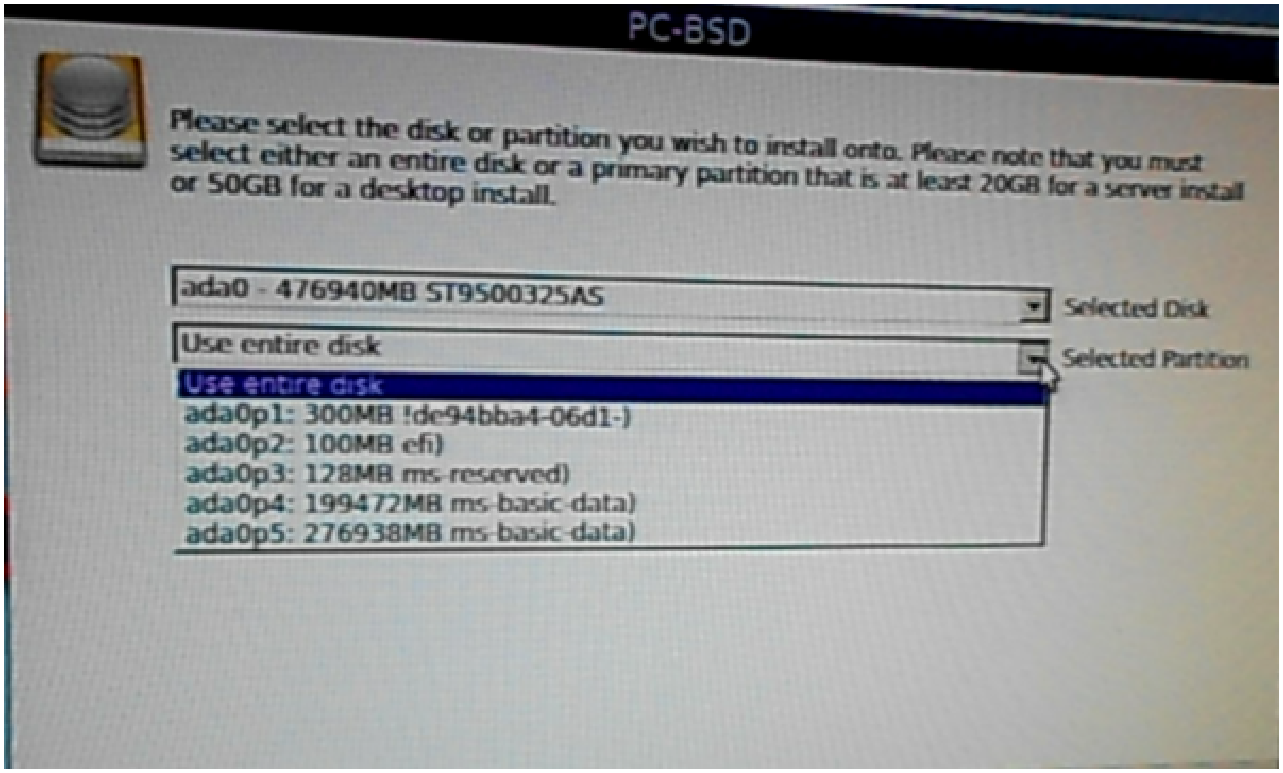


Volume	Layout	Type	File System	Status	Capacity	Free Spa...	% Free
	Simple	Basic		Healthy (R...	300 MB	300 MB	100 %
	Simple	Basic		Healthy (E...	100 MB	100 MB	100 %
	Simple	Basic		Healthy (E...	3 MB	3 MB	100 %
	Simple	Basic		Healthy	1 MB	1 MB	100 %
	Simple	Basic		Healthy	3.33 GB	3.33 GB	100 %
	Simple	Basic		Healthy (B...	1 MB	1 MB	100 %
	Simple	Basic		Healthy (B...	3.33 GB	3.33 GB	100 %
(C:)	Simple	Basic	NTFS	Healthy (B...	194.80 GB	180.63 GB	93 %
New Volume (E:)	Simple	Basic	NTFS	Healthy (P...	270.45 GB	270.33 GB	100 %

Disk 0 Basic 465.64 GB Online	300 MB Healthy (Recove	100 MB Healthy (EFI	(C:) 194.80 GB NTFS Healthy (Boot, Page File, Crash Dump	New Volume (E:) 270.45 GB NTFS Healthy (Primary Partition)

Figure 6: Windows 8's partition manager showing formatted free space (highlighted).

Back in PC-BSD's installer and clicking the Customize button opened this window. Now the installer detected the formatted space. In this figure, the target space intended for use by the installer is **ada0p5: 276983MB ms-basic data**. That's a 276 GB disk partition. Selecting it and clicking **Next** opened another window…



Please select the disk or partition you wish to install onto. Please note that you must select either an entire disk or a primary partition that is at least 20GB for a server install or 50GB for a desktop install.

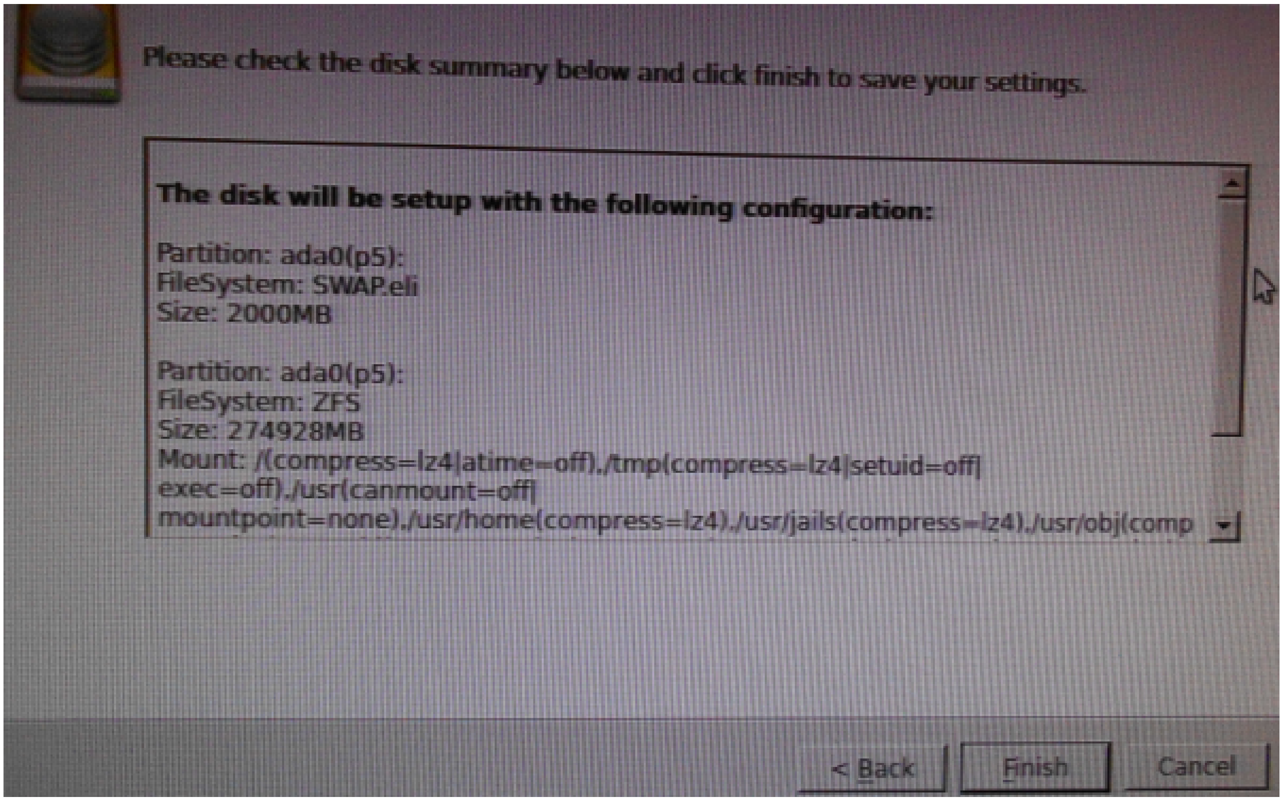
Selected Disk: ada0 - 476940MB ST9500325AS

Selected Partition: Use entire disk

- Use entire disk
- ada0p1: 300MB !de94bba4-06d1-)
- ada0p2: 100MB efi)
- ada0p3: 128MB ms-reserved)
- ada0p4: 199472MB ms-basic-data)
- ada0p5: 276938MB ms-basic-data)

Figure 7: Disk partitions detected by PC-BSD's installer.

Where the installer showed how it was going to partition the space. That was fine by me, so I clicked **Finish**.



Please check the disk summary below and click finish to save your settings.

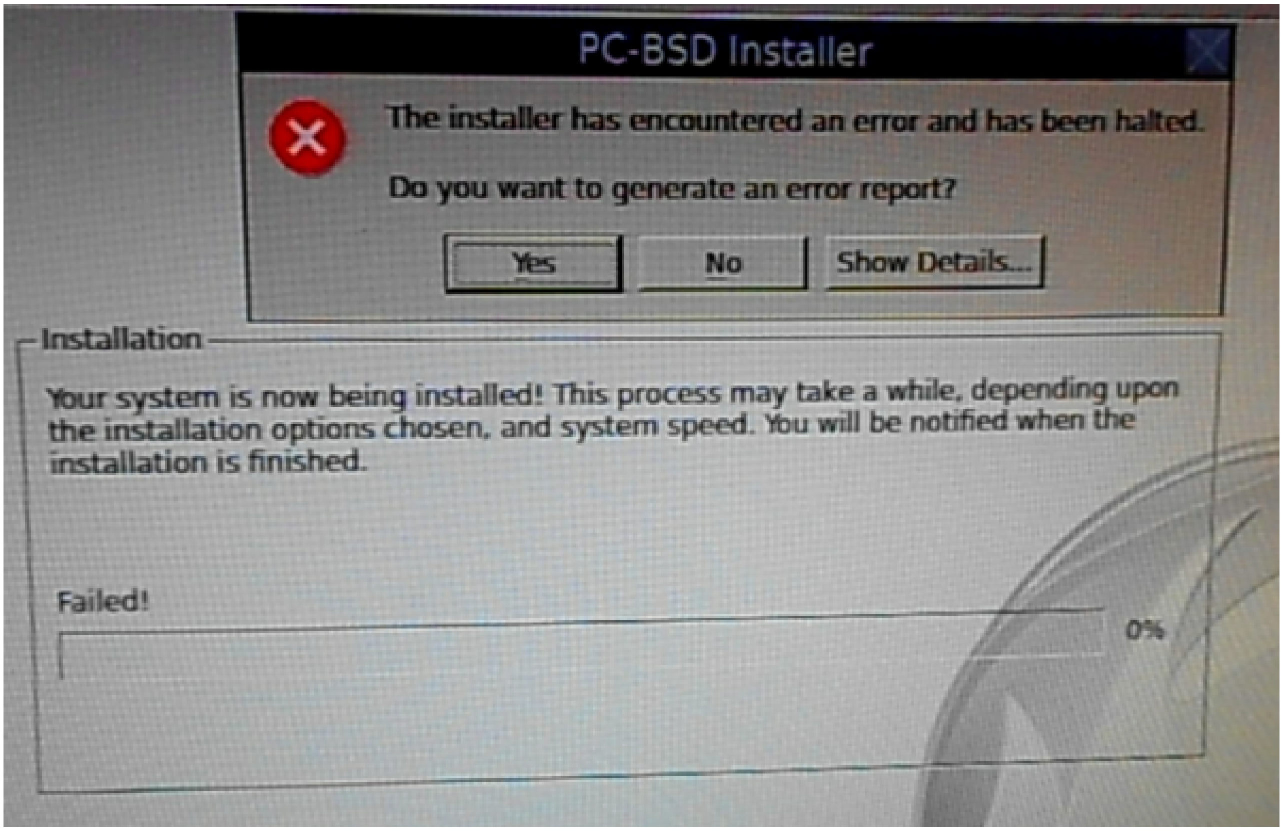
The disk will be setup with the following configuration:

Partition: ada0(p5):
FileSystem: SWAP.eli
Size: 2000MB

Partition: ada0(p5):
FileSystem: ZFS
Size: 274928MB
Mount: /(compress=lz4|atime=off),/tmp(compress=lz4|setuid=off|exec=off),/usr(canmount=off|mountpoint=none),/usr/home(compress=lz4),/usr/jails(compress=lz4),/usr/obj(comp

Figure 8: Partitions set up by the PC-BSD installer.

That dropped back to the main installer's window. Clicking Next there to continue with the rest of the installation triggered a failed, with this error message.



PC-BSD Installer

The installer has encountered an error and has been halted.

Do you want to generate an error report?

Your system is now being installed! This process may take a while, depending upon the installation options chosen, and system speed. You will be notified when the installation is finished.

Failed!

Figure 9: PC-BSD 10.1 failed installation error message.

The most important snippet from the error report is shown in this output.

PB-BSD 10.1 installer error report Shell

```
kern.geom.debugflags -> 16

kern.geom.label.disk_ident.enable: 1 -> 0

Running: gpart modify -t bios-boot /dev/ada0

gpart: Option 'i' not specified

...

EXITERROR: Error 1: gpart modify -t bios-boot /dev/ada0

Unmount: /mnt

Running: umount -f /mnt

umount: /mnt: not a file system root directory
```

So it appears that the installation attempt failed at that point because the correct *gpart* option was not specified. The **-i**option is used to run gpart interactively, but why it's necessary to use it in the graphical application? In any case, I'll be logging a bug report.