

# PC-BSD - Making FreeBSD on the Desktop a reality

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**PC-BSD Software – iXSystems**



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## FreeBSD Desktop Strengths



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- Rock-solid stability, security and speed.
- Large variety of ported software
- 3D acceleration and sound support
- Wireless support - 802.11
- Resistance to viruses



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## FreeBSD Desktop Weaknesses



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- Lack of easy-to-use graphical installer
- Non-existent Xorg configuration
- Difficult network setup
- Difficult online updates for Desktop
- Manual package management



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How PC-BSD enhances FreeBSD to address these desktop weaknesses.



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Improving the user installation experience.



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- Problem #1 – “sysinstall”

```
FreeBSD/i386 6.2-STABLE - sysinstall Main Menu
Welcome to the FreeBSD installation and configuration tool. Please
select one of the options below by using the arrow keys or typing the
first character of the option name you're interested in. Invoke an
option with [SPACE] or [ENTER]. To exit, use [TAB] to move to Exit.

  Usage      Quick start - How to use this menu system
  Standard   Begin a standard installation (recommended)
  Express    Begin a quick installation (for experts)
  Custom     Begin a custom installation (for experts)
  Configure  Do post-install configuration of FreeBSD
  Doc        Installation instructions, README, etc.
  Keymap     Select keyboard type
  Options    View/Set various installation options
  Fixit      Repair mode with CDROM/DVD/floppy or start shell
  Upgrade    Upgrade an existing system
  Load Config Load default install configuration
  Index      Glossary of functions

[ Select ]   X Exit Install
[ Press F1 for Installation Guide ]
```





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- Looks like a legacy DOS-era program
- Non-intuitive
- Complicated installation options, partitioning, network setup, etc.



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- Solution - "PCInstall"



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- Looks like a modern desktop install
- Intuitive interface
- Helpful Tips to 'guide' the user
- Simplified disk setup and package selection.



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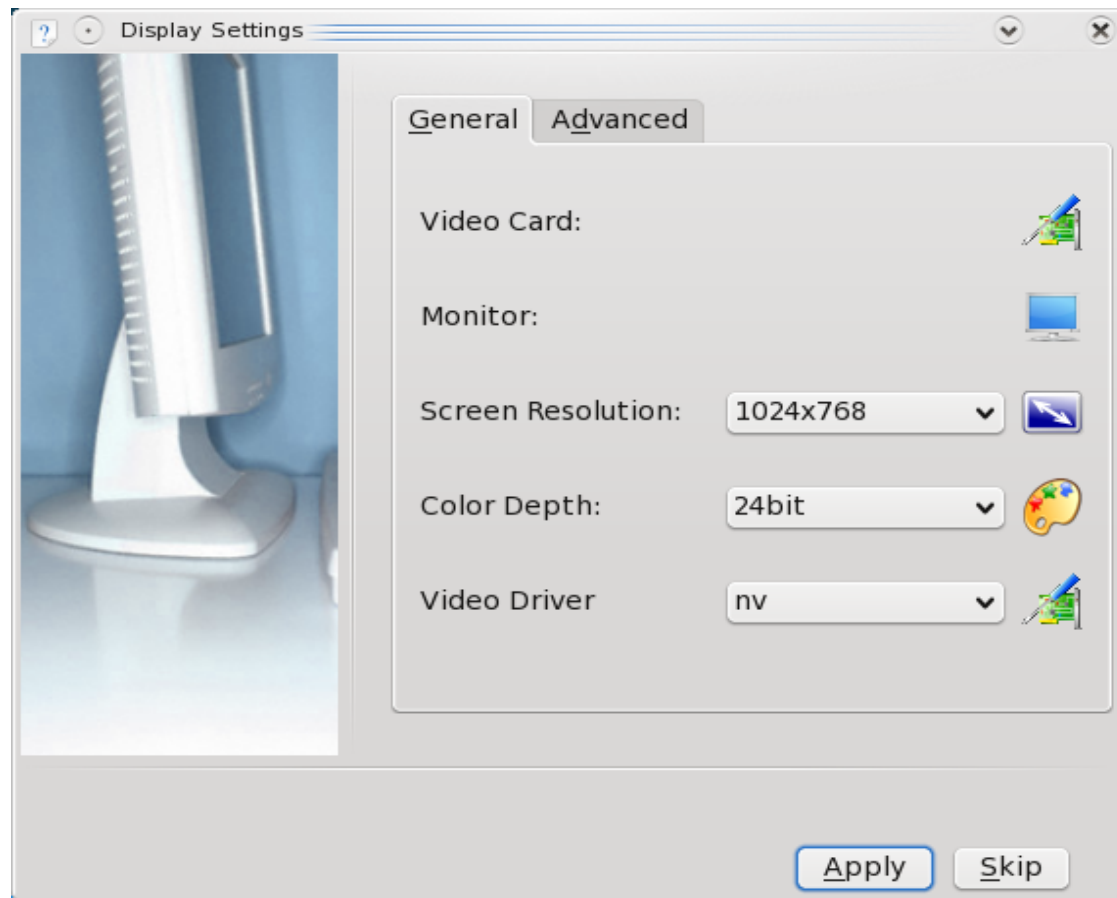
- Problem #2 – No Xorg setup wizard

```
Configuring syscons: blanktime.  
Starting sshd.  
Initial i386 initialization:.  
Additional ABI support:.  
Starting cron.  
Local package initialization:Starting mysql.  
.  
Additional TCP options:.  
Starting background file system checks in 60 seconds.  
  
Thu Dec 29 09:32:53 EST 2005  
  
FreeBSD/i386 (                ) (ttyv0)  
  
login: █
```



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- Solution – Xorg Setup GUI



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- Allows the user to configure their display, via point-n-click interface
- Runs in 1024x768 with auto-detected driver / refresh settings
- Supports fail-safe “vesa” mode



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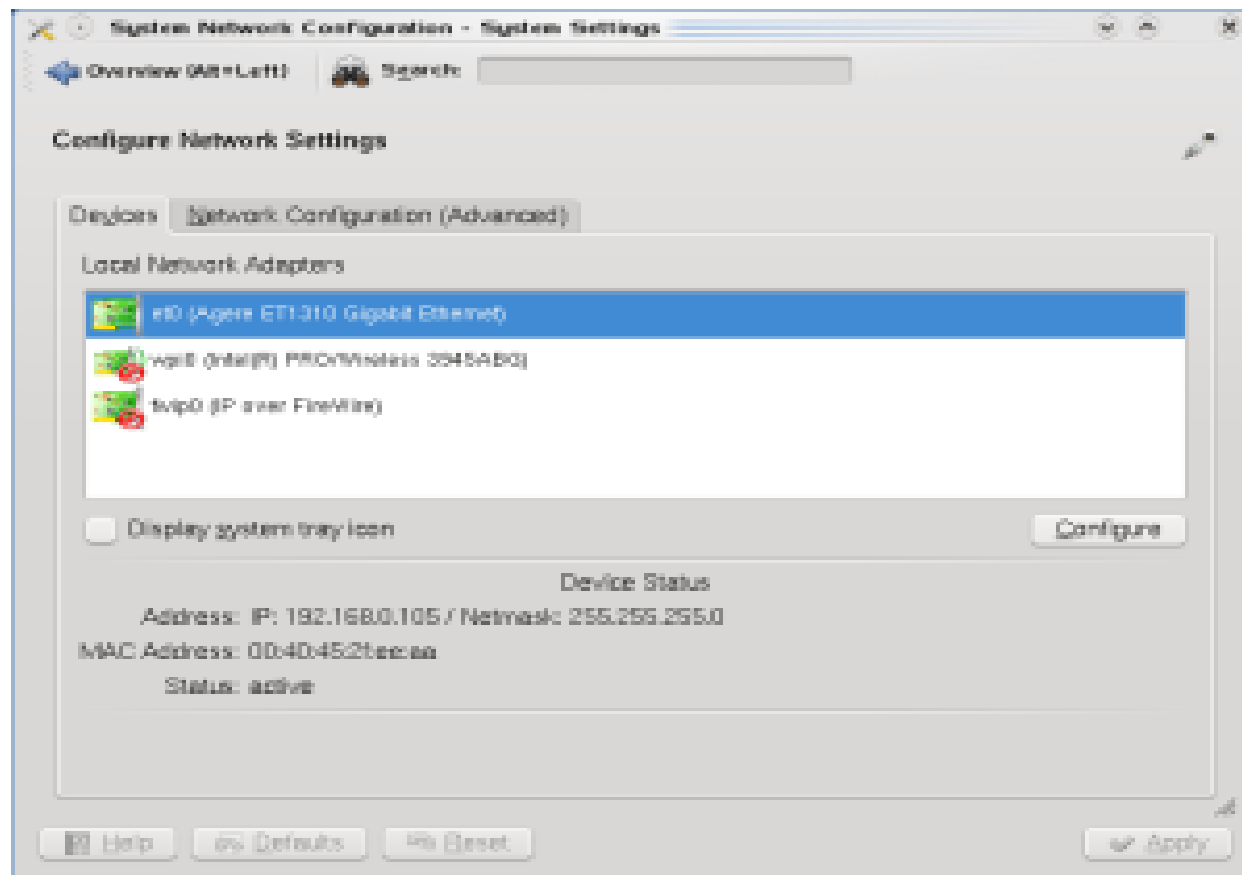
- Problem #3 – Networking Setup

```
#  
# home network; allow all valid ciphers  
network={  
    ssid="home"  
    scan_ssid=1  
    key_mgmt=WPA-PSK  
    psk="very secret passphrase"  
}
```



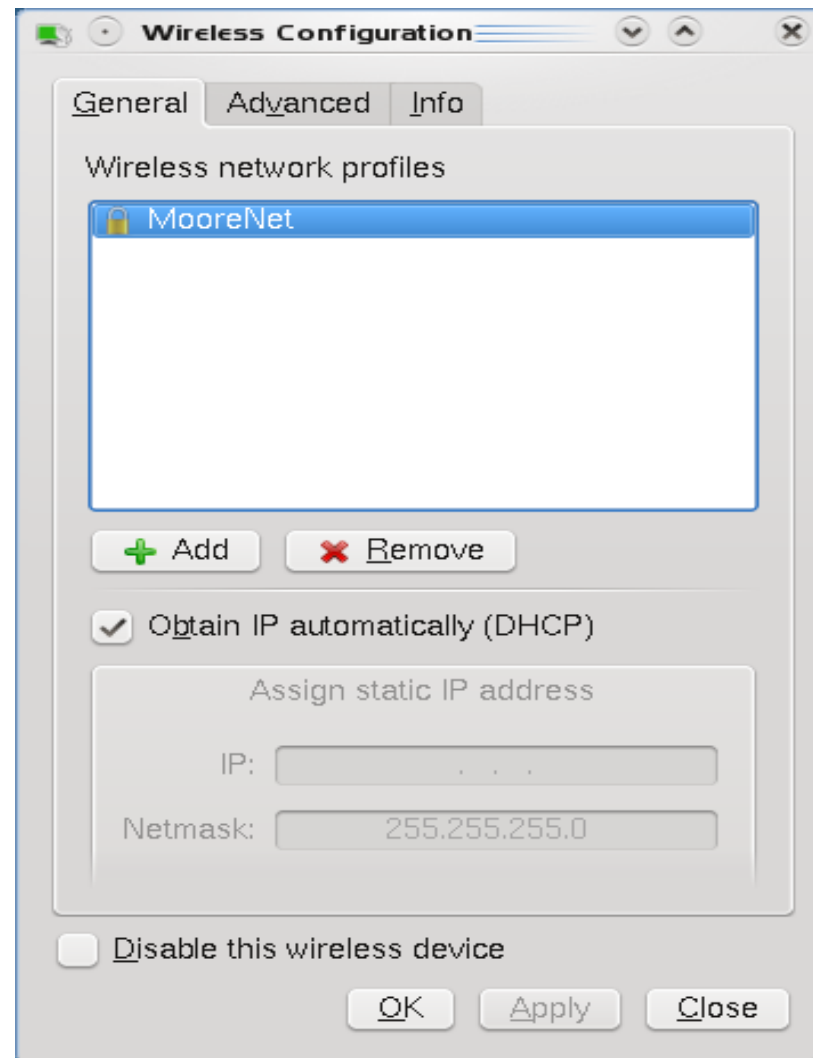
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- Solution – Network device manager





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- Allows graphical configuration of networking
- Supports Wifi scanning, and various encryption methods
- Includes “tray” application, which can monitor connection status



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## Base System Modifications



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- Default kernel has more hardware support enabled.
- Base system includes additional packages, such as X11, KDE4, Nvidia drivers, Flash 9 and more.
- Custom LOCALBASE in /PCBSD/local



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– PBI –

A desktop friendly packaging system



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Problem:

How do we make package management user friendly?



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## Ports:

- Many available applications
- Up to date with most popular releases
- Long wait times for builds
- Tedious upgrade process
- Prone to dependency related failures
- May not contain desktop icon data



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## Packages:

- No long compile times
- Tedious upgrade process
- Prone to dependency related failures
- No GUI driven installation method
- May not contain desktop icon data





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## PBI (Push Button Installer)

- No long compile times
- Simple upgrade procedure
- Includes necessary libraries, reducing dependency failures.
- GUI and CLI installation methods
- Larger total installation size

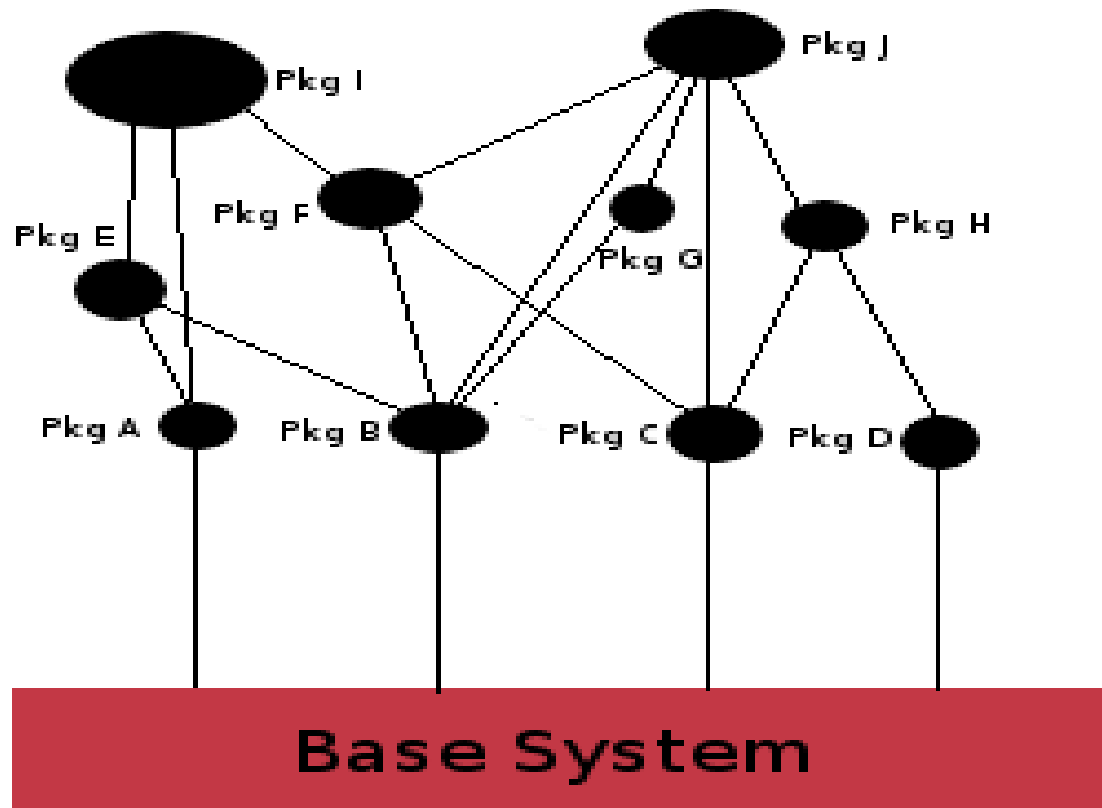


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To depend or not to depend



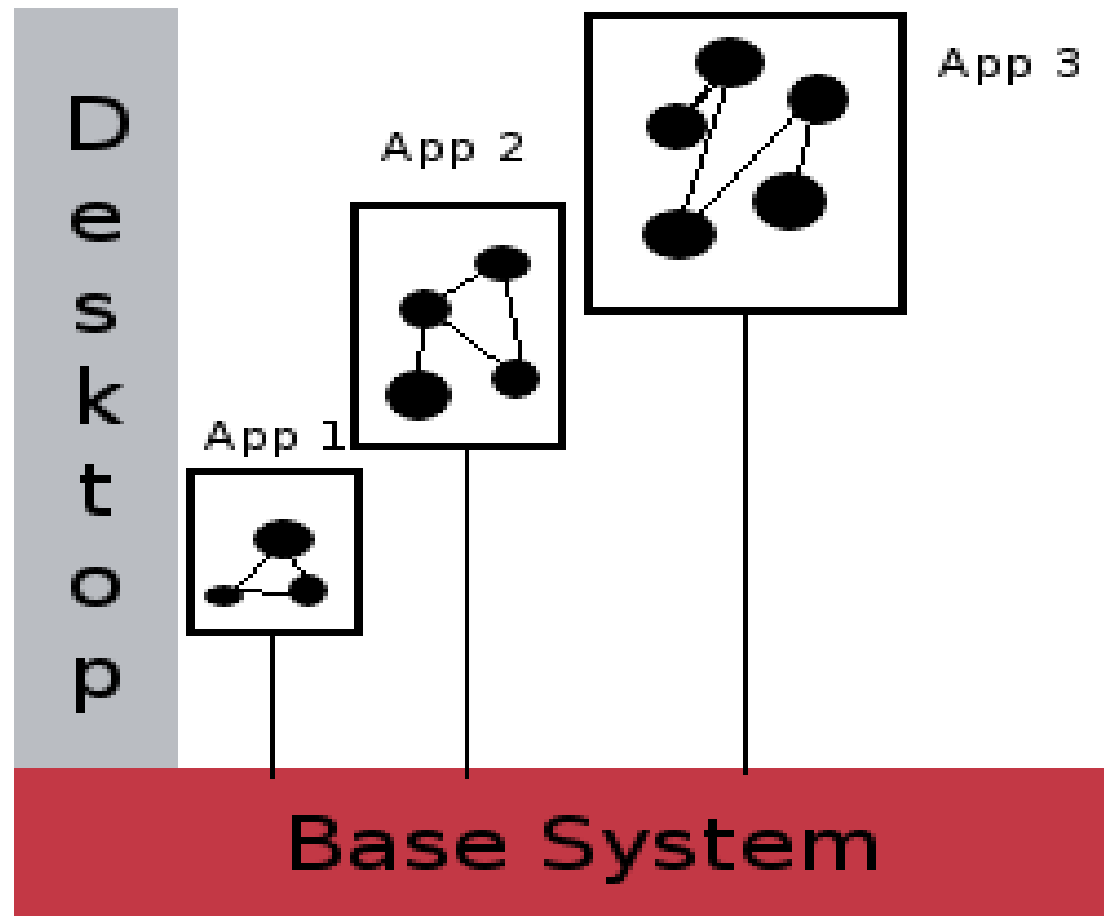
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Traditional Package Management Model



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PBI Application Model



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The PBI format in practice



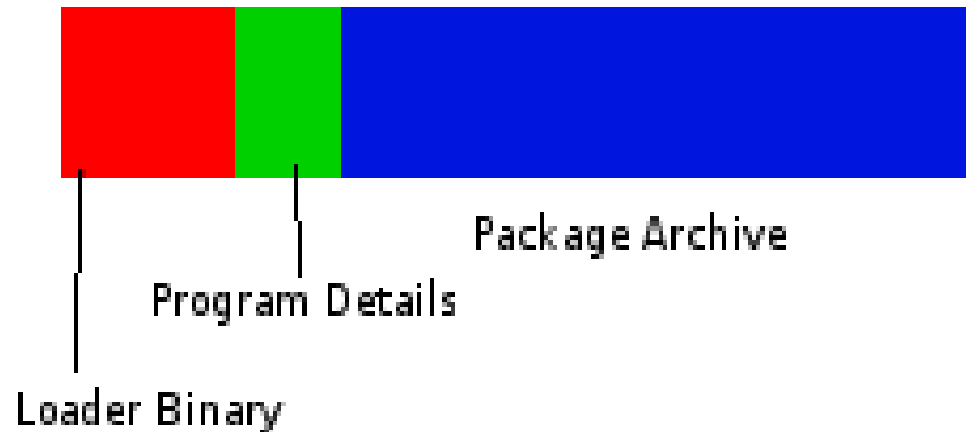
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- Applications are compiled from ports
- A custom LOCALBASE is set for each PBI.
  - LOCALBASE=/Programs/Firefox3.0.5
- Resulting binaries / data are compressed with tar and lzma
- Data is appended to binary, and program data



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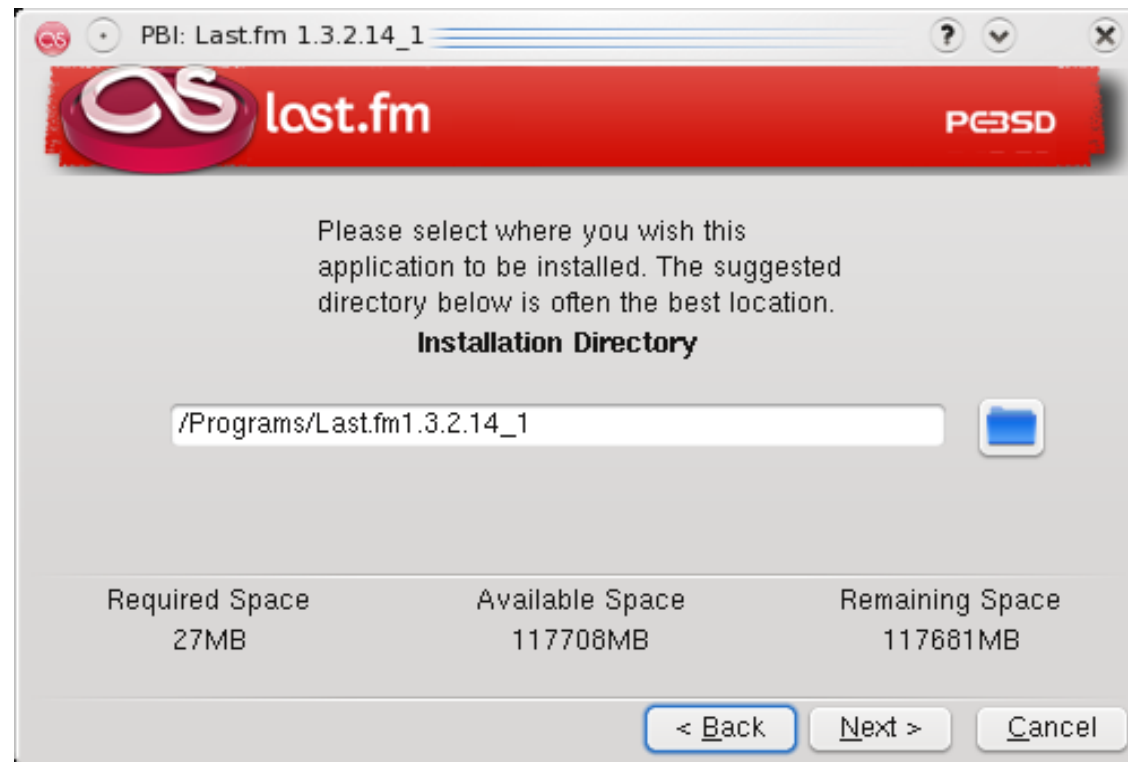
## PBI data structure



## The PBI file layout



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## End User Installation





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FreeBSD Wishlist



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- Visually improve startup process
- Improve Wine compatibility on BSD
- Improved mmap functionality
- Improved device support – sound, webcam, etc
- Laptop Enhancements, Suspend, Resume



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## Summary

FreeBSD can and does make a great desktop system. PC-BSD simply is trying to make it easy and enjoyable for the typical desktop user.

