

Distro Notes

This document was revised on March 9, 2011. Older versions can be discarded.

1. Overview.

This document discusses a Linux distro that's under construction. Comments are welcome.

The distro is portable; most versions run directly from pocket-size media (thumbdrives, 3" Mini-DVDs, etc.). It's useful for multimedia tasks, software development, Internet file or site downloads, office work, and system maintenance.

Some versions also provide a large collection of games (including lightweight that even people who "don't play games" may find diverting).

Target: This distro is aimed at UNIX and MS-Windows CLI developers, system administrators, multimedia hobbyists, and people with an interest in chess (there's 11 chess engines) and lightweight games in general.

Desktop: There's a lightweight desktop. The desktop doesn't include GNOME or KDE eye candy (dancing icons, 3D workspaces, etc.) but it gets the job done and does support a few special features, including remote access and single-instance support.

Windows clones: This distro resembles old versions of MS-Windows visually, it includes some MS-Windows work-alike programs, and it runs MS-Windows programs. However, it's not aimed at MS-Windows people. Former MS-Windows users should try PCLinuxOS and Ubuntu instead (these are polished Windows-style distros).

That said, this distro offers some advantages over Windows-style distros: it's faster, in some cases; it requires less memory (*); it includes tools, collections, and databases that are generally unavailable or poorly maintained elsewhere; and you can run it from a Flash device that fits on a keychain.

(*) provided that you compare LiveDistros to LiveDistros, hard-disk versions to hard-disk versions, etc.

History: Most distros are descended from other distros. For example, PCLinuxOS is based on Mandrake, which is based on Red Hat. For better or worse, this distro was created from scratch; the core framework isn't based on any existing OS. However, the distro as a whole does use individual patches and scripts from other distros. Every component of this type was selected manually and modified as necessary.

Formal development started in 2004, though pieces date back to the 1990s. The core framework referred to previously came first. This started out as a set of system startup and administration scripts plus a package "build" system. A desktop environment evolved from 2005 to 2008 and LiveDistro support was added at about the same time.

From 2004 to 2012, overlapping the period when the core framework was taking shape, about 1,800 upstream packages were added. Each package went through a manual test, patch, and integrate procedure before the associated "build" procedure was finalized.

By 2008, the distro had reached a point where it was useful for a number of purposes. As of this writing (2012, four years later), the distro could be described as novel and powerful but incomplete; a few significant pieces remain to be added.

For more information about the distro's structure, see [Appendix A](#).

Features: This distro's feature set isn't bad for a distro in the "portable" class.

Features include multiple LiveDistro versions (target sizes range from 200 MB to 32 GB), fast startup (setup procedures run in parallel), Nouveau drivers, the desktop mentioned previously, web-browser tweaks, good multimedia support, a few unique programs, an E-Text library, the **StarDict** dictionary, the **Schools Wikipedia** encyclopedia, MS-Windows compatibility, numerous games, various programming languages (including two MS-Windows 'C' cross-compilers), human-readable [device names](#), the isolation of conflicting libraries, a semi-unique directory [structure](#), etc. For more information, see [section 4](#) and [Appendix A](#).

Problems: This prototype has some limitations. For more information, see [section 5](#).

Applications: Although the prototype has limitations, it's proved useful for various purposes. For example, in the past, it's been used to: back-up and restore MS-Windows systems, change disk partition sizes, rescue files stored on corrupted NTFS disks, do presentations over the Internet, replace iTunes (tm) (*), run MS-Windows programs without MS-Windows, transfer video clips to video DVDs, develop commercial software, maintain commercial web sites, etc.

(*) The distro's iTunes (tm) workalike (**gtkpod**) is still under development. However, it's worked in cases where iTunes (tm) itself had difficulties.

2. Disclaimer.

This distro is provided on an AS IS basis with ABSOLUTELY NO WARRANTY. The contents are not necessarily correct or complete or suitable for any particular purpose. The entire risk as to the quality and performance of the distro is with you. Should the distro prove defective, you assume the cost of all necessary servicing, repair or correction. In no event will any of the developers, or any other party, be liable to anyone for damages arising out of use of the distro, or inability to use the distro.

3. License issues.

If you possess a publicly released version of the distro, you can make copies and distribute them without charges, fees, or royalties. However, if you wish to modify the distro (or to "fork" it), there are some rules. The most important issues are discussed below.

- a. These notes are not legal advice, and nothing in this document or distro is to be construed as legal advice.
- b. Every software "package" used has a license, with very few exceptions. For example, **The Gimp** 2.6.11 is licensed under GNU GPL 2. If you plan to modify this distro, you should check the restrictions imposed by every license. The distro's master source tree includes descriptions of the licenses involved.
- c. Roughly half of this distro's packages are distributed under non-GNU licenses. Accordingly, GNU rules shouldn't be applied to the packages as a group. **Note:** The estimate mentioned here counts CPAN modules built separately from Perl as individual packages.
- d. Most of the stand-alone icons used by this distro are distributed under specific licenses. The master version of the distro provides license information related to icons in the following directory:
[/distro/images/icons](#)
- e. As of 2012, this distro is unusual with respect to one license issue: Many of the distro's unique components are distributed under Creative Commons licenses. Therefore, if you "fork" the distro as a whole to create your own distro, you'll need to make specific changes to the new distro.
- f. GNU GPL is incompatible with Creative Commons in the sense that modifications to GPL'd source code can't be placed under Creative Commons. Additionally, depending on various factors, it may not be possible to "link" Creative Commons components against GPL'd libraries. However, it doesn't appear that GNU GPL can be used to prevent the inclusion of GPL'd software in distros based solely on the fact that the distros contain Creative Common components.
- g. Trademarks are an additional issue. If you modify (or "fork") the distro, trademark-related restrictions may apply.

4. Features.

4.1. **Brief summary.**

This distro is portable. Most versions run directly from pocket-size media. It's designed to feel fast and light, but it provides numerous useful programs.

The smallest standard version, which fits on a 3" 200MB MiniCD, includes a word processor, multimedia players, sysadmin tools, remote desktop support, five programming languages (Perl, Python, Tcl/Tk, **Tiny CC**, and **SDL Basic**), a symbolic math system, remote-access software, and a few games.

Larger versions add **LibreOffice**, multimedia editors and tools, MS-Windows compatibility, more programming languages (including both JDK6 and JDK7 compatibility), the **StarDict** dictionary, the **Artha** thesaurus, a complete

encyclopedia ([Schools Wikipedia](#)), an E-Text library, more math systems, social networking, more games, a clipart archive, personal databases (for books, CDs, DVDs, recipes, and wine cellars), etc.

The largest version includes over 6,500 programs from over 1,750 FOSS packages, depending on what's counted. However, it should be noted that most of these programs are rarely-used CLI tools. The number of GUI programs and/or frequently used CLI tools is much smaller; possibly about 750.

4.2. **Different sizes.**

The distro is available in sizes designed to fit standard media. Target devices include 3" 200MB MiniCDs, regular 700MB CDs, 3" 1GB MiniDVDs, 3" 2GB dual-layer MiniDVDs, 1GB to 32GB Flash devices, regular 4GB DVDs, and hard disks. It works with internal or external hard disks, including portable USB mini-disks.

Note: LiveDistro versions of the distro use a feature named [SquashFS-XZ](#). This is a compression technique that's more effective than most of the techniques used by older distros. It allows a large number of programs to fit onto small devices.

4.3. **Running programs.**

There's six ways to find programs or run them. Most versions of the distro provide standard CLI commands, system menus, and desktop icons, plus icon trees sorted by category (in the Programs folder), web pages on a built-in web site, and a search engine. MiniCD versions omit the search engine.

4.4. **Boot Flash anywhere.**

USB Flash stick and USB hard-disk versions can use a 3" MiniCD to boot, even on PCs that don't boot USB devices. This approach works for most PCs, even through USB hubs. Put a MiniCD and a thumb-drive in your pocket, and you're ready to work anywhere. You may need to change BIOS boot-order settings. However, the boot-order change is usually all that's required.

Note: You can boot MiniCDs by themselves (without a USB device). However, MiniCD versions are slower than USB versions and have fewer programs.

4.5. **Run from iPod or smartphones.**

If you have a FAT32-format iPod, you should be able to run this distro from the iPod. Smartphones that allow USB access should also work.

4.6. **Lightweight desktop.**

There's no eye candy (dancing icons, etc.). However, the desktop provides most of the features that you'd expect to find in a lightweight distro: Alt-Tab, shortcuts, drag'n'drop, a taskbar, a volume control, change background image, change theme, multiple workspaces, (including a workspace pager), etc. Additionally, it supports a distro-specific single-instance feature.

Note: The desktop provides a Start button, standard menus, and a Programs folder. The **Programs** folder contains full-size icons grouped by category. If you see an application in **Programs** that's useful, you can drag its icon onto the desktop.

4.7. Standard tools.

Most versions of the distro (including 3" MiniCD versions) provide a word processor (**abiword**), a spreadsheet (**gnumeric**), Perl, Python, Tcl/Tk, **Tiny CC**, **SDL Basic**, E-mail (similar to Outlook Express (tm)), system maintenance tools, multimedia players, a remote desktop, calculators and other math tools (such as **mathomatic** and **xes**), hundreds of additional CLI programs, and several web browsers.

4.8. Web browsers.

Large versions of this distro provide nine Linux web browsers. There's four lightweight web browsers (**Arora**, **Dillo**, **Epiphany**, **Midori**, and **NetSurf**), a web-application suite (**Seamonkey**), a Web 2.0 browser (**Flock**), a text-mode browser (**lynx**), and the distro's main browser, presently known as **Bobzilla**. The main browser is based on **Icecat**. The MS-Windows version of **Bobzilla** is included as an extra.

Bobzilla is a Mozilla (tm) -based web browser that's available for both Linux and MS-Windows. The current version is similar to IceCat (tm) 3.6.X. Approx. 100 configuration settings have been tweaked to improve performance and security. Additionally, numerous extensions have been installed. Some of the extensions include local fixes or enhancements.

4.9. Multimedia players.

This distro plays most multimedia files "out of the box". This includes FLV or WebM video clips from YouTube and other video sites, RealMedia, MIDI (not supported by MiniCD versions), FLI and MOD files from the 1990s, MMS and RTSP Internet radio streams, etc.

For some versions of the distro, SWF animations can be played by a package named **Gnash Flash**. The package includes a browser plugin. For security reasons, the plugin is disabled by default; however, if it's enabled, some of the web browsers can play YouTube videos directly.

Additionally, **minitube**, **miro**, and **vlc**, are able to play YouTube videos without Flash support. Additionally, these programs can save YouTube videos to disk, and other utilities such as **cclive** can do this as well.

There's numerous additional multimedia players, including both general-purpose programs and special-purpose tools. Examples worth noting include **gmplayer**, **goggles**, **gpodder**, **gst123**, **gtkpod**, **mikmod**, **mngplayer**, **mocplayer**, **mp3blaster**, **mpg123**, **mplayer**, **rhythmbox**, **smplayer**, **swfplay**, **timidity**, **xmplayer**, **xmms**, and **xmp**.

4.10. Video-clip editors.

Most versions of the distro (CD size and larger) include **LIVES**. As of 2012, **LIVES** is the best lightweight FOSS video-clip editor available. It opens most formats reliably, which is an important point (many FOSS video editors crash when you feed them random video clips).

There's also a fallback program named **Avidemux**. **Avidemux** supports fewer formats than **LIVES** reliably, and it doesn't handle "seeking" as well, but it's faster in some cases.

4.11. More multimedia tools.

Large versions of the distro provide additional multimedia tools, including **Audacity** - sound editor, **DeVeDe** - video DVD creator, **The GIMP** - similar to Photoshop (tm), **Graveman** - similar to Nero (tm), **Dia** - similar to Visio (tm), **Inkscape** - similar to Adobe Illustrator (tm), **Scribus** - similar to PageMaker (tm), **gtkpod** - similar to iTunes (tm), **ffmpeg** and **mencoder** - multimedia transcoders, etc.

There's also various tools that can parse video-clip webpages and/or download video clips, including **abby**, **cclive**, **clive**, **getflashvideos**, **grake**, **movgrab**, **nomnom**, **umph**, and a few local tools, plus the players **minitube**, **miro** and **vlc** mentioned previously (which can download clips as well as play them).

The largest versions of the distro include **TeX**; in particular, all of **TeX Live 2011**, **LilyPond**, **LyX**, and related document, graphics, and typesetting tools.

4.12. Clipart.

Large versions of the distro provide about 38,000 public domain images. Specifically, two collections named **OpenClipArt** and **WPClipArt** are included. **OpenClipArt** provides about 8,000 public-domain images in SVG format. **WPClipArt** provides about 30,000 public-domain images in PNG format.

4.13. FreeDB music database.

Large versions of the distro include the FreeDB database, which provides information related to over 2.5 million CD albums. If the FreeDB database is present, FreeDB-capable programs such as **asunder** and **xmms** are automatically reconfigured to use it.

Note: This is a reasonably unique feature. Windows multimedia programs and most Linux distros support FreeDB operations, but relatively few operating systems include their own copy of the database. Most operating systems rely on third-party Internet servers for CD album information.

4.14. Math programs.

All versions of the distro include **Mathomatic** and **X Equation Solver**. **Mathomatic** is a useful symbolic math system. **X Equation Solver** solves NxN systems of linear equations. There's also a few calculators, unit conversion tools, etc. Large versions of the distro add **Octave** and **R**. **Octave** is a general-purpose math system that's similar to **Matlab (tm)**. **R** is a powerful statistics package.

4.15. Science software.

Large versions of the distro include the math programs mentioned above, 3D molecular modellers (**Avogadro**, **Gamgi**, and **Ghemical**), astronomy programs **Lunar Phases**, **Stellarium**, **Suntime**, and **XEarth**, and additional science programs.

4.16. Reference works.

As mentioned previously, large versions of the distro include an online encyclopedia named **Schools Wikipedia**. The online encyclopedia is about the size of a 20-volume printed encyclopedia. This distro's version adds a search

engine to the encyclopedia (something that's missing from the official version). Other reference works are provided, including geographic tools, a food calorie database, a blood alcohol tool, a periodic table, a thesaurus based on Princeton's **WordNet**, etc.

4.17. **MS-Windows emulation.**

Most versions of the distro include **Wine**, **QEMU**, **DosBox**, and **DOSEMU**. Large versions of the distro add **VirtualBox OSE**.

Wine runs some MS-Windows programs "native" -- right on the Linux desktop. **QEMU** and **VirtualBox OSE** need a fast machine and lots of RAM, but they'll run complete versions of Windows 98, NT, and XP. **DosBox** and **DOSEMU** run old MS-DOS programs.

4.18. **MS-Windows work-alikes.**

As mentioned previously, large versions of this distro provide programs similar to commonly-used MS-Windows multimedia tools. The distro includes work-alikes for other MS-Windows programs as well. Here's a partial list:

Windows program	Comparable Linux program
Adobe Illustrator (tm)	Inkscape
Nero (tm)	Graveman
MS-Word (tm)	AbiWord and LibreOffice
MS-Excel (tm)	Gnumeric and LibreOffice
MS-Outlook (tm)	Thunderbird
Outlook Express (tm)	Claws Mail
Quicken (tm)	GnuCash
PageMaker (tm)	Scribus
Photoshop (tm)	The GIMP
Visio (tm)	Dia
Windows Media Player	Dozens of programs

4.19. **MS-Windows filesystem support.**

All versions of the distro support NTFS and FAT32 (the most common MS-Windows filesystems). In fact, this distro is sometimes able to mount and repair corrupted NTFS filesystems that MS-Windows itself can't handle.

4.20. **VNC desktop.**

All versions of the distro include a VNC desktop. This feature is similar to **PC-Anywhere (tm)**. It's useful for Internet presentations and remote access.

4.21. **Startup speed.**

The distro starts faster than most GNOME or KDE distros stored on comparable media. In some cases, system boots are up to three times faster. Note: System services are started in parallel. This helps to speed things up.

4.22. **Chess programs.**

The distro provides a large set of chess programs, including two chess GUIs, eleven chess engines, and two variant games.

4.23. **Games collection.**

Large versions of the distro provide numerous additional games, including little-known but amusing games such as **Bananas, Battalion, Briquolo, BubbMan 2, Burger Space, Chromium B.S.U., Deliantra, Fish Supper, Frozen Bubble, Mirror Magic, Fydo's Pillows, Old West, Powermanga, Pingus, SDL Asylum, Secret Maryo Chronicles, Simutrans, Smokin' Guns, Snake Bite, SolarWolf, SuperTux,** and more.

4.24. **E-Text library.** Most versions of the distro include Creative Commons books and similar items. Large versions include **Accelerando** (Charles Stross's award winning novel), **Free Culture** (Lawrence Lessig's book about intellectual property), **Bound by Law** (a 75-page graphic novel from Duke University), **Anything You Can Do** (a classic S.F. book), and more.

4.25. **Unique programs.** This distro includes some unique programs and modified versions of standard programs.

4.26. **Programming languages.** Large versions of this distro support 'C' and C++ (both gcc3 and gcc4), multiple FOSS versions of Java, **Tiny CC** (tcc) 0.9.24, Perl 5, Python 2.6, Tcl/Tk 8.5, PHP 5, Fortran 77 and 95, Chicken, Common Lisp, CSharp, Guile (a version of Scheme), Lua 5.1, Objective Caml, Octave (similar to Matlab (tm)), R (a statistics-oriented language), Ruby, **SDL Basic**, bash 3, tcsh 6, and several types of assembly languages.

The Perl, Python, and Tcl/Tk frameworks include many frequently-used add-ons (except on MiniCDs, which use trimmed-down copies of the frameworks).

Numerous additional frameworks and libraries are provided, including Allegro, Alsa, Boost, ffmpeg (libav*), FLTK 1.1 and 1.3, Fox Toolkit, most of GNOME, GStreamer, GTK+ (1, 2, and 3 -- all three series are supported), Qt3, Qt4, SDL, TeX (including all of TeX Live 2011), WxPython and WxWidgets, etc.

The most important omission is KDE. Presently, there are no plans to support KDE, but it hasn't been ruled out as a possible addition for the future.

Additionally, there are MS-Windows-related toolsets named MinGW and **I'm Cross**. These toolsets make it possible to build 'C' and C++ programs under Linux for MS-Windows. MinGW is generally the better choice but both toolsets are useful for cross-development purposes.

4.27. **Multiple Java environments.**

As noted above, this distro provides multiple FOSS versions of Java. Java environments and components include:

- a. Five Java compilers: **IcedTea6, IcedTea7, GNU gcj 4.6.2, Eclipse ecj 3.7,** and IBM **jikes**. Note: **IcedTea6** and **IcedTea7** are roughly equivalent to SUN JDK6 and JDK7, respectively.

- b. Five Java virtual machines: **IcedTea6**, **IcedTea7**, GNU **gcj** 4.6.2, **cacao**, and **jamvm**.
- c. GNU **classpath**. This is a set of Java runtime libraries provided for use with **cacao**, **ecj**, and **jamvm**. The **IcedTea6**, **IcedTea7**, and **gcj** environments provide their own libraries.

IcedTea6 and **IcedTea7** are compatible enough with the standard Sun JDKs that they can be used for serious Java development. The other Java components and environments are intended primarily for educational and testing purposes.

4.28. **Social networking.**

Large versions of the distro provide social networking programs, including an IRC server (**ngircd**), five IRC clients (**chatzilla**, **irssi**, **pidgin**, **weechat**, and **xchat**), weblog programs (**Chronicle** and **WordPress**), an easy-to-use wiki (**QWikiWiki**), the **Flock** web browser, a MUD/MOO server (**ErisMUD**), and a Twitter client (**Mitter**).

Note: **Second Life** support has been dropped for technical reasons.

4.29. **Filesystems.**

The distro supports a wide range of filesystems, including but not limited to CROMFS, Ext2, Ext3, FAT (or VFAT), ISO9660, JFS, Minix, NTFS, ReiserFS-3, SquashFS-XZ (i.e., XZM files), and XFS. ZIP files may be mounted as read-write filesystems, up to reasonable size limits.

Some versions of the distro support ZFS, which includes RAID features. Apple support is under development.

Note: Access to some filesystems requires that associated tools be used. For example, NTFS and ZFS support is provided by tools from packages named **ntfs3g** and **fusezfs**, respectively.

4.30. **Docking.**

LiveDistro versions of this distro can dock themselves to permanent storage. Several types of docking are supported.

4.31. **Device names.**

Most Linux distros use obscure names such as **/dev/hdc** or **/dev/sr0** for CD/DVD drives. This distro supports the obscure names, but it also provides human-readable names similar to:

/dev/cdreader	/dev/cdreaders/CRW2500
/dev/dvdwriter	/dev/dvdwriters/Pioneer-1500A
etc.	

5. Limitations.

This distro is still under development. As of 2012, prototypes have limitations in various areas. Examples include:

Help system and documentation in general. This is the most significant issue. Numerous points still need to be documented.

Printer support. Printer drivers are provided but have not yet been tested.

Installer. LiveDistro copies (for example, compressed thumbdrive versions) can morph themselves into uncompressed hard-disk copies. However, a manual procedure must presently be used to do this; a hard-disk installer has not been written yet.

6. Requirements.

6.1. **Processor (CPU):** This distro requires a 686 CPU or better. **Note:** If you have an old 486 or 586 system, try DeLi Linux, Damn Small Linux Not (or DSL-N), etc.

6.2. **Memory (RAM):** Hard-disk versions of this distro should be able to run with relatively low amounts of RAM, provided that the tips below are followed to the extent possible. LiveDistro versions will need additional RAM.

As a rough estimate, basic operations should be possible for both hard-disk and LiveDistro versions on systems that have 512MB of RAM. If memory is this low, the additional of 256MB or 512MB of swap space is recommended.

If swap space can't be added, 256MB of RAM (by itself) will be enough for some purposes. However, without swap space, some operations will cause the distro to slow down or crash.

As a related note, the following tips may allow the distro to function in this situation (low memory and no swap space):

- a. Don't run multiple programs at the same time.
- b. Close Mozilla (tm) -based web browsers when you're not using them -- these programs use a lot of memory. Additionally, don't open more than a few browser tabs at the same time.
- c. Avoid large compiles.
- d. Use lightweight browsers when possible. **dillo**, **midori**, and **netsurf** may be good choices.
- e. Under a LiveDistro, be careful to store large files in mounted disk partitions and not in LiveDistro (i.e., RAM disk) directories.

6.3. **USB:** If you're using a Flash (or USB hard disk) LiveDistro, USB 2.0 is required. USB 1.X hardware is too slow.

6.4. **Hard disk:** You don't need a hard disk unless you're using a hard-disk version of the distro. However, hard disks are useful, because they make it possible to add "swap space".

6.5. **Video hardware:** Most modern video cards should work. Additionally, this distro enables accelerated graphics automatically where possible.

6.6. **Scanner:** This distro uses SANE scanner drivers. SANE supports quite a few old scanners, but support for new scanners is limited. For a list of supported devices, visit the SANE web site at www.sane-project.org.

Appendix A. Structure of distro.

This appendix is intended for sysadmins and developers. If you're an end user, you may wish to skip it.

A.1. This distro was created from scratch. The core system isn't based on any existing OS. However, the distro as a whole uses programs and patches from many other distros (for example, Debian, Gentoo, Peanut Linux, Slackware, and LFS/BLFS). Components were selected manually and modified as necessary.

Note: This isn't a "Linux From Scratch" distro (i.e., a distro based on the LFS/BLFS books). However, it uses LFS and/or BLFS patches.

A.2. The original goal was to create a fast and lightweight LiveDistro (a Flash distro, in particular) aimed at UNIX CLI users, as opposed to MS-Windows users. Ironically, the end result resembles Windows NT visually.

A.3. There's a "master" version of the distro that runs on IDE or USB hard disks. The master version can remaster itself to produce LiveDistros of various sizes. The LiveDistros use Tomas Matejcek's Linux Live technology.

A.4. Software packages were selected to maximize functionality at each distro size. MiniCD versions of this distro are comparable to Damn Small Linux Not (also known as DSL-N). They fit a variety of programs into roughly 200 MB. Larger versions of this distro aren't directly comparable with other operating systems. They're missing some important pieces, but they're useful for numerous applications. **Note:** For a short list of missing pieces, see [section 5](#).

A.5. The "master" distro includes a package "build" system. The "build" system builds programs from source code and installs them. It uses human-readable configuration files (one configuration file per package).

A.6. There's a package "build" system, as explained above. However, there's no stand-alone package "install" utility. Therefore, there's no way to install DEB packages, RPM packages, or similar packages directly. Some related notes:

- a. Although there's no way to install DEB and RPM packages directly, you can use **deco**, **dpkg**, **peazip**, and/or **xarchiver** to unpack DEB or RPM archives.

- b. This is a "monolithic" distro, which means that most software is pre-installed. This is necessarily the case, since one goal is to produce ready-to-use LiveDistros. Therefore, package "installers" haven't been a priority so far.

A.7. MiniCD, CD, MiniDVD, and DVD versions of the distro include GRUB menus. The GRUB menus can be used to boot the CDs or DVDs themselves, other LiveDistro copies (for example, Flash or iPod versions), hard-disk versions, etc.

A.8. The distro provides one (and only one) desktop environment. It's a combination of several lightweight components. Various features have been added, including human-readable menu definitions, "single instance" support, **MozRepl**-based browser control, etc.

A.9. Eventually, most desktop icons will support dual-mode operation: **a.** If you left-click on an icon, it'll bring up a web page about the application (and you'll be able to run the application from the web page). **b.** If you use "drag and drop" to drop a data file or directory folder on the icon, it'll send the file or the folder to the application.

A.10. The directory structure used is semi-unique. GoboLinux does something similar. As of 2012, it's not clear that any other major distros do so.

Details: Most Linux distros mix packages together, separating related files and creating gigantic piles of unrelated files. This distro uses a different approach: Separate directory trees are created for individual packages (or for groups of related packages). To simplify things, program files are "symlinked" back to standard **bin** directories and other locations.

Under this approach, most of the files associated with a package are stored together. This approach offers two important advantages:

- a. It simplifies package-related operations. For example, when this approach is used, it's easy for sysadmins to create new package tools using Perl or Python.
- b. It allows people to use conflicting versions of libraries and/or programs concurrently on the same system. This feature requires some manipulation of `PATH` and `LD_LIBRARY_PATH` settings, but it's possible.

This approach still creates large directories, but they're full of symlinks (as opposed to files). For example, this distro's **/usr/bin** directory is fairly large, but it contains very few actual files. The contents are mostly symlinks instead. It's easier to work with directories of this type. For example, symlinks tell you the package that each item belongs to. There's no need for an external database. Additionally, you can rebuild directories of this type if they're damaged.

A.11. Due to the directory structure used, this distro isn't FHS-compliant. This isn't important, because FHS is useful primarily to ensure that an OS is

compatible with third-party programs (for example, commercial software), and this distro isn't intended for use with third-party programs.

Note: As of 2011, this distro seems to work with some third-party programs, even though it's not FHS-compliant. However, third-party programs often require adjustments to PATH and LD_LIBRARY_PATH.

A.12. This distro doesn't set a default password for the **root** account. Additionally, when the system boots, the default mode is to run as **root** (though a **guest** option is provided).

Security experts would view these conventions as questionable. However, this distro is intended primarily for LiveDistro use. **root** passwords make little sense for most LiveDistros. The pros and cons of **guest** vs. **root** operation in this context are also debatable.

A.13. This distro uses Linux kernels from the 3.X series. The kernels have been patched to add various features (such as **aufs** support).

Note: Some sysadmins prefer to use "vanilla" (i.e., unpatched) kernels. However, vanilla kernels won't work correctly with this distro. If you need a distro that supports vanilla kernels, try Arch Linux or Slackware.

A.14. A note about this document: The master version of this document is written in a variant of Restructured Text that provides some distro-specific features. The Restructured Text version is used to generate HTML, PDF, MS-Word, and dynamic (i.e. PHP) versions of the document.