KNOPPIX.net
FROM ZERO TO **LINUX** IN 5 MINUTES

From Knoppix Documentation Wiki

This is a guide that will show you how to remaster KNOPPIX. The command lines within "Instructions" and "Remastering the ISO" are tested with Knoppix V6.4.4CD. Please do not use old versions of Knoppix!

Contents

Instructions

Setting up for Remastering

- Boot from the *Knoppix CD*
- Open a root shell: Menu->Accessories->Root Shell
- Configure your Internet connection. If you use DHCP, it should already be configured.
    - Note: Run **ifconfig** to check.
- Find the partition you will use to work on. In this example it is called **sda1**. The partition should have a minimum of 5 GB free space.
- Mount the partition:

```
mount -rw /dev/sda1 /mnt/sda1
```

- Note: Make sure that it is read/write or you will get errors when you later chroot. To check: run **mount**
- You need a root directory **/knx** to work in; if you put all your files here it will be easy to clean up. Two sub-directories will be used, one for the Master-CD.

```
mkdir -p /mnt/sda1/knx/master
```

- You will need a swapfile:

```
cd /mnt/sda1/knx
dd if=/dev/zero of=swapfile bs=1M count=500
mkswap swapfile ; swapon swapfile
```

- Make a sub-directory for the source:

```
mkdir -p /mnt/sda1/knx/source/KNOPPIX
```

- Now, copy the KNOPPIX files to your source directory :
    - Note: This will take a long time (you are copying 2.4 GB).

```
cp -rp /KNOPPIX/* /mnt/sda1/knx/source/KNOPPIX
```

- Additionally, copy the files to build the ISO later:

```
rsync -aH --exclude="KNOPPIX/KNOPPIX" /mnt-system/* /mnt/sda1/knx/master
```

- Setup the environment for chroot:

```
mount --bind /dev /mnt/sda1/knx/source/KNOPPIX/dev
mount -t proc proc /mnt/sda1/knx/source/KNOPPIX/proc
mount -t sysfs sysfs /mnt/sda1/knx/source/KNOPPIX/sys
```

- To use the Internet you need to edit 'resolv.conf' to add your nameserver or copy the outer 'resolv.conf' into the chroot folder:

```
rm -f /mnt/sda1/knx/source/KNOPPIX/etc/resolv.conf
cp /etc/resolv.conf /mnt/sda1/knx/source/KNOPPIX/etc/resolv.conf
```

- In case of proxies (a.k.a. doing it at work) you can type:

```
export http_proxy="http://myProxy:8080"
alternative
export http_proxy="http://username:password@myProxy:8080"
```

- Also change smb.conf to your MS group if you want smbd support (MSHOME is XP Home ed. usually, and WORKGROUP is 9x Windows)

Working in the Chroot Environment

- Now you can "chroot" into the copied KNOPPIX:

```
chroot /mnt/sda1/knx/source/KNOPPIX
```

- Remember that anything you do or create in the chrooted environment will get burned to the CD.
- Update your package list with: **apt-get update**
    - **Warning**: apt-get upgrade is a *BAD IDEA*. It will, quite probably, render your KNOPPIX remaster unbootable, or broken in some way. A far safer method is to only upgrade packages as necessary.
    - Before you can add stuff, you will probably need to remove some packages.
- To get a list of packages installed, type this:

```
dpkg-query -l
```

-
    - Hint: Use kn-what (http://www.wp-schulz.de/knoppix /kn-script.html#kn-what) to get lists of installed packages sorted by size etc.
- To remove a package (and all packages dependant on it), type this:

```
apt-get remove --purge name-of-package-to-remove
```

- To check for orphaned packages, type this:

```
deborphan
```

- Want to save more space by getting rid of those pesky orphans (how cruel!), type this (**Warning**, you won't be prompted yes/no to remove these packages. When you press Enter after this command, those packages *will be gone*):

```
deborphan | xargs apt-get -y remove
```

- If you're uncertain about the previous command and want to see what will happen without making any changes, just add the **-s** option to the apt-get command like this (you can do this with all of the apt-get commands, and it's a good habit to use this option before mass operations like this one):

```
deborphan | xargs apt-get -s -y remove
```

- Now the good stuff. If you wish to add a package, type this:

```
apt-get install "name-of-package-to-install"
```

- What, don't know exact name of packages to install?

```
apt-cache search "searchterm"
```

- When you're done removing and adding packages, a good way to clean up is by typing this:

```
apt-get clean
COLUMNS=200 dpkg -l |grep ^rc |awk '{print $2} ' | xargs dpkg -P
```

Leaving the Chroot

- Press **CTRL+D** to leave being chrooted.

```
umount /mnt/sda1/knx/source/KNOPPIX/dev
umount /mnt/sda1/knx/source/KNOPPIX/proc
```

```
umount /mnt/sda1/knx/source/KNOPPIX/sys
```

Changes outside from chroot enviroment

- If you want another way to start with Knoppix, make changes in '/mnt/sda1/knx/master/boot/isolinux/isolinux.cfg':
    - for example replace all 'tz=localtime' with 'tz=America/New_York'
- You can append in this file cheatcodes, which you need all the time:
    - for example write 'no3d' (without ' ') to each Append line, if you don't like compiz 3d
- Read **knoppix-cheatcodes.txt**. You can find the newest version of this file on the Mirrors (http://www.knopper.net/knoppix-mirrors/) .
- In '/mnt/sda1/knx/source/KNOPPIX/etc/X11/Xsession.d/45knoppix' you can find, which wallpaper Knoppix uses or which startup-sound.
- In '/mnt/sda1/knx/source/KNOPPIX/etc/init.d/knoppix-halt' you'll find which sound you hear during shutdown.
- Create a file '/mnt/sda1/knx/master/KNOPPIX/knoppix.sh' in order to start additional services.
- Perhaps you like Knoppix with a graphical Boot-Menü (http://www.wp-schulz.de/rettung.html#presc) .

Remastering the ISO

- We've finished customizing and ready to burn! First do some cleanup in '/mnt/knx/source/KNOPPIX/tmp/'

KNOPPIX Compressed Image

- Now we'll make the big KNOPPIX file which is an ISO 9660 filesystem compressed for use by the cloop driver.
    - Hint: Copy and paste each of the three following command lines in the root shell in a single line.
- genisoimage -R -U -V "KNOPPIX.net filesystem" -publisher "KNOPPIX www.knoppix.net" -no-bak -quiet /mnt/sda1/knx/source /KNOPPIX | /usr/bin/create_compressed_fs -B 65536 -f /mnt/sda1 /knx/isotemp - /mnt/sda1/knx/master/KNOPPIX/KNOPPIX

Live CD ISO

- First, update the file hashes used by the "testcd" boot option:
- `cd /mnt/sda1/knx/master ; find -type f -not -name sha1sums -not -name boot.cat -not -name isolinux.bin -exec sha1sum '{}' \; >> KNOPPIX/sha1sums`
- Now to create the image; for Knoppix:
- `genisoimage -l -r -J -V "KNOPPIX" --publisher "KNOPPIX www.knoppix.net" -b boot/isolinux/isolinux.bin -no-emul-boot -boot-load-size 4 -boot-info-table -c boot/isolinux/boot.cat -o /mnt/sda1/knx/remasterd.iso /mnt/sda1/knx/master`
- The ISO is stored in '/mnt/sda1/knx/remastered.iso'
    - Hint: Test the ISO for example with VirtualBox before burning with your favorite tools.

- End of **revised version** of this HowTo

Old stuff of this HowTo

- Be aware, **all in this chapter may work or not** - I didn't tested it!

Autorunning Programs

When you want to autorun some programs, one can create a script and put it in the directory `/etc/rc5.d/` (This only loads items before X loads). Read up on the SysV init process for more possibilities. For v6.0 and later, put the script in /etc/init.d, then add it to the SERVICES variable in /etc/rc.local.

For X-programs consider `/home/knoppix/.kde/Autostart` but this may transfer form `/etc/skel/.kde/Autostart` on boot--12.106.237.2 18:08, 7 December 2007 (UTC)

Editing the KNOPPIX auto-configuration script

You can find a lot of interesting information about how KNOPPIX auto-configures you system by looking in the /etc/init.d/knoppix-autoconfig script. Of particular note are the following.

Changing the default KDE background image

The auto-configuration script sets the default KDE background image to be an image from the CD-ROM. An image that you can easily change when you are remastering KNOPPIX.

- In KNOPPIX 3.4 and above it is /cdrom/KNOPPIX/background.jpg

Editing floppy and CD-ROM use or adding a custom script

The auto-configuration script sets up both your CD-ROM and your floppy disk. The commands for doing this are 'floppyconfig' and 'cdromconfig', respectively. The auto-configuration script will also run cdrom/KNOPPIX/knoppix.sh, which is an easy script to change when remastering KNOPPIX.

Knoppix 6.1 ignores the knoppix.sh file. use the overlay-(ext2)filesystem /mnt/system/KNOPPIX/knoppix-data.img instead.

Changing the default boot parameters

All boot parameters obtain default values from the /etc/init.d/knoppix-autoconfig script. This is one massive BASH script (you best know your BASH to play with this), but it is the place that you can edit any of the default boot parameters. For example, to switch from 'kde' to 'twm' as default desktop just search for the place where 'kde' is provided as default value (variable DESKTOP, IIRC). Another example would be changing the default language.

Note, if you are interested in changing the default language KDE uses, the easiest thing to do is to load KDE, instructions are below, and use the KDE configuration utility to select your language of interest.

X Session Configuration

When working with X-based programs you will have to make sure that your display is set appropriately. You can do this manually when remastering KNOPPIX. Also, two scripts related to X Session is where you can change or disable the startup and shutdown sounds.

Starting X-based programs

When testing X-based programs, you will have to

```
export DISPLAY=localhost:0.0
```

which will allow you to connect to your normal X session. Alternately (if you need to test window managers), you can create a nested X session. Outside of the chroot, run

```
Xnest -ac :1
```

Within the chroot, set your DISPLAY variable

```
export DISPLAY=localhost:1
```

Interesting stuff in /etc/init.d/xsession :

- it ALSO sets background as /usr/local/lib/knoppix.gif

Modifying/Disabling the startup sound

The startup sound is played by /etc/X11/Xsession.d/45xsession. You can disable it by commenting out the following lines.

```
playsound(){
# Play sound if soundcore module present (checking /dev/sndstat is unreliable)
# OGGPLAY=/usr/bin/ogg123
# PLAY=/usr/bin/wavp
# [ -x "$PLAY" ] || PLAY=/usr/bin/play-sample
# [ -x "$PLAY" ] || PLAY=/usr/bin/play
# if [ -x "$OGGPLAY" -a -f /usr/share/sounds/startup.ogg ]; then
# case "$(lsmod)" in *sound*) { $OGGPLAY -q -p 64 /usr/share/sounds/startup.ogg >/
# elif [ -f /usr/share/sounds/startup.wav -a -x "$PLAY" ]; then
# case "$(lsmod)" in *sound*) { $PLAY /usr/share/sounds/startup.wav >/dev/null 2>&
# fi
}
```

Modifying/Disabling the shutdown sound

The shutdown sound is played by /etc/init.d/xsession. You can disable it by commenting out lines 210-220 from the script.

```
## Play informational sound if soundcore module present
## (checking /dev/sndstat is unreliable)
#OGGPLAY=/usr/bin/ogg123
#PLAY=/usr/bin/wavp
#[ -x "$PLAY" ] || PLAY=/usr/bin/play-sample
#[ -x "$PLAY" ] || PLAY=/usr/bin/play
#if [ -x "$OGGPLAY" -a -f /usr/share/sounds/shutdown.ogg ]; then
#case "$(</proc/modules)" in *sound*|*snd_*) { $OGGPLAY -q -p 64 /usr/share/sound
#elif [ -f /usr/share/sounds/shutdown.wav -a -x "$PLAY" ]; then
#case "$(</proc/modules)" in *sound*|*snd_*) { $PLAY /usr/share/sounds/shutdown.w
#fi
```

Change default window manager

Open /etc/init.d/knoppix-autoconfig and look for lines which look like these:

```
# Allow only supported windowmanagers
```

```
# Actually, this check is useless because it's done again in 45xsession. -KK
# case "$DESKTOP" in gnome|enlightenment|kde|larswm|xfce|xfce4|lg3d|ratpoison|blackbox|openbox|windowmaker|wmaker|
[ -n "$DESKTOP" ] || DESKTOP="kde"
```

Then, change "kde" in the last quoted line to whatever you like, for example to "fluxbox" or "twm".

Changing the boot graphic, boot message, and startup script text

While you are in the chroot environment you can easily change the boot messages, the boot graphic, and the default KDE background graphic.

Changing the boot graphic

The 'boot graphic' is the first image you see when the CD or DVD boots. It looks similar to ASCII art and it is normally something flashy that says 'Knoppix'. You can change this to be any graphic that you please, but you must use a 640x400 graphic that has only 16 colors.

1. Change to the /mnt/sda1/knx/master/boot directory. Swap '/mnt/sda1/' for whatever disk you are using.

   - ```
     cd /mnt/sda1/knx/master/boot/isolinux
     ```

2. Back up your old logo in case you break things.

   - ```
     mv logo.16 logo.16.backup
     ```

3. Make a 640x400 pixel 16 color graphic and save it as a GIF, e.g. 'logo.16.gif'. GIMP can easily do this. Note, you can use a graphic that originally had more than 16 colors, but it is critical that you convert the graphic to 16 colors before doing the next step.

4. Convert the GIF to lss16 using the tools included on the Knoppix CD.

   - ```
     giftopnm < 640x400x16.gif > logo.ppm
     ```

   - ```
     ppmtolss16 <logo.ppm > logo.16
     ```

Changing the boot message

The 'boot message' is the message that you see under the 'boot graphic' on the initial screen when the Knoppix CD or DVD loads. It normally says something

along the lines of Knoppix with the version number and includes a link to the Knoppix website. You can change this text to be whatever you please, but you shouldn't add too much text or it will make the boot screen look funny. Restricting yourself to a single line of text that is no larger than the default one is a good idea.
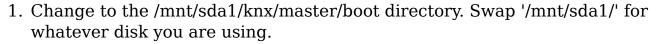
1. Change to the /mnt/sda1/knx/master/boot directory. Swap '/mnt/sda1/' for whatever disk you are using.

   - ```
     cd /mnt/sda1/knx/master/boot/isolinux
     ```

2. Back up your old message in case you break things.

   - ```
     cp boot.msg boot.msg.backup
     ```

3. Edit the message with a text editor. You'll see at the top of the message that it shows the graphic. Don't change this text, just the line under.

   - ```
     vi boot.msg
     ```

Changing the startup script text

The 'startup script text' is the text that you see after the initial boot screen, while Knoppix loads and configures your system. You can change as much of this text as you please. You can even add addition lines to the script; however, it is recommended that you don't play with this file. Limiting yourself to editing the 'Welcome to KNOPPIX' message is a good idea.

1. Change to the /mnt/sda1/knx/master/boot directory. Swap '/mnt/sda1/' for whatever disk you are using.

   - ```
     cd /mnt/sda1/knx/master/boot/isolinux
     ```

2. Back up your old minirt.gz in case you break things.

   - ```
     cp minirt.gz minirt.gz.backup
     ```

3. Make a temporary directory to copy the minirt filesystem.

   - ```
     mkdir todelete
     ```

4. copy minirt.gz to the temporary directory

   - ```
     cp minirt.gz ./todelete
     ```

5. move to the temporary directory

- ```
  cd todelete
  ```

6. Uncompress minirt.gz

- ```
  zcat minirt.gz | cpio --extract --no-absolute-filenames
  ```

7. Edit the linuxrc script to display the message you want. You'll find the default message approximately 2 pages down and it'll be using several colors, i.e. ${WHITE}, ${RED}, etc., so it might be slightly tricky to spot.

- ```
  gedit init
  ```

8. recreate the minirt.gz file

- ```
  find . | cpio --quiet -o -H newc | gzip -9 > ../minirt.gz
  ```

9. Move out of the temporary directory

- ```
  cd ..
  ```

10. Remove your temporary directory.

- ```
  rmdir todelete
  ```

For 5.3.1 the file system in minirt changed to ramfs.

The ramfs file system (http://en.wikipedia.org /wiki/Initramfs#Initramfs_in_comparison_with_initrd) operates off a gzipped cpio archive of the desired file tree.

1. To access the files in minirt.gz, start by copying minirt.gz from master/boot /isolinux to an empty temp directory.
2. In the temp directory do the following:

- ```
  gunzip minirt.gz
  ```

- ```
  mkdir minirtdir
  ```

- ```
  cd minirtdir
  ```

- ```
  cpio -ivu --no-absolute-filenames < ../minirt
  ```

3. You should now have the minirt directory tree under minirtdir . Make your mods to files.

4. To wrap it backup up, in minirtdir:

   - ```
     find . | cpio -oH newc | gzip -9 > ../minirt.gz
     ```

5. Copy minirt.gz back to master/boot/isolinux

Launching KDE to Change Menus, Icons, etc.

```
Note: Knoppix 6+ uses LXDE (Lightweight X11 Desktop Environment) not KDE.
      To capture your GUI setup on a running copy of knoppix 6+:
      * tar up the /home/knoppix directory
      * use that to replace /home/knoppix in .../knx/source/KNOPPIX.
```

While you are in the chroot environment you can load KDE and use the configuration tools to change buttons, icons, etc. Once you are finished you can exit KDE and copy /home/knoppix to /etc/skel to keep these changes. To load KDE do the following.

1. If you are not at runlevel 2 (i.e. if you are already in KDE), switch to runlevel 2.

   - ```
     init 2
     ```

2. Copy /etc/skel to /home/knoppix

   - ```
     cp -Rp /etc/skel /home/knoppix
     ```

3. Change permissions to the user 'knoppix'

   - ```
     chown knoppix:knoppix -R /home/knoppix
     ```

4. Copy over your X11 configuration to the chroot'd environment (press ctrl+alt+F2 to switch to a non-chroot'd terminal, then ctrl+alt+F1 to switch back when done)

   - ```
     cp /etc/X11/xorg.conf /mnt/sda1/knx/source/KNOPPIX/etc/X11
     ```

     - *Knoppix 3.7: I think it's XF86Config-4 rather than xorg.conf.*

5. (Optional)Switch to user 'knoppix'. If you want to uninstall packages, stay as root -- e.g. skip this step. If you want to configure the buttons, icons, background, etc., that you see when KDE boots, be sure to do this step.

```
su knoppix
```

1. Launch KDE

```
startx
```

2. Do your KDE changes
3. Exit KDE
4. Exit su and switch back to user 'root'.

```
exit
```

6. Copy /home/knoppix back to /etc/skel to keep the changes

```
mv /etc/skel /etc/skel-old
```

```
mv /home/knoppix /etc/skel
```

7. Set the owner back to root

```
chown root:root -R /etc/skel
```

8. Remove the xorg.conf file

```
rm /etc/X11/xorg.conf
```

9. If you find that some of your settings are not persistent after booting the new image, check the initialization file at /etc/X11/Xsession.d/45xsession. By default, Knoppix does **not** simply copy over all files from /etc/skel. You may need to make modifications here if you wish to do something different.

Changing the ksplash KDE graphics

You can change the graphics that KDE shows via ksplash when it first loads. These graphics are in the **/mnt/sda1/knx/source/KNOPPIX/usr/share /apps/ksplash/Themes/Default/** directory. You'll most likely want to swap out **splash_top.png** for a custom 400x248 PNG graphic. Note that ksplash will not automatically put a border around your graphic. If you'd like a border, you have to manually add it to your graphic.

How to add new device driver to KNOPPIX

Recently in a client project, I added the Digital Persona's finger print driver to the Knoppix 5.1 distribution as an embedded solution to this project. This is a typical case where both the kernel level driver and the user level drivers and libraries are involved.

Most of the Knoppix books and online documentation have documented about how to keep a persistent storage of user configuration and user data. But those persistent configuration only saves the data in /home and /etc directories. If you have added kernel level drivers and/or other system libraries which are not in above two directories, you have to save the file images as a whole right after the boot. The saved file image can be big and may not what you want as a regular usage model. If you are building a customed Knoppix image for a long term solution, definitely you want to remaster the Knoppix to make the new drives be a permanent part of it.

The Digital Persona's OneTouch SDK for their finger print scanner driver comes with a kernel level driver source code, plus a set of user level application libraries, as well as a sample test application. The SDK do not have a ready made binary for Debian or Knoppix. So I have to compile it from the source SDK. However, the CD version of Knoppix 5.1 do not even come with the source include header files to compile a kernel level driver. So I have to compile it under the DVD version of the Knoppix 5.1 and copy the compiled binary to the CD version of Knoppix 5.1 to do testing and remastering. The steps I have tried to make it work under Knoppix are as follows:

1. First compile the driver under DVD version of the Knoppix. Change the source code build scripts so that the include files and library path are matching what we have in Knoppix. The details are specific to the OneTouch SDK itself. If you are interested about this detail, write to me.

2. Install the just built kernel driver, the user libraries to their regular location as we will show in following step 4. And then build and run their sample applications per Digital Persona's instruction. This proves that the basic kernel module build steps are built correctly and the user level libraries are working properly in a standard installation. This is important before we moved to chroot environment to make this changes permanent to our remastered Knoppix.

3. Then I followed the Knoppix remastering instructions documented in the book of "Live Linux CD" by Christoper Negus.

4. In the above remastering instructions, there is a step to update all the Debian packages and other software under the chroot environment. It is at this step that I re-run the drivers installation steps like I have done in above step 2 in the real root environment. In this particular case, it is make a directory and copy the kernel module file mod_usbdpfp.ko to that directory as follows:

mkdir /lib/modules/2.6.19/kernel/drivers/biometric cp mod_usbdpfp.ko /lib/modules/2.6.19/mod_usbdpfp.ko

And also copy all those Digital Persona user level libraries to following location:

cp libdpfp* /usr/lib

5. I then run /sbin/depmod to let system detects the new kernel mode driver I have installed. This will refresh the /dev directory so it will have entries like:

/dev/usbdpfpPNP /dev/usbdpfp0

At this time, if all works right, when you run command lsmod, you will also see something like:

mod_usbdpfp

shows up in the loaded module list

6. At this time, you are ready to make a remaster of the Knoppix. Next time when you boot up with this remastered Knoppix, it will have the kernel driver and user level libraries setup ready for you to run the sample applications. Just as if you have done above step 2 and step 4 right after a refresh reboot from the original Knoppix CD.

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Tips

I have had good results remastering working from the CD as root working from fluxbox. Just say "knoppix 2" at the boot prompt and it will boot you to a root prompt where you can then say "startx /usr/bin/fluxbox". I like to use the xterm unicode shell.

Package Management

While working chroot doing the remastering I like to use

```
apt-get remove --purge pkg-name
```

to remove packages because before it does anything it will stop and show details on what it is fixing to remove and let you say "yes or no".

If you don't use the above "apt-get" instructions and have a lot to cleanup and purge, here's the easy way to do it:

```
COLUMNS=200 dpkg -l |grep ^rc |awk '{print $2} ' > topurge
```

That will make a list of all removed packages to purge and then you just say

```
dpkg -P `< topurge `
```

and you're all done.

```
COLUMNS=200 dpkg -l |grep ^rc |awk '{print $2} ' | xargs dpkg -P
```

is a one-line version of this. Also use

```
deborphan | xargs dpkg -P .
```

Alternatives for Low-Memory Machines

You don't really need 1G swap as there are two new tools to create compressed filesystems. Here are some candidates to make *compressed* fs:

- Valentijn's rewrite [1] (http://projects.openoffice.nl/downloads /compressloop/)
- Quozl's port of compressloop for Knoppix 3.4 [2] (http://quozl.linux.org.au /compressloop-1.9-64bit.c)
- Quozl's distributed compressloop (use more than one processor to speed things up) [3] (http://quozl.linux.org.au/knoppix/compressloop/) or [4] (http://quozl.netrek.org/knoppix/compressloop/)
- Justin's patch [5] (http://s.bouncybouncy.net/~justin/code/) (link broken, archive.org backup (http://web.archive.org/web/20040404175835/http: //s.bouncybouncy.net/~justin/code/)) I also just wrote a distributed cloop compressor(or for smp) It's in that same directory.

Test CD Image Without Burning a CD

If you have a spare partition with at least 700MB free space formatted with ext2, ext3 or Vfat, you can use this for test by booting from a floppy disk. A floppy boot will look for a partiton with /KNOPPIX/ in the root, and the compressed image /KNOPPIX/KNOPPIX. Instead of using the sub-directory /mnt/sda1/knx/master/KNOPPIX/ as described above, it should be called /mnt/hda2/KNOPPIX/ . The root index.html will then be located at /mnt/hda2 /index.html and the compressed image will be at /mnt/hda2/KNOPPIX/KNOPPIX . Now you can boot from floppy and use /mnt/hda2 as your image. For further

information see Hd BasedHowTo.

If you don't have an extra partition or you don't want to do so much for it, you can use Qemu (see [6] (http://fabrice.bellard.free.fr/qemu/)) with the ISO image like this:

```
qemu -m 128 -cdrom /temp/knoppix-custom.iso -boot d -net user
```

You even do not have to build a hard disk image before, just install Qemu and try this. Amazing!

Knoppix 6.2 Contains Sun's VirtualBox

Virtual box can be used to test a newly generated ISO as well.

Test remastered version without creating cloop file/iso

i use a setup similar to knoppix terminal server to test the remastered files without having to recreate a cloop image every time: the remastered files live in an ext2 filesytem in a loopfile (knoppix_loop) mounted rw (this is where i chroot in). when i want to test the current setup, i have another machine network boot and use the files from the loopfile directly (needs another miniroot.gz). See User:Ml#dev_setup

If you want to use only one machine, you'll have to reboot (or use qemu) and use the "loopfile" and "fromhd" cheatcodes (see User:Ml#miniroot_changes). For example, this is what my grub boot entry looks like:

```
title           Remastered Knoppix
root            (hd0,0)
kernel          /boot/myknoppix/vmlinuz fromhd=/dev/hda4 loopfile=/samba/share/isos/knoppix_loop lang=us ramdisk_s
initrd          /boot/myknoppix/miniroot.gz
```

Booting Knoppix images with GRUB

- First copy /boot off the Knoppix cd to your boot partition (or even your dos partition). I named mine boot.knoppix

Copy the master/KNOPPIX directory to your root directory of any hard disk. You may place it somewhere other than the boot partition (ext2/3, reiserfs, vfat are supported).

- for Knoppix <= 3.3, put the following in your /boot/grub/menu.lst:

```
title KNOPPIX
        root   (hd0,0)
        kernel /boot.knoppix/vmlinuz 2 fromhd=/dev/hda4 lang=us
        initrd /boot.knoppix/miniroot.gz
```

- for Knoppix >= 3.4 or other isolinux based distributions:

```
title KNOPPIX
        root   (hd0,0)
        kernel /boot.knoppix/isolinux/linux 2 fromhd=/dev/hda4 lang=us
        initrd /boot.knoppix/isolinux/minirt.gz
```

- notice the fromhd parameter: it's the location of the /KNOPPIX directory
- reboot and have fun.

Tips around apt-get to install/update/remove applications

(by gnarvaja)

- If you booted from CD, even on a HD install (example: Pivot Install) instead of copying the original CD and KNOPPIX directory to the HD, you can use them directly from their mount points.
- Another alternative is to mount an ISO image of the original CD as a loop device and mount the KNOPPIX image as a **cloop** device. You will save close to 2GB of space. Script to mount from an ISO image:

```
#!/bin/bash
# Assumes that the current directory is the working space
# original.iso is an image of the CD we will be using as master
mount -t iso9660 original.iso ./oldcd -o ro,loop
# initialize the compressed loop device
losetup /dev/cloop1 ./oldcd/KNOPPIX/KNOPPIX
mount -t iso9660 /dev/cloop1 ./KNOPPIX -o ro,loop
```

- Get **apt-spy** and use it to modify the sources.list file with the best mirrors for your particular region. This will speed up the downloading. Backup the original **sources.list** just in case.
- Another technique is to modify **sources.list**. Replace the string **.de.** in the ftp addresses (ftp.de.debian.org) with the code corresponding to your country. Examples: USA -> .us. (ftp.us.debian.org), Brazil -> .br. (ftp.br.debian.org). Check the Debian site for debian.org mirrors in your country.
- Remember to uncomment the **linuxtag** ftp addresses to get the latest and greatest from Knoppix

- Use **apt-get update** to get the lists with the latest releases and patches. Do not update a package if you don't need to, it may lead to the use of additional disk space (precious commodity when you want to keep everything below 700MB) and you may brake something else without knowing. Abuse the **-s** option to simulate the installation.
- Before doing the update, I modified my default releases to **testing**, that means that the software I'll be using will have a good balance of stability and features. Knoppix uses **unstable** by default, which is too risky for my personal taste.
- Get **[apt-get install] locale** and configure it with the locales you are going to use. It will save lots of space when downloading applications with plenty of locale modules and localized manual pages.
- I use **aptitude** to get/remove applications, it is character based so it works with init 2. As you mark packages for install/update/removal, it will tell you how much disk space you will save/use, try to solve depencies problems and give you plenty control to fix them manually when possible.
- When installing applications it is likely that your **/etc/rc?.d** directories will have new entries, many of them unwanted or unplanned. Make sure you check them and remove the new entries based on your preferences. I usually leave **/etc/rc2.d** and **/etc/rc5.d** as close as the originals as possible and modify **/etc/rc3.d** and **/etc/rc4.d** to test new stuff. **Example:** You may want to have ntfs installed, but not necessarily running by default. Same with apache, mysql and many others.
- When removing/purging applications, they may leave behind non-empty directories. Usually this is announced by aptitude, apt-get or any other installation utilty. Make sure to check the messages and manually remove those directories.
- After you are done, **aptitude** may leave some files behind. Here's a clean up script I use:

```
# !/bin/bash
# Clean package files generated by aptitude
rm /var/log/aptitude
rm /var/lib/apt/lists/*debian*
rm /var/lib/apt/lists/*knoppix*
```

Common Problems

- /dev/null: Permission Denied Chroot problems accessing device files

- You've `startx`'d (into whatever window manager you like) and you start a terminal (gnome-terminal, konsole, xterm). Nothing happens (such is the case in fluxbox, and you'll see an error in you `~/.xsession-errors` file). Or

perhaps the error is helpfully displayed:

```
get_pty: not enough ptys
```

I had plenty yesterday... but then I `chroot`ed so, to solve this,

```
# NOT in your chroot environment
cd /mnt/sda1/knx/source/KNOPPIX/dev
MAKEDEV pty
```

```
# enter your chroot environment
chroot /mnt/sda1/knx/source/KNOPPIX/
```

```
# and mount /dev/pts
mount -t devpts /dev/pts/ /dev/pts
```

it might give that same "fstab not found" error as mounting proc does. so do what you'd do then, disregard.

start your X up again and try your terminal, should work. thanks to: technovelty[7] (http://www.technovelty.org/linux/tips/xinchroot.html) for the final enlightenment

See also

If my howto is too confusing, or you'd like a second opinion, check out charan's very nice remastering howto: http://brainstorms.in/?page_id=84 Another Howto is at http://www.stirnimann.com/mystuff/doc/knoppix.txt

There is a wizard, which knows all the unpacking, compressing and CD-recording steps mentioned here. It also shows a shell where you can update the uncompressed KNOPPIX system using debian's standard software installation tools. It is called mmkcdrom and part of the plugscript package. In the past, that was hosted at http://rcswww.urz.tu-dresden.de/~holzhey /plugscript but that appears to no longer be available.

Yet another HOWTO, for shell freaks, is at http://quozl.linux.org.au/knoppix/

Be sure to check out the Knoppix Customization Forum (http://knoppix.net /forum/viewforum.php?f=2) for ideas and help with remastering.

- If you want to add a custom kernel, check out the Knoppix Custom Kernel Howto
- There also a guide at O'Reilly on the same topic : Using and Customizing

Knoppix (http://linux.oreillynet.com/lpt/a/4323)

Conclusion

Thats it. This is an updated version of my previous howto. This is not meant for linux beginners, you will need to know your way around linux to get this to work. I'll update this as corrections/improvements/etc come through.

Thanks

Thanks to aay, charan, Tech2k, and #knoppix for some corrections and tips and ideas. Feel free to edit or add to this howto. Note about swap:

Translations

- Spanish Version: Knoppix Remastering Howto Spanish en español
- French Version: Knoppix Remastering Howto French
- Indonesian Version: Knoppix Remastering Howto Indonesian
- Russian Version: Knoppix Remastering Howto Russian
- Brazilian Portuguese Version: Knoppix Remastering Howto Brazilian Portuguese
- Italian Version: Knoppix Remastering Howto Italiano

Revised Version

- Adapted for V6.4.4 and without out-of-date stuff Knoppix Remastering Howto Deutsch

Retrieved from "http://www.knoppix.net/wiki/Knoppix_Remastering_Howto"

Category: Remastering Knoppix

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