

Customizing Knoppix

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Knoppix Background

- Live-On-CD Linux Distribution made by Klaus Knopper
 - Based on Debian (testing/unstable/others)
 - KDE, Apps, Servers, Dev
 - 2 GB root filesystem via cloop.o
 - Autodetects hardware, partitions, swap
 - Can use dos partition for swap (mkdosswapfile)
 - Big User Community, Active Forums



More Background

- Trouble Booting? - Knoppix Cheatsheet

- Knoppix Derivatives

Morphix

MDK MiniCD

GNUMed

Gnoppix

Freedux

ClusterKnoppix

Quantian

KnoppiXMAME

SQL-Ledger

Knoppix STD

Penguin Sleuth Kit

OpenGroupware

- Knoppix Alternatives

- Slackware Live

- SuSe Live

- Variety of other Rescue Disc Types



Knoppix Disc Layout

- On Bootup:
 - /cdrom/Demos
 - /cdrom/KNOPPIX
 - /cdrom/KNOPPIX/KNOPPIX
 - /cdrom/KNOPPIX/background.jpg
 - /cdrom/KNOPPIX/boot.img
 - /cdrom/LinuxTag
 - /cdrom/Makingof
 - /cdrom/Talks
 - /cdrom/autorun.bat
 - /cdrom/autorun.inf
 - /cdrom/cdrom.ico
 - /cdrom/index.html



Customizing Knoppix

- Customizing - Add custom kernel, packages
 - Why?
 - Carry your OS/Apps with you
 - Demo your product/project
 - Rescue/Backup/Ghosting/Linux Hardware Test
 - Promote Linux
- Branding – Custom splash images and backgrounds
 - Why?
 - See Above
 - Promote your organization
 - Linux Live CD Resume
- Endless Possibilities



Customizing and Branding

- Customizing from a booted Knoppix CD
(See Forums and HOWTOs for more info)

- Branding from a Knoppix ISO on a Knoppix HD install using my scripts.
(my scripts based on above, see my site for more info)



Customization Requirements

- Software
 - Current Knoppix ISO
- Hardware
 - 1 GB Memory (RAM + swap)
 - At least a 3 GB Linux Partition (free)
 - CD Burner



Customization Prep

- There are two ISO images we need to worry about:
 - CDROM ISO mounted at /cdrom
 - Contains KNOPPIX ISO, Bootdisk Image, X Background, Intro WebPage
 - KNOPPIX cloop ISO (/cdrom/KNOPPIX/KNOPPIX)
 - Compressed loopback ISO9660 fs contains /
- These need to be copied to disk to work with them ...



Customization Prep (cont)

- Boot From Knoppix CD
 - Knoppix 2 lang=us
 - This will boot you to console as root
 - Check network
- Partition HD (fdisk - swap and work)
 - /dev/hda2 500+ MB Swap
 - mkswap /dev/hda2
 - swapon /dev/hda2
(existing swap partitions will be detected on boot)
 - /dev/hda1 4GB workspace (cont)



Customization Prep (cont)

- Partition HD (cont)
 - /dev/hda1 4+GB workspace
 - mke2fs /dev/hda1
 - mount -o rw /dev/hda1 /mnt/hda1
(if you see errors after chroot you didn't do the above, nodev)
 - mkdir /mnt/hda1/master
 - mkdir /mnt/hda1/master/KNOPPIX
- Copy KNOPPIX Contents to HD
 - cp -Rp /KNOPPIX /mnt/hda1/master/KNOPPIX



Time to Customize

- Now lets chroot!
 - `chroot /mnt/hda1/master/KNOPPIX`
(no errors here right! Default knoppix fstab is unfriendly)
- You are now in /
(which is technically `/mnt/hda1/master/KNOPPIX`)
- You will need `/proc` and DNS
 - `mount -t proc /proc proc`
 - `vi /etc/resolv.conf`
- You are on your own here!
 - use `apt-get`, `dselect`, whatever!



Customization Suggestions

- Just to spark your interest
 - Ditch X and KDE (368 MB ISO)
 - Grandmotherize Knoppix
 - Password Protect Your Secure Operating Environment (SYSLINUX may not support this)
 - KnoppixCA – Read Only Root Certificate Storage (must think very carefully about this)
 - Set user passwords
- Safely delete games, talks, demos, LinuxTag, MakingOf



Wrapping it Up

- Clean Up Your mess
 - /var/cache/apt/archives/
 - Tarballs and source code
 - .bash_history
 - There are some cleanup scripts available (knoppix.clean)
- unmount /proc
- CTRL+D to leave chroot



Remastering

- First, the cloop ISO fs, KNOPPIX
 - `mkdir /mnt/hda1/master/cdrom`
 - `mkdir /mnt/hda1/master/cdrom/KNOPPIX`
 - `mkisofs -R /mnt/hda1/master/KNOPPIX \
| create_compressed_fs - 65536 > \
/mnt/hda1/master/cdrom/KNOPPIX/KNOPPIX`
- Copy what you want from /cdrom/ into /mnt/hda1/master/cdrom (excluding KNOPPIX ISO)
- Now master final ISO
 - `mkisofs -r -J -b KNOPPIX/boot.img \
-c KNOPPIX/boot.cat -o plugknoppix.iso cdrom`



Branding Requirements

- Software (these will change)
 - HD Install of Knoppix version X
 - Knoppix version X ISO
 - Branding Scripts
 - Imagedir
- Hardware
 - 1 GB Memory (RAM + swap)
 - At least a 3 GB Linux Partition (free)
 - CD Burner



Imagedir Contents

- The contents of imagedir must be:
 - \$imagedir/background.jpg
 - \$imagedir/index.html (should link to ./knxindex.html)
 - \$imagedir/pics/splash_active_bar.png
 - \$imagedir/pics/splash_inactive_bar.png
 - \$imagedir/pics/splash_bottom.png
 - \$imagedir/pics/splash_top.png
 - \$imagedir/logo.16 (should be ~15k)



Running Branding Scripts

- `knxprep.pl /path/to/iso`
- `cd $name`
- `knxbrand.pl /path/to/imagedir`
- `knxmaster.pl`



Omissions

- Final Branding Script Details
- Image prep details
 - including creating logo.16
- Many Tips and Warnings:
 - Don't do loop or cloop over NFS



Things to do with knx when you haven't used up all your time

- Ghosting
 - Samba Mount Server
 - Partimage (split at 2GB limit)



References

- General Knoppix

- <http://www.knoppix.net/docs>
- <http://www.knopper.net/knoppix/index-en.html>
- <http://download.linuxtag.org/knoppix/knoppix-cheatcodes.txt>

- Knoppix Mastering

- <http://www.knoppix.net/docs/index.php/KnoppixRemasteringHowto>
- <http://gnubox.dyndns.org:8080/~sunil/knoppix.php>
- <http://www.stirnemann.com/mystuff/doc/knoppix.txt>

