Cloning Linux Systems With CloneZilla Server Edition (**CloneZilla SE**)

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This tutorial shows how you can clone Linux systems with <u>CloneZilla SE</u>. This is useful for copying one Linux installation to multiple computers without losing much time, e.g. in a classroom, or also for creating an image-based backup of a system. I will install CloneZilla SE on a Debian Etch server in this tutorial. The systems that you want to clone can use whatever Linux distribution you prefer.

I do not issue any guarantee that this will work for you!

1 Preliminary Note

The Debian server on which I want to install CloneZilla SE is in the local network 192.168.0.0 (netmask 255.255.255.0) and has the IP address 192.168.0.100.

To clone a system, the target systems should use the same or at least similar hardware, otherwise cloning might not work!

2 Installing CloneZilla SE

First we import the GPG key of the DRBL (Diskless Remote Boot in Linux, needed to boot the client systems from the network (PXE) later on) and CloneZilla repository:

wget -q http://drbl.sourceforge.net/GPG-KEY-DRBL -O- | apt-key add -

Then we open /etc/apt/sources.list...

vi /etc/apt/sources.list

... and add the DRBL/CloneZilla Debian repository to it:

```
[...]
deb http://drbl.sourceforge.net/drbl-core drbl stable
[...]
```

Run

apt-get update

afterwards.

Now we can install DRBL and CloneZilla like this:

apt-get install drbl

Then we run

/opt/drbl/sbin/drbl4imp

to configure DRBL and CloneZilla with default values (should work in most environments):

This script is for those impatient, it will setup the DRBL server by the default value which might not fit your environment. Are you impatient ?

 $[Y/n] \leq -- ENTER$

Ok, Laziness is a virtue! Let us setup DRBL server with the default values!!! Press "Enter" to continue... <-- ENTER

[...]

Starting the NAT services for DRBL clients... done!

ip forward is already on.

The GDM or KDM config file is NOT found! Skip setting the DM! Maybe you will not be able to make this DRBL server as thin client server!

Clean all the previous saved config file if they exist...done!

Turn on the boot prompt for PXE client...done!

Turn off the thin client option in PXE boot menu...done!

Modifying /tftpboot/nbi_img/pxelinux.cfg/default to let DRBL client use graphical PXE boot menu... done!

Full DRBL mode. Remove clientdir opt for label drbl in pxelinux config...

Setting drbl_mode="full_drbl_mode" in /etc/drbl/drbl_deploy.conf and /etc/drbl/drblpush.conf... done!

Full clonezilla mode. Remove clientdir opt for label clonezilla in pxelinux config...

Setting clonezilla_mode="full_clonezilla_mode" in /etc/drbl/drbl_deploy.conf and /etc/drbl/drblpush.conf... done!

You have to use "/opt/drbl/sbin/dcs" -> clonezilla-start to start clonezilla serivce, so that there will be a clonezilla menu when client boots

Adding normal users to group "audio cdrom plugdev floppy video"...... done!

Updating the YP/NIS for group...

Note! If you add new or remove accounts in the DRBL server in the future, remember to run the following command again, so that some group (EX:plugdev) will be updated:

tune-debian-dev-group-perm -g "audio cdrom plugdev floppy video" -e

Enjoy DRBL!!!

http://drbl.nchc.org.tw; http://drbl.name

NCHC Free Software Labs, Taiwan. http://free.nchc.org.tw

If you like, you can reboot the DRBL server now to make sure everything is ready...(This is not necessary, just an option.).

DRBL server is ready! Now set the client machines to boot from PXE or Etherboot (refer to http://drbl.sourceforge.net for more details).

NOTE! If Etherboot is used in client machine, version 5.4.0 or newer is required! PS. The config file is saved as /etc/drbl/drblpush.conf. Therefore if you want to run drblpush with the same config again, you may run it as: /opt/drbl/sbin/drblpush -c /etc/drbl/drblpush.conf server1:~#

That's it for the installation.

3 Creating An Image Of A Linux System

To create an image, we first start CloneZilla on the Debian system and tell it to store an image (the server will then wait until a client connects to store the image), and then we boot the client system of which we want to create the image from the network - it should then boot into a CloneZilla Linux system that connects to the server and creates the image.

Run

/opt/drbl/sbin/dcs

on the Debian server and select All Select all clients:

NCHC Free Software Labs, Taiwan	
DRBL, developed by N ///Hint! From now on, if multiple cho space key to mark your selection. A s selection is done/// Do you want to set the mode for all Choose the mode: All Select all clients Part Select part of cli	CHC Free Software Labs ices are available, you have to press tar sign (*) will be shown when the clients or part of them ? ents by IP or MAC address
<0k>	<cancel></cancel>

Next pick clonezilla-start Start_clonezilla_mode:

DRBL Switch the mode:	, developed by NCHC Free Software Labs
remote-linux-gra remote-linux-txt terminal remote-memtest remote-fdos <u>clonezilla-start</u> clonezilla-stop local reboot shutdown Wake-on-LAN more	Client_remote_Linux,_graphic_mode,_powerful_client Client_remote_Linux,_text_mode,_powerful_client Client_remote_Display_Linux,_terminal_mode Client remote boot to run Memtest86+ Client remote boot to run FreeDOS Start_clonezilla_mode Client boots its local OS Reboot Shutdown client now Turn on client by Wake-on-LAN now More modes or commands
	<ok> <cancel></cancel></ok>

Choose save-disk Save client disk as an image:

NCHC – Nat	ional Center for:	High-Performance Computing, Taiwan
Clonezi Choose	illa is free (GPL) the mode:) software, and comes with ABSOLUTE NO WARRANTY
	save-disk restore-disk save-parts restore-parts select-in-client	Save client disk as an image Restore an image to client disk Save client partitions as an image Restore an image to client partitions Choose save/restore in client (unicast only)
	<0k>	<cancel></cancel>

Select Later_in_client Later input image and device name in client (you will then be prompted for an image name later on the client, instead of having to provide an image name now):



On the next two screens you can simply press ENTER to select the default values:

NCHC Free Software Labs, Ta	iwan
Clone Which clone program(s) an program(s) and priority m next program will be used partimage > dd", then if use ntfsclone first, and then clonezilla will try The default settings are value, i.e. do NOT change -q Priority: ntfsc -q1 Priority: Only -q2 Priority: parti	zilla advanced extra parameters ad what priority do you prefer ? The listed mean that if the file system is not supported, the l. Ex. if you choose "Priority: ntfsclone > the file system is xfs, clonezilla will try to of course, xfs is not supported by ntfsclone, to use partimage. coptimized. If you have no idea, keep the default anything, then say "OK" and continue. clone > partimage > dd dd (support all filesystem, but inefficient) clone, partclone (experimental) > partimage > dd mage > dd (no ntfsclone)
<0k>	<cancel></cancel>
NCHC Free Software Labs, Ta Clone Set advanced parameters (keep the default value, i	iwan zilla advanced extra parameters multiple choices available). If you have no idea, .e. do NOT change anything. Just press Enter.:
[] -c [] -nogui [] -a [] -f [] -s [] -rm-win-swap-hib [] -rm-win-swap-hib [] -gs [] -gs [] -gs [] -00 [] -01	Client waits for confirmation before cloning Do NOT show GUI of partimage, use text only Do NOT force to turn on HD DMA Server will restart nfs when start/stop clonezilla Client skips the hardware detection when booting Remove page and hibernation files in Win if exists Assume NTFS integrity is OK, skip checking (for ntfs Generate image MD5 checksums Generate image SHA1 checksums Run script in \$OCS_PRERUN_DIR before clone starts Run script in \$OCS_POSTRUN_DIR as clone finishes
<u>KOk></u>	<cancel></cancel>

Select the action when the client finishes cloning (I want to shut down the client after the image has been created, so I select -p poweroff):



Press ENTER again on the next two screens to accept the default values:

NCHC Free Software Labs, Taiwan
Clonezilla advanced extra parameters Choose the compression option. If you have no idea, keep the default value, i.e. do NOT change anything. ///NOTE/// -z3 (lzop) is fastest for compressing image and the image size is good enough (slight larger than that of gzip). However, it is not recommended when saving the image in (1) a network-based directory (2) a machine with bad quality of memory (RAM). Its algorithm requires good quality network and RAM. If the network quality or RAM is not good enough, your saved image will be broken! <u>-z1 Use gzip compression(fast but smaller image)</u> -z1p Use parallel gzip compression (testing), for multicore/CPU -z2 Use bzip2 compression(faster, image size ~ gzip) -z0 Without compression(fastest but largest image) (Ok) (Cancel)

NCHC Free Softwa	re Labs, Taiwan	
The size (MB) If you do not	Clonezilla adv to split a partition want to split the im	vanced extra parameters n image file into multiple volumes files. mage file, enter "0".
	<0k>	<cance1></cance1>

Press ENTER again:

If you do not want to split the image file, enter "0".
3
<ok> <cancel></cancel></ok>
etting the TERM as linux
我来说说说说这是我来说这些这些这些这些这些这是这是这是这些说是是是是是是是是这些这是这些这是是是是这是是是这
lean all the previous saved config file if they existdone!
tart_ocs_service -t savedisk -o ask_user ask_user
lonezilla.lock dir: /var/lock/clonezilla
arning!!! "range" option is found in dhcpd.conf, this is not a good way in cl
zilla It is better to let your DRBL client acquire same IP address by sett
MAC address in dhepd.conf so that you will NUT overwrite US of some unknown i
nines. ress "Enter" to continue

The server is now ready. Now start the client system that you want to clone. It is important that you boot it from the network (via PXE) - you might have to adjust the boot order in the client's BIOS so that it boots via PXE:

			Phoen ixBIOS	Setup Uti	lity	
Ma	in Ad	lvanced	Security	Power	Boot	Exit
	Netuork	boot from	6MD 6-7909706			Item Specific Help
	Hetwork *Removab CD-ROM I *Hard Dr:	boot from le Devices Drive ive	HILD HIM 7909 70A			Keys used to view or configure devices: <enter> expands or collapses devices with a + or - <ctrl+enter> expands all <shift +="" 1=""> enables or disables a device. <+> and <-> moves the device up or down. <n> May move removable device between Hard Disk or Removable Disk <d> Remove a device that is not installed.</d></n></shift></ctrl+enter></enter>
F1 Esc	Help Exit	11 Select ↦ Select	Item -/+ Menu Enter	Change Va Select ► S	lues Sub-Me	F9 Setup Defaults mu F10 Save and Exit

After you've configured the client to boot from the network, you should see a DRBL boot menu. Select Clonezilla: save disk (choose later) as image (choose later):



Next provide a name for the image (or accept the default value):

иснс	Free	Softwar	e Labs,	Taiwan				
			Clonez Input a	:illa - Open a name to sa	<mark>source</mark> C ve the i	lone System mage	(0CS)	
			2009-01	-13-23-img_				
		l		<uk></uk>		<cancel></cancel>		

Select the source hard drive:

NCHC Free Software Labs, Taiwan	
Clonezilla - Opensou Choose local disk as source. The disk name is the device name in system is "hda" or "sda", the 2nd dis [*] hda 32.2GB_VMware_Virtual_IDE	rce Clone System (OCS) GNU/Linux. The first disk in the k is "hdb" or "sdb": _Hard_Drive_000000000000000000000000000000000000
<0k>	<cancel></cancel>

Afterwards, the image is being created and transferred to the CloneZilla server:

Saving the UG config... Volume group "VolGroup00" successfully backed up. done ! Saving /dev/VolGroup00/LogVol00 as filename: VolGroup00-LogVol00. Filesystem: Li nux rev 1.0 ext3 filesystem data (large files) Starting saving /dev/VolGroup00/LogVol00 as /home/partimag/2009-01-13-23-img/Vol Group00-LogVol00.XXX.. /dev/VolGroup00/LogVol00 filesystem: ext3. Checking file system integrity in /dev/VolGroup00/LogVol00... done! Use gzip to compress the image. Image will not be split. Volume size: 0 bytes (0 MiB) partimage: status: initializing the operation. partimage: status: Partimage: 0.6.1 partimage: status: Image type: NONE partimage: status: image type: none partimage: status: Saving partition to the image file... partimage: status: reading partition properties partimage: status: writing header S: 4M partimage: status: copying used data blocks Size T:Elapsed/Estimated Rate/min Progress S: 809M T:00:01:33/00:04:15 R: 520M/min P: 26%_ stdout File Name stdout

Then the CloneZilla server is notified that the image creation process has finished...



... and the client system is shut down (or rebooted - that depends on the action you've chosen on the server):

Finished saving /dev/VolGroup00/LogVol00 as /home/partimag/2009-01-13-23-img/Vol
Group00-LogVo100.XXX

Saving /dev/VolGroup00/LogVol01 as filename: VolGroup00-LogVol01. Filesystem: Li nux/i386 swap file (new style) 1 (4K pages) size 262143 pages
Saving swap /dev/VolGroup00/LogVol01 info in /home/partimag/2009-01-13-23-img/sw appt-VolGroup00-LogVol01.info

Saving hardware info
Saving DMI info
Saving package info

* * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * *
/opt/drbl/sbin/ocs-sr is spawned by S19ocs-run

Notifying clonezilla server my job is done 11 10 9 8 7 6 5 4 3 2 1
Sending info "192.168.0.10 00:0c:29:d5:ef:f8 Saved /home/partimag, /dev/hda1, su
CCess, .054 mins; /dev/VolGroup00/LogVol00, success, 5.291 mins; to 192.168.0.1
88:5451 done!
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Finished!
Now syncing - flush filesystem buffers
Will poweroff 5 4 3

That's it, we now have an image of our Linux system that we can clone to other systems.

4 Cloning/Restoring The Image

To clone or restore the image to other systems, run

/opt/drbl/sbin/dcs

again on the CloneZilla Server. Select All Select all clients:

NCHC Free Software Labs, Taiwan	
DRBL, developed by N ///Hint! From now on, if multiple cho space key to mark your selection. A s selection is done/// Do you want to set the mode for all Choose the mode:	CHC Free Software Labs ices are available, you have to press tar sign (*) will be shown when the clients or part of them ?
All Select all clients Part Select part of cli	ents by IP or MAC address
<0k>	<cancel></cancel>

Choose clonezilla-start Start_clonezilla_mode:



Select restore-disk Restore an image to client disk:

NCHC - National Center for	High-Performance Computing, Taiwan
Clonezilla is free (GPI Choose the mode:	.) software, and comes with ABSOLUTE NO WARRANTY
save-disk	Save client disk as an image
save-parts	Save client partitions as an image
restore-parts select-in-client	Restore an image to client partitions Choose save/restore in client (unicast only)
<0k>	<cancel></cancel>

You can accept the default values on the next four screens by pressing ENTER:

[*] -g auto	Reinstall grub in cl	ient HD MBR (only as grub config exists)
[*] - X	Oberge MS Uin booth	ork when multicast clone
1 - 1 - 1 = 1 = 1	Change MS Uin hostna	me (based on MAC address) after clone
f = 1 - 0	Prints verhose messa	me (based on the address) after clone
[] -nogu i	Do NOT show GUI of m	artimage, use text only
[] -c	Client waits for con	firmation before cloning
[] -u	Select the image to	restore in client (only for unicast rest
[] -t	Client does not rest	ore the MBR (Mater Boot Record)
[] -t1	Client restores the	prebuilt MBR from syslinux (For Windows
[] -r	Try to resize the fi	lesystem to fit partition size
[] -ns	Put ntfsclone temp f	ile in image dir in server
[] -e	Client uses the HD C	HS value (saved in image) for sfdisk
[] -j1	Write MBR (512 B) ag	ain after image was restored. Not OK for
[]-cm	Check image by MD5 c	hecksums

NCHC Free Software Labs, Taiwan

Clonezilla advanced extra parameters Set advanced parameters. If you have no idea, keep the default value, i.e. do NOT change anything. Just press Enter. Choose the mode to create the partition table on the target disk: ***ATTENTION***(1) TO CREATE A NEW PARTITION TABLE IN THE TARGET DISK. ALL THE DATA ON THE TARGET DEVICE WILL BE ERASED!!! (2) Clonezilla will not restore an image from large disk (partition) to smaller disk (partition). However, it can restore an image from small disk (partition) to larger disk (partition). (3) If you do NOT want clonezilla to create partition table, check -k:

- k	Use the partition table from imag
-k1	Create partition table proportion
-k2 - j0	Enter command line prompt to crea Use dd to create partition table
exit	EXIL
K (1)	Cancel>

NCHC Free Software Labs, Taiwan Clonezilla advanced extra parameters Do you want to ALWAYS provide clonezilla service for client ? NOTE! If you choose anyone -y option, the client won't boot local OS after it finishes clone OS into local harddrive! If you are not sure, do NOT choose anyone -y option! Skip this option -y0 Server always provides clone mode - default local boot -y1 Server always provides clone mode - default clonezilla -y2 Server always provides clone mode - default drbl KOK> (Cancel>



Pick the image that you want to restore:

нснс	Free Software Labs, Taiwan
	Clonezilla - Opensource Clone System (OCS) Choose the image file to restore:
	2009-01-13-23-img 2009-01-14_01:51_hda
	<ok> <cancel></cancel></ok>

Choose the target hard drive:

Clonezilla - Opensource Clone System (Choose the target disk(s) to be restored (///NOTE/// Th the target disk will be overwritten!): [*] hdadisk(hd)_disk(a)	OCS) e existing data in
KOk> <cance< th=""><th>1></th></cance<>	1>

Select multicast multicast restore:

NCHC - National (Center for High-Performance Computing, Taiwan
	Choose the mode to restore client disk
	multicast multicast restore broadcast broadcast restore
	unicast unicast restore
	<ok> <cancel></cancel></ok>

Choose clients+time-to-wait:

NCHC Free Software Labs, Taiwan	
Clonezilla - One	ansource Clone Sustem (ACS)
Choose the method for multicast o	clone:
clients+time-to-wait	Set the no. of clients & maximum
time-to-wait	Set the time for clients to start
clients-to-wait	Set the no. of clients to clone
(0k)	(Cancel)
(017)	(ounder/

Fill in the number of systems on which you want to restore the image (I want to restore just one system in this example):



Fill in the max. time (in seconds) that the server will wait until all clients are powered on (i.e., if you want to restore the image on ten clients, you have 300 seconds to power on the other nine computers after you have powered on the first one - if you are too slow, CloneZilla will start to restore the image only on the systems that have been powered on in time):

NCHC Free Software Labs, Taiwan	
Clonezilla - Opensour Maximum time to wait (Sec) (The count: i.e. When not enough clients have anyways after [this assigned seconds] passed. (Better >= 15) 300	rce Clone System (OCS) s start when first client connects), connected (but at least one), start since first client connection have
<0k>	<cancel></cancel>

Afterwards, press ENTER twice:

anyways after [this assigned second: passed. (Better >= 15)	s] since first client connection have
388	<cancel></cancel>
Setting the like as linux ************************************	***************************************
Clean all the previous saved config f start_ocs_service -n 1 -t multicast_r clonezilla.lock dir: /var/lock/clonez Warning111 "range" ontion is found in	ile if they existdone! estoredisk -o 2009-01-13-23-img hda illa dhend.conf. this is not a good way in clon
ezilla It is better to let your DRI g MAC address in dhcpd.conf so that yo chines.	BL client acquire same IP address by settin ou will NOT overwrite OS of some unknown ma



Now power on the clients. Make sure they are configured to boot from the network (via PXE):

			Phoen ixBIOS	Setup Ut	ility	
Ma	in Adv	vanced	Security	Power	Boot	Exit
	Network b	boot from	AMD Am79C970A			Item Specific Help
	+Removable CD-ROM Dr +Hard Driv	e Devices rive ve				Keys used to view or configure devices: <enter> expands or collapses devices with a + or - <ctrl+enter> expands all <shift +="" 1=""> enables or disables a device. <+> and <-> moves the device up or down. <n> May move removable device between Hard Disk or Removable Disk <d> Remove a device that is not installed.</d></n></shift></ctrl+enter></enter>
F1 Esc	Help 1 Exit e	Select Select	Item -/+ Menu Enter	Change U Select ►	la lues Sub-Me	F9 Setup Defaults enu F10 Save and Exit

In the boot menu, select Clonezilla: multicast restore:

DRBL (http://drbl.uchc.org.tw, http://drbl.sf.uet)
Debian 4.0 Linux (DRBL wode, wostly local resources) Clonezilla: multicast restore 2009-01-13-23-img to disk hda Local operating system (if available) Wewory test using Wewtest86+
Press [Tab] to edit options
Automatic boot in 5 seconds
Clonezilla version: 2.3.2-23. (C) 2003-2008, NCHC, Taiwan Disclaiwer: Clonezilla cowes with ABSOLUTE NO WARRANTY
DRBL Free Software Labs NCHC, Taiwan

The cloning process will then begin:

restore partition from image file Partition to restore:/dev/VolGroup00/LogVol00 Size of partition to restore:28.75 GiB = 30870077440 bytes Current image file:stdin File system:ext3fs Partition was on device:/dev/VolGroup00/LogVol00 Image created on:Tue Jan 13 23:45:17 2009 Size of the original partition:28.75 GiB = 30870077440 bytes Time elapsed:
17 % 17 %

Afterwards, the server will be notified that the process has finished...

... and the client system will reboot:

Running: grub-installno-floppyroot-directory=/tmp/hd_img.AL2353 /dev/hda You shouldn't call /sbin/grub-install. Please call /usr/sbin/grub-install instea
d *
Probing devices to guess BIOS drives. This may take a long time. Installation finished. No error reported.
This is the contents of the device map /tmp/hd_img.AL2353/boot/grub/device.map. Check if this is correct or not. If any of the lines is incorrect, fix it and re-rup the script `grub-install'
is to and to tan one set the grad instant .
(hdØ) /dev/hda done!

opt/drb1/sb1n/ocs-sr is spawned by S19ocs-run
Notifying clonezilia server my job is done 10 9 8 7 6 5 4 3 2 1
Sending into 192.168.8.9 00:00:29:08:09:50 Fullicast restored 2009-01-13-23-1mg
, /dev/hda1, success, .089 mins; /dev/volGroup00/Logvol00, success, 3.275 mins; to 192.168.0.100:6461 done!

Finished!
Now syncing – flush filesystem buffers
Will reboot 5 4 3 _

Before the client system boots, enter its BIOS again and configure it to boot from the hard drive! If all goes well, the computer should boot into the cloned operating system.

5 Troubleshooting

It is possible that you see this message during the restore:

Failed to install grub

and that the system will not boot afterwards:

Grub error 2

(I've had this with Ubuntu systems.)

The solution is to boot into a rescue system (e.g. Knoppix or the Ubuntu Live-CD) and install

GRUB from the rescue system.

Once Knoppix or the Ubuntu Live system has started, open a terminal and become root:

Knoppix: su Ubuntu: sudo su Run fdisk -1 to learn more about your partitioning: root@Knoppix:~# fdisk -1 Disk /dev/sda: 32.2 GB, 32212254720 bytes 255 heads, 63 sectors/track, 3916 cylinders Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	ld	System	
/dev/sda1	*	1	3749	30113811	83	Linux	
/dev/sda2	3750	3916	1341427+	5	Extended		
/dev/sda5	3750	3916	1341396	82	Linu	x swap/Solari	S
root@Knop	pix:~#						

In this example, I have one big partition (/dev/sda1) that also contains the /boot directory (the Boot column is marked with a star).

I will now mount that partition to the /mnt directory:

mount /dev/sda1 /mnt mount -o bind /dev /mnt/dev mount -o bind -t proc /proc /mnt/proc

(If you have a separate /boot partition, e.g. /dev/sda2, you'd mount it to /mnt/boot after you have mounted /dev/sda1 to /mnt.)

Now we install GRUB as follows:

chroot /mnt grub-install --no-floppy "(hd0)"

This will give you the following error:

root@Knoppix:~# chroot /mnt grub-install --no-floppy "(hd0)" You shouldn't call /sbin/grub-install. Please call /usr/sbin/grub-install instead!

/dev/sda1 does not have any corresponding BIOS drive. root@Knoppix:~#

To overcome the error, run

chroot /mnt grub-install --no-floppy "(hd0)" --root-directory=/ --recheck

root@Knoppix:~# chroot /mnt grub-install --no-floppy "(hd0)" --root-directory=/ --recheck You shouldn't call /sbin/grub-install. Please call /usr/sbin/grub-install instead!

Probing devices to guess BIOS drives. This may take a long time.

Installing GRUB to (hd0) as (hd0)...

Installation finished. No error reported.

This is the contents of the device map //boot/grub/device.map.

Check if this is correct or not. If any of the lines is incorrect, fix it and re-run the script `grub-install'.

(hd0) /dev/sda root@Knoppix:~#

That's it - now reboot ...

reboot

... and don't forget to remove the Knoppix or Ubuntu CD from the CD drive. If everything goes well, the GRUB error should be gone, and the system should boot without any problems.

6 Links

- CloneZilla SE: <u>http://clonezilla.org/clonezilla-server-edition/</u>
- Debian: <u>http://www.debian.org/</u>