

Setup a Clonezilla Server on Debian or Ubuntu

<http://www.sckeyprojects.com/clonezilla/setup-a-clonezilla-server-on-ubuntu/>

At work I am solely in charge of approximately 200 computers

this has led me to become sort of an expert in cloning.

I have tested many commercial packages and none come close to Clonezilla.

Clonezilla has two versions: Clonezilla live, which as its name states, runs from a live CD and Clonezilla SE (Server Edition).

In this article I will describe how to install the SE version on the latest Ubuntu release (10.04 Lucid Lynx).

Please note that this is a walkthrough so do not let the length of the article scare you.

The set-up is actually very easy with this article.

I have also written a tutorial on how to use Clonezilla.

One key advantage of the server version is that it allows for multicasting, which the live version does not.

Multicasting basically allows many computers to be cloned simultaneously and in the same amount of time it would take cloning a single computer.

Multicasting allows the user to restore a large groups of computers across the network in a matter of minutes.

As an example, let say that you have 40 new computers that just arrived and you need to have them all up and running by tomorrow.

Clonezilla can get the job done in 10 minutes! and I am not talking about 10 minutes per computer, I am talking about 10 minutes for the whole batch!

Restoring a 5 GB compressed image on 40 computers at once in 10 minutes;

Sounds incredible?

I could not believe it myself until I tried it.

On the other hand, the Clonezilla live CD communicates with each computer individually, making the restoration time dependent on the amount of computers being restored.

Another advantage of the server edition is the fact that you can have your own cloning station ready to save or restore any computer at any given time and to provide a storage location for all your images.

If you are wondering what Clonezilla version is right for you, read my article: Clonezilla Live Vs. Clonezilla Server (DRBL).

Prepare Ubuntu

Clonezilla SE works by providing a boo-table environment for clients though the network.

For this purpose a DHCP server will have to be installed.

You will have to make sure that none of the computers in your organization are set to boot from network as first boot device, otherwise they might boot to Clonezilla instead of their own operating system.

There is a way around this: A file can be created with all MAC addresses of the computers to be cloned.

This will prevent the server from booting unwanted machines.

However, from experience I have found that it is easier to just boot the desired machines from network manually and once booted into Clonezilla the cloning process can be started from the server with the click of a button.

1) Enable **"Universe"** and **"Multiverse"** repositories under: **System -> Administration -> Software Sources**.

2) Open your sources list file to add the Clonezilla repository issuing the following command at your shell prompt:

```
sudo gedit /etc/apt/sources.list
```

3) Add the following line at the bottom of the file and save it.

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

```
echo "deb http://drbl.sourceforge.net/drbl-core drbl stable" >> /etc/apt/sources.list
```

4) Download the GPG Key for the new clonezilla source repository by issuing the following command at your shell prompt:

```
wget http://drbl.sourceforge.net/GPG-KEY-DRBL
```

5) Add the key with the following command:

```
sudo apt-key add GPG-KEY-DRBL
```

6) Make sure operating system is fully updated by issuing the following command at your shell prompt:

```
apt-get update
```

Setup Ubuntu's Network Configuration

1) Uninstall Network Manager by issuing the following command at the shell prompt (**This is optional, it is done because network manager sometimes does not like the virtual interface created for Clonezilla. I had no problems with network manager in Ubuntu 10.04**)

```
# optional
apt-get remove network-manager
```

2) Type the following command at a terminal screen to open your network interfaces configuration file:

```
vim /etc/network/interfaces
```

Edit the file to look as the one displayed below;

you can copy - paste this information to your interfaces file.

As you can see on the configuration below we have two interfaces, eth0 and eth0:0.

Eth0 is your main network card's IP configuration;

we are going to use this to connect to the web, etc. **eth0:0 is a "virtual" interface which we will use for Clonezilla.**

Just remember to match eth0's IP configuration with that of your local network and to make eth0:0 IP a totally different subnet from that of eth0, look at the example down below. eth0 is 192.168.1.200 and eth0:0 is 192.168.99.200 is eth0:0, so they don't conflict. Also, Clonezilla's virtual interface, **eth0:0 must use a "class C" IP address (e.g. 192.168.x.x) otherwise multicasting effectiveness will be greatly reduced.**

```
#Loopback
auto lo
iface lo inet loopback

#Network Interface, this should match your network
auto eth0
iface eth0 inet static
address 192.168.1.200
netmask 255.255.255.0
gateway 192.168.1.1

#Virtual Interface for Conezilla, make sure you use a "class C" IP (192.168.x.x)
auto eth0:0
iface eth0:0 inet static
address 192.168.99.200
netmask 255.255.255.0
```

alternative config (server with two network cards):

for some reason you have to use eth1 for dhcp and eth0 for fixed-ip-networking, or you will not be able to connect to the internet (eth0+dhcp -> does not use it's gateway as default!? wtf.)

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).
```

```
# The loopback network interface
auto lo
iface lo inet loopback
```

```
# The primary network interface, this is connected to the internet
allow-hotplug eth0
iface eth0 inet dhcp
```

```
# fixed/manual IP for secondary network interface, this is connected to a switch with clients you want to
deploy images to
auto eth1
iface eth1 inet static
address 192.168.3.1
netmask 255.255.255.0
gateway 192.168.3.1
```

```
# if you have problems connecting to the internet try: (replace this with the ip of your router/gateway)
route add default gw 192.168.0.1 eth0
```

Install DRBL

1) To install DRBL (which comes with Clonezilla in one package) issue the following command:

```
apt-get install drbl
```

This is all you have to do. You do not need to install any dependencies, since it all comes in one package.

Setup DRBL

To start the DRBL setup, issue the following command:

```
# debian
/usr/sbin/drblsrv -i

# ubuntu
/opt/drbl/sbin/drblsrv -i
```

Clonezilla (DRBL) setup will begin.

Answer everything as you see it below.

Do not worry if you make a mistake, you can always start the set-up again issuing the same previous command.

The first question basically asks you if you want to install other Linux images, answer "N"

```
Do you want to install the network installation boot
images so that you can let the client computer install
some GNU/Linux distributions (Debian, Ubuntu, RedHat
Linux, Fedora Core, Mandriva, CentOS and OpenSuSE...)
via a network connection? !!NOTE!! This will download
a lot of files (Typically > 100 MB) so it might take a
few minutes. If the client computer has a hard drive
that you may install GNU/Linux onto, put a Y here. If
you answer "no" here, you can run "drbl-netinstall" to
install them later.
[y/N] N
```

Next question asks if you would like to use a serial console instead of a GUI, so choose "N"

```
Do you want to use the serial console output on the
client computer(s)?
If you do NOT know what to pick, say "N" here,
otherwise the client computer(s) may show NOTHING on
the screen!
[y/N] N
```

Next question asks about the type architecture used in your CPU. Since practically all of today's PCs are i586, choose "1".

```
Which CPU architecture kernel do you want to assign
for the DRBL client computer(s)?
0 -> i386 CPU architecture
1 -> i586 CPU architecture
2 -> Use the same architecture as this DRBL server
Note! Note Note! Note! Note! Note! Note!
NOTE!!! If the client computer(s) is not the same
architecture as this server, please pick "0" or "1",
otherwise your client computer(s) will NOT be able to
boot.
If you use wrong architecture type kernel, the glibc
and openssl package might use i686 or i386 while the
kernel might use i686, i586, or i386, which might be
not suitable for all your computer(s).
[2] 1
```

Select "N" in the next question. You do not want DRBL to upgrade your operating system. Next, DRBL will begin downloading and installing all its dependencies.

```
Do you want to upgrade
the operating system?
[y/N] N
```

After DRBL finishes downloading and installing all its dependencies, we are done installing DRBL. Next we will be configuring Clonezilla.

Configure Clonezilla

Enter the following command at your shell prompt to **start configuring Clonezilla Server**:

```
# debian
/usr/sbin/drblpush -i

# ubuntu
/opt/drbl/sbin/drblpush -i
```

```
*****
Trying to upgrade some necessary packages if
available...
*****
Searching for the latest kernel in the repository...
kernel ...
The latest kernel in the ayo repository is linux-
image-3.2.0-4-486
There are 2 kernels available for clients, which one
do you prefer?
[1]: kernel 3.2.0-4-486 i486 (from this DRBL server)
[2]: linux-image-3.2.0-4-486 (from APT repository)
[1]
Clients will use the kernel 3.2.0-4-486 i486 from
server.
It might take several minutes to install this kernel,
please be patient...
done!
```

Again, do not worry about making a mistake you can always issue the same command to start over.

At the first question just press “enter” to leave the default name.

```
Please enter DNS domain
(such as drbl.sf.net):
[DRBL.name]
```

At the second question again just press “enter” to leave the default nis/yp domain name.

```
Please enter
NIS/YP domain
name:
[penguinzilla]
```

At the third question again just press “enter” to leave the default server name.

```
Please enter the client hostname prefix:
This prefix is used to automatically create hostname
for clients. If you want to overwrite some or all
automatically created hostnames, press Ctrl-C to quit
this program now, edit /opt/drbl/conf/client-ip-
hostname, then run this program again.
[servername]
```

The fourth question asks to choose [which card to use to go to the internet](#), previously we chose eth0 as our connection to the web and eth0:0 as our virtual interface for Clonezilla, so enter “eth0”

```
eth0: IP address 192.168.1.200, netmask 255.255.255.0
eth0:0: IP address 192.168.99.200, netmask 255.255.255.0
Configured ethernet card(s) found in your system: eth0 eth0:0
-----
The public IP address of this server is NOT found.
Which ethernet port in this server is for public Internet access, not for DRBL
connection?
Available ethernet ports in this server:
eth0 (192.168.1.200), eth0:0 (192.168.99.200),
[eth0] eth0
```

If you get a message telling you that your Clonezilla IP (eth0:0) is on a class A or B network, make sure you change it to a “Class C” (e.g. 192.168.x.x) and start Clonezilla’s configuration over, otherwise multicasting’s effectiveness will be greatly reduced.

Next question asks if you want to collect MAC addresses of computers to be cloned; this is done so that only computers that are going to be cloned get assigned an IP from DRBL.

I find this time consuming and unnecessary, since it is easier to turn DRBL off once you are done cloning so that it does not conflict with your network’s DHCP server.

DRBL is very easy to turn on and off with a simple short-cut on your server’s desktop.

So we are going to choose “N”.

```
(...summary...) Now we can
collect the MAC address of
clients!
Do you want to collect them?
[y/N] N
```

Since we chose not to collect mac addresses we will choose “N” in the next question.

```
Do you want to let the DHCP service in DRBL server
offer same IP address to the client every time when
client boots (If you want this function, you have to
collect the MAC addresses of clients, and save them in
file(s) (as in the previous procedure)). This is for
the clients connected to DRBL server’s ethernet
network interface eth0:0 ?
[y/N] N
```



```
In the system, there are 4 modes available for clonezilla:
[0] Full Clonezilla mode, every client has its own NFS based /etc
and /var.
[1] Clonezilla box mode, every client uses tmpfs based /etc and /var.
In this mode, the loading and necessary disk space of server will be
lighter than that in Full Clonezilla mode. Note! In Clonezilla box
mode, the setting and config files of client will not be saved to the
DRBL server! They just use once and will vanish after the machine
shut downs!
[2] I do NOT want clonezilla.
[3] Use Clonezilla live as the OS (Operating System) of clients
(Fasting).
Which mode do you prefer?
[0] 1
```

Next question asks what will be the default directory where you want to store your images. To me the default “/home/partimag” is not intuitive, so I change it to “/clonezilla” so it can be easily accessible in the file-system. But this is up to you; just remember that if you decide to change it make sure you create the new folder manually, since the setup will not do it for you.

```
The CPU arch for clients when running Clonezilla job: i486

When using clonezilla, which directory in this server you want to
store the saved image (Please use absolute path, and do NOT assign it
under /mnt/, /media/ or /tmp/)?
[/home/partimag] /clonezilla
```

Unless you want to be annoyed with a password prompt every time you want to clone a computer or you are a security freak, choose “N” in the next question.

```
Do you want to set the pxelinux password for clients so that when
client boots, a password must be entered to startup (For better
security)
[y/N] N
```

Choose “N” at the next question as well, you do not need a boot prompt for clients

```
Do you want to set the boot
prompt for clients?
[y/N] N
```

I recommend you choose “Y” in the next question; graphic backgrounds look friendlier.

```
Do you want to use graphic background for PXE menu
when client boots?
Note! If you use graphical PXELinux menu, however
client fails to boot, you can switch to text mode by
running "/opt/drbl/sbin/switch-pxe-bg-mode -m text".
[y/N] Y
```

Choose “N” in the next question (self explanatory).

```
Do you want to use DRBL server as a NAT server? If
not, your DRBL client will not be able the internet.
[y/N] Y
```

Choose “Y” of course to finish.

```
We are now ready to deploy the files
to the system!
Warning! If you go on your firewall
rules will be overwritten during
setup..
[Y/n] Y
```

Start Clonezilla Server

Now that we have finished configuring Clonezilla we need to start our server to get it ready for cloning. Type the following at the command prompt:

```
# debian
/usr/sbin/dcs

# ubuntu
sudo /opt/drbl/sbin/dcs
```

At the first screen Choose “Select all the clients”.

```
DRBL, developed by NCHC Free Software Labs
//Hint! From now on, if multiple choices are available, you have to press
space key to mark your selection. An asterisk (*) will be shown when the
selection is done//
Do you want to set the mode for all the clients or just some of them?
Select mode:
* All Select all the clients
Part Select client(s) by IP or MAC address

<Ok> <Cancel>
```

At the second Screen Choose “clonezilla-start”.

```

DRBL, developed by NCHC Free Software Labs
Switch the mode:
remote-memtest  Client remote boot to run Memtest86+
remote-fdos     Client remote boot to run FreeDOS
clonezilla-start Start clonezilla mode
clonezilla-stop Stop clonezilla mode
local          Client boots its local OS
reboot         Reboot client now
shutdown       Shutdown client now
Wake-on-LAN    Turn on client by Wake-on-LAN now
more           More modes or commands

<Ok>          <Cancel>

```

At the third screen I recommend using "Beginner mode" for now.

However, if the cloning process gets stuck when trying to clone your clients, you will have to restart the server later on and choose "Expert Mode", since it gives you more options you can tweak to make it work.

```

Clonezilla - Opensource Clone System (OCS)
Choose the mode to run the following wizard about advanced parameters:
Beginner Beginner mode, select the disk to restore
Expert  Expert mode: Choose your own options.

<Ok>          <Cancel>

```

In the fourth screen choose "select-in-client". This gives you to option to choose whether to restore or save the image during Clonezilla's booting process in the client itself.

```

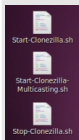
Start the Clonezilla mode
*Clonezilla is free (GPL) software, and comes with ABSOLUTE NO WARRANTY*
Select mode:
save-disk          Clone computer disk(s) and save a
save-parts         Clone computer disk partition(s)
restore-disk       Restore an image onto the compute
restore-parts      Restore an image onto a disk part
select-in-client   Choose save/restore in client (ui)

<Ok>          <Cancel>

```

Leave the two last options as they are and click "ok" and we are done!

Create desktop shortcuts to start and stop Clonezilla (Optional)



I highly recommend you create shortcuts on your server's desktop to "start", "start using multicasting" and "stop" clonezilla server. This will make it a lot easier, since, sometimes you might want to clone a group of computers at the same time using multicasting. This way you can do it by the click of a button instead of having to reconfigure the server. Also, multicasting is picky and it does not always work on all computers. In case multicasting does not work for you, you can always go back to regular Clonezilla operating mode just by clicking on a shortcut, etc. Stopping the Clonezilla is also convenient when you need to restart, or to disable the DRBL so it does not interfere with other DHCP servers on the network.

"Start Clonezilla" Shortcut -> StartServerWithMenu.sh

```
vim /scripts/StartClonezillaServerMulticast.sh
```

fill with this content:

```

#debian
#!/bin/bash
echo "starting dhcp server"
dhcpd start
echo "starting clonezilla server in choose select_in_client mode"
/usr/sbin/drbl-ocs -b -l en_US.UTF-8 -y1 -p choose select_in_client

#ubuntu
#!/bin/bash
echo "Clonezilla Starting"
/etc/init.d/dhcp3-server start
/opt/drbl/sbin/drbl-ocs -b -l en_US -y1 -p choose select_in_client

```

"Start Clonezilla Using Multicasting" Shortcut -> Start-Clonezilla-Multicasting.sh

```

#ubuntu
#!/bin/bash
echo "Clonezilla Starting"/etc/init.d/dhcp3-server start
/opt/drbl/sbin/drbl-ocs -b -g auto -e1 auto -e2 -x -j2 -p reboot --clients-to-wait 8 --max-time-to-wait 100 -l en_US.UTF-8 startdisk multicast_restore CLIENT-NAME sda

#debian
#!/bin/bash
while true; do
read -p "please enter name of image you want to deploy:" image
done

echo "starting dhcp server"
dhcpd start

echo "starting to offer image to PXE clients:" $image;

/usr/sbin/drbl-ocs -b -g auto -e1 auto -e2 -x -j2 -p reboot --clients-to-wait 8 --max-time-to-wait 100 -l en_US.UTF-8 startdisk multicast_restore $image sda

```

Substitute "CLIENT-NAME" with the name of the image you wish to use for cloning your clients.

"Stop Clonezilla" Shortcut -> Stop-Clonezilla.sh

```
#ubuntu
```

```
#!/bin/bash
echo "Clonezilla Stopping"
/opt/drbl/sbin/clean-dhcpd-lease
'/etc/init.d/dhcp3-server' stop
/opt/drbl/sbin/drbl-ocs stop
```

```
#debian
```

```
#!/bin/bash
echo "Clonezilla Stopping"
echo "stopping dhcp server"
dhcpd stop
echo "stopping clonezilla server"
/usr/sbin/drbl-ocs stop
```

Right-click on your newly created shortcut, select **Properties** and click on the **Permissions** tab and check **Enable executing file as a program**.

Making and Restoring an Image

Now that you have your server up and running you need to learn how to use clonezilla, I have written a tutorial for this.

– See more at: <http://www.geekyprojects.com/cloning/setup-a-clonezilla-server-on-ubuntu/#sthash.tDBqPvs8.dpuf>

sources: <http://free.nhc.org.tw/pmwiki/>