# Instructional Lab Imaging Notes

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*ABSTRACT*

This document will explain how deploy new systems in the instructional labs via an almost completely automated imaging process. By the end, you should have a good understanding of how to clone computers over the network with very little hands-on attention needed.

Once deployed, systems will be administered by using Windows Active Directory (see the companion document **Instructional Lab Management Notes**) for full details. An AD system enables the remote management of things such as printers, software, and updates.

## 1. Setting Up the Environment

The set up begins with a straightforward Linux install (I'm going to use Ubuntu Server because there are packaged debs of Clonezilla for that system).

### Dependencies

Begin by adding the required repos to your system (append these to /etc/apt/sources.list)

```
# DRBL repos
deb http://free.nchc.org.tw/ubuntu maverick main restricted universe multiverse
deb http://free.nchc.org.tw/drbl-core drbl stable
```

You will need to add the GPG keys of the DRBL/Clonezilla team to your system. Consult **apt-key(8)** for details about how to do this. At the time of writing, keys were available via the following command

```
wget http://drbl.nchc.org.tw/GPG-KEY-DRBL
```

After this is done, you should be able to just do a

```
sudo apt-get update
```

and then follow it with a

```
sudo apt-get install clonezilla
```

The next round of dependencies are going to be handled by just running:

```
/opt/drbl/sbin/drblsrv-offline -s `uname -r`
```

You should be asked to install the following stuff:

```
sudo apt-get install util-linux tar gzip bzip2 lzop pigz pbzip2 procps \
  dialog rsync parted pciutils tcpdump bc gawk hdparm sdparm netcat file \
  ethtool etherwake ssh syslinux mtools reiserfsprogs e2fsprogs psmisc \
  locales wget disktype zip unzip patch iproute traceroute iputils-ping \
  binutils expect ntfsprogs partimage udpcast initscripts tftpd-hpa \
  nfs-kernel-server nis curl lftp iptables libdigest-sha1-perl udev
  clonezilla mkswap-uuid partclone drbl-chntpw mkpxeinitrd-net gpxe \
  freedos lvm2 ntfs-3g genisoimage mkisofs lshw hwinfo aoetools vblade \
  dmidecode lzop lzma xz xz-utils pxz lzip pigz pbzip2 lbzip2 plzip \
  hfsutils hfsprogs dmsetup dmraid kpartx device-mapper tofrodos dos2unix \
  unix2dos gdisk btrfs-tools ufsutils disktype
```

(Some of this should already be installed, but the drblsrv-offline script won't let you advance without these deps.)

**Configuring Clonezilla Server**

Now that the deps are installed, run

```
sudo /opt/drbl/sbin/drblpush -i
```

This will ask a series of questions. Most of them *are not applicable.* My setup deviates quite a bit from what DRBL/Clonezilla defaults to, so I'll list things that you can safely ignore in the following configuration:

- DNS
- NIS/YP
- naming prefix
- having only one NIC
- collecting lists of MAC addrs (say *no* to *Do you want to let the DHCP server offer the same IP...*)

Use the whole subnet, e.g. there are 253 hosts between 128.104.227.2 and 128.104.227.254. No diskless linux. Use *Clonezilla Box Mode.* Using the path /home/partimag is fine. No password, no boot prompt (unless you want to). Use graphical boot. No NAT. There will be a little message about how the DRBL server is in the same IP address space as a potential host. This isn't a problem because we're using department DNS and there is no conflict there. *Clonezilla/DRBL will generate a bunch of messages now, and then we're done*

**Wrinkles**

Unfortunately there are a few things to take care of if we want to use this setup with the existing department infrastructure.

We have to tell clients that they don't need to require the DRBL server to be named "DRBL"

```
/opt/drbl/sbin/mknic-nbi --check-server-name n
```

You'll have to edit /etc/exports (DRBL seems to screw them up) [TODO : Anything else???]

Fix tftpd if it is busted.

**2. Running Clonezilla**

After all that clonezilla is ready to go. Just run

```
sudo /opt/drbl/sbin/dcs
```

and answer all questions. Select hosts by IP address rather than some other way (there shouldn't be any other options, if it was configured as above).

## 3. Miscellaneous

I had a bunch of network failures the first time I set things up. These were related to *tftp-hpa* not realling being installed (although it had claimed to be). The answer was to make sure that it was really getting started by init. This is related, but I was getting bitten by the partial migration to **upstart** that Ubuntu 10.10 was going through at the time.