



Cloning

Cloning Software

Software	Free and Open Source Software	Compatible Operating Systems
Ghost	no	Windows
Clonezilla	yes	Windows, Linux
Acronis	no	Windows

Clonezilla



Inveneo uses Clonezilla to create new computer images and to image existing machines

What is an Image?



An image is a copy of everything on the computer, including programs, configurations and user files. The image is created and used by Clonezilla.

Device to Image



After the first computer is configured correctly, an image of the first computer is created that can be used on the other computers.

Image to Machine

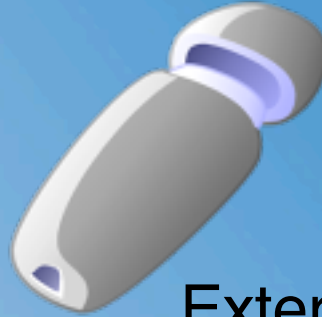


Once the image is created, it can be copied to other computers.

Necessary Hardware



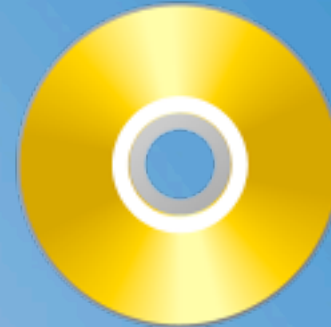
Computer



External Hard Drive
Or USB Stick

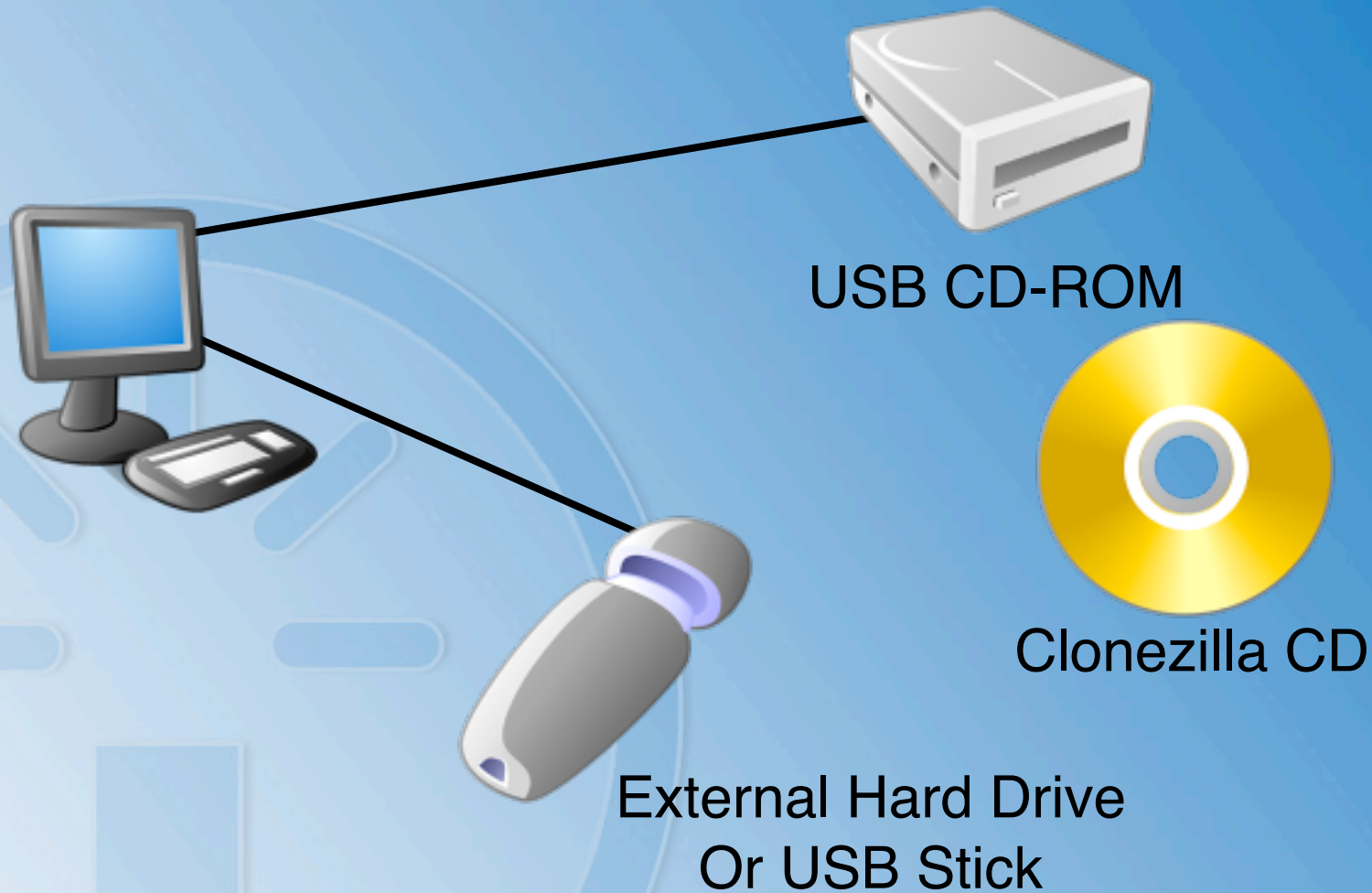


USB CD-ROM



Clonezilla CD

How the Parts Work Together



Keeping Images Organized

Creating a naming scheme will allow you to easily find the correct image as your image library grows.

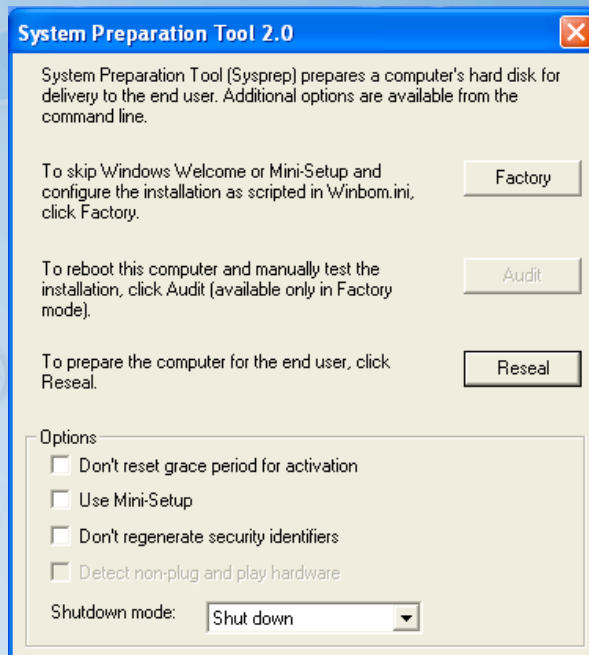
XP-UNHCR-ASUS160gb-2009-03-13

OS Name-Client-Computer&HDDsize-Date

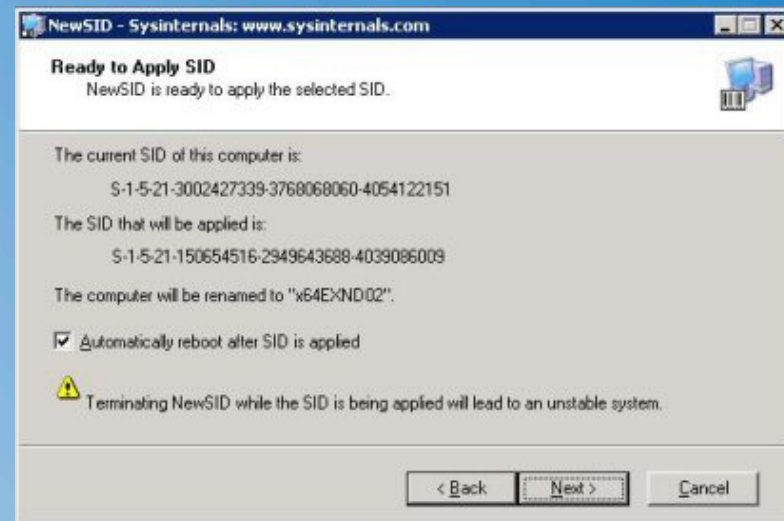
Imaging XP

Replacing the SID

Sysprep



NewSID



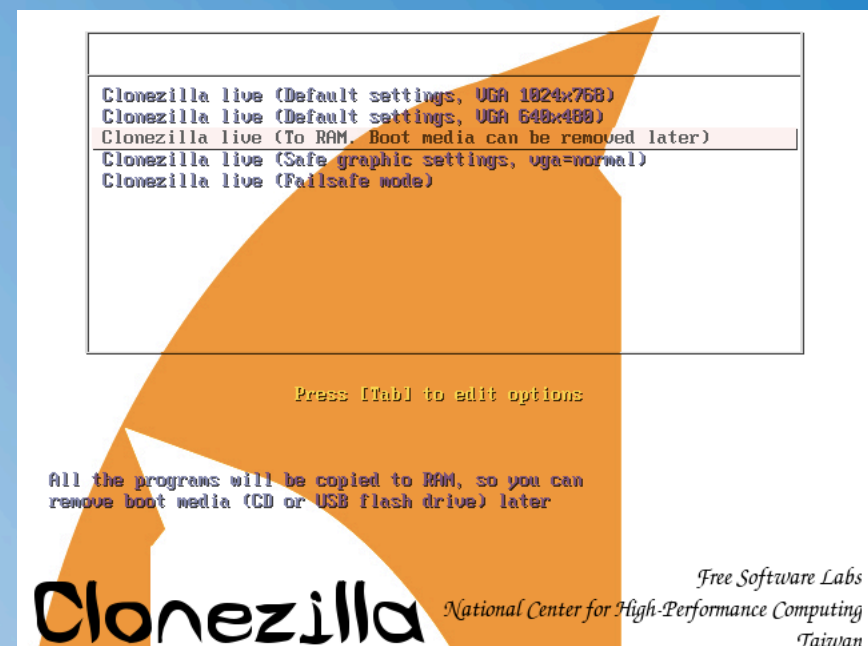
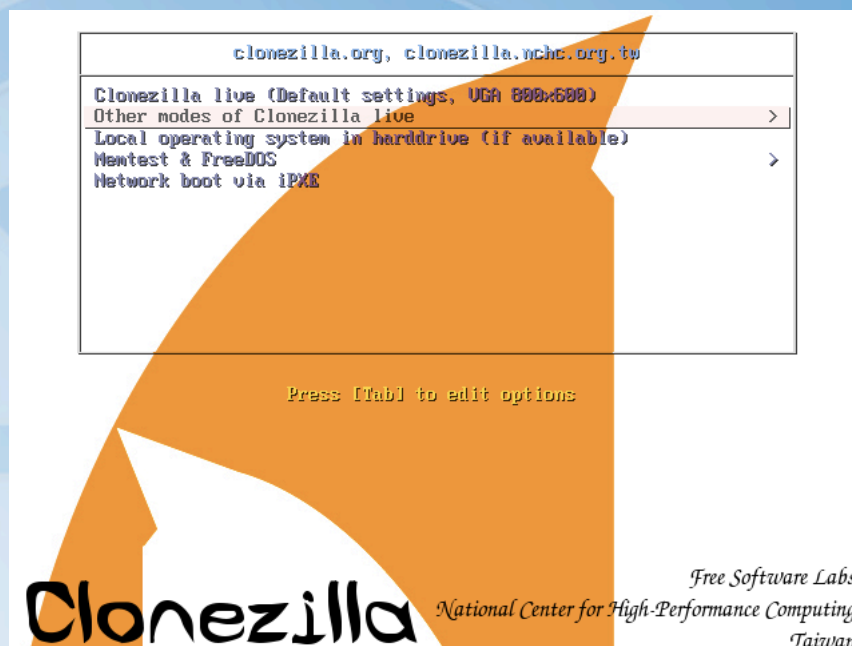
Exercise: Cloning a Computer

Now its time for you to clone a machine yourself. You will take an existing image and put it on a computer.



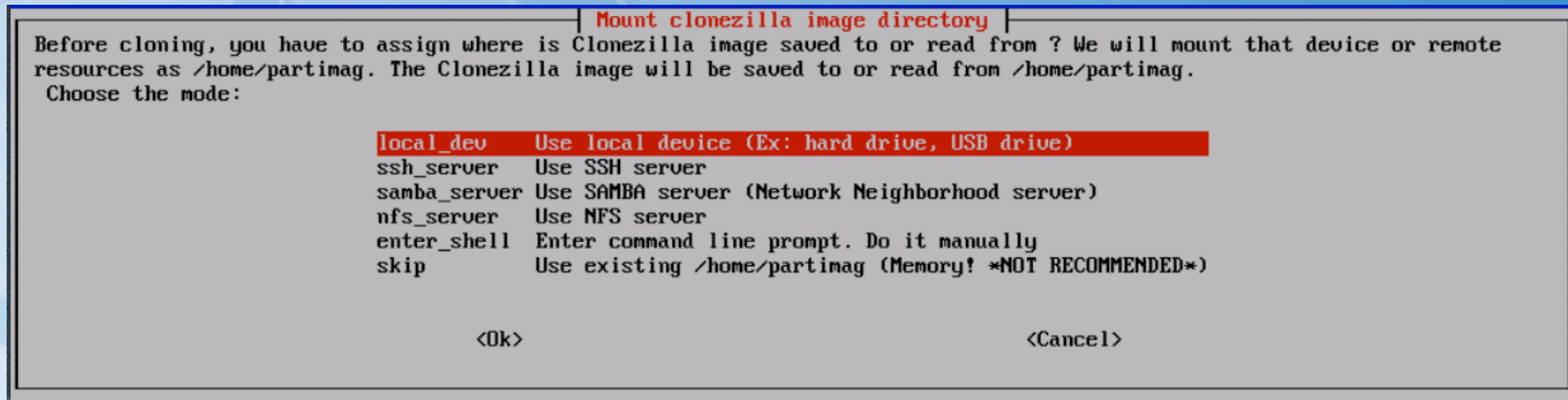
Cloning Instructions

1. Boot from the Clonezilla USB key or CD
If image is on an external hard drive or USB key, have it ready (step 10)
2. Choose **Other modes of Clonezilla live**
3. Choose **Clonezilla live (To RAM)**

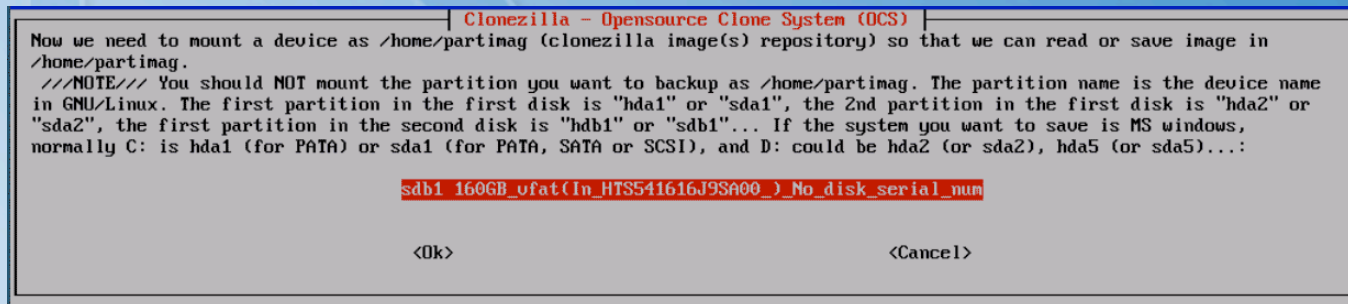


4. Choose the language settings for Clonezilla, **English**
5. Under Configure console-data, choose **Don't touch keymap**

6. Choose **Start_Clonezilla Start Clonezilla**
7. Choose **device-image disk/partition to/from image**
8. On the Mount Clonezilla Image Directory screen, Clonezilla needs to know where to copy the image from. Clonezilla can copy the image to another computer on a network. However, this method can be very complicated. The easiest way is to copy the image to an external hard drive, by selecting **local_dev Use local device** (Ex: hard drive, USB drive)



9. If the image is on an external hard drive or USB drive, plug it into the computer now. Wait 10 seconds. Press **Enter**
10. Clonezilla needs to know where the external hard drive is located.
Typically, Clonezilla will display all the drives, including the drives of the computer. The computer's drive is usually listed as sda1 or hda1. Generally, the last option is the external hard drive, listed as sdb1, if the computer you are cloning only has one hard drive. Looking at the hard drive size can help determine which drive is the computer's and which drive is the external hard drive's. Select the external hard drive.



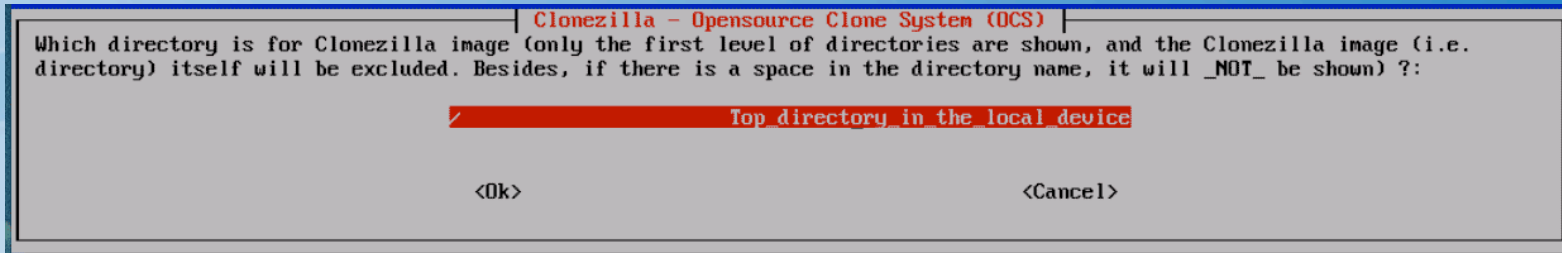
```
Clonezilla - Opensource Clone System (OCS)
Now we need to mount a device as /home/partimag (clonezilla image(s) repository) so that we can read or save image in
/home/partimag.
///NOTE/// You should NOT mount the partition you want to backup as /home/partimag. The partition name is the device name
in GNU/Linux. The first partition in the first disk is "hda1" or "sda1", the 2nd partition in the first disk is "hda2" or
"sda2", the first partition in the second disk is "hdb1" or "sdb1"... If the system you want to save is MS windows,
normally C: is hda1 (for PATA) or sda1 (for PATA, SATA or SCSI), and D: could be hda2 (or sda2), hda5 (or sda5)...:

sdb1 160GB_ufat(In_HTS541616J9SA00_)_No_disk_serial_num

<Ok>                                <Cancel>
```

*If the external drive is formatted NTFS, Clonezilla will ask you if you are sure you want to continue. Answer **y**

11. Clonezilla needs to know where on the external hard drive to find the image. The easiest place to find the image is on the top level, not in folder. If images were placed in folder, you will need to select the proper folder, otherwise choose / **Top_directory_in_the_local_device**



12. Clonezilla will ask if you want Beginner or Expert mode. Select **Expert** **Expert Mode: choose your own options**

13. Clonezilla is asking if you want to create an image of the computer or put an existing image on the computer. In this case, Clonezilla will create an image of the computer and put that image on an external hard drive. Choose **restoredisk restore_an_image_to_local_disk**

```

| Clonezilla: Choose the mode |
*Clonezilla is free (GPL) software, and comes with ABSOLUTE NO WARRANTY*
This software will overwrite the data on your harddrive when restoring! It is recommended to backup important files
before you restoring!***
///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///
Choose the mode:

savedisk      Save_local_disk_as_an_image
*restoredisk  Restore_an_image_to_local_disk
saveparts     Save_local_partitions_as_an_image
restoreparts  Restore_an_image_to_local_partitions
exit          Exit. Enter command line prompt

<Ok>                                <Cancel>

```

14. Clonezilla will display a list of all the images it sees on the hard drive in the directory selected in step 11.

```

| Clonezilla - Opensource Clone System (OCS) |
Choose the image file to restore:

w2k3-UNHCR-120g-2009-03-11 2009-03-11 01:56 sda
xp-UNHCR-French-Fit60g-2009-03-12 2009-03-12_19:40
xp-UNHCR-French-ION40g-2009-03-13 2009-03-12_19:42

<Ok>                                <Cancel>

```

15. Select which hard drive to put the image on. If the computer only has one hard drive, only one choice will be listed.
16. Tell Clonezilla the options/parameters for copying the image on the hard drive. Select **-g auto** , **-e1 auto** , **-e2** , **-nogui** and **-j2**.

```

Clonezilla advanced extra parameters | Mode: restoredisk
Set advanced parameters (multiple choices available). If you have no idea, keep the default
values and do NOT change anything. Just press Enter. (Press space key to mark your selection. An
asterisk (*) will be shown when the selection is done)

[*] -g auto   Reinstall grub in client disk MBR (only if grub config exists)
[*] -e1 auto   Automatically adjust filesystem geometry for a NTFS boot partition if exists
[*] -e2       sfdisk uses CHS of hard drive from EDD(for non-grub boot loader)
[ ] -hn0 PC    Change MS Win hostname (based on IP address) after clone
[ ] -hn1 PC    Change MS Win hostname (based on MAC address) after clone
[ ] -v        Prints verbose messages (especially for udpcast)
[*] -nogui    Use text output only, no TUI/GUI output
[ ] -batch    Run clone in batch mode (DANGEROUS!)
[ ] -c        Client waits for confirmation before cloning
[ ] -t        Client does not restore the MBR (Master Boot Record)
[ ] -t1       Client restores the prebuilt bootloader from syslinux (For Windows only)
[ ] -r        Try to resize the filesystem to fit partition size
[ ] -e        sfdisk uses the CHS value of hard drive from the saved image
[ ] -icrc     Ignore CRC checking of partclone
[ ] -j1       Write MBR (512 B) again after image is restored. Not OK for partition table differ
[*] -j2       Clone the hidden data between MBR and 1st partition
[ ] -cm       Check image by MD5 checksums
[ ] -cs       Check image by SHA1 checksums
[ ] -a        Do NOT force to turn on HD DMA
[ ] -o0       Run script in $OCS_PRERUN_DIR before clone starts
[ ] -o1       Run script in $OCS_POSTRUN_DIR as clone finishes

<OK>                                <Cancel>

```

17. Tell Clonezilla additional options for cloning. Choose **Use the partition table from image**.

```
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:

Use the partition table from image
-k Do NOT create partition table in target disk
-k1 Create partition table proportionally (OK for MBR format, not GPT)
-k2 Enter command line prompt to create partition manually later
-j0 Use dd to create partition table (NOT OK as logical drives exist)
exit Exit

<Ok> <Cancel>
```

18. After cloning, tell Clonezilla to poweroff, **-p poweroff**

19. Let me ask you again, Are you sure you want to continue?? **y** and **Enter**

20. Clonezilla will now image the computer

After Imaging

1. Unplug the USB peripherals.
2. Boot the computer.
3. Verify the image successfully transferred to the computer.
4. Change the boot order in the BIOS, so the hard drive is the first boot option.