



[About](#)
[News](#)
[Screenshots](#)
[Live CD/USB](#)
[Live Docs](#)
[Server Edition](#)
[Download](#)
[CD/USB key vendors](#)
[DRBL-winroll](#)
[Related LiveCD](#)
[Testimonials](#)
[Lecture Materials](#)
[Related Articles](#)
[Partners](#)
[FAQ/Q&A](#)
[Forum](#)
[Mailing Lists](#)
[Developers](#)
[Contributors](#)
[Related links](#)
[Local communities](#)

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Clonezilla

The Free and Open Source Software for Disk [Imaging](#) and [Cloning](#)

Save disk image

In this example: Save 1st disk (sda) as an image on 2nd disk (sdb) (Step by step)

1. [Boot the machine via Clonezilla live](#)
2. [The boot menu of Clonezilla live](#)
3. [Here we choose 800x600 mode, after pressing Enter, you will see Debian Linux booting process](#)
4. [Choose language](#)
5. [Choose keyboard layout](#)
6. [Choose "Start Clonezilla"](#)
7. [Choose "device-image" option](#)
8. [Choose "local_dev" option to assign sdb1 as the image home](#)
9. [Select sdb1 as image repository, then choose "savedisk" option](#)
10. [Input image name and select source disk](#)
11. [Clonezilla is saving disk image \(sda\) to the partition of 2nd disk \(sdb1\)](#)

[\[Back to 'Clonezilla Live Doc'\]](#)

- [Boot the machine via Clonezilla live](#) [^TOP^](#)

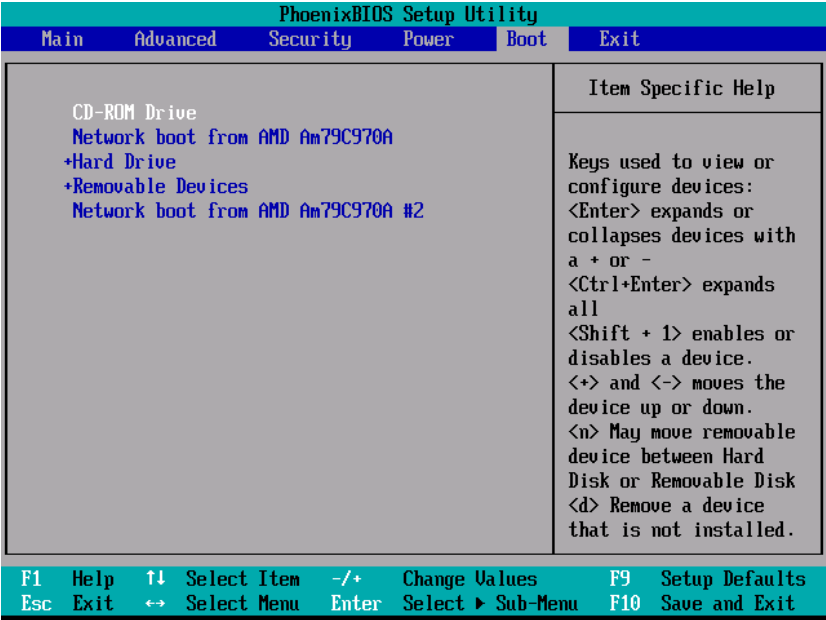
In this example, the machine has 2 disks, 1st disk's name is sda (device name in GNU/Linux), 2nd disk's device name is sdb. The size of disk sda is 8 GB with Ubuntu Xenial (16.04) installed. There are 2 partitions (sda1, sda2, sda5) on disk sda as shown in the following:

Partition	File System	Size	Used	Unused	Flags
/dev/sda1	ext4	7.00 GiB	1.43 GiB	5.57 GiB	boot
/dev/sda2	extended	1.00 GiB	---	---	
/dev/sda5	linux-swap	1023.00 MiB	0.00 B	1023.00 MiB	

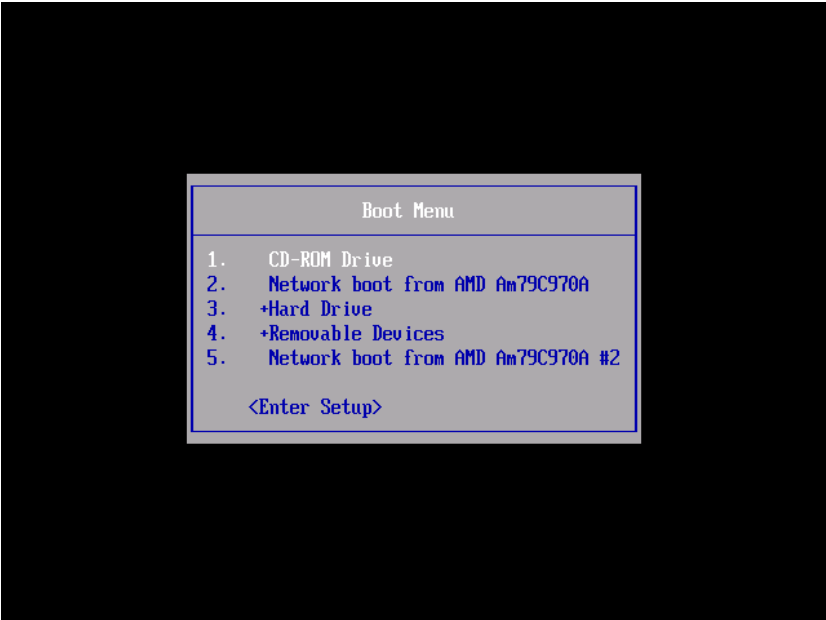
0 operations pending

Once you have the bootable Clonezilla Live CD/DVD or USB flash drive, you can boot the machine you want to clone via Clonezilla live. **Remember to use the Clonezilla live CD or USB flash drive to boot the machine.** For example, if you have Clonezilla Live in USB flash drive, you have to boot it via USB device (Ex. USB-HDD or USB-ZIP). If necessary, you can set the first boot priority in the BIOS as USB-HDD or USB-ZIP so that it can boot Clonezilla Live from your USB flash drive.

Here we take CD as an example. You can either set CD as first boot priority in machine's BIOS like this:

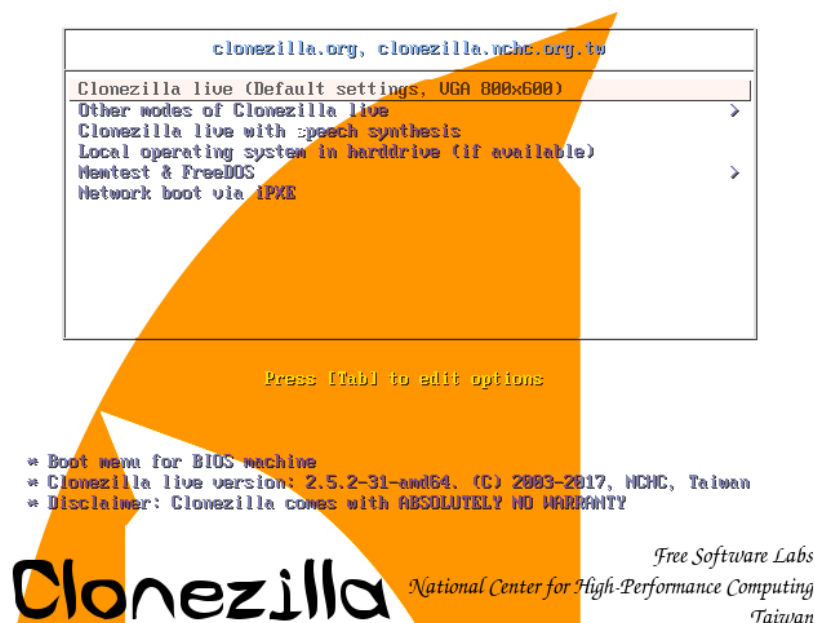


Or by pressing a hotkey (e.g. Esc, F9 or maybe F12) when you boot the machine, you will see the boot menu of BIOS like this:



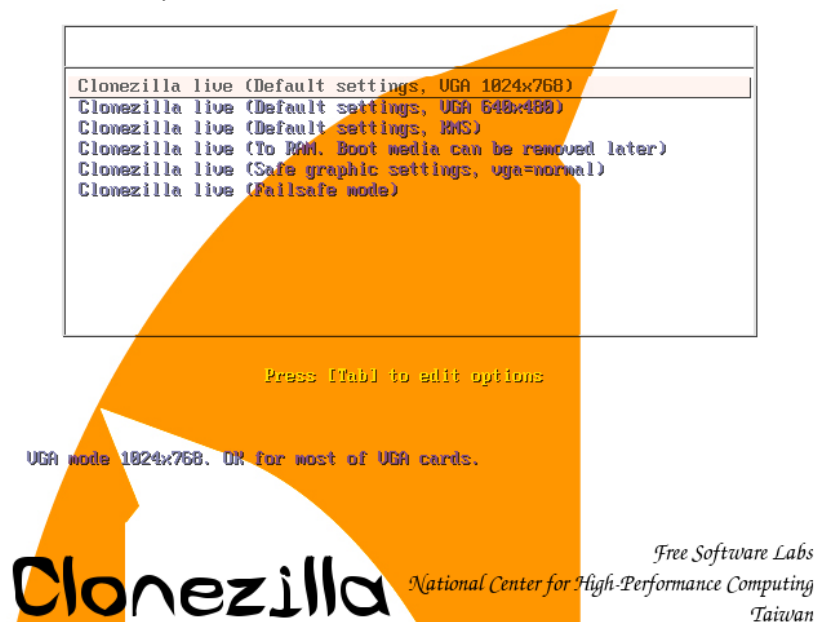
Check your motherboard manual for more details about how to boot your machine via CD.

- The boot menu of Clonezilla live [^TOP^](#)
Here is a screenshot of Clonezilla Live boot menu:



The first one is the default mode for Clonezilla Live. It will default to framebuffer mode with a resolution of 800x600.

There are more modes which you can choose in the 2nd choice "Other modes of Clonezilla live", e.g. 1024x768 or 640x480 one if you want, as shown here:



The choice, "Default settings, KMS" is for you to use [KMS \(Kernel Mode Setting\)](#) for your graphics card. If you have some problem to use the framebuffer mode of your graphics card, you can try it.

The choice, "Clonezilla live (To RAM. Boot media can be removed later)", is the same function with the 1st one except when Clonezilla live booting finishes, all the necessary files are copied to memory. Therefore you can remove the boot media (CD or USB flash drive) then.

If you do not need Chinese or Japanese environment or if your computer experiences problems in the framebuffer mode, you can choose the one "Clonezilla Live (no framebuffer)" to clone in the English environment.

The choice, "Clonezilla live (failsafe mode)", is for something goes wrong when you are not be able to boot your machine, such as ACPI of your machine is not supported in the kernel.

If you want to boot local OS in your harddrive, you can choose the one "Local operating system in harddrive (if available)". This is an extra function in the boot media that has nothing to do with Clonezilla Live.

The choice, "FreeDOS", allows you to boot your machine into [Free DOS](#). This is an extra function in the boot media that has nothing to do with Clonezilla Live.

The choice, "Memory test using Memtest86+", is for memory testing using [Memtest86+](#). This is an extra function in the boot media that has nothing to do with Clonezilla Live.

The choice, "Network boot via iPXEL" is used to perform a network boot via [iPXEL](#). If your computer does not have

a PXE network, you can use this to do boot from a network. This is an extra function in the boot media that has nothing to do with Clonezilla Live.

- Here we choose 800x600 mode, after pressing Enter, you will see Debian Linux booting process [^TOP^](#)

```
[ 3.568433] piix4_smbus 0000:00:07.3: SMBus Host Controller not enabled!
[ 3.585730] sd 2:0:1:0: [sdb] Assuming drive cache: write through
[ 3.586064] sd 2:0:2:0: [sdc] Assuming drive cache: write through
[ 3.588408] sd 2:0:4:0: [sde] Assuming drive cache: write through
[ 3.588422] sd 2:0:0:0: [sda] Assuming drive cache: write through
[ 3.588990] sd 2:0:3:0: [sdd] Assuming drive cache: write through
Starting to prepare Clonezilla live env...
Live media is in /lib/live/mount/medium
Updating /etc/ocs/ocs-live.conf based on kernel parameters if found...
done!
Configuring keyboard...
```

- Choose language [^TOP^](#)

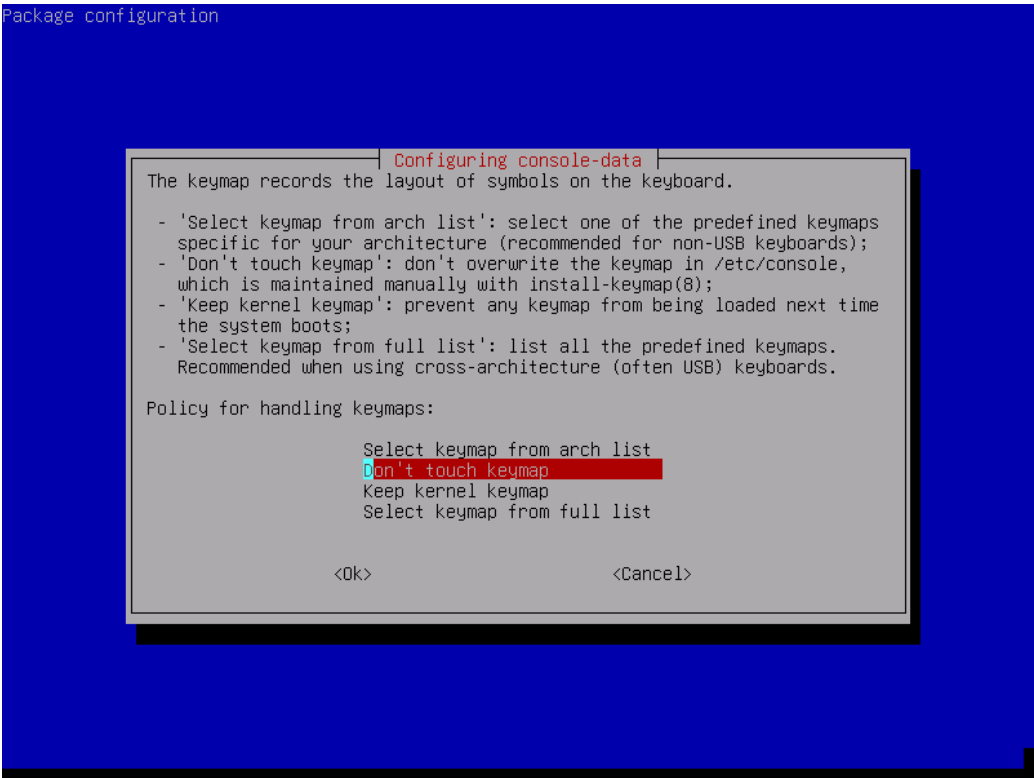
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```
Choose language
Which language do you prefer:

ca_ES.UTF-8 Catalan | Català
de_DE.UTF-8 German | Deutsch
en_US.UTF-8 English
hu_HU.UTF-8 Hungarian | Magyar
es_ES.UTF-8 Spanish | Español
fr_FR.UTF-8 French | Français
it_IT.UTF-8 Italian | Italiano
ja_JP.UTF-8 Japanese | 日本語
pt_BR.UTF-8 Brazilian Portuguese | Português do Brasil
ru_RU.UTF-8 Russian | Русский
sk_SK.UTF-8 Slovak | Slovenský
tr_TR.UTF-8 Turkish | Türkçe
zh_CN.UTF-8 Chinese (Simplified) | 简体中文
zh_TW.UTF-8 Chinese (Traditional) | 正體中文 - 臺灣

<Ok>
```

- Choose keyboard layout [^TOP^](#)

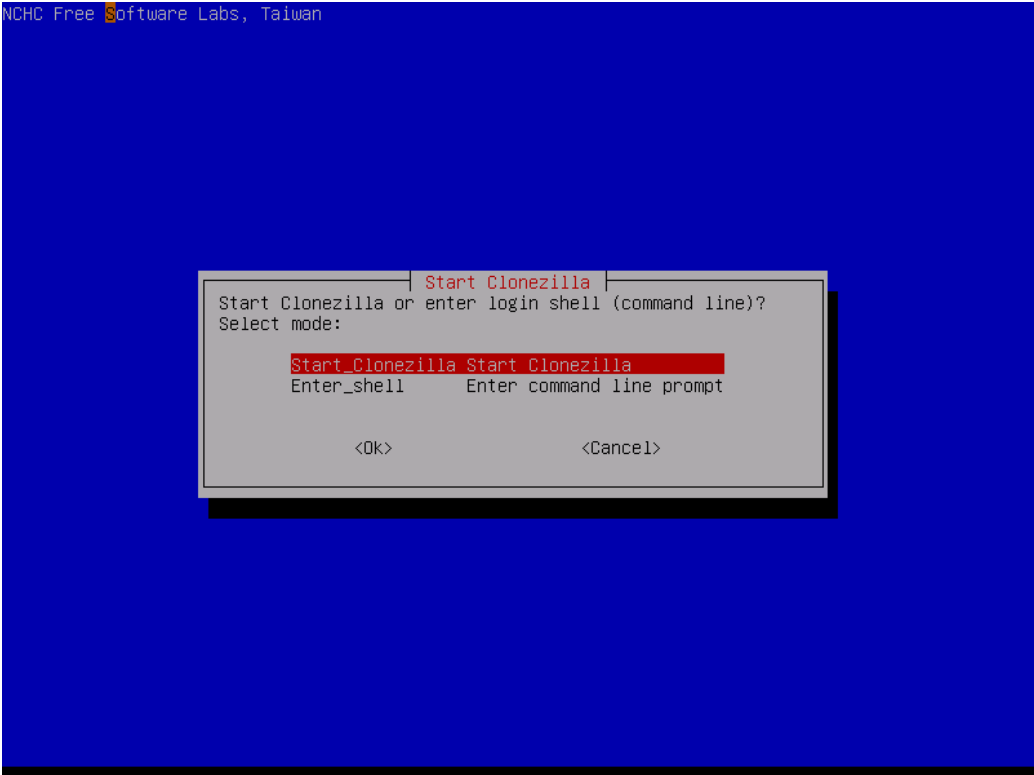


The default keyboard layout is US keyboard, therefore if you are using US keyboard, just press enter (i.e. use the option "Don't touch keymap").

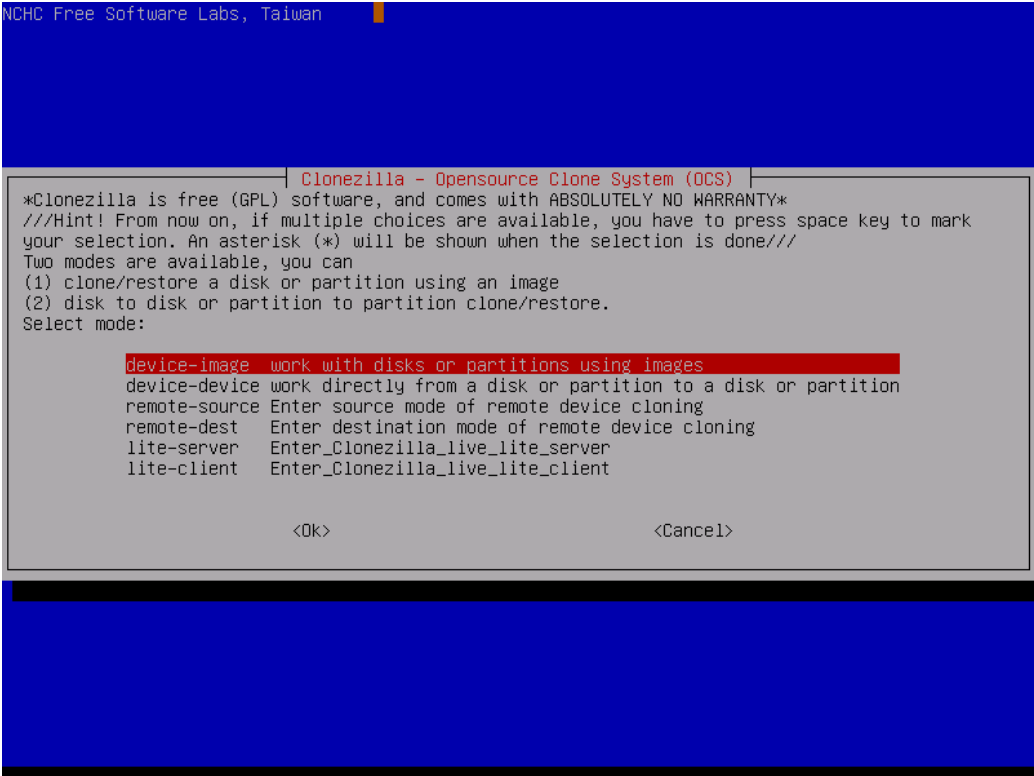
If you want to change keymap, you can either choose "Select keymap from arch list" or "Select keymap from full list".

///NOTE/// There is a bug when choosing French keymap in "Select keymap from arch list", so use "Select keymap from full list" to change keymap if you are using French keyboard.

- Choose "Start Clonezilla" [^TOP^](#)

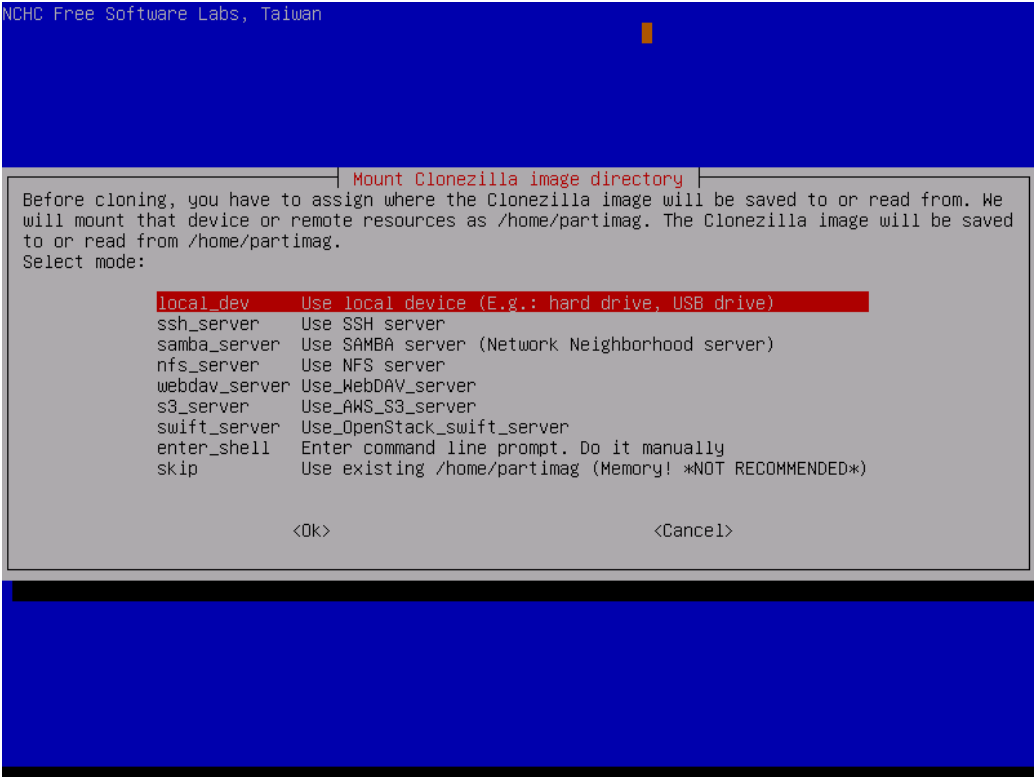



- Choose "device-image" option [^TOP^](#)

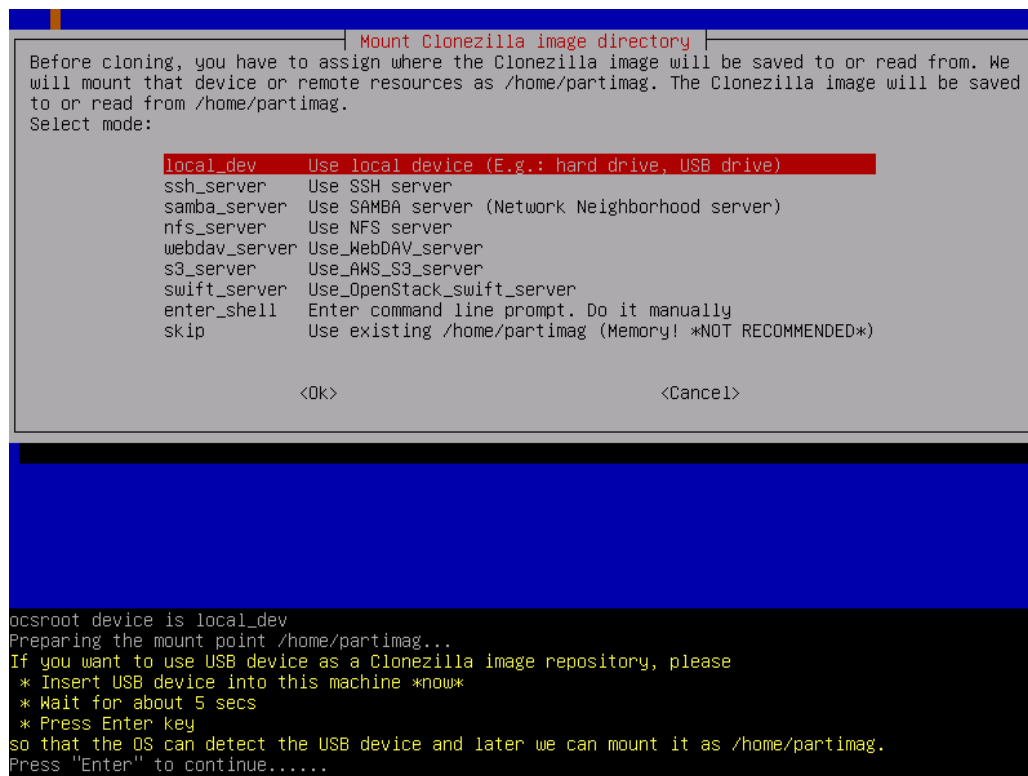


Pay attention to the hints, too. You might need that:
///Hint! From now on, if multiple choices are available, you have to press space key to mark your selection. A star (*) will be shown when the selection is done///

- Choose "local_dev" option to assign sdb1 as the image home [^TOP^](#)



There are other options, e.g. sshfs, samba, nfs or [webday](#), [AWS S3](#) or [Openstack Swift](#)  , you can use when network is available. This is very useful when 2nd local disk is not available.
Since we choose "local_dev" option, we can use 2nd disk or USB flash drive to save 1st disk's image. If using USB flash drive as repository, insert USB flash drive and wait a few secs.

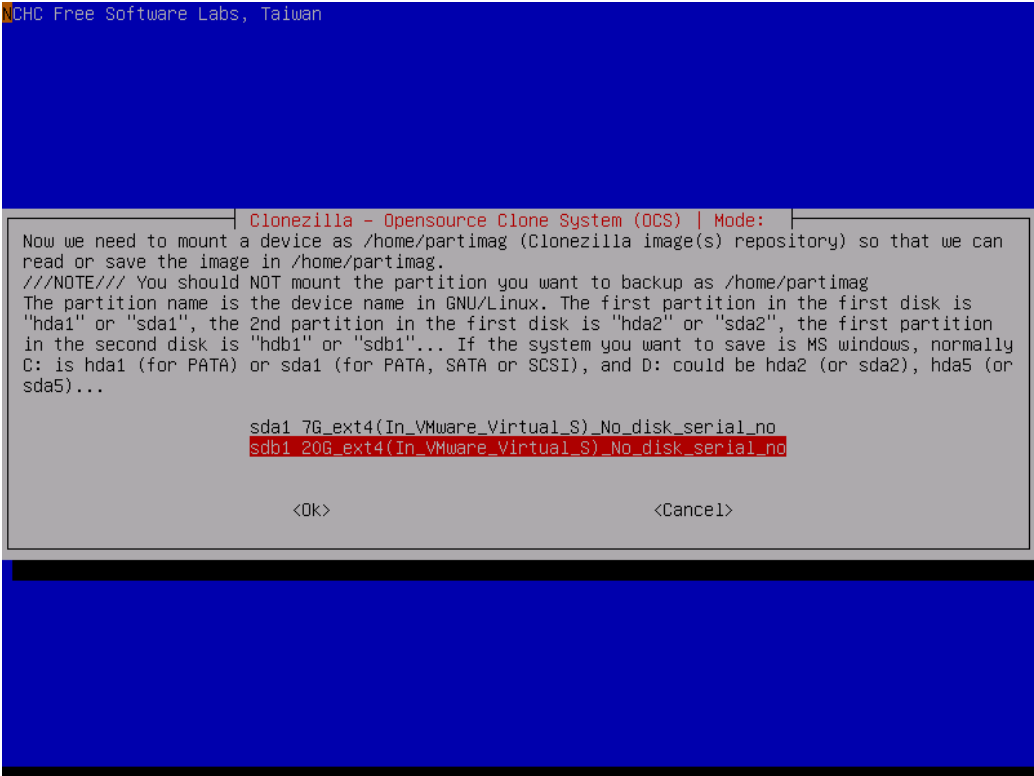


Clonezilla will scan the disks on the machine in every few secs, and show you the results:

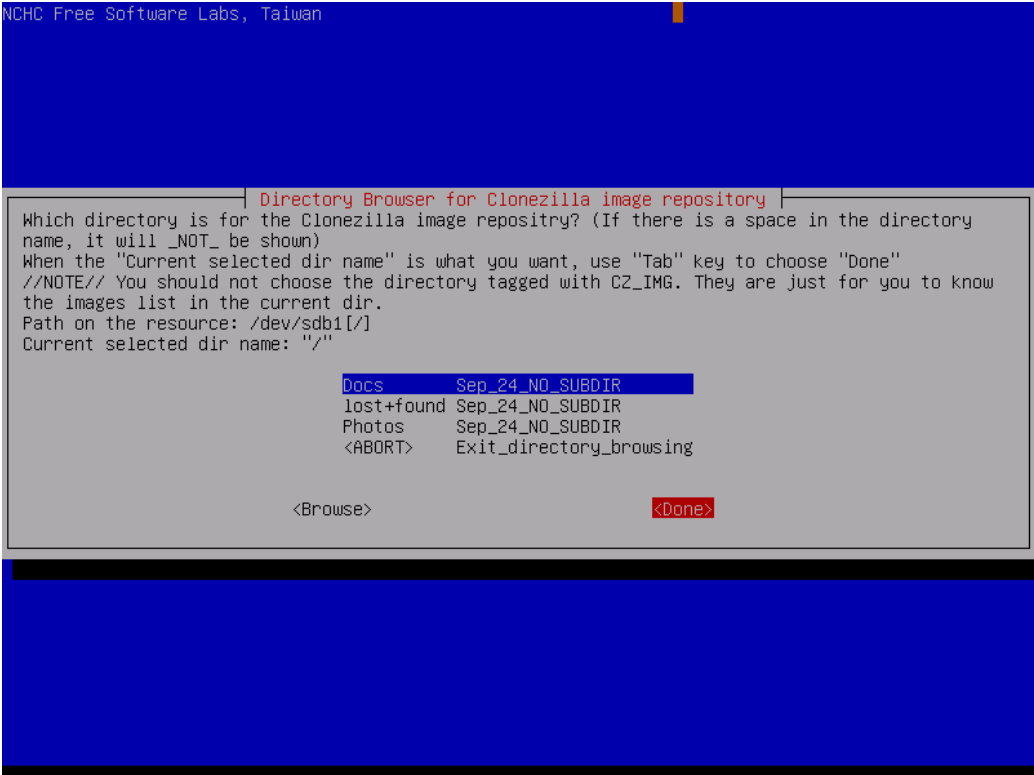
```
Every 3.0s: ocs-scan-disk                                debian: Sun Sep 24 03:35:22 2017
2017/09/24 03:35:22
You can insert storage device into this machine now if you want to use that, then wait for it to be
detected.
Scanning devices... Available disk(s) on this machine:
=====
Excluding busy partition or disk...
/dev/sda: VMware_Virtual_S No_disk_serial_no 8590MB
/dev/sdb: VMware_Virtual_S No_disk_serial_no 8804MB
/dev/sdc: VMware_Virtual_S No_disk_serial_no 21.5GB
/dev/sdd: VMware_Virtual_S No_disk_serial_no 64.4GB
/dev/sde: VMware_Virtual_S No_disk_serial_no 2255GB
=====
Update periodically. Press Ctrl-C to exit this window.
```

Once you see the device you have inserted shown on the status, you have to press **Ctrl-C** to quit the scanning report.

- Select **sdb1** as image repository, then choose "savedisk" option [^TOP^](#)

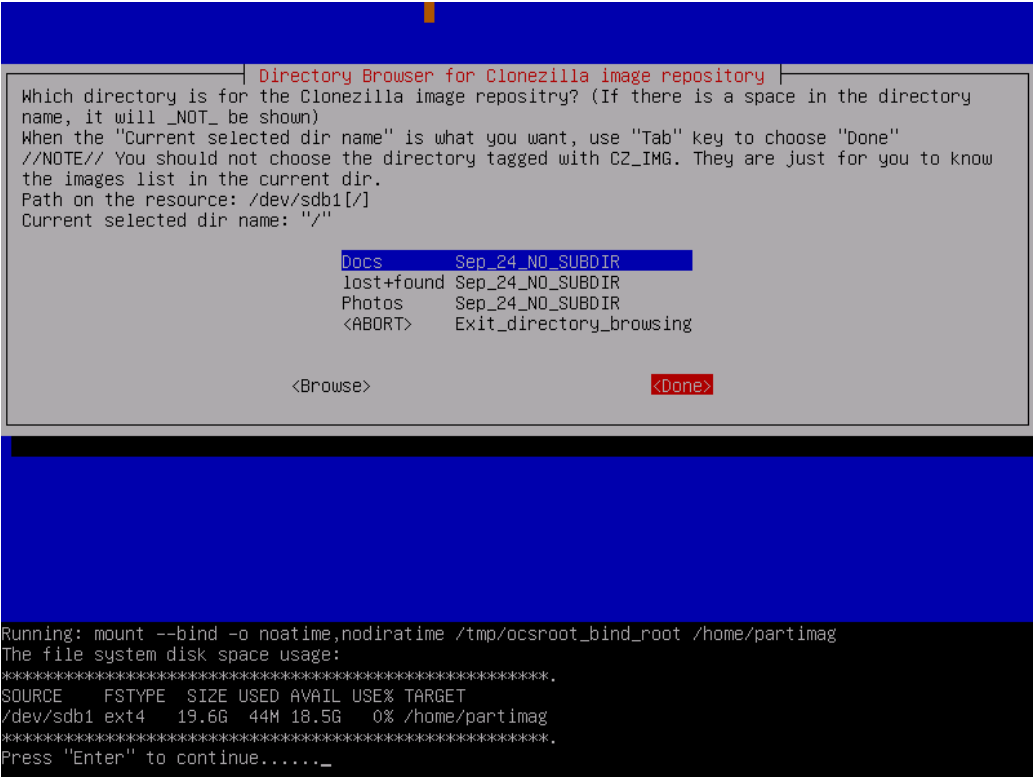


Choose the directory name on /dev/sdb1 as the image repository. Here we put image on the top directory (i.e., Current selected dir name is "/"):



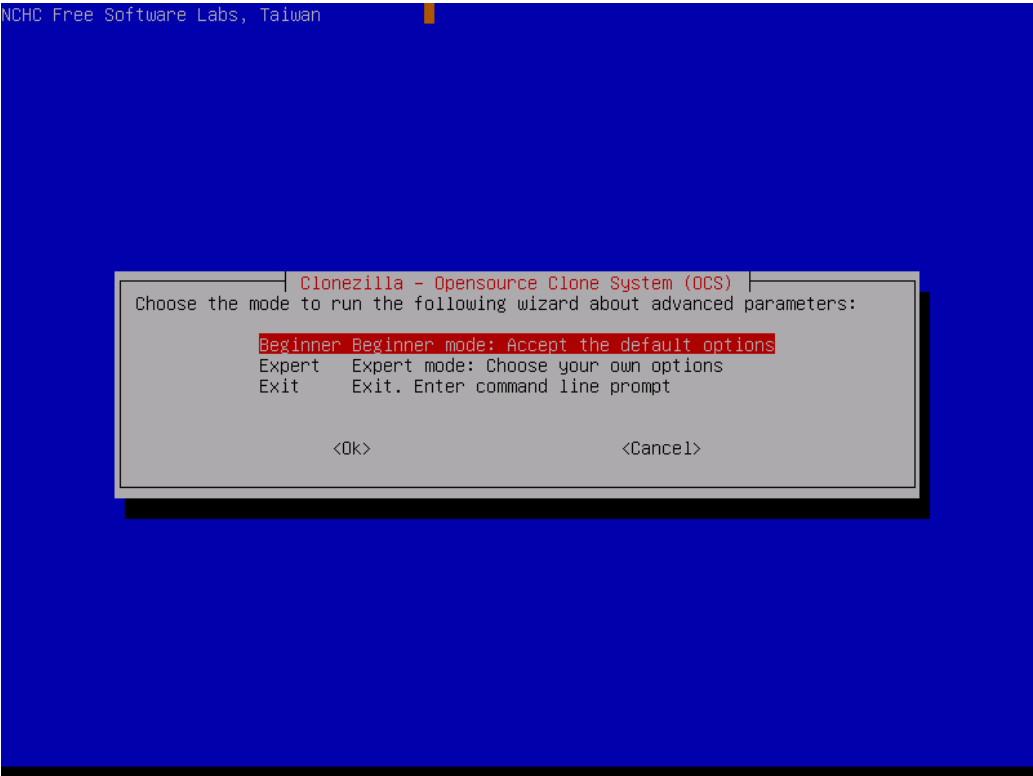
If you are not familiar with the disk or partition name in GNU/Linux, read the hints:
'The partition name is the device name in GNU/Linux. The first partition in the first disk is "sda1", the 2nd partition in the first disk is "sda2", the first partition in the second disk is "sdb1" or "sdb1"... If the system you want to save is MS windows, normally C: is sda1, and D: could be sda2, or sda5...'

Then Clonezilla shows you the disk usage report:

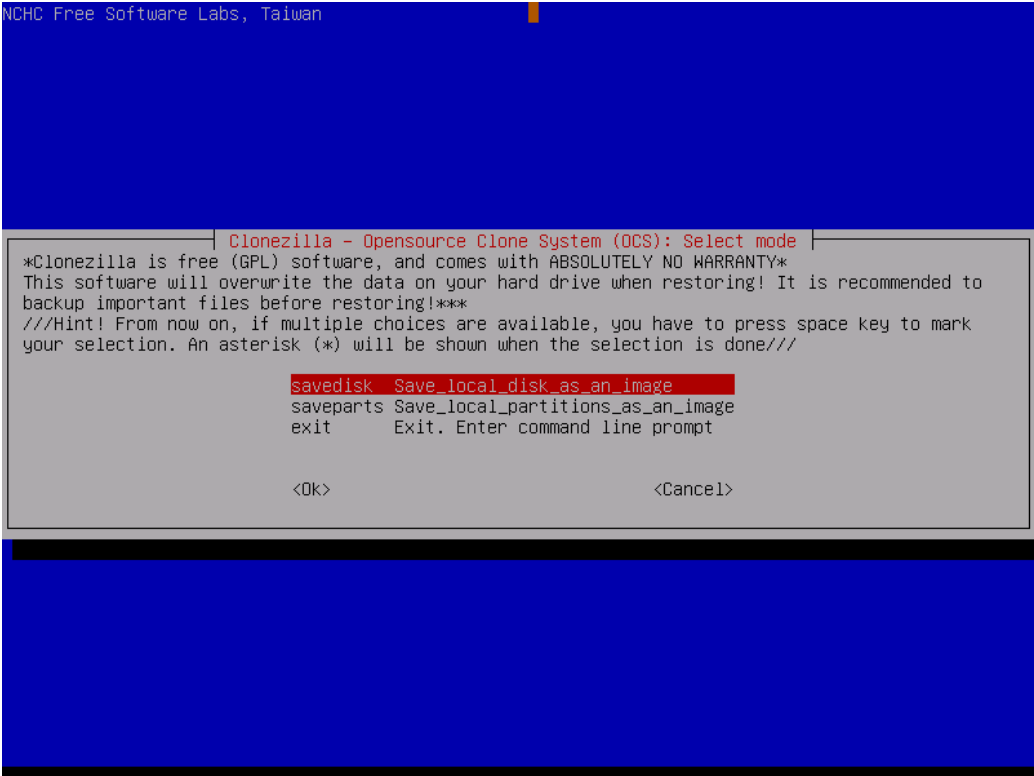


Here we choose "Beginner" mode:

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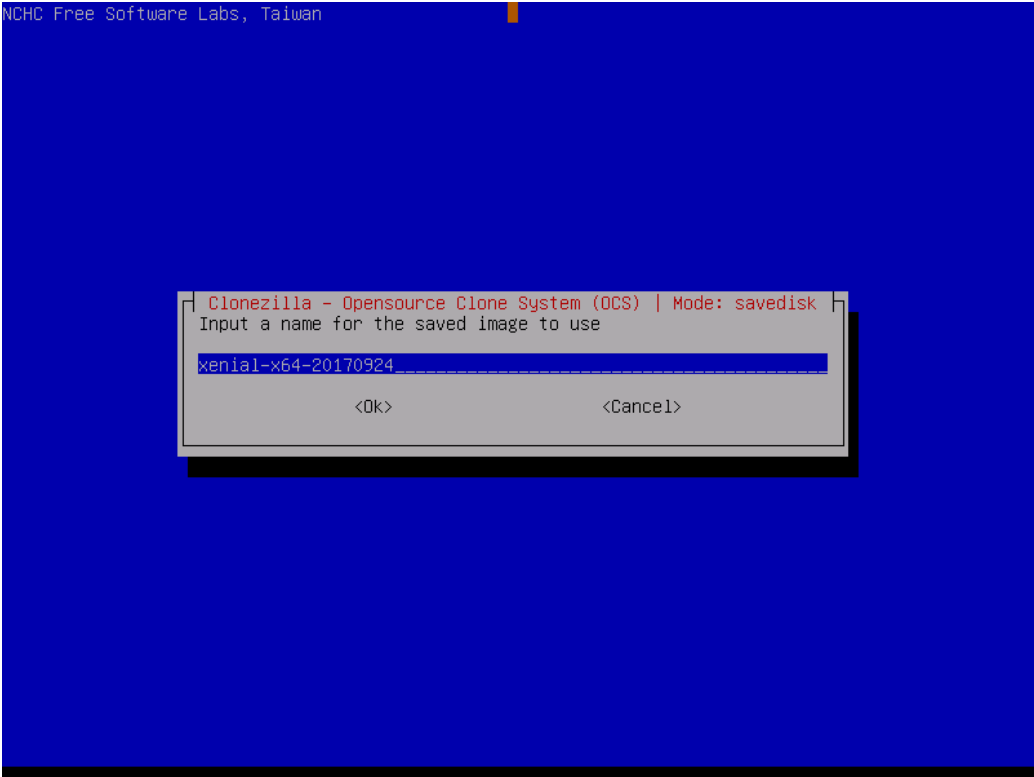
Now we can select "savedisk" option:



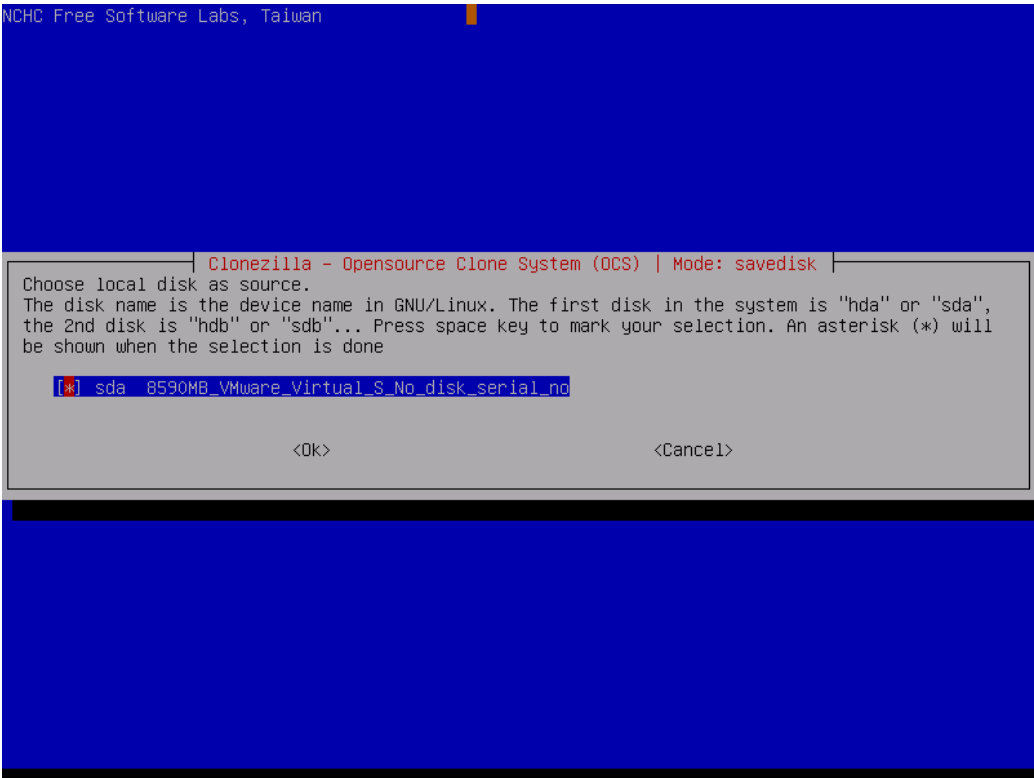
If you choose "Expert" mode, you will have some chances to choose advanced parameters, e.g. imaging program, compression program, etc.. You can see more details [here](#).

- [Input image name and select source disk](#) [^TOP^](#)

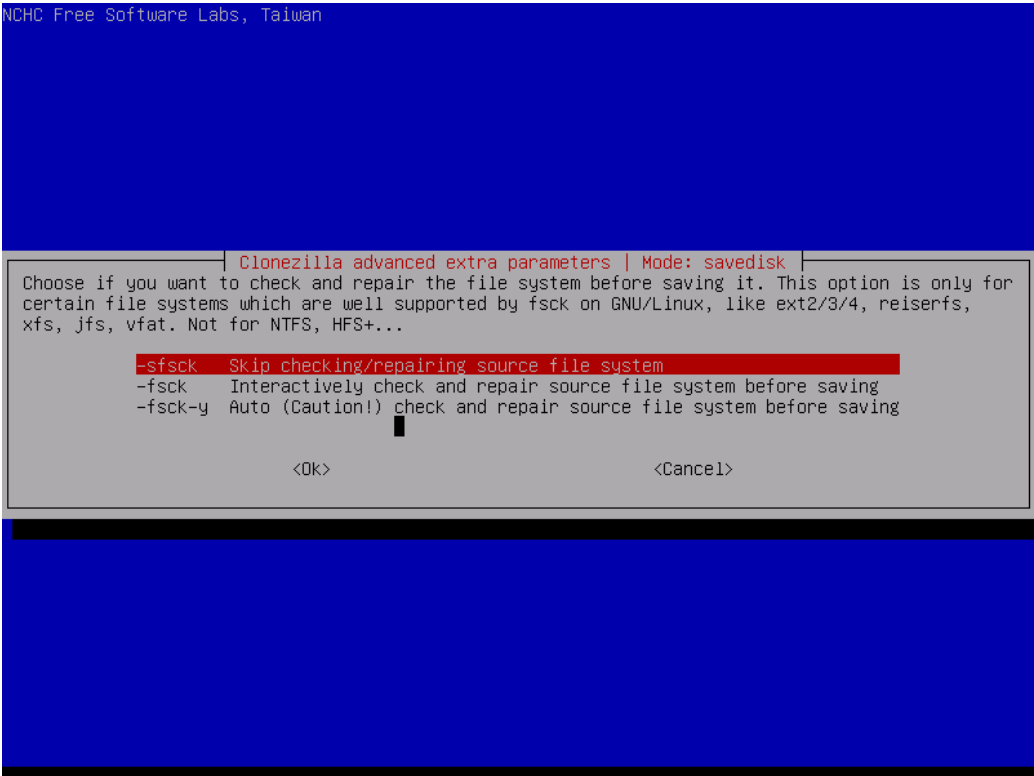
Enter the image name, Clonezilla will give an image name based on date and time, feel free to change it



Select the source disk "sda" we want to save:

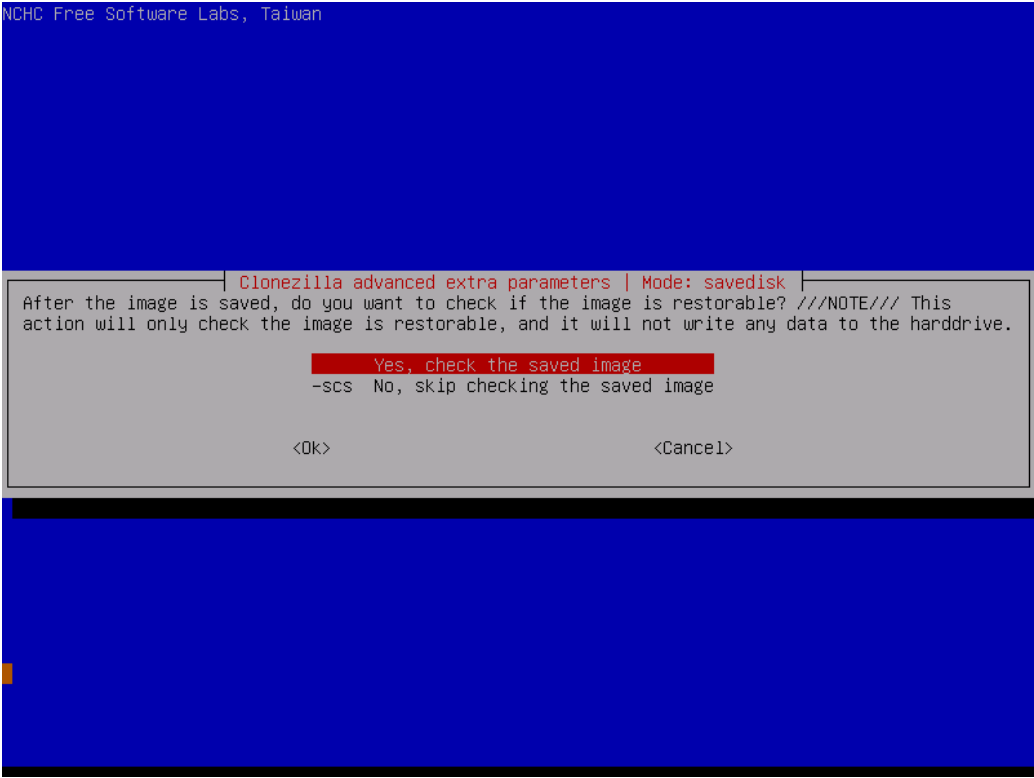


Select if the source file system need to be checked or not:



Here we skip the file system check. However, if you are not sure if the source file system is clean, it's recommended to do such a check.

Select if you want to check the saved image:

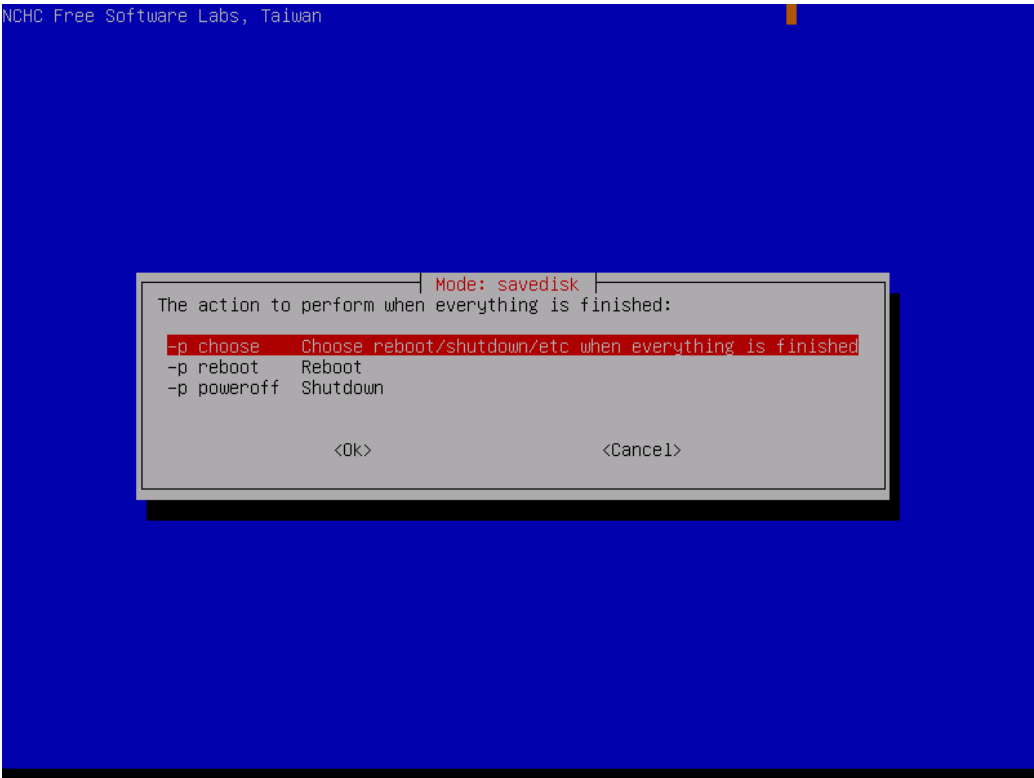


By default this will be done. It's recommended to do such a check.



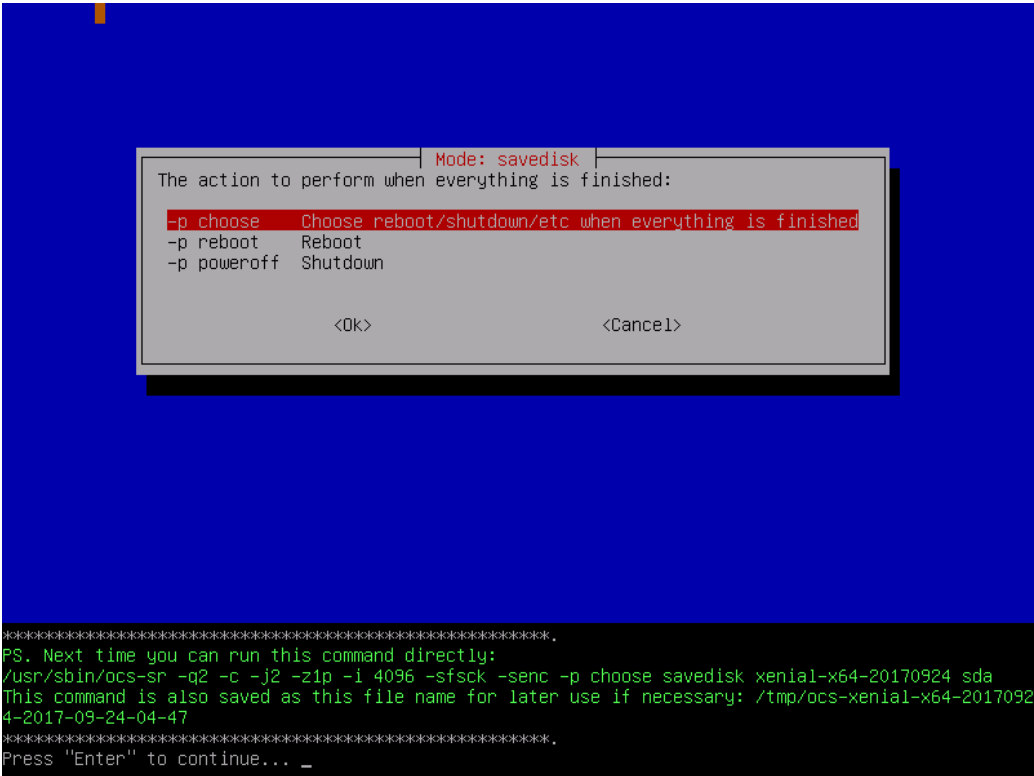
By default the image won't be encrypted. If you want to encrypt the image, it will prompt you to enter a passphrase for the image. **///NOTE/// You have to remember the passphrase otherwise the image will _NOT_ be useable in the future. There is no back door to decrypt the image.**

Select the mode you want after the image saving is done:



By default we will choose later, but if you have decided, you can choose to reboot or poweroff the machine.

Clonezilla will prompt us the command to save the image. This command is very useful when you want to create a customized Clonezilla live:



Before starting to save the disk image, we still have a chance to say yes or no:

```

*****
PS. Next time you can run this command directly:
/usr/sbin/ocs-sr -q2 -c -j2 -zip -i 4096 -sfscck -senc -p choose savedisk xenial-x64-20170924 sda
This command is also saved as this file name for later use if necessary: /tmp/ocs-xenial-x64-2017092
4-2017-09-24-04-47
*****
Press "Enter" to continue...
Activating the partition info in /proc... done!
Selected device [sda] found!
The selected devices: sda
Searching for data/swap/extended partition(s)...
Excluding busy partition or disk...
Unmounted partitions (including extended or swap): sda1 sda2 sda5
Collecting info.... done!
The data partition to be saved: sda1
The swap partition to be saved: sda5
The extended partition to be saved: sda2
Activating the partition info in /proc... done!
Selected device [sda1] found!
The selected devices: sda1
Getting /dev/sda1 info...
*****
The following step is to save the hard disk/partition(s) on this machine as an image:
*****
Machine: VMware Virtual Platform
sda (8590MB_VMWare_Virtual_S_No_disk_serial_no)
sda1 (7G_ext4(In_VMWare_Virtual_S)_No_disk_serial_no)
*****
-> "/home/partimag/xenial-x64-20170924".
Are you sure you want to continue? (y/n) y_

```

- Clonezilla is saving disk image (sda) to the partition of 2nd disk (sdb1) [^TOP^](#)

Clonezilla now is saving disk sda as an image. The job is done by saving:

- o MBR (by dd)
- o Partition table (by sfdisk and parted), CHS of disk.
- o Data on every partition or LV (logical volume) (by partimage, ntfscclone, partclone or dd. It depends on the "-q" option you choose)

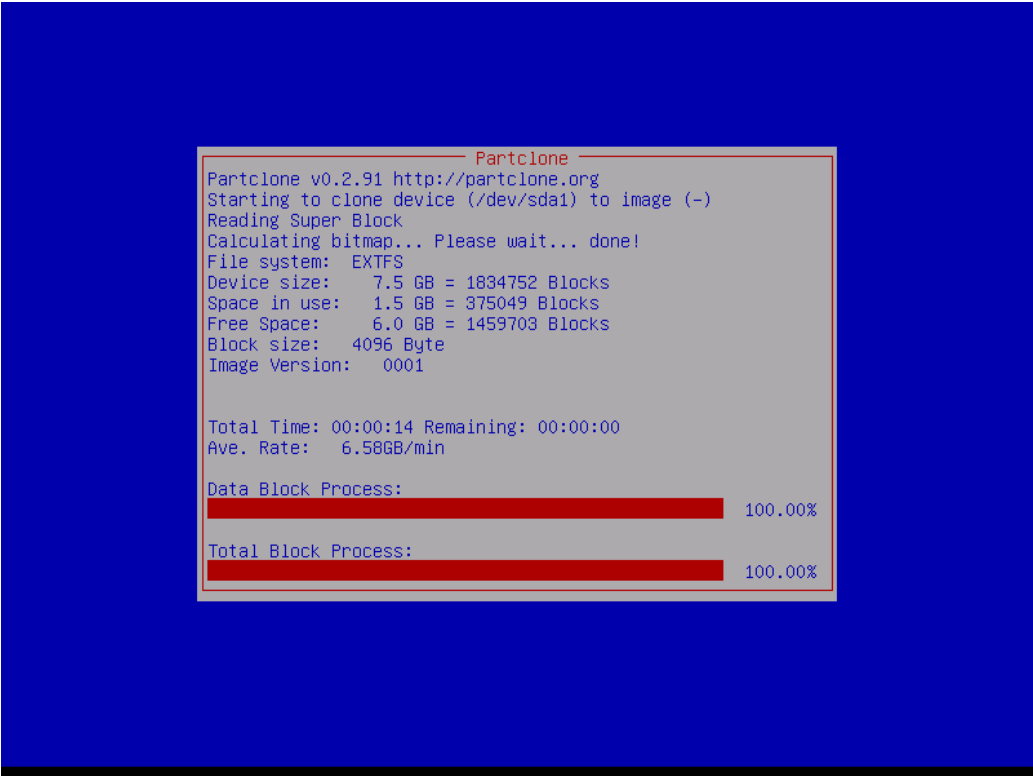
```

Partclone
Partclone v0.2.91 http://partclone.org
Starting to clone device (/dev/sda1) to image (-)
Reading Super Block
Calculating bitmap... Please wait... done!
File system:  EXTFS
Device size:   7.5 GB = 1834752 Blocks
Space in use:  1.5 GB = 375049 Blocks
Free Space:    6.0 GB = 1459703 Blocks
Block size:    4096 Byte
Image Version: 0001

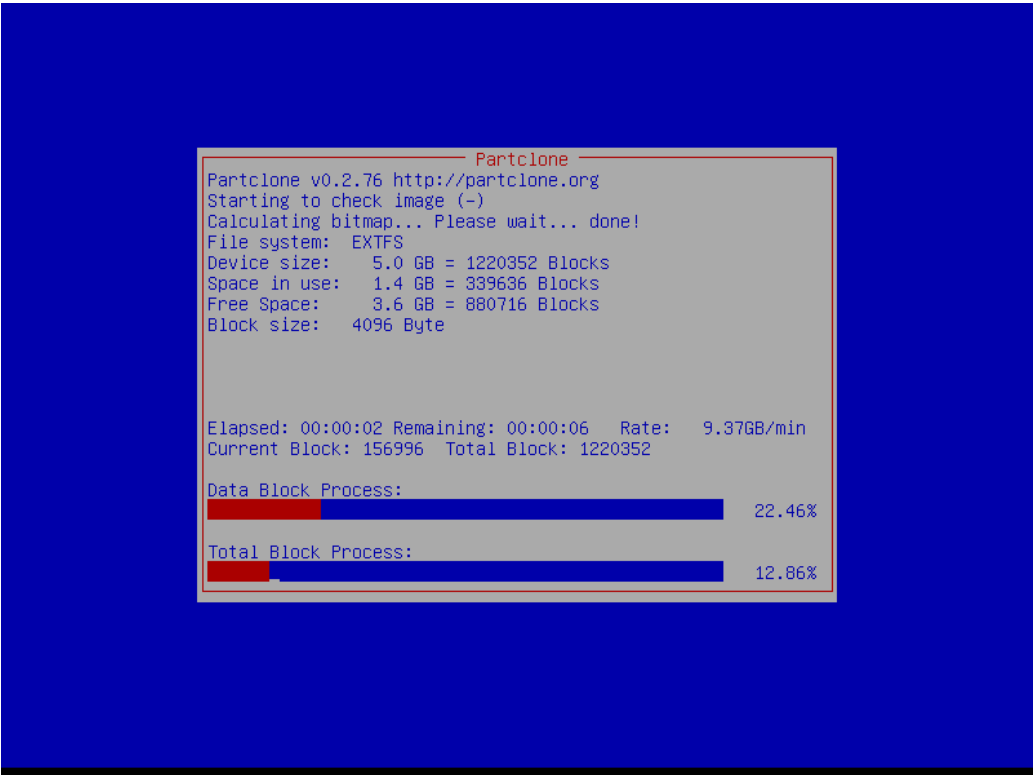
Elapsed: 00:00:01 Remaining: 00:01:39 Rate: 0.00byte/min
Current Block: 0 Total Block: 1834752

Data Block Process:
1.00%

Total Block Process:
0.00%
```



Once the image is saved, since we have chosen to check the saved image, Clonezilla will do such a check:



When everything is done, Clonezilla will prompt you if you want to run it again (when something goes wrong or you want to choose different options),

1. 'Stay in this console (console 1), enter command line prompt'
2. 'Run command "exit" or "logout"'

```

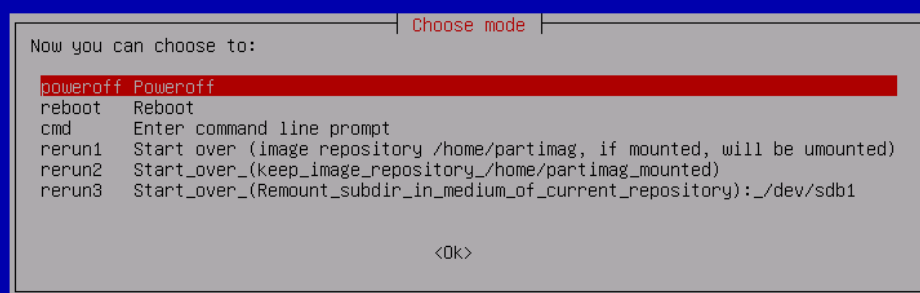
Checked successfully.
The image of this partition is restorable: sda1
*****
All the images of partition or LV devices in this image were checked and they are restorable: xenial
-x64-20170924
Summary of image checking:
=====
Partition table file for disk was found: sda
MBR file for this disk was found: sda
The image of this partition is restorable: sda1
All the images of partition or LV devices in this image were checked and they are restorable: xenial
-x64-20170924
=====
*****
Checking if udevd rules have to be restored...
This program is not started by Clonezilla server, so skip notifying it the job is done.
Finished!
Generating a tag file for this image...
Now syncing - flush filesystem buffers...
Ending /usr/sbin/ocs-sr at 2017-09-24 04:51:36 UTC...
*****
If you want to use Clonezilla again:
(1) Stay in this console (console 1), enter command line prompt
(2) Run command "exit" or "logout"
*****
When everything is done, remember to use 'poweroff', 'reboot' or follow the menu to do a normal powe
roff/reboot procedure. Otherwise if the boot media you are using is a writable device (such as USB f
lash drive), and it's mounted, poweroff/reboot in abnormal procedure might make it FAIL to boot next
time!
*****
Press "Enter" to continue..._

```

Then you can choose to:

- o Poweroff
- o Reboot
- o Enter command line prompt
- o Start over (image repository /home/partimag, if mounted, will be umounted)
- o Start over (keep image repository /home/partimag mounted)
- o Start over (Remount subdir in medium of current repository)

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```

Choose mode
Now you can choose to:
poweroff Poweroff
reboot Reboot
cmd Enter command line prompt
rerun1 Start over (image repository /home/partimag, if mounted, will be umounted)
rerun2 Start over (keep image repository /home/partimag mounted)
rerun3 Start over (Remount subdir in medium of current repository):_/dev/sdb1

<Ok>

```

Here we choose Poweroff, then when the shutdown process is done, it will ask you to remove the disk and close the try (if any) then press ENTER if you boot Clonezilla live from CD. If you boot Clonezilla live from USB flash drive, then there is no such prompt.


```
Please remove the live-medium, close the tray (if any) and press ENTER to continue:
```

That's all. We have successfully saved disk image (sda) on 2nd disk (sdb1). The image on the 2nd disk is a directory with name "xenial-x64-20170924" and its contents are:

```
root@debian:~# ls -lh /home/partimag/
total 28K
drwxr-xr-x 2 root root 4.0K Sep 24 04:29 Docs
drwx----- 2 root root 16K Sep 24 03:45 lost+found
drwxr-xr-x 2 root root 4.0K Sep 24 04:29 Photos
drwxr-xr-x 2 root root 4.0K Sep 24 04:51 xenial-x64-20170924

root@debian:~# ls -lh /home/partimag/xenial-x64-20170924/
total 447M
-rw-r--r-- 1 root root 755 Sep 24 04:51 blkdev.list
-rw-r--r-- 1 root root 407 Sep 24 04:51 blkid.list
-rw-r--r-- 1 root root 4.7K Sep 24 04:51 clonezilla-img
-rw-r--r-- 1 root root 159 Sep 24 04:51 dev-fs.list
-rw-r--r-- 1 root root 4 Sep 24 04:51 disk
-rw-r--r-- 1 root root 273K Sep 24 04:51 Info-dmi.txt
-rw-r--r-- 1 root root 187 Sep 24 04:51 Info-img-id.txt
-rw-r--r-- 1 root root 124K Sep 24 04:51 Info-lshw.txt
-rw-r--r-- 1 root root 4.6K Sep 24 04:51 Info-lspci.txt
-rw-r--r-- 1 root root 224 Sep 24 04:51 Info-packages.txt
-rw-r--r-- 1 root root 97 Sep 24 04:51 Info-saved-by-cmd.txt
-rw-r--r-- 1 root root 5 Sep 24 04:51 parts
-rw----- 1 root root 446M Sep 24 04:51 sda1.ext4-ptcl-img.gz.aa
-rw-r--r-- 1 root root 512 Sep 24 04:51 sda2-ebr
-rw-r--r-- 1 root root 36 Sep 24 04:51 sda-chs.sf
-rw-r--r-- 1 root root 1.0M Sep 24 04:51 sda-hidden-data-after-mbr
-rw-r--r-- 1 root root 512 Sep 24 04:51 sda-mbr
-rw-r--r-- 1 root root 405 Sep 24 04:51 sda-pt.parted
-rw-r--r-- 1 root root 366 Sep 24 04:51 sda-pt.parted.compact
-rw-r--r-- 1 root root 250 Sep 24 04:51 sda-pt.sf
-rw-r--r-- 1 root root 53 Sep 24 04:51 swaptt-sda5.info
```

[\[Back to 'Clonezilla Live Doc'\]](#)



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