

Quick Start Manual

for mkusb version 7.4

by sudodus alias nio-wiklund at launchpad

a. Preparation

You need two drives or mass storage devices (pendrive, flash card, HDD, SSD). The minimum sizes are 1 GB and 4 GB, but obviously the final operating system will soon need more space for your personal files as well as for additional system files (program packages),

- a drive for the installer (minimum 1 GB for a CD size iso file, typically 4 GB USB pendrive), and

- a drive for the target, the final installed operating system (typically an internal drive, but it could also be connected via USB or eSATA). Minimum 4 GB for Lubuntu but 8 GB or more is better, and will work with all desktop flavours of Ubuntu and many other linux operating systems.

This original method works only from writable mass storage devices, but with a new install ISO file you can make CD/DVD as well as USB install drives with **mkusb** and a compressed image file (or files if DVD size). This is a good option for really old hardware, because it needs much less memory than the conventional installers.

b. Backup all personal data before trying this method because the installer drive and maybe also the target drive will be completely overwritten

c. Download the files

Download the shell-script **mkusb** and a hybrid iso file or compressed image file with the operating system, or download the iso file of the mkusb CD/DVD installer.

Current Ubuntu iso files can be used (except Ubuntu 12.04 LTS mini.iso).

`linux.iso` Or `linux.img.gz` Or `linux.img.xz`

Download also the corresponding checksum files, usually md5sum. See the following links
<http://phillw.net/isos/one-button-installer/scripts>
<http://ubuntuforums.org/showthread.php?t=1958073>

d. Check download and clone image in Linux

1. Change directory to where you have the downloaded files.

2. Check that the download was successful with md5sum

```
md5sum linux.iso
md5sum linux.img.gz
md5sum mkusb
```

3. Use mkusb to install/clone/flash the operating system

mkusb helps you find the correct target drive and avoid the risk with dd.

Make mkusb executable

```
sudo chmod ugo+x mkusb
```

Run mkusb (locally with prefix ./) to find out how to use it

```
./mkusb
Usage:
---- Make a USB install device from 'file.iso' -----
sudo ./mkusb file.iso
---- Make a USB install device from 'file.img.gz' -----
sudo ./mkusb file.img.gz
---- Make a USB install device from 'file.img.xz' -----
sudo ./mkusb file.img.xz
---- Install from 'file.img.xz', show all mass storage devices
sudo ./mkusb file.img.xz all
---- Install from 'file.img.xz', show all ..., no help text
sudo ./mkusb file.img.xz anh
---- Wipe the USB device (may take long time) -----
sudo ./mkusb wipe-whole-device
---- Wipe the first megabyte (MibiByte), show only USB devices
sudo ./mkusb wipe-1
---- Wipe the first megabyte, show all mass storage devices --
sudo ./mkusb wipe-1 all
---- Version -----
./mkusb -v
```

The current version of `mkusb` uses a simple text based interface to help you select the correct target device. `mkusb` can monitor the data transfer with `pv`, and suggests that you install it, if not yet installed. `pv` shows Mibibytes and `dd` shows Megabytes. The first two examples describe cloning an iso file to a USB pendrive.

```
sudo ./mkusb xubuntu-12.04.3-desktop-i386.iso
```

```
[sudo] password for sudodus:
```

```
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
```

```
mount: warning: /tmp/tmp.OJwF2oW2pO seems to be mounted read-only.
```

```
Xubuntu 12.04.3 LTS "Precise Pangolin" - Release i386 _found_ in iso-file
```

```
Xubuntu 12.04.3 LTS "Precise Pangolin" - Release i386 _not_ in USB device
```

```
Do you want to make a new one? (y/n)
```

```
y
```

```
*** WARNING: the device will be completely overwritten ***
```

```
Use the info in the xterm window (less /tmp/help-mkusb.txt)
```

```
*** quit with (q) ***
```

```
*** Unmount the device if mounted *****
```

```
Model: ATA SAMSUNG HD322HJ (scsi) Disk /dev/sda: 320GB
```

```
Model: ATA OCZ-AGILITY3 (scsi) Disk /dev/sdb: 60.0GB
```

```
Model: ATA WDC WD10EARS-00Y (scsi) Disk /dev/sdc: 1000GB
```

```
Error: Invalid partition table - recursive partition on /dev/sdd.
```

```
Model: SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

```
Live drive: /dev/sdb
```

```
USB drive: /dev/sdd: 4004 MB, 4004511744 bytes
```

```
USB drive: /dev/sde: 32.0 GB, 32017047552 bytes
```

```
---> 1: install to Disk /dev/sdd: 4004 MB
```

```
2: install to SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

```
Select another device with (+/-) or the number of the list item.
```

```
Go ahead with (g) or quit with (q). Toggle USB-only with (u).
```

```
g
```

```
1: source: xubuntu-12.04.3-desktop-i386.iso
```

```
target: Disk /dev/sdd: 4004 MB
```

```
Do you really want to wipe and install to this device? (y/n)
```

```
y
```

```
Installing xubuntu-12.04.3-desktop-i386.iso to /dev/sdd ...
```

```
< xubuntu-12.04.3-desktop-i386.iso pv -s 726663168 | dd bs=4096 of=/dev/sdd
```

```
693MB 0:02:05 [5.52MB/s] [=====>] 100%
```

```
177408+0 records in
```

```
177408+0 records out
```

```
726663168 bytes (727 MB) copied, 142.263 s, 5.1 MB/s
Syncing the device ...
Done
$
```

You clone the same version and flavour of Ubuntu several time during iso testing. Then it will be very convenient after the first time.

```
sudo ./mkusb xubuntu-12.04.3-desktop-i386.iso
[sudo] password for sudodus:
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: warning: /tmp/tmp.1k3puAr8Ss seems to be mounted read-only.
Xubuntu 12.04.3 LTS "Precise Pangolin" - Release i386 _found_ in iso-file
Xubuntu 12.04.3 LTS "Precise Pangolin" - Release i386 _found_ in /dev/sdd
Install to /dev/sdd? (y/n)
y
pv xubuntu-12.04.3-desktop-i386.iso| dd of=/dev/sdd bs=4096 ...
 693MB 0:02:05 [ 5.5MB/s] [=====>] 100%
177408+0 records in
177408+0 records out
726663168 bytes (727 MB) copied, 142.711 s, 5.1 MB/s
syncing the drive ...
The Xubuntu 12.04.3 LTS "Precise Pangolin" - Release i386 USB device is re-
cloned :-)
$
```

The next example shows flashing an image file of the One Button Installer to a USB 3 device plugged into a USB 2 port. The write speed is five times higher. The compressed image is expanded to 4 GB, so that is the minimum size of the USB device.

```
sudo ./mkusb dd_blank-obi_4GB_11.img.xz
[sudo] password for sudodus:
Do you want to clone dd_blank-obi_4GB_11.img.xz to the USB device? (y/n)
```

y

```
*** WARNING: the device will be completely overwritten ***
Use the info in the xterm window (less /tmp/help-mkusb.txt)
*** quit with (q) ***
*** Unmount the device if mounted *****
```

```
Model: ATA SAMSUNG HD322HJ (scsi) Disk /dev/sda: 320GB
Model: ATA OCZ-AGILITY3 (scsi) Disk /dev/sdb: 60.0GB
Model: ATA WDC WD10EARS-00Y (scsi) Disk /dev/sdc: 1000GB
Model: SanDisk Cruzer Blade (scsi) Disk /dev/sdd: 4005MB
Model: SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
Live drive: /dev/sdb
USB drive: /dev/sdd: 4004 MB, 4004511744 bytes
USB drive: /dev/sde: 32.0 GB, 32017047552 bytes
```

```
---> 1: install to SanDisk Cruzer Blade (scsi) Disk /dev/sdd: 4005MB
      2: install to SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

Select another device with (+/-) or the number of the list item.

Go ahead with (g) or quit with (q). Toggle USB-only with (u).

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```
1: install to SanDisk Cruzer Blade (scsi) Disk /dev/sdd: 4005MB
```

```
---> 2: install to SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

Select another device with (+/-) or the number of the list item.

Go ahead with (g) or quit with (q). Toggle USB-only with (u).

g

```
2: source: dd_blank-obi_4GB_11.img.xz
   target: SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

Do you really want to wipe and install to this device? (y/n)

y

Installing dd_blank-obi_4GB_11.img.xz to /dev/sde ...

```
xzcat dd_blank-obi_4GB_11.img.xz | pv -s 3814m | dd bs=4096 of=/dev/sde
3.72GB 0:02:13 [28.5MB/s] [=====>] 100%
976384+0 records in
976384+0 records out
3999268864 bytes (4.0 GB) copied, 137.667 s, 29.1 MB/s
Syncing the device ...
Done
$
```

e. Wipe the CD file system

If you want to re-use a USB device that has been used with an iso file system, iso9660, you should wipe it with dd (overwrite with zeros). Otherwise grub-install doesn't want to write into the mbr area, because it recognizes the CD file system. You need *not* wipe it before cloning. Use `mkusb` also for this task and wipe the first megabyte of the drive, 'wipe-1'.

```
sudo ./mkusb wipe-1
```

```
[sudo] password for sudodus:
```

```
Wipe the first megabyte (MibiByte) ... :
```

```
Do you want to wipe the USB device? (y/n)
```

```
y
```

```
*** WARNING: the device will be completely overwritten ***
      Use the info in the xterm window (less /tmp/help-mkusb.txt)
*** quit with (q) ***
*** Unmount the device if mounted *****
```

```
Model: ATA SAMSUNG HD322HJ (scsi) Disk /dev/sda: 320GB
```

```
Model: ATA OCZ-AGILITY3 (scsi) Disk /dev/sdb: 60.0GB
```

```
Model: ATA WDC WD10EARS-00Y (scsi)Disk /dev/sdc: 1000GB
```

```
Model: SanDisk Cruzer Blade (scsi)Disk /dev/sdd: 4005MB
```

```
Model: SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

```
Live drive: /dev/sdb
```

```
USB drive: /dev/sdd: 4004 MB, 4004511744 bytes
```

```
USB drive: /dev/sde: 32.0 GB, 32017047552 bytes
```

```
---> 1: wipe device SanDisk Cruzer Blade (scsi) Disk /dev/sdd: 4005MB
```

```
      2: wipe device SanDisk Extreme (scsi) Disk /dev/sde: 32.0GB
```

```
Select another device with (+/-) or the number of the list item.
```

```
Go ahead with (g) or quit with (q). Toggle USB-only with (u).
```

```
g
```

```
1: wipe device SanDisk Cruzer Blade (scsi) Disk /dev/sdd: 4005MB
```

```
Do you really want to wipe and install to this device? (y/n)
```

```
y
```

```
Wiping the first megabyte (MibiByte) of /dev/sdd ... :
```

```
< /dev/zero pv | dd bs=4096 count=256 of=/dev/sdd
```

```
256+0 records in
```

```
256+0 records out
```

```
1048576 bytes (1.0 MB) copied1.06MB 0:00:00 [ 321MB/s] [<=>
```

```
]
```

```
, 0.00209235 s, 501 MB/s
```

```
Syncing the device ...
```

```
Done
```

```
$
```

f. References

See the tutorial in the Ubuntu Forums for more details

<http://ubuntuforums.org/showthread.php?t=1958073>

And see this wiki page with methods and tools to create USB boot devices/drives/sticks

<https://help.ubuntu.com/community/Installation/FromUSBStick>