



# Dus, guidus, mkusb version 12 quick start manual

by sudodus alias nio-wiklund at launchpad



# Prepare for mkusb

- Drives alias mass storage devices
  - 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 for a live only system and 8 GB or more for a persistent live system), and
    - a **drive for the target**, the final installed operating system (typically an internal drive, but it could also be connected via USB, eSATA or a card reader). 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.
- Backup
  - **Backup** all personal data before trying this method because the installer drive and maybe also the target drive will be completely overwritten

Tough guys never backup their data,  
they do the work twice instead ;-)



# Install or download mkusb

- Install (or download) the shell-script **mkusb** and
- download the **operating system** as a
  - hybrid iso file or compressed image file.
- mkusb can be installed from PPA with the following commands

```
sudo add-apt-repository ppa:mkusb/ppa # and press Enter
sudo apt-get update
sudo apt-get install mkusb
sudo apt-get install usb-pack-efi # for persistent live drives
```
- For distros not based on Ubuntu, mkusb can be downloaded / installed starting by downloading

```
http://phillw.net/isos/linux-tools/mkusb/mkusb-installer
```

and running the command

```
$ bash mkusb-installer
```
- These commands install the standard mkusb with a graphical user interface (plus text user interfaces to be used with text screens and in terminal windows).



# Files and checksums

- Current Ubuntu, Debian and many other linux iso files can be used (including the mini.iso files except the mini.iso of 12.04 LTS). Image files and compressed image files can also be used.

`file.iso`

`file.img`

`file.img.gz`

`file.img.xz`

- Windows 7-10 iso files

`windows.iso`

- Download also the corresponding checksum files, usually md5sum. See the following links

<https://help.ubuntu.com/community/mkusb>

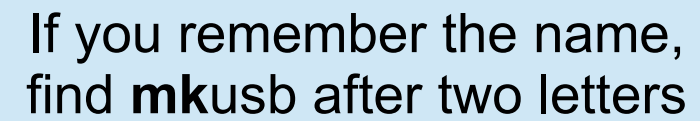
<http://phillw.net/isos/linux-tools/mkusb/>



# Check download and clone image in Linux

- Change directory to where you have the downloaded files.
- Check that the download was successful with md5sum
  - Example: `md5sum xubuntu-16.04.1-desktop-i386.iso mkusb`
- Use mkusb to install/clone/flash the operating system
  - mkusb helps you find the correct target drive and avoid the risk with dd.
- If installed, mkusb is in the system PATH and can be started
  - from the menu
    - menu – system – mkusb
  - or in **dash** (in standard Ubuntu) or similar tools to select installed application programs.
  - It can also be started with from a terminal window with
    - `mkusb` # or with an input file, for example
    - `mkusb xubuntu-16.04.1-desktop-i386.iso`
    - `mkusb "path/file.iso"` # within quotes for special characters
- If downloaded, make mkusb executable `sudo chmod ugo+x mkusb`

Start from the menu in many distros



Click the icon to go



# Start mkusb in a terminal window

```
ubuntu@ubuntu: ~  
ubuntu@ubuntu:~$ man mkusb  
ubuntu@ubuntu:~$ man mkusb-nox  
ubuntu@ubuntu:~$ mkusb  
-----  
Usage: mkusb [input-file]      # optional parameter  
-----  
d:  dus, guidus, mkusb-dus      - New, easy to use  
e:  Eleven, sudo -H mkusb-11    - Classic user interface  
n:  NoX, sudo mkusb-nox         - original text mode  
b.  Bas, sudo mkusb-bas         - basic text mode for old/basic linux  
q.  Quit  
-----  
Select version of mkusb (d/e/n/b/q) █
```



# Start mkusb via ssh in text mode

```

sudodus@xenial32: /media/multimed-2/CD/ubuntu/16.04
dus 12.0.0 - Cloning, live linux, windows / Persistent live

```

Move between items with the arrow keys

- Do USB Stuff -

Welcome and Notice about Overwriting

The target device will be completely overwritten

- c** Cloning iso file, [compressed] image file or
- l** 'Live-only' or linux installer from iso file
- p** 'Persistent live' - only Debian and Ubuntu
- w** extracting Windows installer
- q** Quit

< **OK** >

*Shortcut: type **dus** to get directly to mkusb version 12*

```

ssh sudodus@xenial32
cd Downloads
dus lubuntu-16.04.1-desktop-amd64.iso

```





# ... more details

- The current version of mkusb uses a **text based console** and **graphical windows** to help you select the correct source file and 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.
- mkusb needs a number of help programs and suggests that you install them. If you cannot install some of these help programs, you should install **dus** or **mkusb-nox** or **mkusb-bas**, available at this link

<http://phillw.net/isos/linux-tools/mkusb/>

- mkusb is described with more details at the wiki page

<https://help.ubuntu.com/community/mkusb>

- If you have installed mkusb from the PPA, it will be updated together with other installed programs, and there are manual pages for mkusb and mkusb-nox

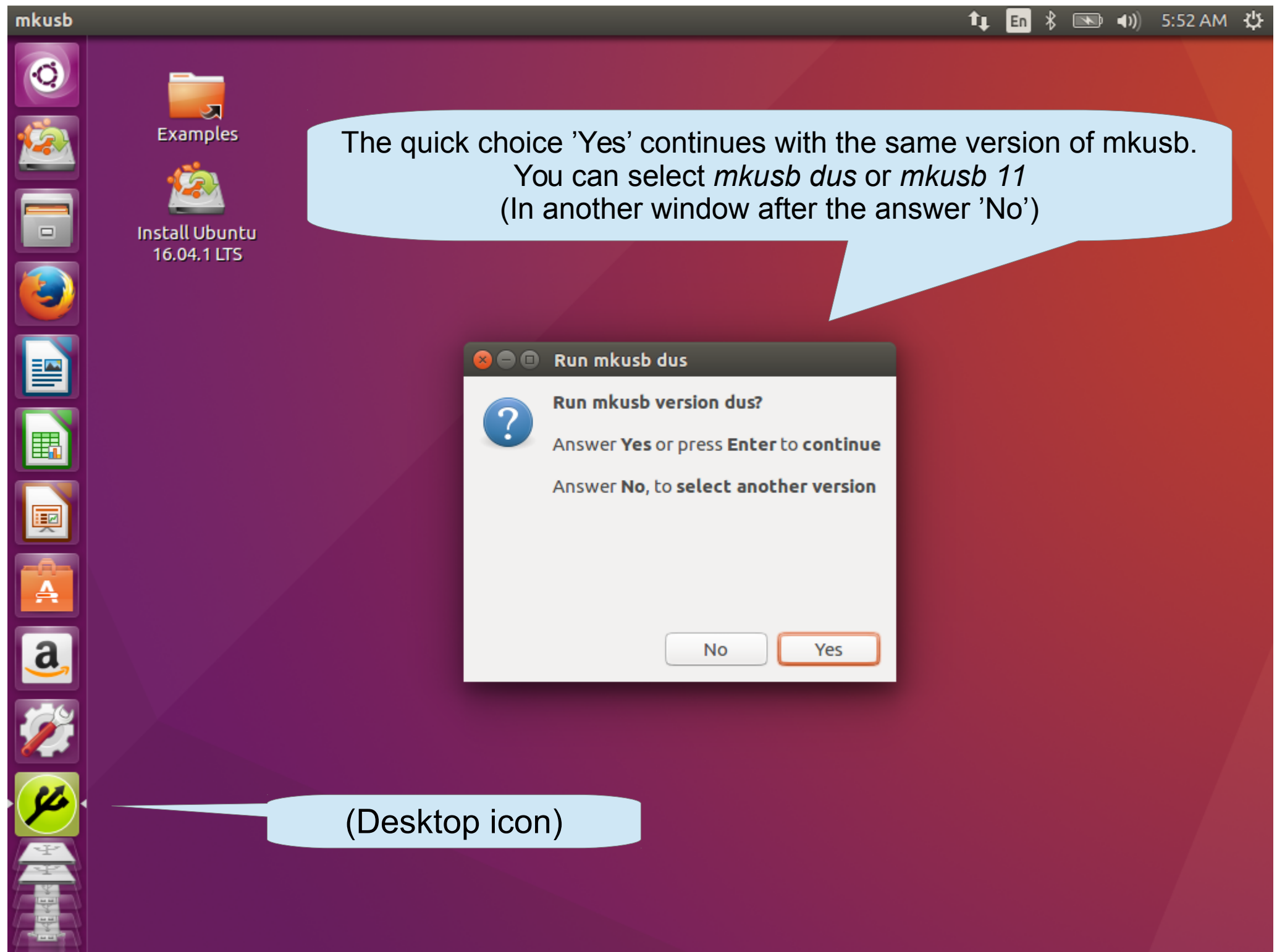
`man mkusb`

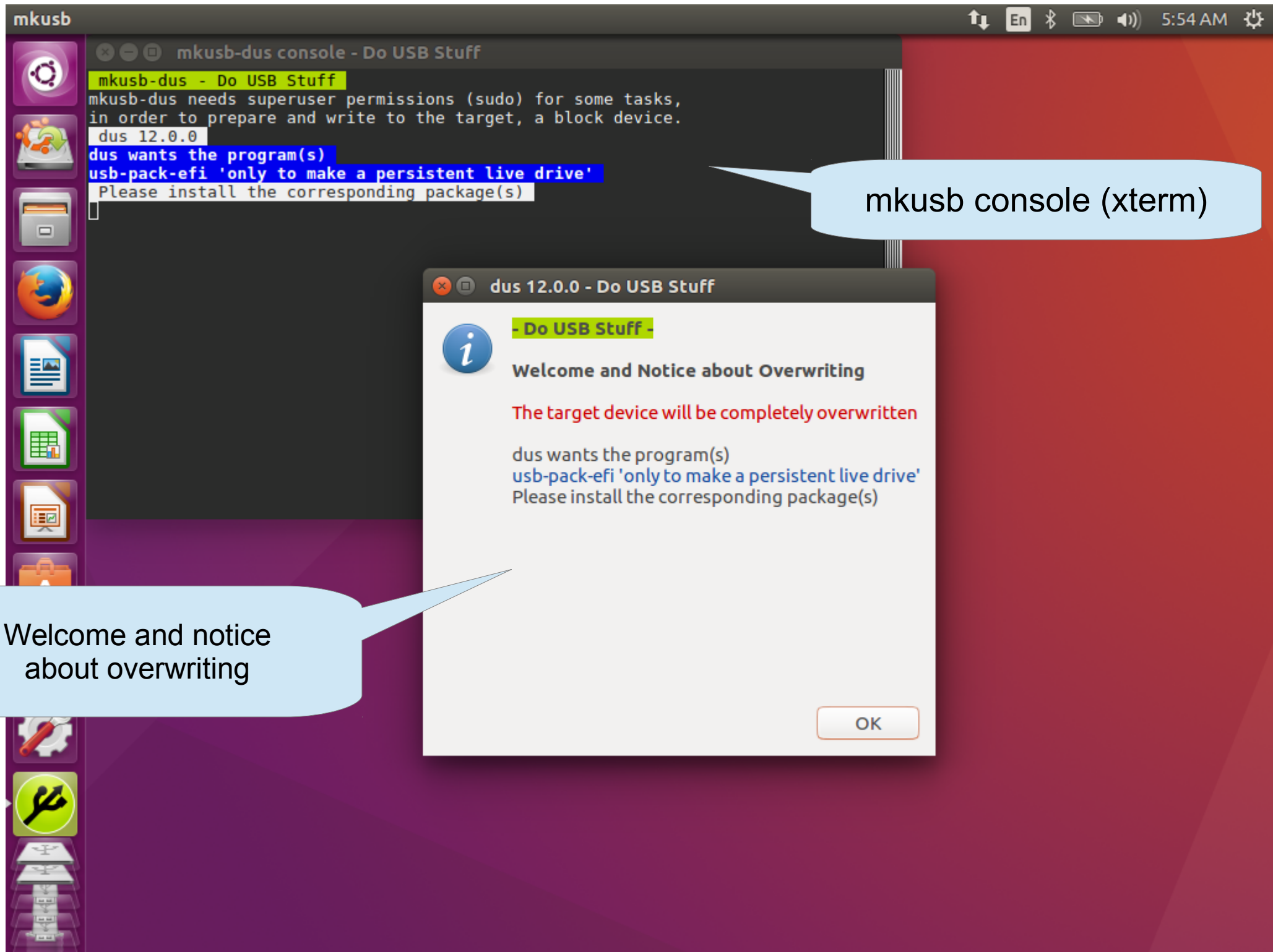
`man mkusb-nox`

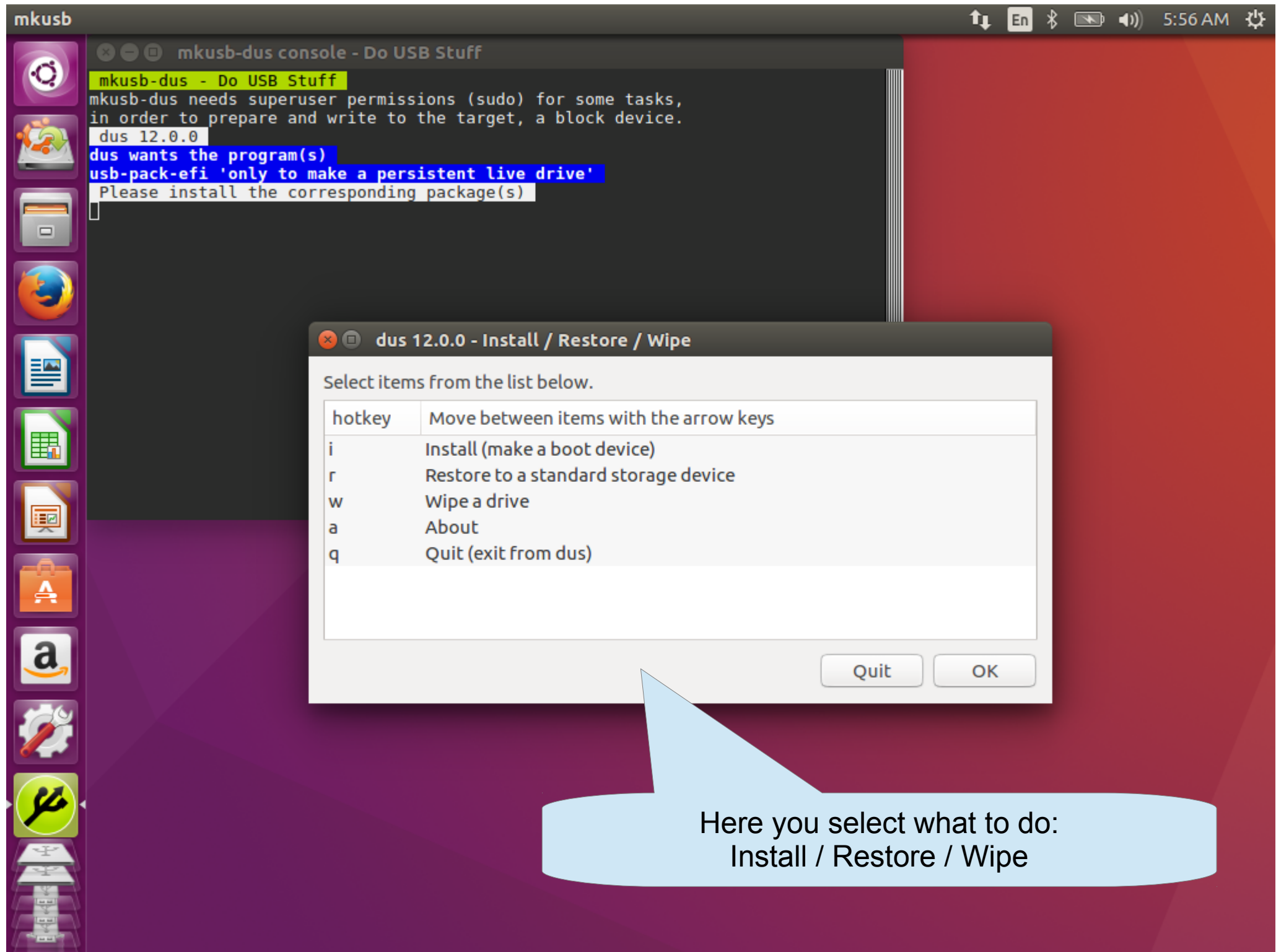


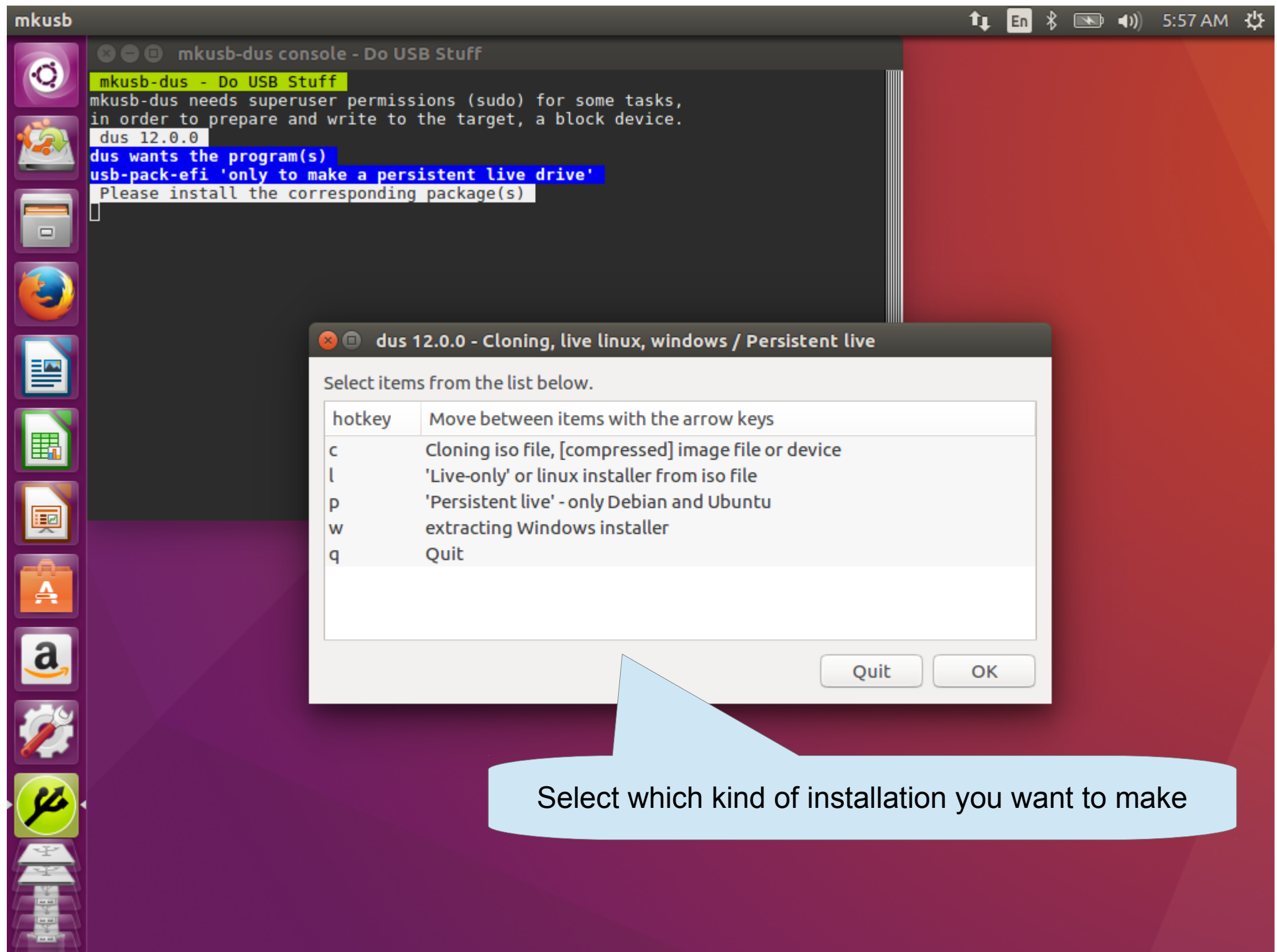
# Slideshow

- This manual was made for mkusb version 12 alias dus with the GUI guidus.
- In order to get a view of mkusb version 11, you can watch the following slideshow,  
[mkusb-in-ubuntu\\_slideshow.pdf](#)













mkusb

mkusb-dus console - Do USB Stuff

mkusb-dus - Do USB Stuff

mkusb-dus needs superuser permissions (sudo) for some tasks,  
in order to prepare and write to the target, a block device.

dus 12.0.0

dus wants the program(s)  
usb-pack-efi 'only to make a persistent live drive'  
Please install the corresponding package(s)

dus 12.0.0 - Select source device

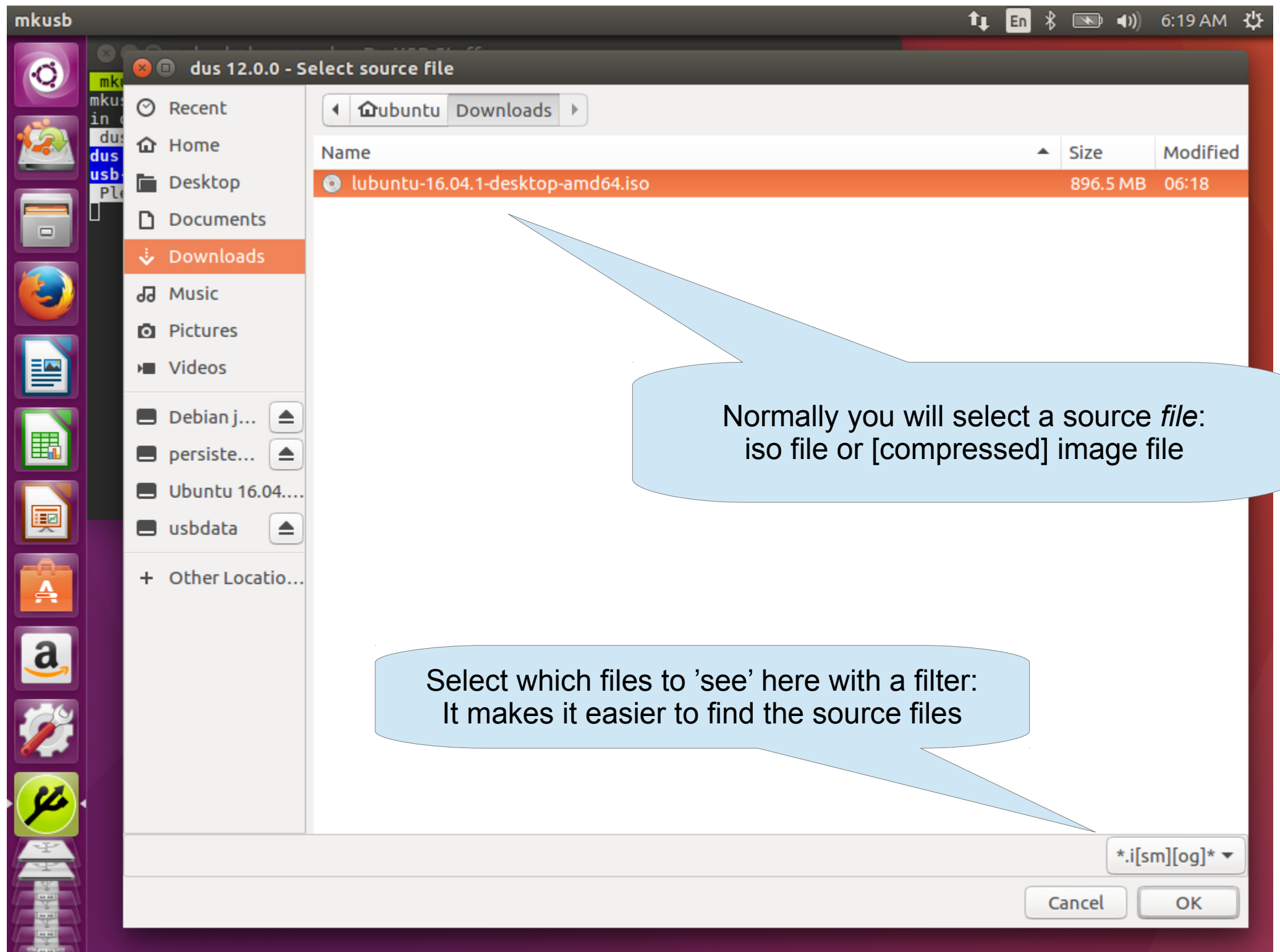
ISO 9660 partition found. Quick choice possible.  
Answer **No**, if you intend to install to the drive with **/dev/sda4**.

| MODEL                 | NAME  | SIZE  | FSTYPE  | LABEL                        | MOUNTPPOINT          |
|-----------------------|-------|-------|---------|------------------------------|----------------------|
| Extreme               | sda   | 29.8G |         |                              |                      |
|                       | └sda4 | 1.4G  | iso9660 | Ubuntu 16.04.1 LTS amd64     | /cdrom               |
| FlashBlu              | sdb   | 7.5G  | iso9660 | torios-live                  |                      |
|                       | └sdb1 | 729M  | iso9660 | torios-live                  |                      |
| Extreme               | sd    | 14.9G |         |                              |                      |
|                       | └sdc4 | 982M  | iso9660 | Debian jessie 20160917-14:56 | /media/ubuntu/Debian |
| jessie 20160917-14:56 |       |       |         |                              |                      |
| CDDVDW SN-208AB       | sr0   | 1024M |         |                              |                      |

Do you want to install **Ubuntu 16.04.1 LTS amd64**  
from the device **/dev/sda4** ?

No Yes

From an 'mkusb persistent live drive' you can use  
the *partition* with the image of the iso file as source







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dus 12.0.0

dus wants the program(s)  
usb-pack-efi 'only to make a persistent live drive'

Please install the corresponding package(s)

source device: /dev/sda4 'Ubuntu 16.04.1 LTS amd64'

Drive that contains source file: /dev/sda

Live drive, that is booted from: /dev/sda

cands=2

sdb

Kanguru\_FlashBlu

7.5G

usb

USB or memory card

sdc

SanDisk\_Extreme

14.9G

usb

USB or memory card

█

dus 12.0.0 - Select target device

Select items from the list below.

| Select                           | Device | Target name/model | Size  | Bus | Kind of device     |
|----------------------------------|--------|-------------------|-------|-----|--------------------|
| <input checked="" type="radio"/> | sdb    | Kanguru_FlashBlu  | 7.5G  | usb | USB or memory card |
| <input type="radio"/>            | sdc    | SanDisk_Extreme   | 14.9G | usb | USB or memory card |

Quit OK

Select target device: USB pendrive, memory card, HDD, SSD  
There will be an extra warning, if you select a HDD or SSD



mkusb

mkusb-dus console - Do USB Stuff

usb-pack-efi 'only to make a persistent live drive'  
Please install the corresponding package(s)  
source device: /dev/sda4 'Ubuntu 16.04.1 LTS'  
Drive that contains source file: /dev/sda  
Live drive, that is booted from: /dev/sda  
cands=2  
sdb  
Kanguru\_FlashBlu  
7.5G  
usb  
USB or memory card  
sdc  
SanDisk\_Ext  
14.9G  
usb  
USB or memo  
p target: t  
Clone/extr  
'/dev/sda4'  
to the targ  
MODEL  
FlashBlu

dus 12.0.0 - Final checkpoint, go ahead?

Select items from the list below.

| Go/Stop                          | Clone/extract system from the source    | name size model         |
|----------------------------------|---|-------------------------|
| <input type="radio"/>            | 'sda4'                                  | sdb 7.5g flashblu       |
| <input type="radio"/>            | to the target device (drive) '/dev/sdb' |                         |
| <input type="radio"/>            | Stop                                    | No, I am not sure yet   |
| <input checked="" type="radio"/> | Go                                      | Yes, I want to go ahead |

Stop Go

Please double-check, that you have selected the correct target device, and 'Go' when you are sure

Clone from a partition



mkusb

mkusb-dus console - Do USB Stuff

```
Kanguru_FlashBlu
7.5G
usb
USB or memory card
sdc
SanDisk_Extreme
14.9G
usb
USB or memory card
p_target: target=/dev/sdc
live system or temporary superuser permissions
live system or temporary superuser permissions
live system
Clone/extract system from the source
'/home/ubun
to the target
MODEL
Extreme
```

dus 12.0.0 - Final checkpoint, go ahead?

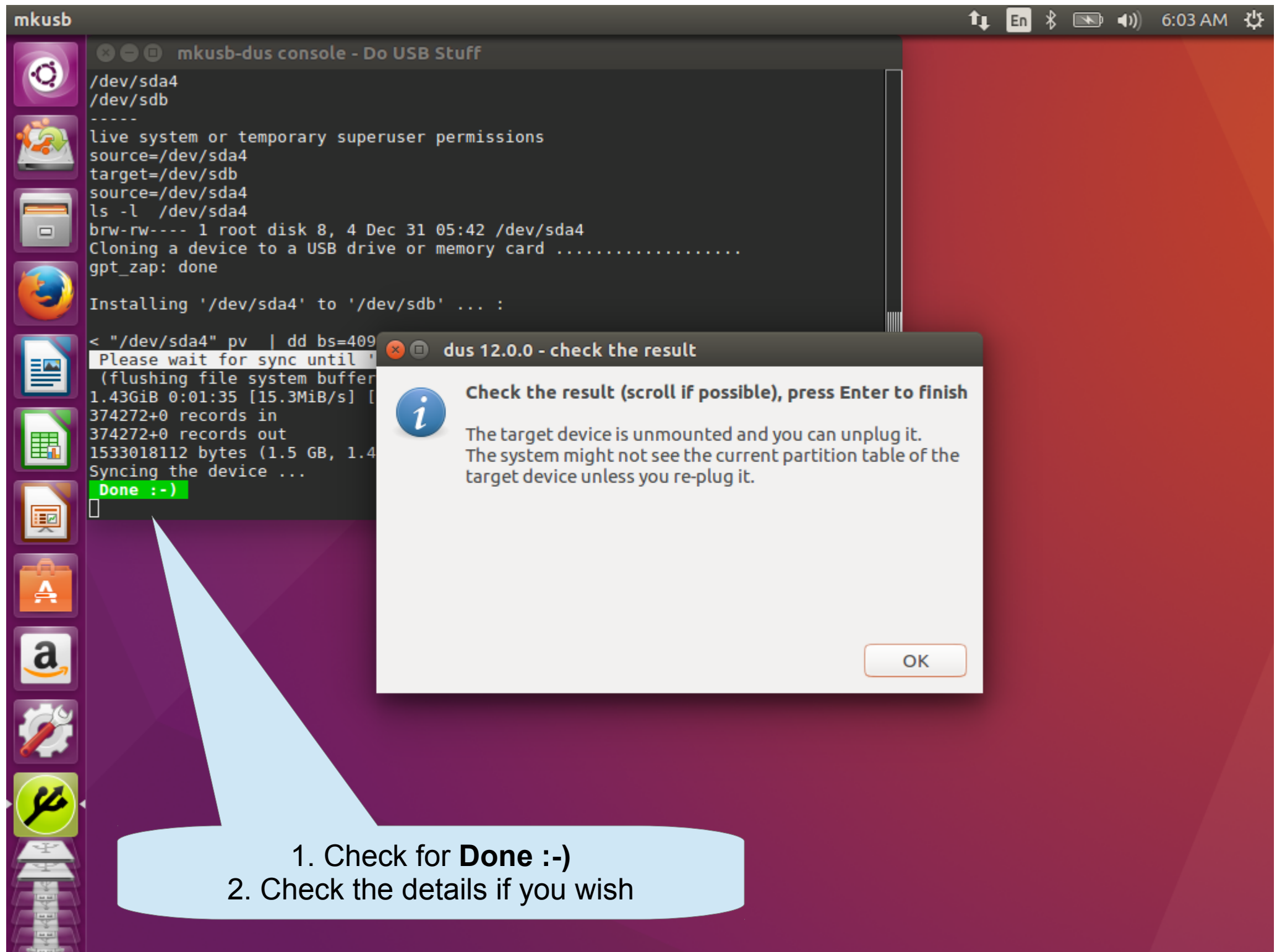
Select items from the list below.

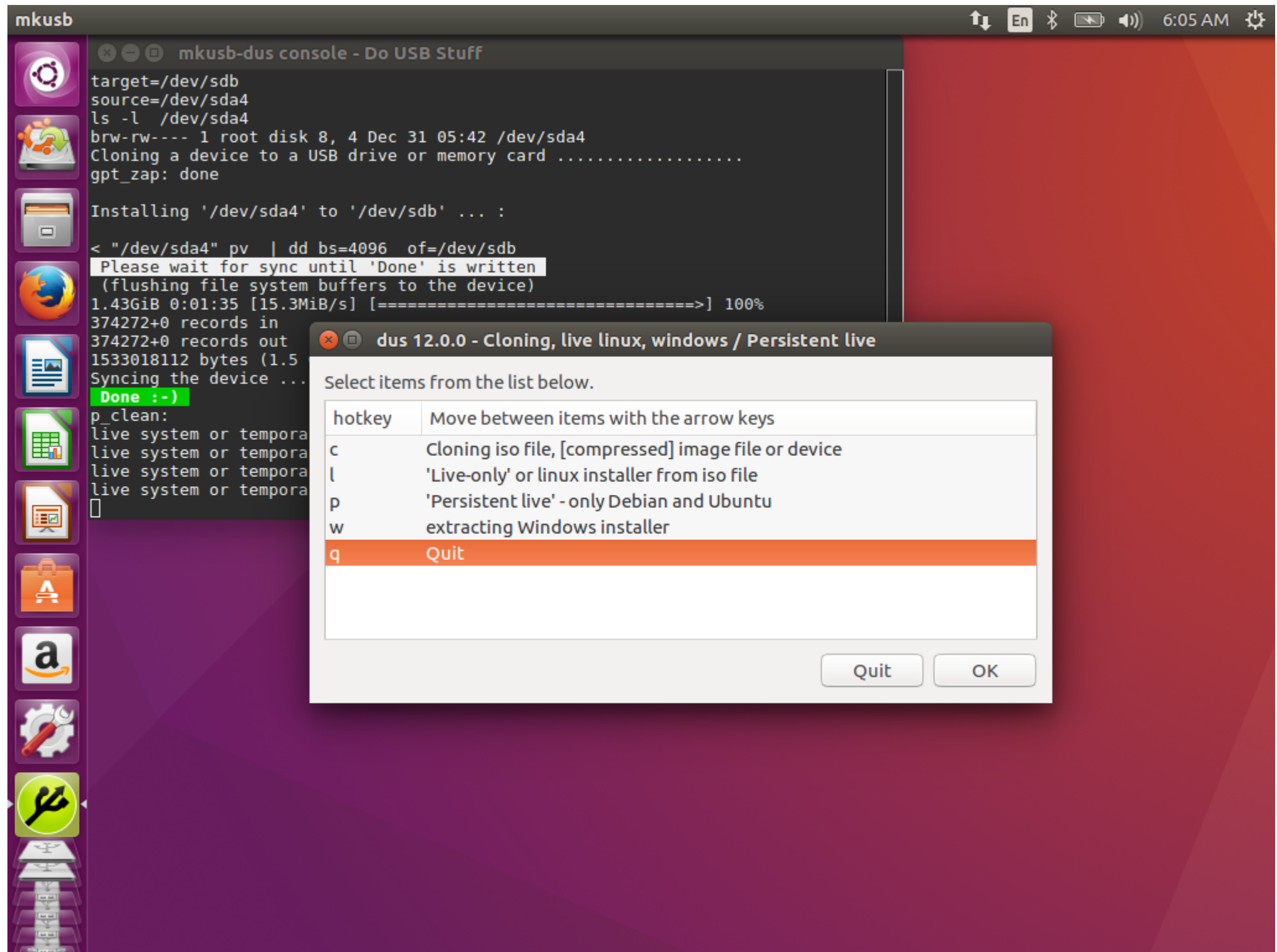
| Go/Stop                               | Clone/extract system from the source<br>'lubuntu-16.04.1-desktop-amd64.iso'<br>to the target device (drive) '/dev/sdc' | name size model   |
|---------------------------------------|--|-------------------|
| <input checked="" type="radio"/> Stop | No, I am not sure yet  | sdc 14.9g extreme |
| <input type="radio"/> Go              | Yes, I want to go ahead  |                   |

Clone from an iso file

Please double-check,  
that you have selected the correct target device,  
and 'Go' when you are sure

Stop Go









mkusb

mkusb-dus console - Do USB Stuff

```
Kanguru_FlashBlu
7.5G
usb
USB or memory card
sdc
SanDisk_Extreme
14.9G
usb
USB or memory card
p target: target=/dev/sdb
Clone/extract system from the source
'/dev/sda4'
to the target device (drive) '/dev/sdb'
MODEL      NAME    FSTYPE LABEL      SIZE
FlashBlu   sdb     iso9660 torios-live 7.5G
           sdb1  iso9660 torios-live 729M

/dev/sda4
/dev/sdb
-----
live system or temporary superuser permissions
source=/dev/sda4
target=/dev/sdb
source=/dev/sda4
ls -l /dev/sda4
brw-rw---- 1 root disk 8, 4 Dec 31 05:42 /dev/sd
Cloning a device to a USB drive or memory card .
gpt_zap: done

Installing '/dev/sda4' to '/dev/sdb' ... :

< "/dev/sda4" pv | dd bs=4096 of=/dev/sdb
Please wait for sync until 'Done' is written
(flushing file system buffers to the device)
1.43GiB 0:01:35 [15.3MiB/s] [=====>] 100%
374272+0 records in
374272+0 records out
1533018112 bytes (1.5 GB, 1.4 GiB) copied, 146.745 s, 10.4 MB/s
Syncing the device ...
Done :-)
```

p\_clean:

```
live system or temporary superuser permissions
live system or temporary superuser permissions
live system or temporary superuser permissions
live system or temporary superuser permissions
clean if necessary and return
clean if necessary and quit
Press Enter to finish mkusb-dus
```

You can make the console window larger,  
and you can scroll with the  
*scrollbar* (middle-click and drag),  
*scroll-wheel* or *two fingers*

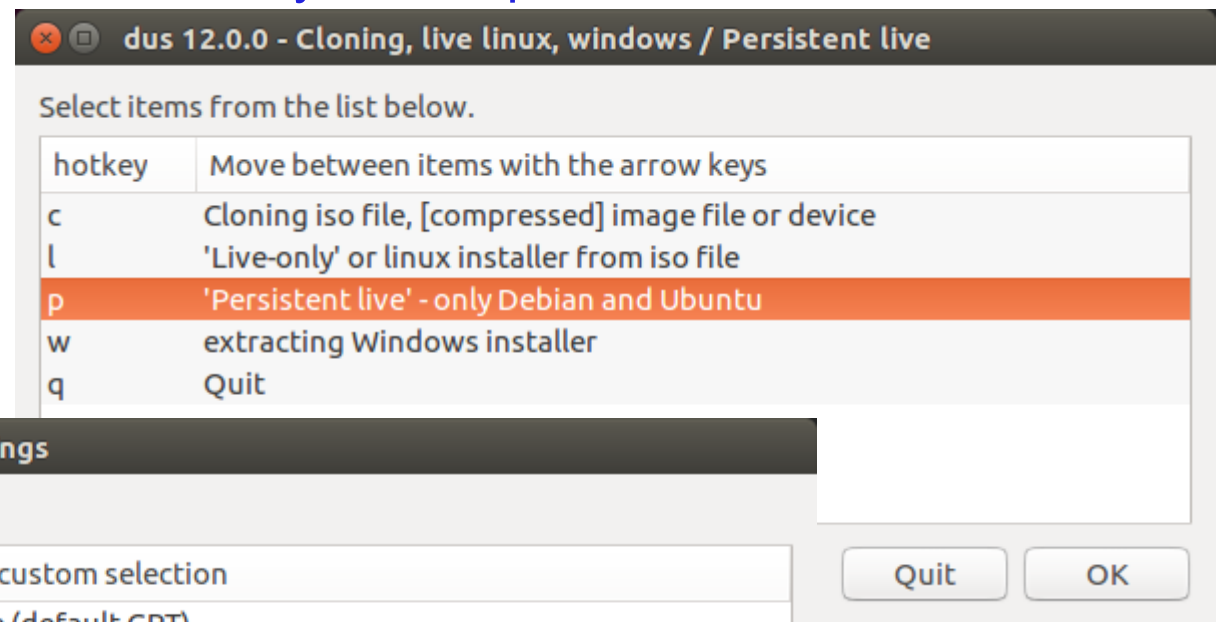
Press the Enter key to finish  
from the console window



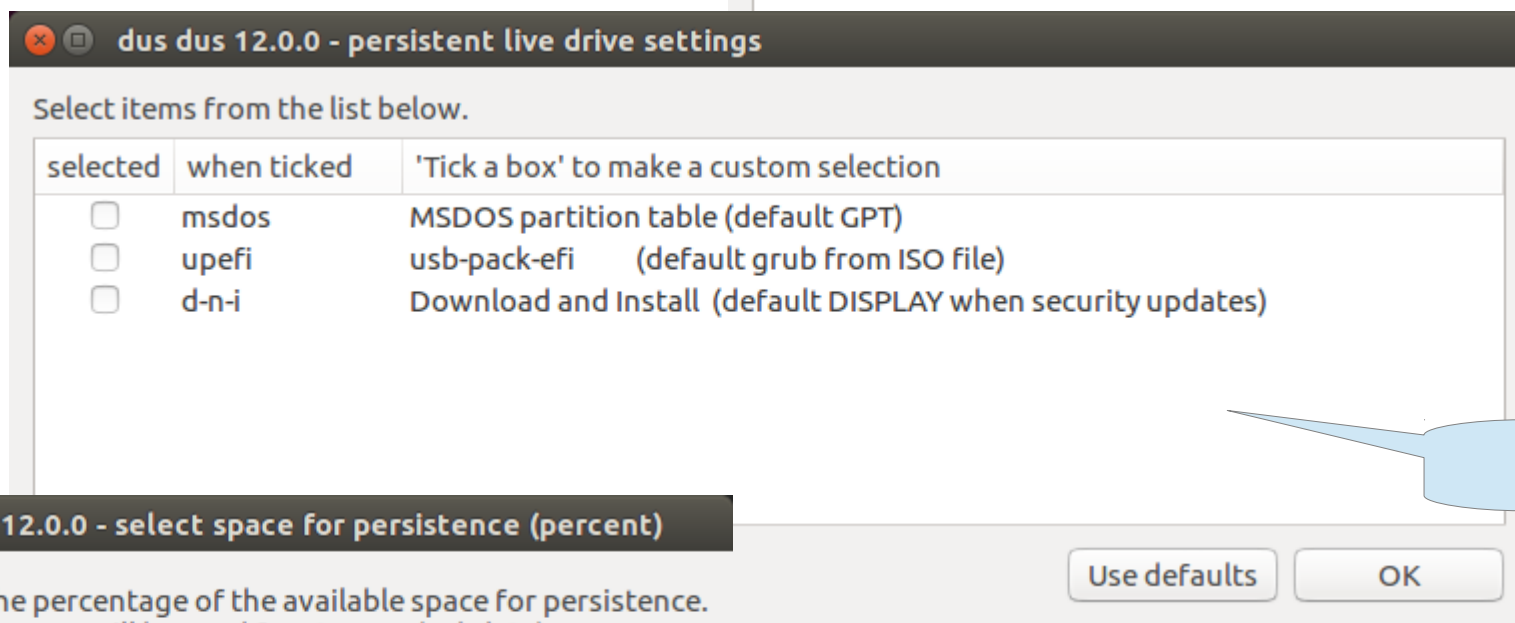
# Persistent live system

- See details at <https://help.ubuntu.com/community/mkusb/persistent>

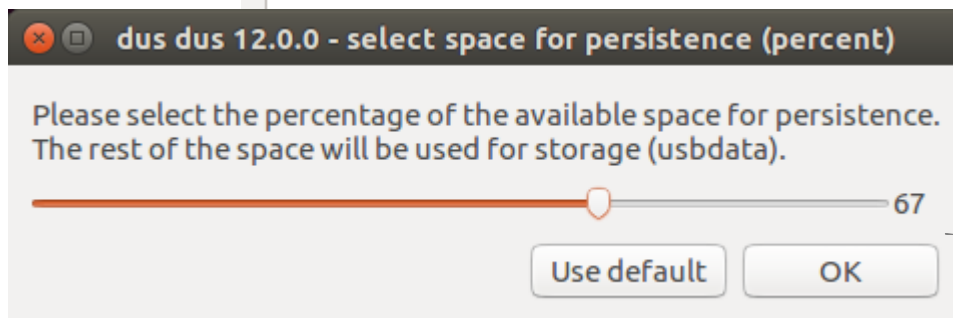
1: select persistent live



2: select settings



3: select space for persistence (percent)





# Persistent live 2(3)

```
mkusb-dus console - Do USB Stuff
100
218880+0 records in
218880+0 records out
896532480 bytes (897 MB, 855 MiB) copied, 28.1292 s, 31.9 MB/s
Done
do_n_show: Work done
-----
Syncing the target device ...
Wait 5 seconds and a little more ...


```

parted -s "/dev/sdc" print
Model: SanDisk Extreme (scsi)
Disk /dev/sdc: 16.0GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name      Flags
 2      1049kB  2097kB  1049kB   fat32        primary   bios_grub
 3      2097kB  130MB   128MB    fat32        primary   boot, esp
 4      130MB   1046MB  916MB    fat32        primary
 5      1046MB  11.1GB  10.0GB   ext2         primary
 1      11.1GB  16.0GB  4940MB   ntfs         primary   msftdata

lsblk -o MODEL,NAME,FSTYPE,LABEL,MOUNTPOINT,SIZE "/dev/sdc"
MODEL      NAME     FSTYPE LABEL          MOUNTPOINT  SIZE
Extreme    sdc
|-sdc1 ntfs    usbdata       4.6G
|-sdc2
|-sdc3 vfat    lub1604164    122M
|-sdc4 iso9660 Lubuntu 16.04.1 LTS amd64 874M
|-sdc5 ext4    casper-rw     9.3G

```



```

Done :- )
The target device is ready to use.
'/home/ubuntu/Downloads/lubuntu-16.04.1-desktop-amd64.iso'
was installed
Cleanup after dus-persistent finished :- )
Cleanup after dus-persistent finished :- )
-----
Total time used [by dus-persistent] = 182 s; 00:03:02
p_clean:
live system or temporary superuser permissions
clean if necessary and return
clean if necessary and quit
Press Enter to finish mkusb-dus

```


```

**Work done with /dev/sdc :-)**  
The target device is ready to use.  
'/home/ubuntu/Downloads/lubuntu-16.04.1-desktop-amd64.iso'  
was installed

OK

Check for **Done :-)**  
Check the details if you wish.

You can make the console window larger,  
and you can scroll with the  
*scrollbar* (middle-click and drag),  
*scroll-wheel* or *two fingers*





# Persistent live 3(3)

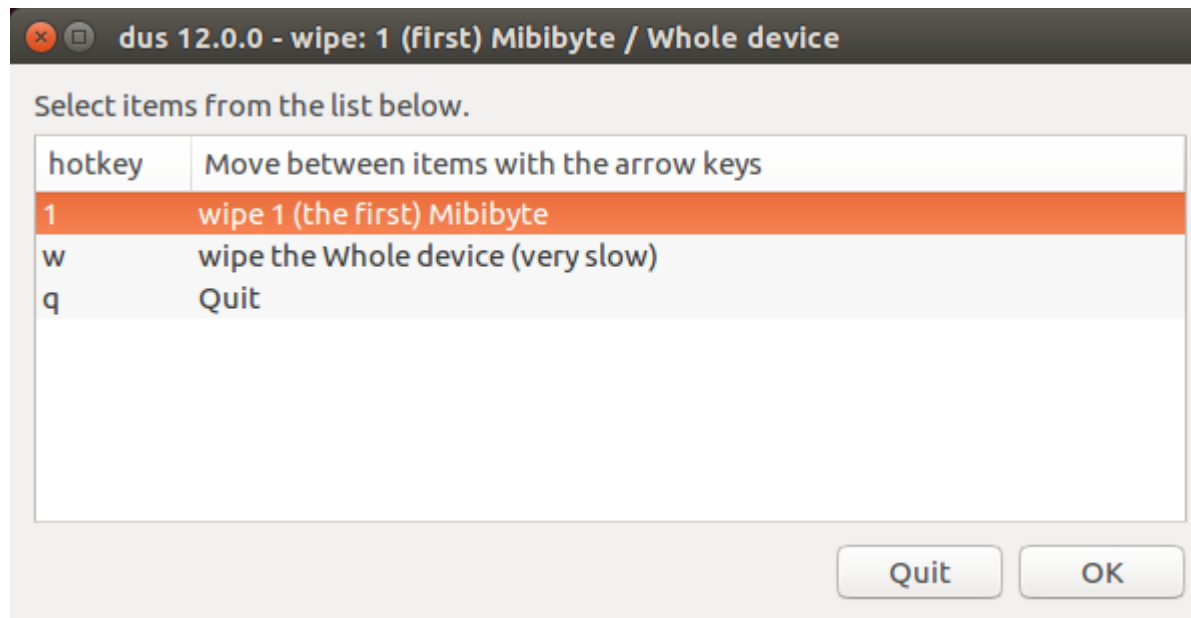
- Advantages
  - works with all current Ubuntu flavour desktop files (Ubuntu, Kubuntu, Lubuntu, ... Xubuntu) and with Linux Mint, ToriOS and several other distros/re-spins based on Ubuntu and Debian Jessie
  - very safe (minimal risk to overwrite the wrong drive by mistake)
  - easy to use
  - the target drive with the persistent live system works in [almost] all PC (Intel/AMD) computers
- Disadvantages (but 'live only' pendrives made with mkusb work in these cases)
  - usb-pack-efi does not work at all in secure mode (UEFI's secure mode), and the boot system based on a 64-bit iso file does not boot in 32-bit computers
  - does not work with linux distros that are not based on Ubuntu (maybe you can tweak the grub.cfg file and make it work)
  - does not work with non-desktop iso files for example the Ubuntu mini.iso or the Ubuntu Server

Remember that most of the time it is enough with a live only USB pendrive and only a waste of effort to create a persistent live system



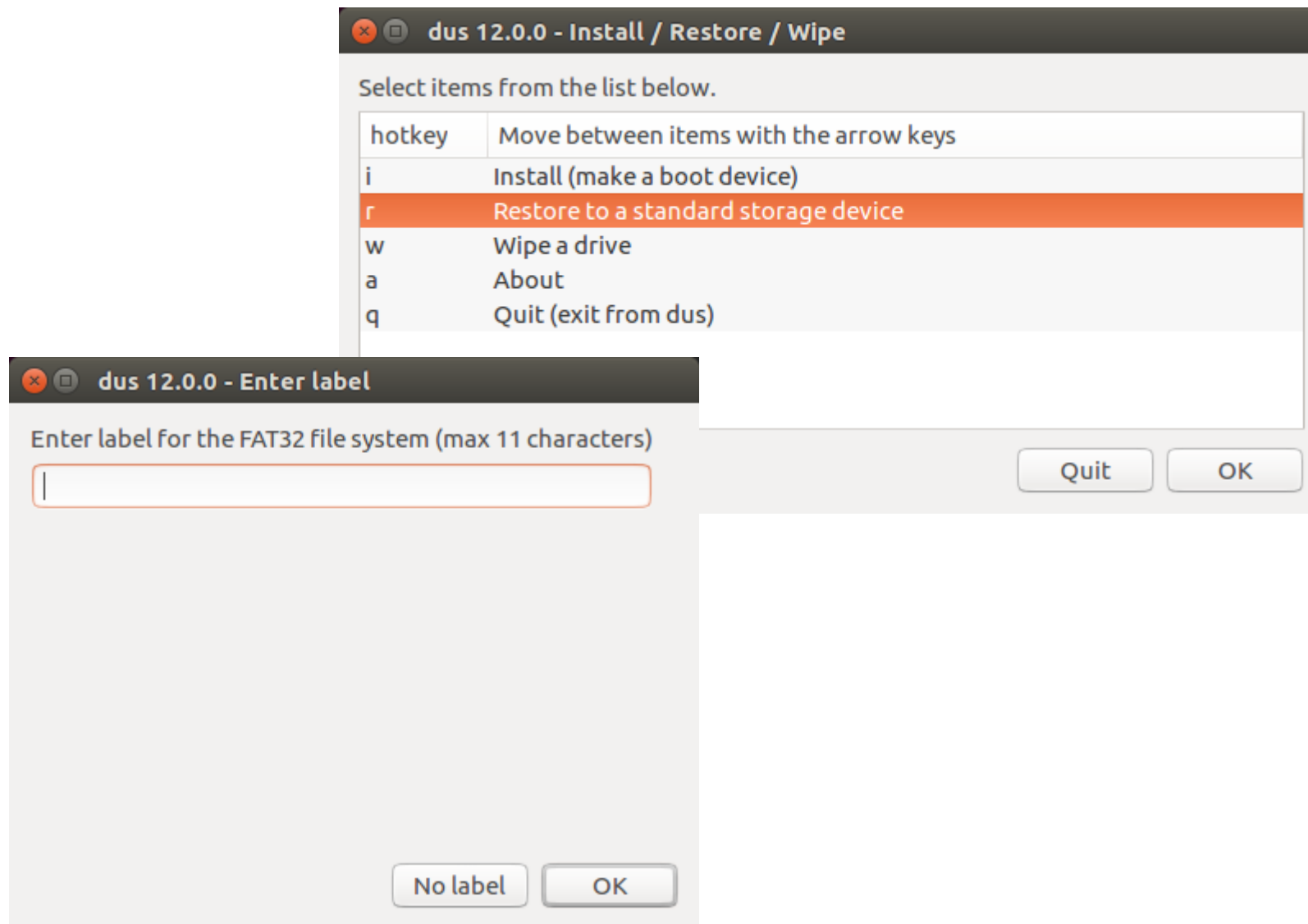
# Wipe the first megabyte (mibibyte)

- If you want to re-use a USB device that has been used with an iso file system, iso9660, you should wipe the first megabyte (actually mibibyte) with dd, overwrite with zeros. Otherwise grub-install and some partitioning tools don't want to write into the head of the drive, because they see the CD file system and are confused.
- **You need *not* wipe the drive before cloning or restoring with mkusb.** It will be done automatically.





# Restore to a standard storage device





# References

- See the tutorials in the Ubuntu Forums and YouTube for more details

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

[YouTube tutorial by ventrical part 1](#)

[YouTube tutorial by ventrical part 2](#)

- alongside the previously mentioned links

<https://help.ubuntu.com/community/mkusb>

<http://phillw.net/isos/linux-tools/mkusb/>

[mkusb-in-ubuntu\\_slideshow.pdf](#)

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

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