



mkusb version 9

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), 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.
- 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 mkusb-nox
```

- For distros not based on Ubuntu, mkusb can be downloaded / installed starting by downloading
<http://phillw.net/isos/linux-tools/mkusb/mkusb-installer>
- These commands install the standard mkusb with a graphical user interface plus the text-only version, alias **mkusb-nox**. 'No X' means only text mode, a version to be used with text screens and in terminal windows. It is useful for servers and other systems without a GUI, and it needs no extra packages. See

<https://help.ubuntu.com/community/mkusb/v7>



Files and checksums

- Current Ubuntu iso files can be used (including the mini.iso file of Ubuntu 14.04 LTS but not 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`

- 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/>



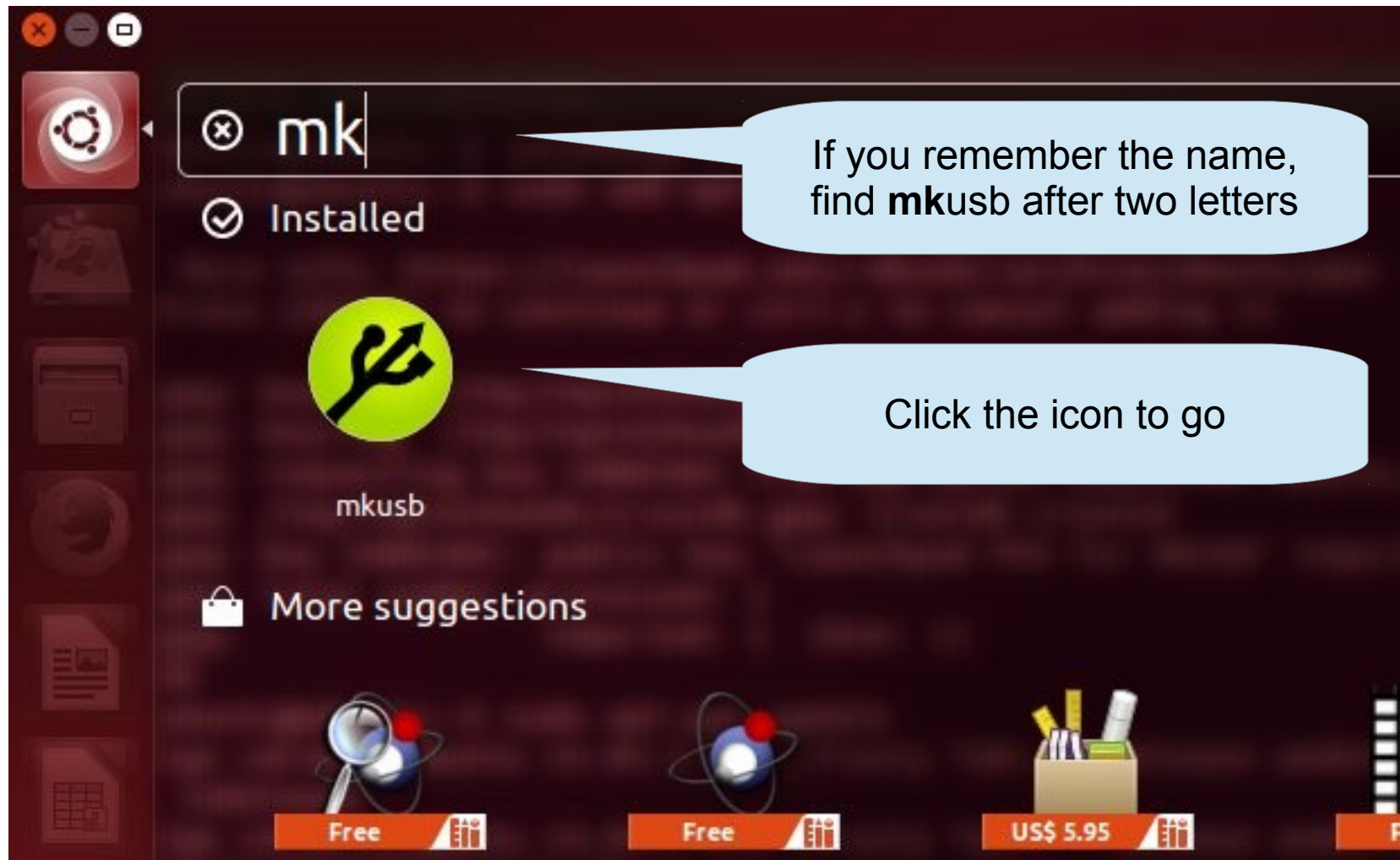
Check download and clone image in Linux

- Change directory to where you have the downloaded files.
- Check that the download was successful with md5sum
 - Example: `md5sum xubuntu-14.04-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
`sudo mkusb` or with an input file, for example
`sudo mkusb xubuntu-14.04-desktop-i386.iso`
- If downloaded, make `mkusb` executable `sudo chmod ugo+x mkusb`

Start from the menu in many distros



In dash





mkusb -h or ./mkusb -h

```
$ ./mkusb -h
```

```
Usage:  # New: menus to select source file and target device #
---- Make a USB install device from ISO or image file -----
sudo -H ./mkusb
sudo -H ./mkusb file.iso
sudo -H ./mkusb "quote file name (1) with special characters.iso"
sudo -H ./mkusb file.img
sudo -H ./mkusb file.img.gz
sudo -H ./mkusb file.img.xz
---- Install from 'file.img.xz', show all mass storage devices
sudo -H ./mkusb file.img.xz all
---- Wipe the USB device (may take long time) -----
sudo -H ./mkusb wipe-whole-device
---- Wipe the first megabyte (MiBiByte), show only USB devices
sudo -H ./mkusb wipe-1
---- Wipe the first megabyte, show all mass storage devices --
sudo -H ./mkusb wipe-1 all
---- Help and Version -----
./mkusb -h
./mkusb -v
```

Print help text in a terminal window. If mkusb is only downloaded, not installed, use `./mkusb` in the directory where the file mkusb is stored.



... 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 **zenity** and **xterm** and wants **pv**, and suggests that you install them. If you cannot install zenity, for example because you have no internet connection, you should use **mkusb-nox** or an earlier version, 7.5 or earlier. The older versions are 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>

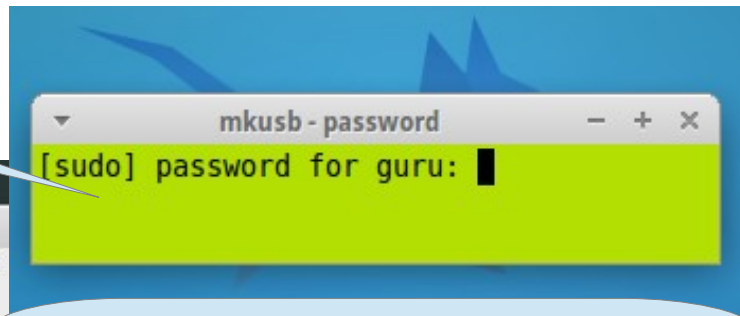
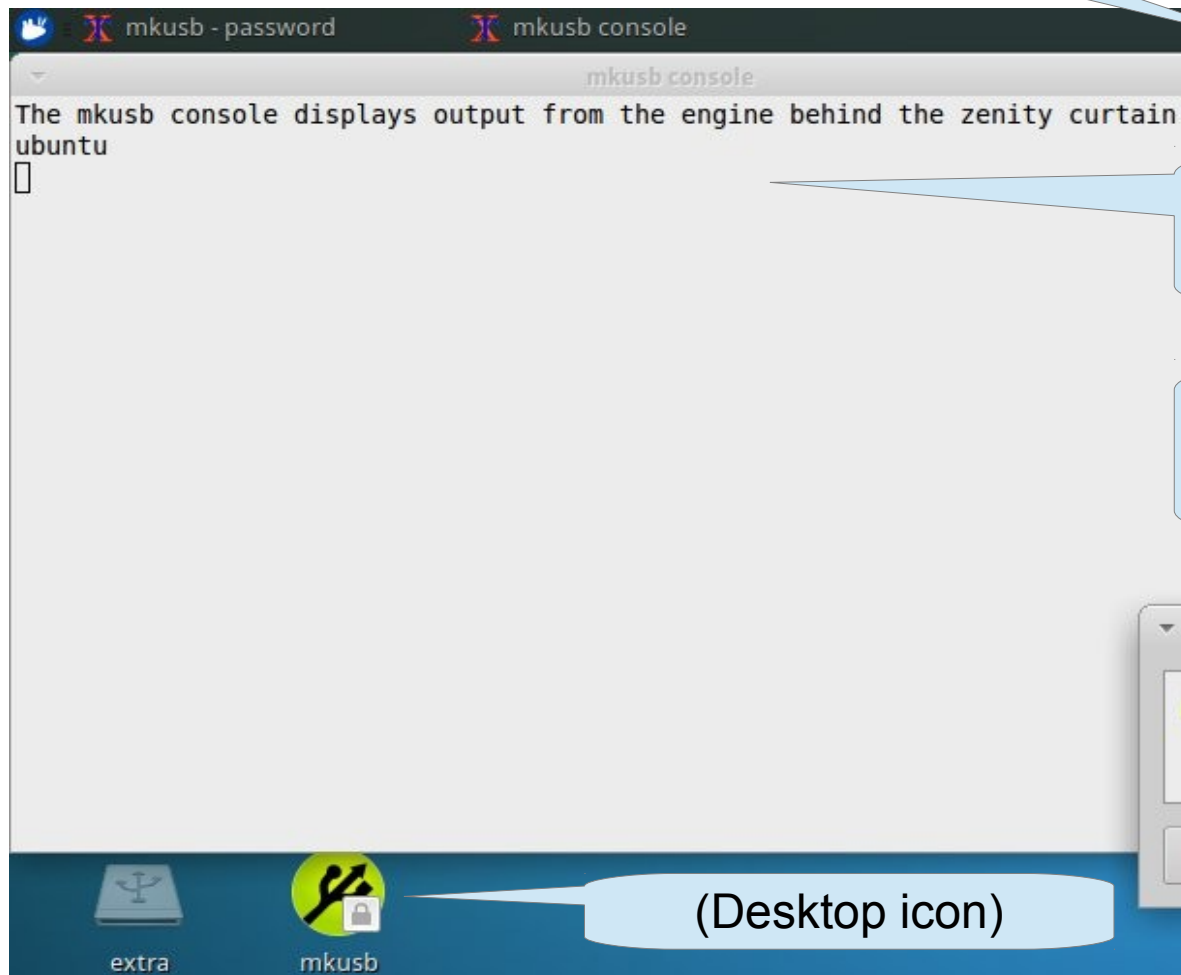
- If you have installed mkusb from the PPA, it will be updated together with other installed programs, and there is a manual page for mkusb and mkusb-nox

man mkusb



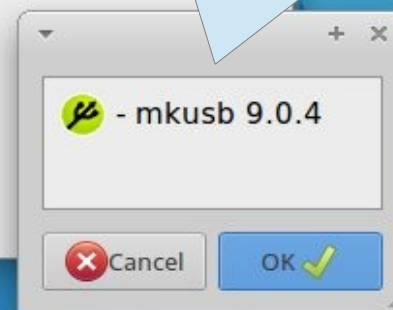
Introductory windows

Password window (xterm)



mkusb console (xterm)

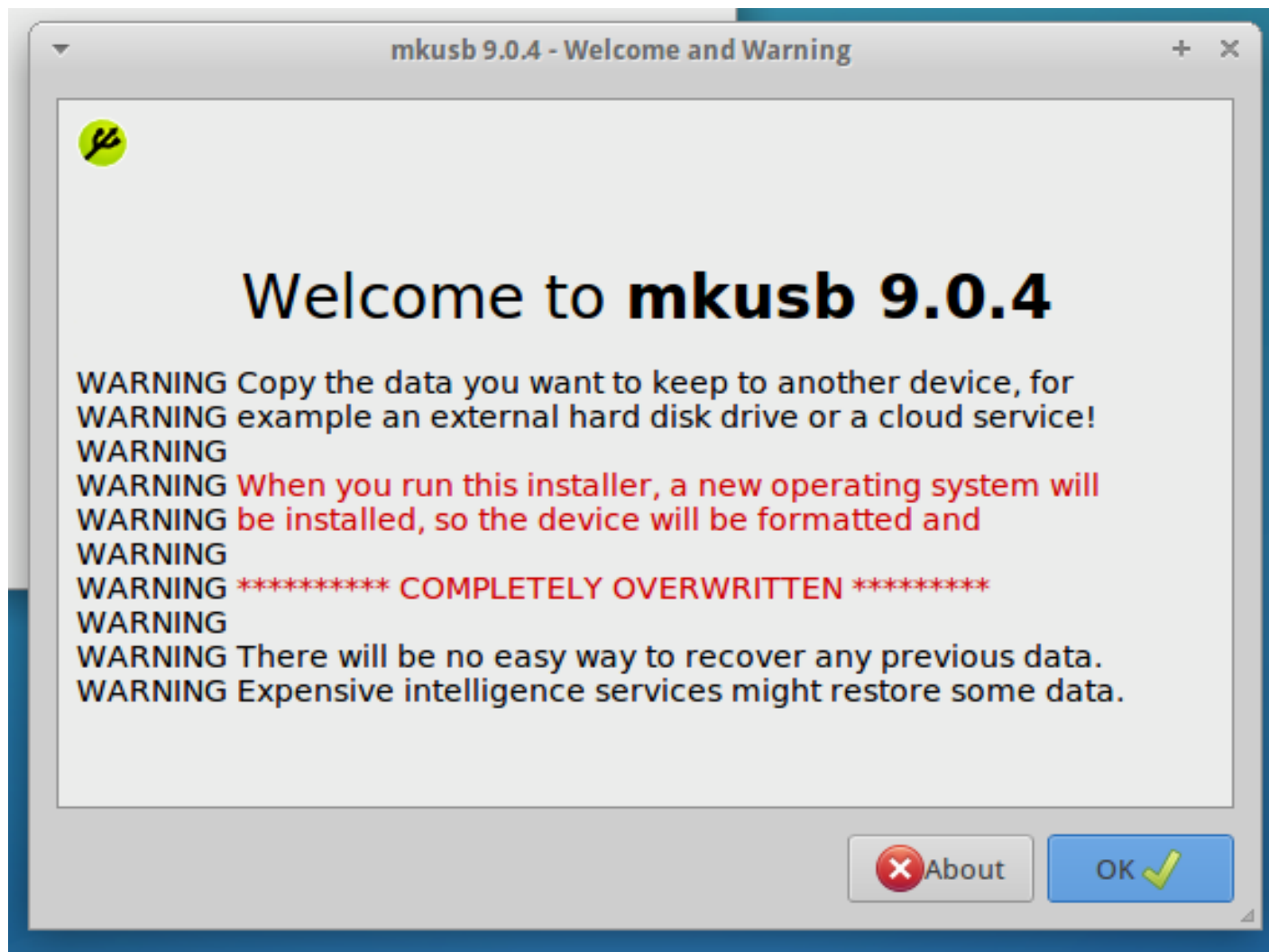
Splash window
testing that zenity works



(Desktop icon)



Welcome and warning





Select source file

mkusb 9.0.4 - Starter menu - No image file selected

Välj objekt från listan nedan.

Hotkey	Action
s	Select source - iso, img, img.gz or img.xz file
w	Wipe the first megabyte (mibibyte)
h	Help menu
q	Quit from mkusb

mkusb 9.0.4 - Select source file

home guru Downloads

Platser

- Hem
- Skrivbord
- /

Enheter

- Dator

Namn	Storlek	Ändrad
kolibri.iso	4.7 MB	12/24/2012
mini.iso	32.5 MB	02/12/2014
utopic-desktop-i386.iso	737.1 MB	10.56
xubuntu-14.04.1-desktop-i386.iso	960.5 MB	Igår klockan 17.59

.i[sm][og]

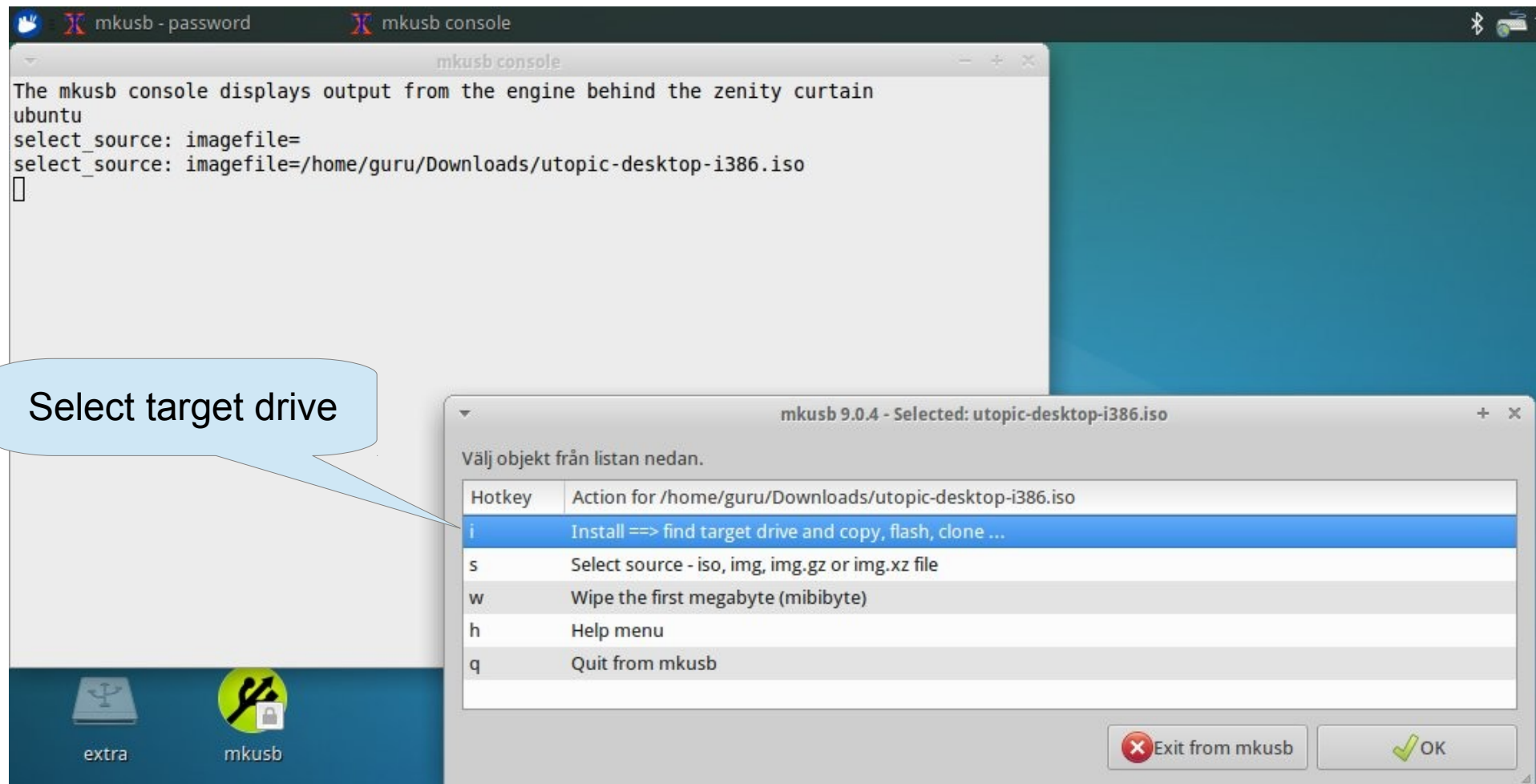
Avbryt OK

Starter menu

File selector



Back at the starter menu

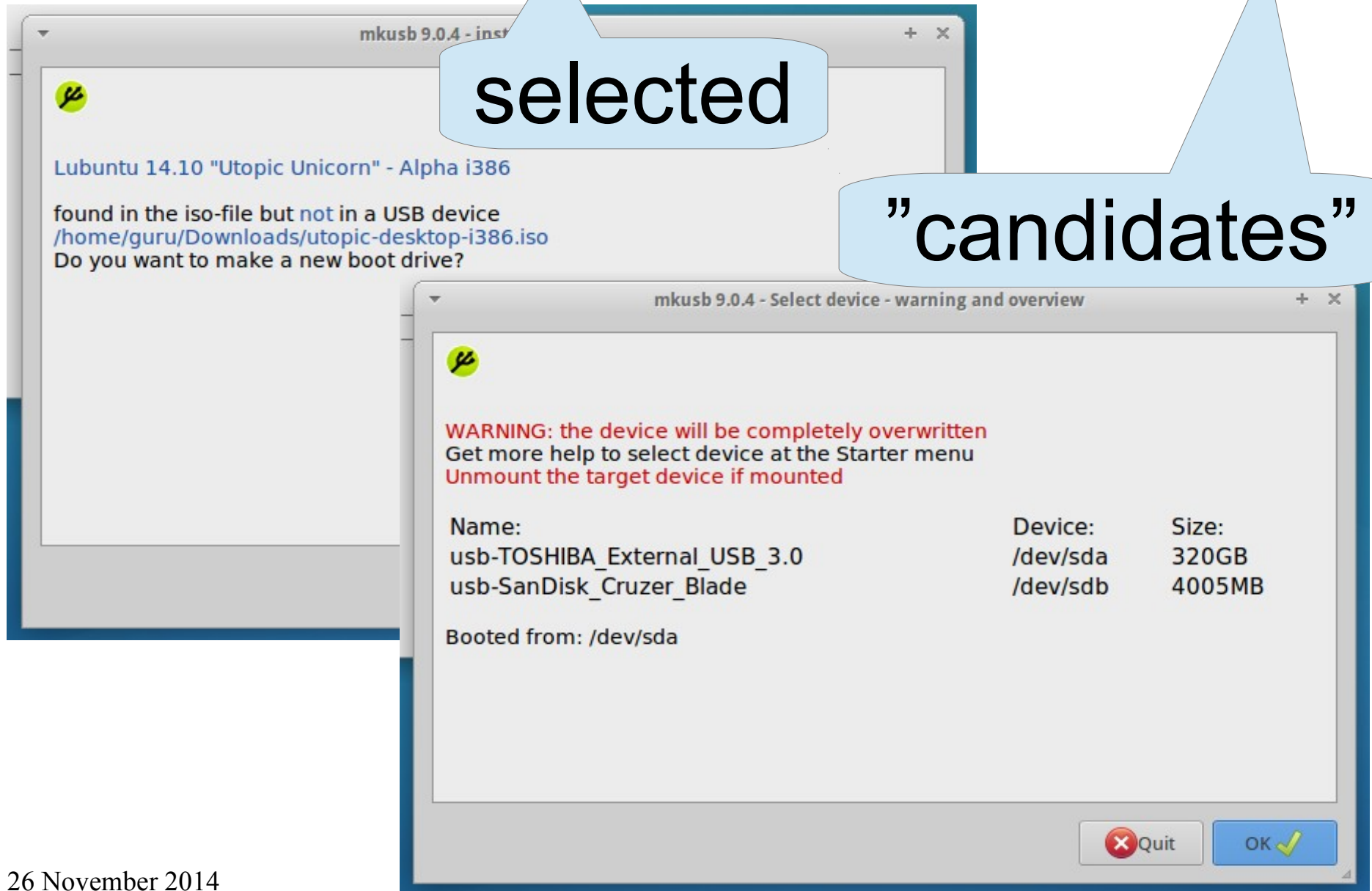




Info about source and target

selected

"candidates"





Select device – and go ahead

The mkusb console displays output from the engine behind the zenity curtain

```
ubuntu
select_source: imagefile=
select_source: imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: blockenhet /home/guru/Downloads/utopic-desktop-i386.iso är skrivskyddad, monterar s
om endast läsbar
disk_name_type=desktop
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
livedrive=/sda
█
```

q <---> busy

Digit <---> available

Press u to toggle between showing only **USB** drives or all drives (also SATA drives ...)

mkusb 9.0.4 - Select device - and go ahead

Select items from the list below.

Hotkey	Select device or toggle USB-only
q	USB: TOSHIBA_External_USB_3.0 Dev: /dev/sda Size: 320GB
2	USB: SanDisk_Cruzer_Blade Dev: /dev/sdb Size: 4005MB
u	toggle USB-only; show all drives
q	quit installing

Cancel OK



Final warning

The mkusb console displays output from the engine behind the zenity curtain

```
ubuntu
select_source: imagefile=
select_source: imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: blockenhet /home/guru/Downloads/utopic-desktop-i386.iso är skrivskyddad, monterar s
om endast läsbar
disk_name_type=desktop
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
livedrive=/sda
ans=2
█
```

mkusb 9.0.4 - Select device - final warning

mkusb is prepared to start installing

the operating system `/home/guru/Downloads/utopic-desktop-i386`
to the target `SanDisk_Cruzer_Blade /dev/sdb 4005MB`

This is the **FINAL WARNING** before wiping and installing !!!
Do you really want to wipe and install to this device?

☐ Check this box if you are ready to go

Quit Go

To avoid mistakes you must check this box in order to **Go** ahead and install



Work done :-)

The screenshot shows the mkusb application interface. At the top, there are two tabs: "mkusb - password" and "mkusb console". The "mkusb console" tab is active, displaying the following text:

```
The mkusb console displays output from the engine behind the zenity curtain
ubuntu
select_source: imagefile=
select_source: imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: blockenhet /home/guru/Downloads/utopic-desktop-i386.iso är skrivskyddad, monterar s
om endast läsbar
disk_name_type=desktop
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386
livedrive=/sda
ans=2

Installing /home/guru/Downloads/utopic-desktop-i386.iso to /dev/sdb ...
< "/home/guru/Downloads/utopic-desktop-i386.iso" to /dev/sdb:
703MB 0:02:15 [5.18MB/s] [=====]
179968+0 records in
179968+0 records out
737148928 bytes (737 MB) copied, 146.349 s, 5.04 MB/s
Syncing the device ...
Done :-)
█
```

Below the console output, there are two icons: "extra" (a USB plug) and "mkusb" (the mkusb logo). The "mkusb" icon is highlighted with a green circle.

Overlaid on the bottom right of the console window is a smaller dialog box titled "mkusb 9.0.4 - work done with /dev/sdb :-)". This dialog box contains the following text:

Lubuntu 14.10 "Utopic Unicorn" - Alpha i386

found in the iso-file but **not** in a USB device
[/home/guru/Downloads/utopic-desktop-i386.iso](#)
You wanted to make a new boot driven ...

**Installing /home/guru/Downloads/utopic-desktop-i386.iso to /dev/sdb ...
... Done :-)**

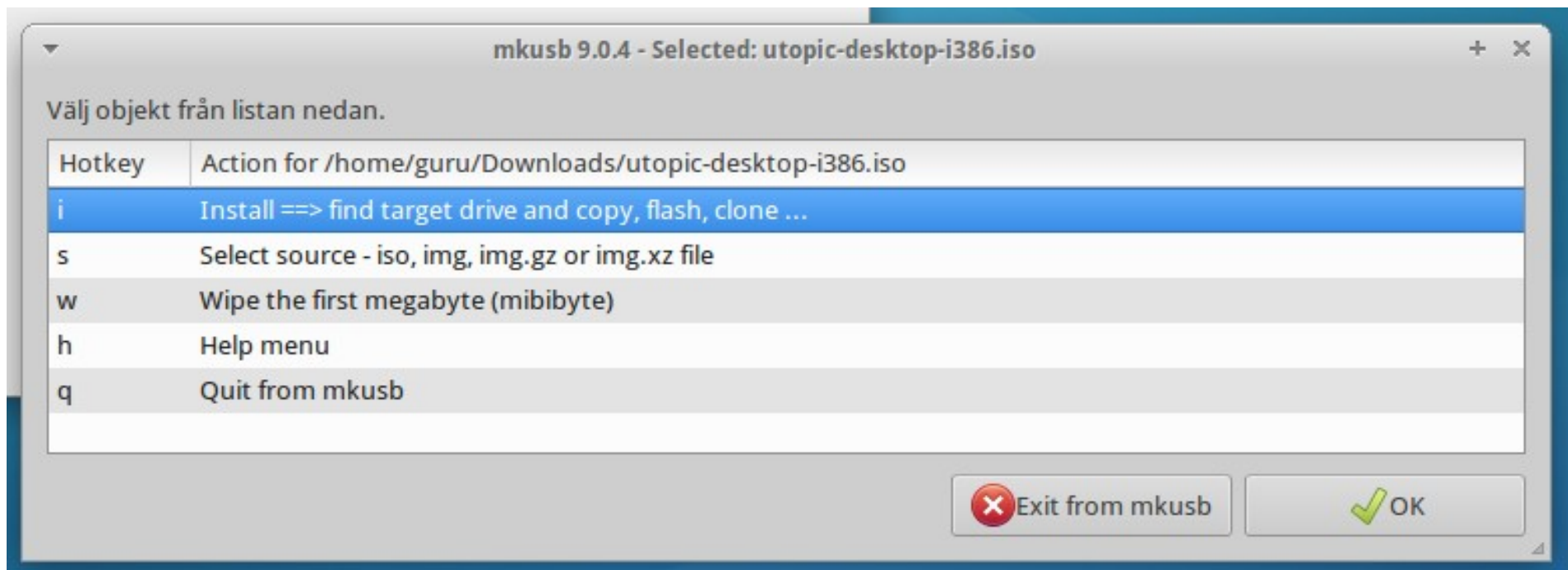
The target device is unmounted and can be unplugged.
Name: usb-SanDisk_Cruzer_Blade Dev: /dev/sdb Size: 4005MB

At the bottom of the dialog box, there are two buttons: "Exit from mkusb" (with a red X icon) and "OK" (with a green checkmark icon).



ISO-testing

- You clone the same version and flavour of Ubuntu several times during iso testing. Then it will be very convenient after the first time.
 - Automatic recognition of the system: When the same system is found in the ISO file and a USB pendrive, mkusb assumes ISO-testing
 - Very fast process with a fast USB 3 pendrive in a USB 2 port of the computer, 21 seconds to copy / flash / clone Lubuntu Utopic





Directly to the final warning

The mkusb console displays output from the engine behind the zenity curtain

```
ubuntu
imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: blockenhet /home/guru/Downloads/utopic-desktop-i386.iso är skrivskyddad, monterar s
om endast läsbar
disk_name_type=desktop
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386 _found_ in iso-file
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386 _found_ in /dev/sdb
```

Lubuntu Utopic found in the ISO image **and** the USB pendrive

ISO testing: * WARNING: the device will be completely overwritten *****

Ready to update ISO image
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386

found in the iso-file and found in /dev/sdb
Name: usb-SanDisk_Extreme Dev: /dev/sdb Size: 15694MB

Install to the device **/dev/sdb** ?

☒ Check this box if you are ready to go

Quit Go



Re-cloned :-)

The screenshot shows the mkusb application interface. At the top, there are two tabs: "mkusb - password" and "mkusb console". The "mkusb console" tab is active, displaying a terminal window with the following text:

```
The mkusb console displays output from the engine behind the zenity curtain
ubuntu
imagefile=/home/guru/Downloads/utopic-desktop-i386.iso
The iso file SHOULD BE loop mounted on a temporary file READ-ONLY:
mount: blockenhet /home/guru/Downloads/utopic-desktop-i386.iso är skrivskyddad, monterar s
om endast läsbar
disk_name type=desktop
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386 _found_ in iso-file
Lubuntu 14.10 "Utopic Unicorn" - Alpha i386 _found_ in /dev/sdb
pv /home/guru/Downloads/utopic-desktop-i386.i
703MB 0:00:19 [35.9MB/s] [=====
179968+0 poster in
179968+0 poster ut
737148928 byte (737 MB) kopierade, 21.0646 s,
syncing the drive ...
The Lubuntu 14.10 "Utopic Unicorn" Alpha i3
█
```

A blue callout bubble points to the terminal output, containing the text: "Time used by dd".

In the foreground, a dialog box titled "mkusb 9.0.4 - work done with /dev/sdb :-)" is open. It contains the following text:

The Lubuntu 14.10 "Utopic Unicorn" - Alpha i386 USB device is re-cloned :-)

Name: usb-SanDisk_Extreme Dev: /dev/sdb Size: 15694MB

At the bottom of the dialog box, there are two buttons: "Exit from mkusb" (with a red 'X' icon) and "OK" (with a green checkmark icon).

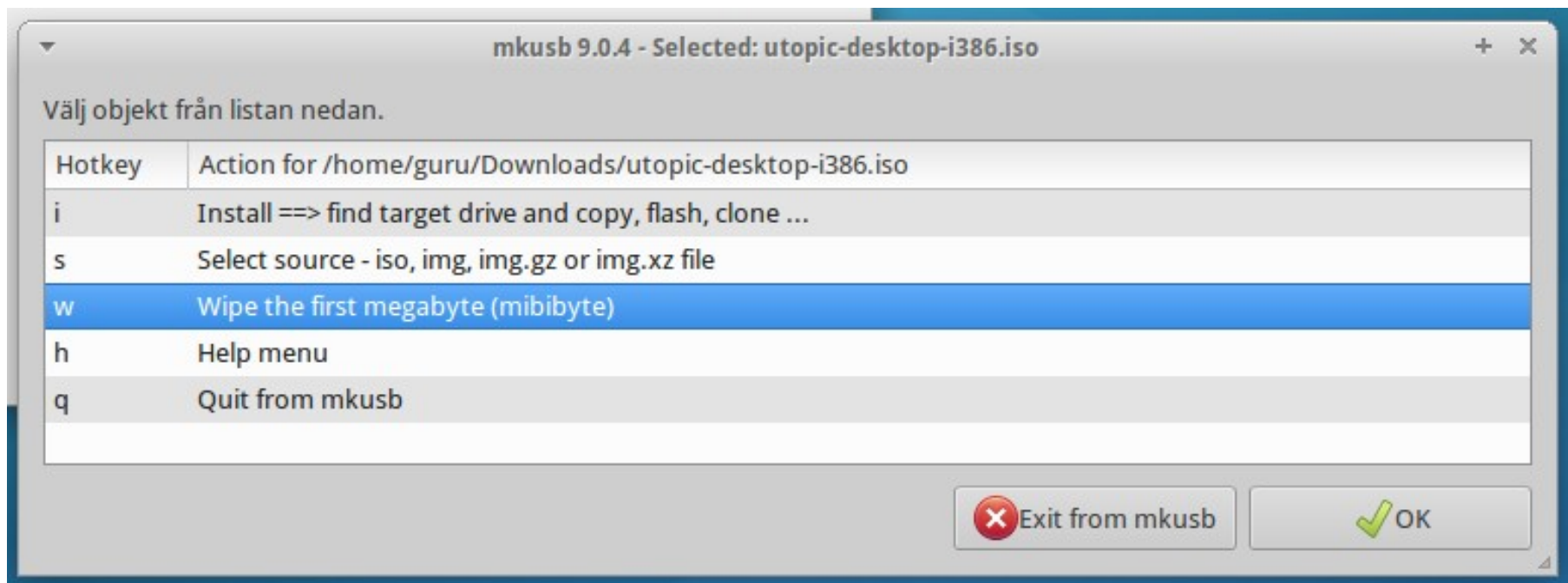


Wipe the first megabyte

- 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'.

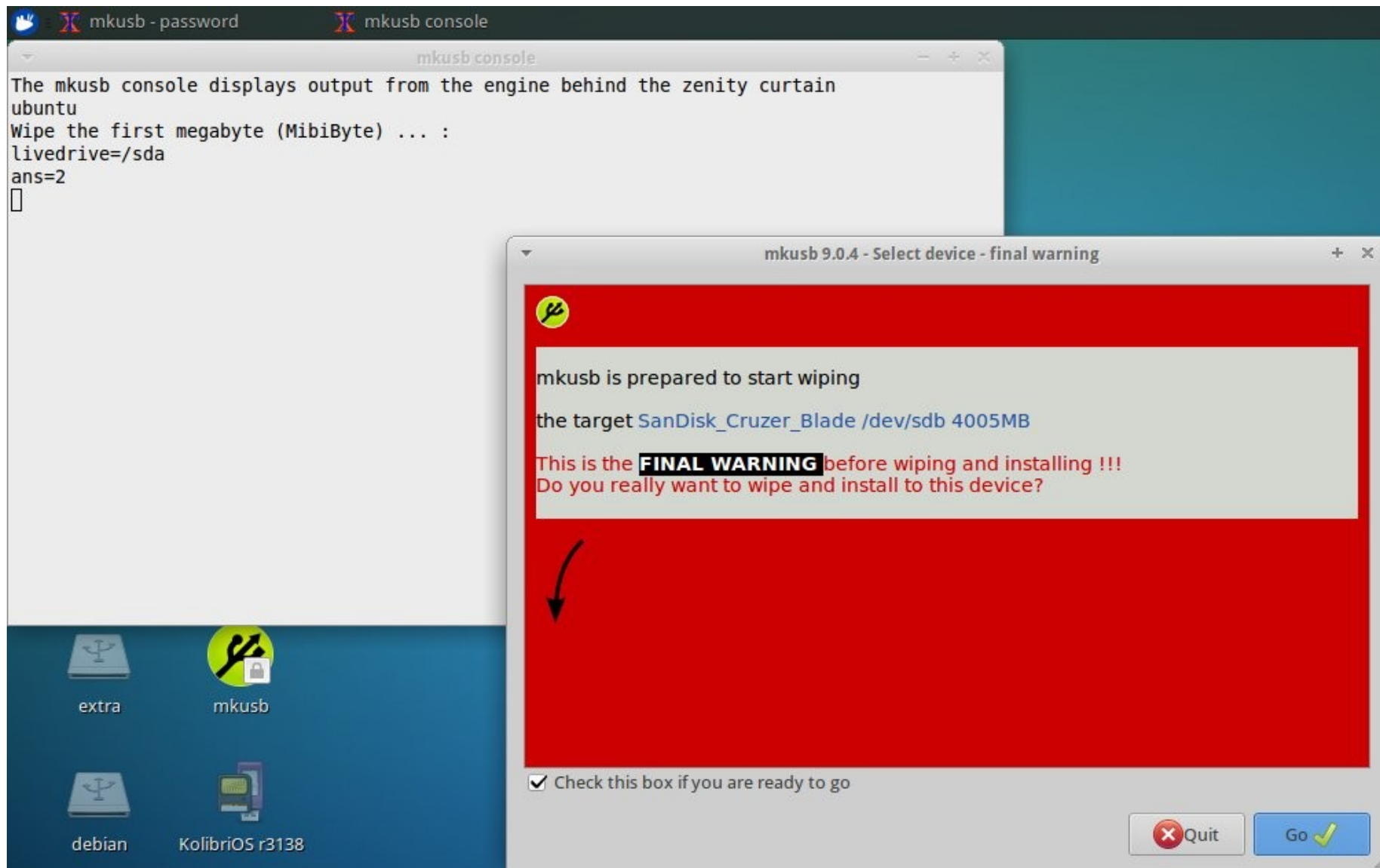
`sudo mkusb wipe-1`

- or via the starter menu





Wipe – final warning





Wiped – work done :-)

The screenshot shows the mkusb application interface. The top bar has two tabs: 'mkusb - password' and 'mkusb console'. The 'mkusb console' tab is active, displaying the following text:

```
The mkusb console displays output from the engine behind the zenity curtain
ubuntu
Wipe the first megabyte (MibiByte) ... :
livedrive=/sda
ans=2

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

< /dev/zero pv | dd bs=4096 count=256 of=/dev/sdb
256+0 records in
256+0 records out
1.06MB 0:00:00 [ 270MB/s] [ <=>
1048576 bytes (1.0 MB) copied
, 0.0178688 s, 58.7 MB/s
Syncing the device ...
Done :-)
█
```

Below the console output, there are four icons on a blue background: 'extra' (USB drive), 'mkusb' (mkusb logo), and two other icons (USB drive and a document). A dialog box titled 'mkusb 9.0.4 - work done with /dev/sdb :-)' is open in the foreground. It contains the following text:

You wanted to wipe a mass storage device (typically USB drive)n ...

**Wiping the first megabyte (MibiByte) of /dev/sdb ... :
... Done :-)**

The target device is unmounted and can be unplugged.
Name: **usb-SanDisk_Cruzer_Blade** Dev: **/dev/sdb** Size: **4005MB**
You may need to **unplug & replug the drive or reboot**
for the kernel to see that the drive is wiped.

At the bottom of the dialog, there are two buttons: 'Exit from mkusb' (with a red X icon) and 'OK' (with a green checkmark icon).



References

- See the tutorial in the Ubuntu Forums for more details
<http://ubuntuforums.org/showthread.php?t=1958073>
- alongside the previously mentioned links
<https://help.ubuntu.com/community/mkusb>
<http://phillw.net/isos/linux-tools/mkusb/>
- And read this wiki page with methods and tools to create USB boot devices/drives/sticks
<https://help.ubuntu.com/community/Installation/FromUSBStick>