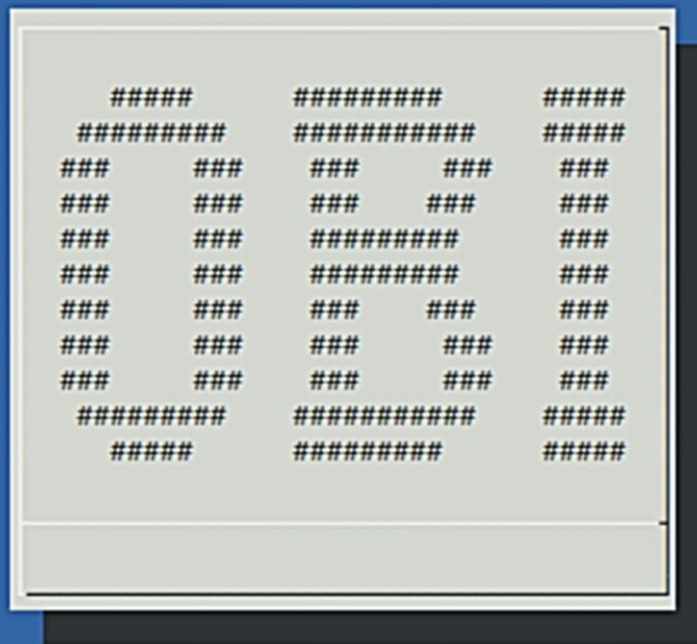


One Button Installer



by sudodus alias nio-wiklund at Launchpad

One Button Installer

version 2.5

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How to use the One Button Installer

Case 1: Tool that is easy to use and just works

The normal linux installers that come with iso files are complicated to use or freeze during the installation process, and you want a tool that is easier to use and just works.

Case 2: Replace Windows XP

Replace Windows XP because you want the computer to work faster or smoother with an Ubuntu based linux operating system, or at the end of life in April 2014, when there will be no more security updates for Windows XP.

Case 3: Backup

You want a simple method to backup (and restore) your whole installed linux system. The One Button Installer combines installation, backup and restore in one set of tools.

Case 4: Your own portable Ubuntu based linux system

You want to make your own linux system portable and port it to a USB pendrive or to be installed in another computer to be used by yourself, or to be uploaded to the internet for sharing with other people. The One Button Installer can do it in a simpler way than to remaster the code and make an own iso file.

Background

Personal motivation (may be changed before spreading to a wider group of people)

The end of life of Windows XP will be a great opportunity for linux versions and flavours with low demands on hardware, particularly RAM size and CPU speed. Lubuntu is the flavour that I know the best and it is a good candidate to replace Windows XP. The Lubuntu community is working hard to improve Lubuntu from a good candidate to the best alternative, at least for middle-aged to old hardware. One big improvement is zRAM, a method to use part of the RAM as a compressed swap area. This way the necessary RAM size for the installer was reduced to around half of what it was before.

During testing I was frustrated, that in order to succeed with low RAM, most if not all degrees of freedom are lost, and yet the [graphical desktop] installer feels quite unstable. Yes, I'm happy that it is much better than before, but anyway, if there are no degrees of freedom you might as well run a simple deterministic shell-script.

So I made what is almost a one button installer. There are a few yes/no checkpoints, and a simple command line interface selector to make it easier to find the correct target drive. The main reason for the checkpoints is to avoid overwriting a drive without really intending to do it.

Dialogue

- Anyone who is put off using Lubuntu because installing is complicated or takes too long is almost certainly not a good candidate for using it on an old slow low-RAM PC! Such impatient people should probably just spend some money on a new PC instead.
- This is what Windows users have done and do. Maybe some of them will try Lubuntu if the word is spread, that it is 'so easy to install Lubuntu'.
- I see this situation: After they dared try the One Button Installer on the old PC, some of them will get more interested and use the advanced level or run the flexible desktop installer to get a dual boot system on the new PC.

See also this link <http://ubuntuforums.org/showthread.php?t=2157233> where many linux users doubt the willingness and ability of old Windows user to switch to linux. So I think it is important to make it easy to take the step into linux. Anything that can be made simpler, should be made simpler.

Comparing the installers

These are my very personal descriptions and comments about the installers of the Ubuntu family. I have most experience of the versions for Lubuntu. The other flavours use the desktop installer and there is a mini.iso file, that can install 'anything'.

RAM usage

See this link <https://help.ubuntu.com/community/Lubuntu/LowRamTesting>

- a. The Desktop Installer needs less RAM than before thanks to zRAM (in Lubuntu), 384 MB for simple cases and 512 MB for more advanced installations. If a swap partition is created before the installation, it works with 256 MB or even less for the simplest case, installing to a whole disk. The Desktop Installer needs more RAM without zRAM, around 512 MB for simple cases and 768 MB for more advanced installations.
- b. The Alternate Installer needs less RAM than the desktop installer, approximately half of the desktop installer, even down to 160 MB thanks to zRAM, but around 256 MB without zRAM. The alternate installer is actually a special case of the 'mini.iso'.
- c. The One Button Installer **in text mode** needs less RAM than the alternate installer. At a test with 128 MB RAM, it maxed at 49 MB to expand a tar.gz file and 62 MB to expand a tar.xz file (including the monitoring htop).

Flexibility and user friendliness

- a. The Desktop Installer is flexible and looks nice, and is generally easy to understand, but the partitioning page can make people confused. There are several threads at the Ubuntu Forums describing installations, where a previous system has been overwritten by mistake. Unfortunately the desktop installer has problems with low RAM, particularly with advanced options like 'Something else' at the partitioning screen. It freezes or fails.
 - b. The Alternate Installer is very flexible and looks OK, but is a bit complicated. The partitioning and installation of bootloader makes me confused, so that I have to look behind the curtain with another screen and command line tools. This is also my experience of the mini iso, the most flexible installer of them all.
 - c. The One Button Installer, OBI, has a menu system using the linux program 'dialog' and looks like the wizard of the alternate installer. The OBI has very few choices in order to be simple to use. Because of that it is also limited, so when you want a complicated installation, you must use one of the other installers.
- *. I think people are 'prompted' to install linux side by side with Windows by the standard installers, and it makes things more complicated than necessary. Windows XP has reached end of life, and I

really hope that people will save their personal files and overwrite Windows with Lubuntu or some other Ubuntu based operating system.

But it *is* possible to shrink the Windows partition and create partitions with gparted, and the OBI can select partitions automatically or manually. This way it is possible to create dual boot systems and keep newer Windows Vista or Windows 7 systems.

Live operating system

The One Button Installer is normally run from a live USB drive. The operating system is built from the Ubuntu 13.10 mini iso and is similar to a basic server (text) or Lubuntu (graphical). It is portable, the drivers are selected in the boot process. The wired internet connection (ethernet) is configured in the boot process too, so it is available without any tweaking. The system logs in automatically without a password and starts a first small menu, where the main task is the One Button Installer.

Image of the system to install

The One Button Installer comes with systems to install, but you can make your own image for this purpose.

- Install a system and tweak it until you are satisfied!
- Avoid personal files and proprietary drives!
- Then you can simply make a tarball of the system, and the One Button Installer can use that tarball to install it into other computers.

This paragraph is not for beginners

A tarball is a compressed archive of a directory tree with files, created with the linux command tar. From the One Button Installer, exit to the bash shell, mount your drive with Lubuntu onto /mnt and run

```
cd /mnt
sudo tar -cvJf /home/$USER/ball.tar.xz .
```

You may want to run without v (verbose), and you may want to write the tarball directly to another drive, not the boot drive of the One Button Installer. The space and dot at the end of the command line are important, because they decide the source of the tarball to make the path relative.

Finally you need to change the name of the tarball to something that describes the system in the tarball.

You can keep several versions of your tweaked system as tarballs.

The system was installed, not live. How can it work in another computer?

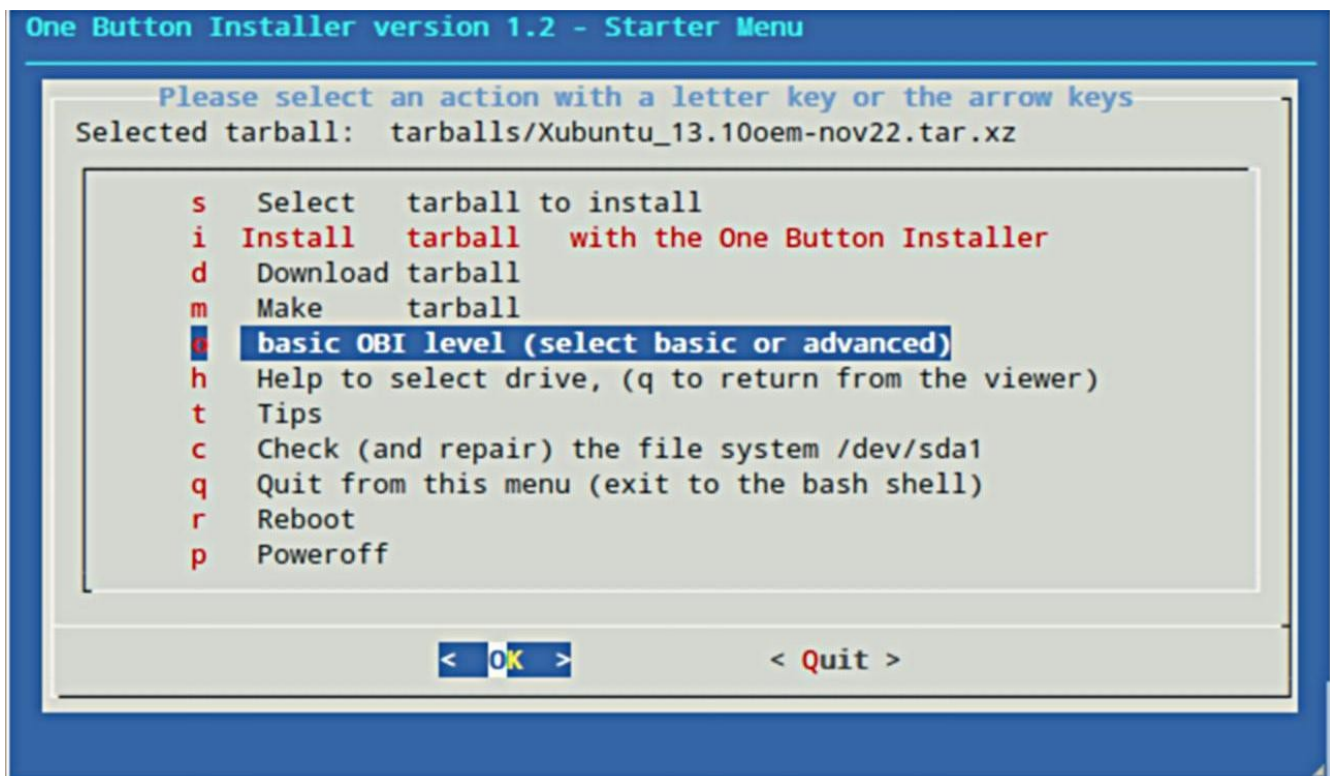
Systems that are sold are locked to the computer to make it hard to create pirate copies. But Ubuntu is free. Since a few years, the installed systems are also live in the meaning, that they adapt to the hardware during booting, not according to fixed data stored in files. The Ubuntu Server has a fixed network setting, but the desktop versions also set the network in an adaptive way.

The reason why this works is that the Ubuntu engine under the hood is really modern and smart (and different from Windows and MacOS). It selects drivers (except proprietary ones) at boot time and it configures the network at boot time too for the desktop versions. So an installed instance of any Ubuntu family flavour is as portable as the corresponding live CD or USB installer. You can carry it in a USB drive in your pocket.

Sometimes this automatic system does not work, and it is necessary to use a boot option. The same boot option can be added in the standard installer (in syslinux) and in the installed system (in grub2).

Main tasks

The front page and this screenshot of the starter menu were made while running the OBI in a Gnome-terminal window running Xubuntu-desktop in Ubuntu 12.04.3 LTS, and they were edited with Gimp to be rendered reasonably well in different resolutions.



A. Downloading and selecting a tarball to install

B. Installing a system from the selected tarball

1. Helps selecting the correct drive with some logic and simple command line tools.
2. Unmounts and swaps off.
- 3a. Wipes the first megabyte with dd, and creates two partitions with fdisk (fully automatic at the basic level) **or**
- 3b. Lets you select partitions that already exist (at the advanced level).
4. Makes a file system and swap system.
5. Expands a tarball of Lubuntu 13.04, Precise Gnome Classic Tweaks, LXLE (August 2013), Lubuntu 13.10 (Saucy) alpha 2 or one of the other available tarballs. The current tarballs contain 32-bit systems, but tarballs for 64-bit systems (excluding UEFI systems) can also be made and used.
6. Installs the grub bootloader.
7. Checks the file system and corrects it if necessary after expanding the tarball.

C. Making a tarball (from an installed system)

It is very easy to make your own tarballs. But as before, it requires a simple configuration, only one partition for the system and one for swap.

There is also a possibility to install (as a second step) the OBI to an arbitrary sized drive and use all of it: For example a big USB pendrive (16GB or 32GB), or an external HDD or SSD (connected via USB or eSATA). This means that it can contain a rather big library of tarballs, or big tarballs, and can be used either to install from *a large selection of tarballs*, or to make and store **backups** as tarballs.

Compression

The One Button Installer can manage **xz** files as well as **gz** files. The xz files are compressed with **xz** which is often 20% or more efficient (smaller files) compared to **gzip** for gz files. During a test with low RAM, 128 MB, extracting the tarball with xz used 62 MB while extracting with gzip used 49 GB. xz is slower, but downloading is usually the bottleneck, so small files are preferred.

The default compression is using xz (starting with version 1.1). You must run **mk1b1** from the bash shell to create a gzip tarball.

Advantages

- Very simple installation
- Easy to understand what to do
- Complete working operating system directly
- Install your own tweaked system via a your own tarball
- Make and maintain your own backups
- Very low demands on RAM
- The simplicity makes it very fast.
- There is feedback almost all the time. The user need not fear it is stuck.
-

Disadvantages

- A different way to install a system.
- Can only create 'single boot' and simple 'dual boot' systems.
- Standard OBI does not work from CD/DVD, but works via Plop.
- Does not work with UEFI.

OBI-9w

- works from CD/DVD/USB drives
- uses non-pae kernels
- so is made for old computers

<https://help.ubuntu.com/community/9w>

Description of some of the systems now available as tarballs

Current Ubuntu flavours of version 13.10 prepared via OEM

These systems are **Kubuntu**, **Lubuntu**, **Ubuntu**, **Ubuntu-Gnome** and **Xubuntu** (32-bit) without any tweaks except the package `language-selector-gnome` in Ubuntu-Gnome to help installing a new language.

Lubuntu 13.04 with fake-PAE reached end of life in January 2014

This system to be installed is Lubuntu 13.04 i686 (32-bit pae) with fake-PAE installed, which makes no difference for most computers, but makes it possible to update the kernel of computers with Celeron M and Pentium M, which have PAE capability but no PAE flag.

So there is a low limit at very old CPUs, that lack PAE, but such old computers are not using USB to install, and should not be available for this installer anyway. The high limit is not depending of the hardware, but on UEFI, which is used to make it hard or impossible to run other operating systems than the one installed by the manufacturer or the vendor. If UEFI can be switched off, the computer can run a 32-bit system. When UEFI is switched on, Ubuntu can only run 64-bit systems.

Old hardware and Lubuntu 13.10

The One Button Installer uses less memory (RAM) than the desktop and alternate installers. It is tested down to 128 MB and it made a working Lubuntu 13.10 system with **zRAM**. You cannot do much with that system. It will be very slow because of heavy swapping, but it is clear that the installer does not set the limit for low RAM. The 13.10 version runs with less RAM than previous versions. Probably it will run fairly well with 256MB RAM for a person with modest demands on internet browsing. But the general advice for old hardware is 512MB RAM or more and Pentium 4 or newer for a computer with a graphical desktop environment. **The tweaked versions contain fake-PAE and replace Lubuntu 13.04 also for computers with Celeron M and Pentium M.**

See this link to the Ubuntu Forum thread [Old Hardware by mörgæs](#)

<http://ubuntuforums.org/showthread.php?t=2130640>

Precise Gnome Classic Tweaks

This system to be installed is Ubuntu 12.04.2 LTS i686 (32-bit pae) and it is possible to update the kernel of computers with Celeron M and Pentium M, which have PAE capability but no PAE flag. One great advantage with this system is that it has long time support until April 2017. Like the Lubuntu system, this system works well with old hardware as well as newer hardware. There is an OEM version, which is more flexible than the 'plain' version, and has more tweaks.

See this link <https://help.ubuntu.com/community/PreciseGnomeClassicTweaks>

It is also possible to select the standard Unity desktop environment with a lot of eye-candy but a big foot-print, suitable for fairly powerful computers.

KubuntuPrecise

This is Kubuntu 12.04.3 with fake-PAE. It has also support until April 2017. Kubuntu has the KDE desktop environment with a lot of eye-candy but a big foot-print, for fairly powerful computers.

Xubuntu-precise

This is Xubuntu 12.04.3 with fake-PAE. It has support until April 2015. Xubuntu has the XFCE desktop environment with a medium light foot-print (not as light as Lubuntu, LXLE and Bodhi).

LXLE August 2013 and February 2014

This system to be installed is based on remastered flavours of Lubuntu 12.04.3 and 12.04.4 and it is possible to update the kernel of computers with Celeron M and Pentium M, because it has a non-PAE kernel. One great advantage with this system is that it has long time support until April 2017. Like the Lubuntu system, this system works well with old hardware as well as newer hardware. See the description in this link <http://www.lxle.net/>

Bodhi

This system to be installed is based on a remastered flavour of Ubuntu 12.04, bodhi-2.3.0-nonpae-32. This system also promises long time support until April 2017. Like Lubuntu, this system works well with old hardware as well as newer hardware. See this link <http://www.bodhilinux.com>

Bento

This system to be installed is based on a remastered flavour of Ubuntu 12.04, bento-ubuntu-remix-DVD-RC-i386-2012.04.4. This system also promises long time support until April 2017. Like Lubuntu, this system works well with old hardware as well as newer hardware. See these links

<http://phillw.net/isos/bento-ubuntu-remix/>
<http://linuxvillage.org/en/2013/11/>

Lubuntu and Xubuntu Trusty pre-beta daily builds

These systems let you test early versions of Trusty Tahr to become the next 14.04 LTS version.

Lubuntu 14.04 LTS

These systems contain the first Lubuntu version with long time support. They can be installed with the **boot option forcepae** and need no installed fake-pae for computers with Celeron M and Pentium M. The tarballs come with **OEM** and are described at these links

https://help.ubuntu.com/community/OBI/Lubuntu_14.04_OEM-nonPAE

https://help.ubuntu.com/community/OBI/Lubuntu_14.04_EndUser-nonPAE

An updated version comes with the file

```
Lubuntu_14.04oem-npae5.tar.xz          # in OEM mode, password: 123456
```

- updated and dist-upgraded to July 7 2014

- contains both non-pae and generic-pae kernels, the non-pae kernels are dated June 28 2014

Trusty-nonpae-txt5

```
Trusty-nonpae-txt5.tar.xz              # user: guru, password: changeme
```

contains an **Ubuntu minimal system with a non-pae kernel and text screen**.

It looks like the pictures in this link

https://help.ubuntu.com/community/9w/ScreenShots#Example_of_installed_system

You can install a graphical window manager or desktop environment from the installer menu.

- updated and dist-upgraded to July 5 2014
- contains a non-pae kernel dated June 28 2014
- boots to text-mode menus using dialog

Basic and simple

The One Button Installer is intended to help the beginner to install an Ubuntu flavour operating system without distractions from advanced options. ***At the basic OBI level the whole drive will be used.*** There will be one big partition for the file system and one small partition for swap. It is easy and takes only a few minutes to install a system at the basic OBI level.

The interface is still ***unpolished***, you see the crude engine during the installation. The basic command line interface has been upgraded with menus using the linux program ***dialog***. It might need more or less polishing. But let us abstain from more polishing until the engine can do what it needs to do. And let us avoid adding eye-candy so that it will use too much memory.

Advanced level

The advanced level opens the door to dual boot (mainly for internal disks) and a first FAT32 partition for access from Windows (for USB pendrives). In the advanced level the OBI will let you ***select the partitions***. It means that you can install a system from a tarball into two partitions, one root file system partition and one swap partition. This way it is possible to create a ***dual boot*** device with an existing (already installed) operating system. It is also possible to create a separate ***data partition*** with an NTFS or FAT32 file system, that can be used by linux as well as Windows.

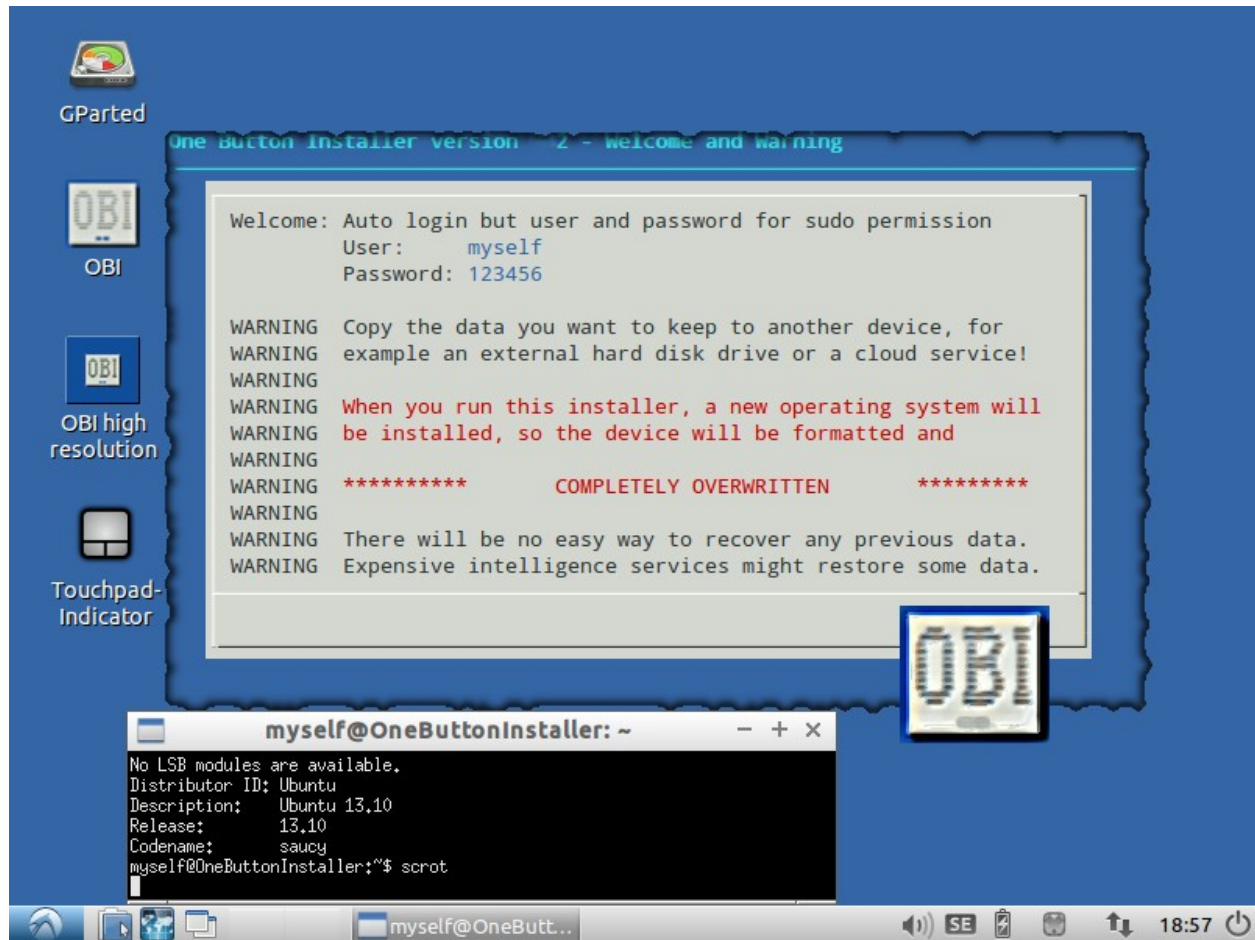
The intention with the advanced level is to edit and create partitions with ***Gparted*** (booted from a 'regular' boot CD/DVD/USB device). One partition is labelled 'obi-root' and one (smaller) partition is labelled 'obi-swap'. Such partitions can be identified and selected automatically in the advanced level, but manual selection is also possible.

Editing partitions is risky (so you need a good backup) and it takes long time (hours) to shrink an existing partition with a lot of data (Windows), so that there will be space for new partitions.

One Button Installer with graphical desktop environment

Starting with version 2.2 there are different flavours of the OBI.

1. The original text mode flavour, expanded from a compressed image file to 4 GB. This is the best option for very old or small systems, where it is important to keep the foot-print of the One Button Installer as small as possible. It is also the best option for the basic OBI level.
2. The graphical DE flavour, expanded from compressed image files to 8 GB. The main reason for this flavour is to provide *a unified desktop environment (DE) to edit partitions with gparted and install an operating system with the OBI scripts* from a tarball at the advanced OBI level.



Dual boot

If you want dual boot with Windows in BIOS mode you can run the OBI in advanced mode. Several linux versions can share a swap partition (new in version 2.3).

But for Windows 8 and UEFI, you cannot use the One Button Installer. Install from the Ubuntu flavour's desktop 64-bit iso for UEFI.

CD/DVD and really old computers

The One Button Installer does not work from optical devices (CD/DVD), so it is not an easy option for really old hardware unless you boot the computer with **Plop**, and select USB (in complicated cases via alt + u). Plop can boot from floppy disk, CD/DVD or HDD and from there start a driver for the USB system. I used a Plop CD and it could help boot via USB in 2 of 3 old computers that I tested. The one where Plop did not work has an Athlon XP CPU and nVidia graphics and can boot directly from USB. This link describes the Plop boot managers.

<http://www.plop.at/en/bootmanagers.html>

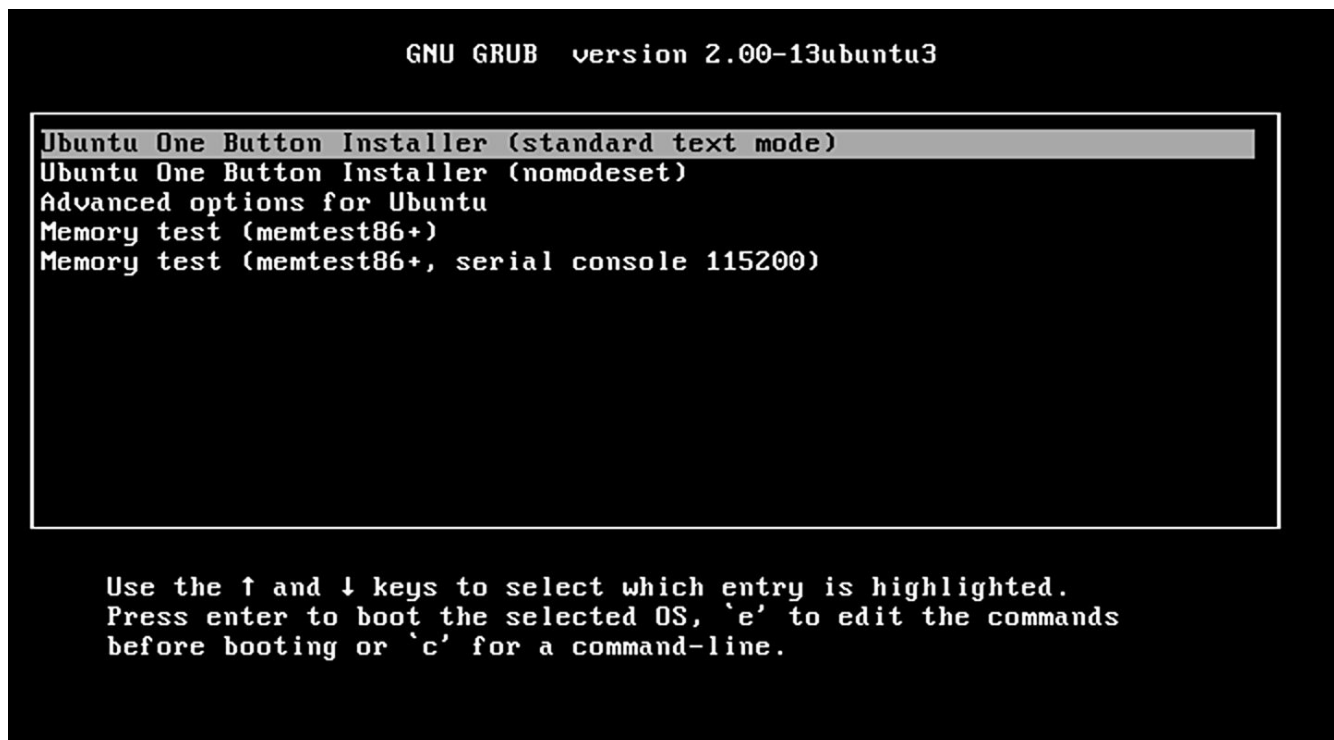
An old Compaq Presario 5640 with 400 MHz CPU and 192 MB RAM could be booted via Plop, and for the first time I could install Ubuntu family operating systems. I uncommented the line **GRUB_TERMINAL=console** in **/etc/default/grub** and ran **sudo update-grub** to avoid graphics mode during boot.

The current version of the One Button Installer uses this console mode, and furthermore, it is possible to select **nomodeset** at the grub menu. Then it worked without problems to install the operating system with the One Button Installer into the old Compaq. An IBM Thinkpad T42 with Pentium M boots directly as well as via Plop, but not at all with the standard installers because of the PAE issue.

Computers with Pentium 4, Celeron M, Pentium M and Athlon XP from around 2003 (ten years old when this was written) can usually boot directly from USB. Sometimes you must 'pretend' that the USB drive is a hard disk. Have it inserted while going into the BIOS menus and select to boot it first (before the internal HDD). In other cases USB is available in the special boot selection menu (in a BIOS menu or from some hotkey, often F12).

If you connect a second (internal) hard disk drive with the One Button Installer, it is possible to boot from it and install a system from a tarball. This method works also in VirtualBox (to have two virtual hard disks in the virtual machine). KVM can boot from a USB drive and even an image file.

This screenshot of the grub menu was created when running the OBI in KVM in Lubuntu.



Test the One Button Installer in KVM or VirtualBox

This paragraph is not for beginners

If a 64-bit host operating system in a machine with hardware virtualization is available, install a KVM virtual machine. Otherwise Virtualbox might be more efficient.

Install a virtual machine using KVM, qemu, and virt-manager according to this wiki page

<https://help.ubuntu.com/community/KVM/VirtManager>

It is fast and very similar to installing and running in a real system.

You don't need a special virtual disk file for KVM. You can mount the OBI image file (after expansion from img.gz to img) and it can be used as a virtual SATA disk. If it is the first disk, the virtual machine will boot from it.

And the standard tarballs can be imported via a menu option (wget) or sftp or lynx to this virtual SATA disk and used in order to install systems to a second virtual disk.

Advanced partitioning

You can add an operating system from a tarball to an existing partition table alongside other operating systems, but if you want any other partitioning than the standard one with a root partition and a swap partition, you cannot use the One Button Installer. Install from the Ubuntu flavour's desktop iso, alternate iso or mini iso file!

This paragraph is not for beginners

At the advanced level it is possible to create the partitions and file systems with **gparted**. Then you can expand the tarball, adjust the UUIDs and the corresponding entries in fstab and grub.cfg to match and finally install the grub bootloader manually. (This corresponds to recovering a system from a 'backup tarball', and if the system has only a root partition and a swap partition, it is done automatically with the OBI.)

If it is hard to run a graphical desktop because the computer is very old or the graphics not compatible, it is possible to use a command line partitioning tool, for example parted, fdisk or cfdisk. But these tools are more difficult to use compared to gparted.

Other architectures

The One Button Installer is only available for the standard Intel and AMD based systems with 32 and 64 bits. Install from the Ubuntu flavour's desktop iso, alternate iso or mini iso file if you have another architecture, for example Power PC!