



ToriOS Manual

Minimal, Simple, Fast, Small and Gives you a freedom of choice :)
Manual by Paul Sutton

Contents

1	Introduction	5
2	What is Linux, GNU and ToriOS?	7
3	The ToriOS Team	9
4	Pre-installation	11
5	Creating install media	13
6	Booting install media	23
7	Install Torios	25
8	Login Manager	31
9	Login	33
10	Logout	35
11	Desktop	37
12	Shortcuts	39
13	Applications	41
14	System administration	53
14.1	Installing Software	53
14.2	User management	56
15	Get Involved	57
16	Testing	59

17 Document License	67
18 Software License	69
19 URL References	71
20 PDF References	73

Chapter 1

Introduction

The goal of this project is to produce a minimalist Linux distribution that uses as little memory (RAM) as possible. Ubuntu 12.04 is used as a base for this new system as this supports non PAE systems /citePAE

Ubuntu 12.04 is used as a base for this new system.

1.0.1 About this Manual

This manual refers to external websites to help explain concepts further, to avoid the need to reproduce what is already available. The ToriOS team takes no responsibility for external content. The links are correct and suitable at the time of writing. Broken links are out of the Authors control between revisions. It is your responsibility to ensure suitability of information, you should read fully, seek other sources of information and ask for help if unsure. This manual has been prepared using L^AT_EX.

Chapter 2

What is Linux, GNU and ToriOS?

Linux refers to the kernel (the core) of the operating system. GNU refers to the tools used with Linux and the licensing model these are released under, GNU stands for GNUs Not Unix, so these are versions of the tools you would find on the UNIX operating system but released under a free license in this case the GPL (General Public license).

About Torios

ToriOS [1] is a system aimed at replacing Windows XP, which has reached end-of-life as of April 2014. ToriOS is a fast and minimal system based on Ubuntu 12.04.

TECHNICAL OVERVIEW

About Tori OS - Tori Operating System Overview:

- Low memory and resource requirements
- Low disk space
- Low package overheads (you get to build your own system from a very minimal install base)
- Built with Ubuntu 12.04LTS as a base, and completely compatible with many thousands of free and paid apps.
- A modern OS with up-to-date security built-in, as well as compatible with older processors and video graphics cards
- Free and open source
- A secure replacement for older unsupported versions of Microsoft Windows Operating System

PAE Hardware

As well as the PAE hardware supported by Ubuntu, ToriOS also supports non-PAE hardware which is usually older.” ”ToriOS does not require a special setup for non-PAE hardware as Ubuntu requires” [3]

PAE - Physical Address Extension is explained further on Wikipedia. [2]

Chapter 3

The ToriOS Team

The ToriOS operating system is made possible by:

Job Title	Name	IRC Nick	E-mail
Project lead	Ali Linx	amjjawad	amjjawad@torios.org
Website admin	William Cornelius		william@torios.org
Documentation - manual	Paul Sutton	zleap	zleap@torios.org
Documentation - wiki	Geoffrey De Belie	smile	smile4ever@torios.org
Quality Assurance Testing	Jack	fjack	
Marketing	David B Yentzen	?	dbyentzen@torios.org
Artwork	Rafael	rafaellaguna	
Developer / testing	Israel	israeldahl	israel@torios.org

Chapter 4

Pre-installation

There are several steps to an installation.

1. Decide on the installation media CD-R or flash disk*
2. Prepare install media - in the case of a flash disk make sure this is empty
3. Prepare target media and decide where to install Torios to (for example a hard disk)
4. Download the iso file
5. Create your install media
6. Initial boot
7. Either install from menu or run live session and install from there

*CD usually works more reliable on old computers, and that some computers do not want to boot USB drives.

4.0.2 Downloading the ISO

Command Line

See chapter 16.0.1 for how to download and test the iso.

Browser

You can also download using a web browser

4.0.3 Verifying the download

There is an excellent guide at

[**https://help.ubuntu.com/community/HowToMD5SUM**](https://help.ubuntu.com/community/HowToMD5SUM)

that explains how to check your downloaded iso file for errors. Apart from the file name being different so for ToriOS you may have ToriOS-1.0.0.iso the steps are pretty much the same. Please see getting involved section as this covers some of the above during the testing phase, that information will appear here once the test phase is over.

Chapter 5

Creating install media

CD-R

When you have an ISO file or disk image you need to **BURN** image to cd. When using which ever cd mastering program you have. If you copy to CD you will have a cd with an ISO file on it. You won't be able to boot from that media.

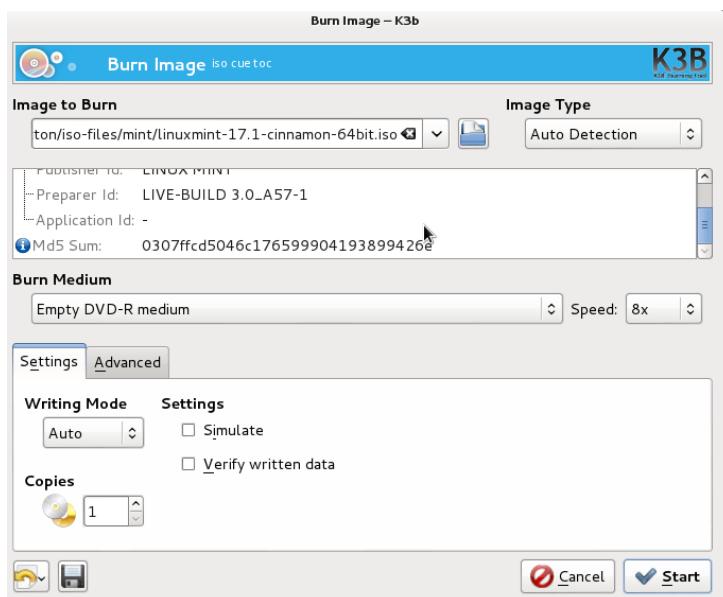
Examples of software for creating your CD / DVD include

- Windows vista and above can write / burn optical media [[27](#)]
- Brasero and k3b are examples of optical media software under Linux
- There are several command line tools for this too.

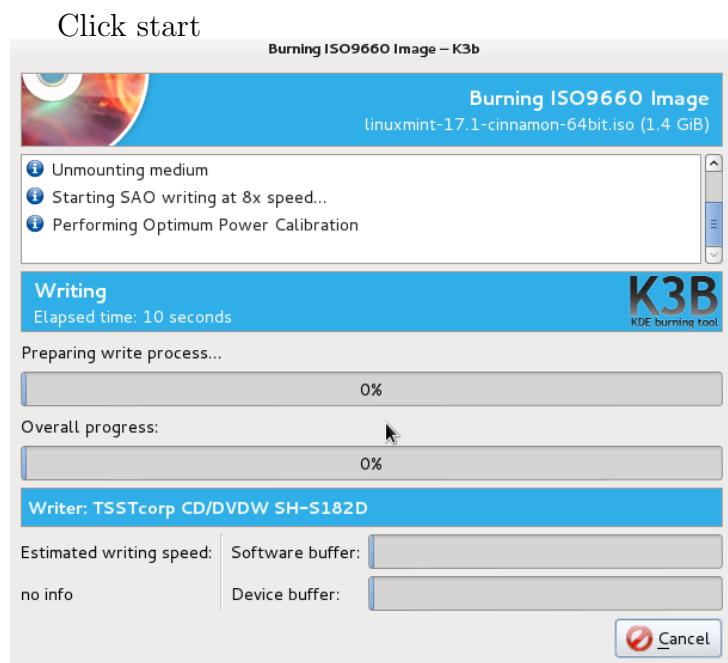
K3b

Table below is provided for reference on version used for the manual

ITEM	DESCRIPTION
Application name	k3b
Application Description	CD / DVD creator
Menu Name	n/a
Installed Version	n/a
Screenshot version	?
Screenshot Source	Debian 7.6
Website	http://www.nongnu.org/synaptic



If you right click on the image file (iso) and open with k3b then you should see the screen above. You need to wait until it completes the md5sum scan, select the burn speed. Note it says BURN I think this is default when you open an iso file.



This screen shows the progress of the burn. Once complete it will be ejected and Success will be displayed.

Flash Disks - Unetbootin You can use unetbootin to create a bootable flash disk image.

Note There is a bug in UNetbootin under ubuntu 14.10 that stops it from working, this should be fixed by the time ToriOS is ready for final release.

Older versions are working fine.

See the URL ref section for links to the unetbootin website [19](#)

<http://unetbootin.sourceforge.net/> [7] and a how to on install ubuntu a usb stick [8]

You can follow the steps below

Creating a boot usb flash disk

(With thanks to Nio Wiklund for some helpful comments with regard to the title of this document)

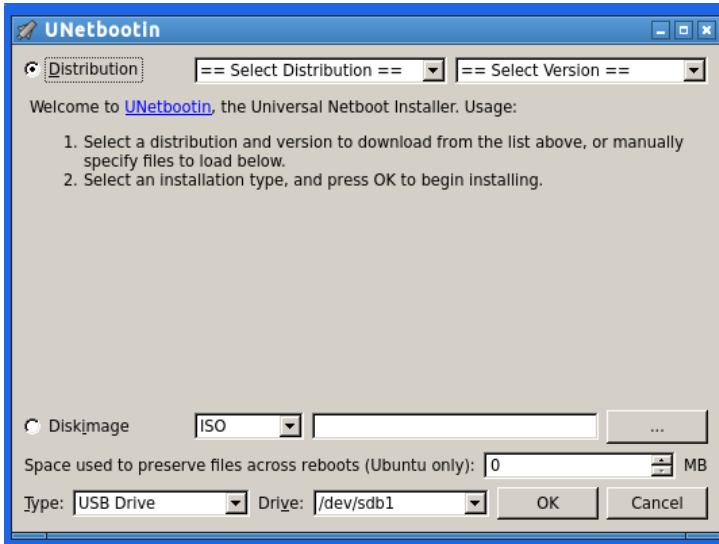
A good tool for this is UNetbootin, [7] you can install this on Linux, OSX and Windows ,

e.g sudo apt-get install unetbootin or use the install method for the distribution you are using.

you need your root password.

You can then load the software up, you will need your root password

UNetbootin as well as mkusb works in most GNU/Linux distributions, but I think



Click disk image, ISO can be left as in, then select the box with ? in and select the iso file

select type, usb drive or hard disk, most people are going to want to create a usb boot flash disk.

drive should be the device reference for this disk

make sure you are 100 percent sure, and if you are not sure ASK on forums , IRC or elsewhere first.

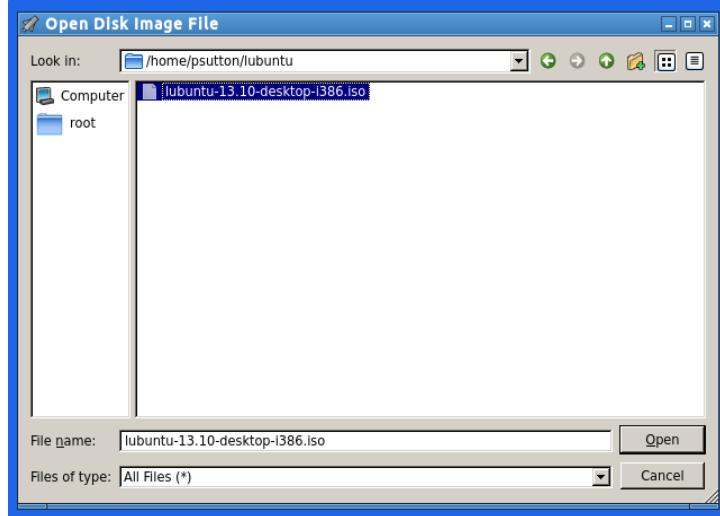
I find it helpful to unmount and unplug my external hdd first, In other words if you don't want to write to it, remove that device (if possible) You can wipe you whole file system if you get the options wrong.

Unplug ALL USB devices you don't need, for example USB flash and hard drives. This will prevent writing to them by accident and will make it easier to select your ToriOS USB stick from the list. DOUBLE CHECK BEFORE YOU CLICK OK.

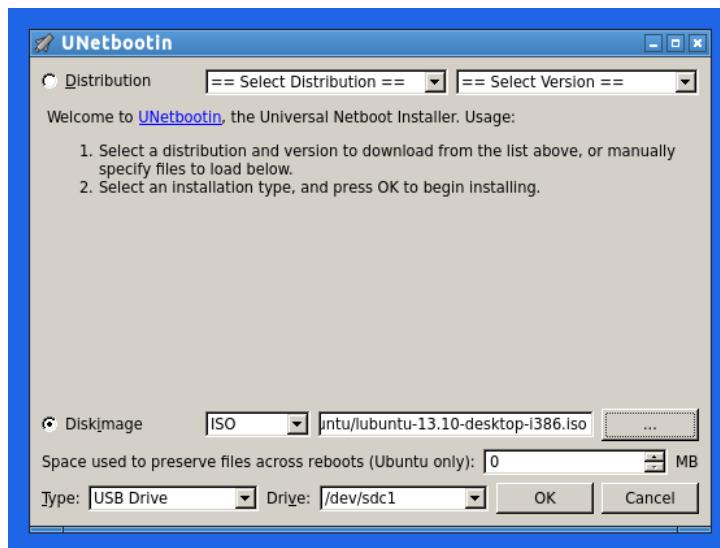
If you have already downloaded and md5 checked your iso file then you don't need to worry about the top part,

Click disk image radio button

the drop down menu to the right of this is a between ISO and floppy
you can then click on file search button (the one with ?)



Select if you want to have a persistent space for files.

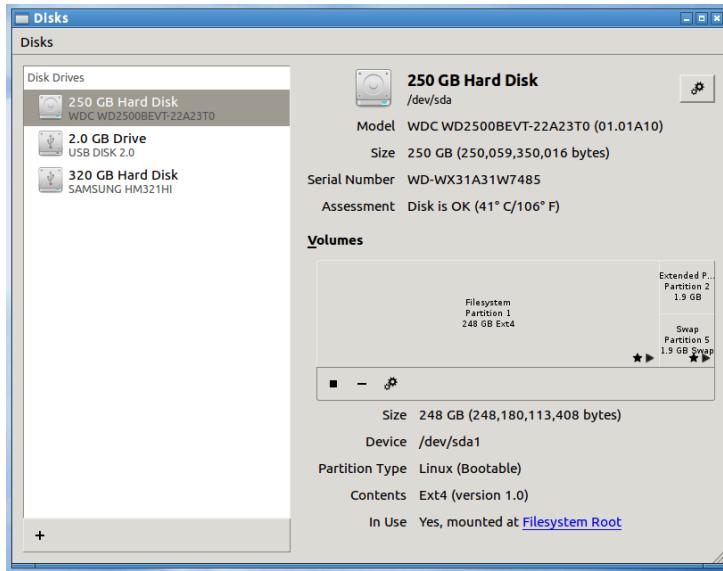


Type? you can choose between usb and hard disk **BE VERY CAREFUL**

then select the device, if you select hard disk then the device reference chances to / indicating root of the file system.

REMEMBER that you can wipe your whole file system if you get the options wrong, if you have an external hard disk and a usb disk plugged in I find it helpful to unmount and unplug the external hard disk, gives less

target options and is less likely to get wiped by mistake.



You need to check if the target device should be mounted first or not

Hopefully this how to is useful, please be careful as I am not responsible for data loss, I try and write guides to be generic not explicit guides. I will leave this to the documentation team You can use fdisk and df to determine device references. Read the man pages for more info if you get stuck as for help and say you have looked at man pages, this blog post etc and are still stuck, this shows you have tried to research the issue.

Hopefully this how to is useful, please be careful as I am not responsible for data loss, I try and write guides to be generic not explicit guides. I will leave this to the documentation team

You can use fdisk and df to determine device references. Read the man pages for more info if you get stuck as for help and say you have looked at man pages, this blog post etc and are still stuck, this shows you have tried to research the issue.

The Ubuntu manual should have this information in it too.

man unetbootin

man fdisk

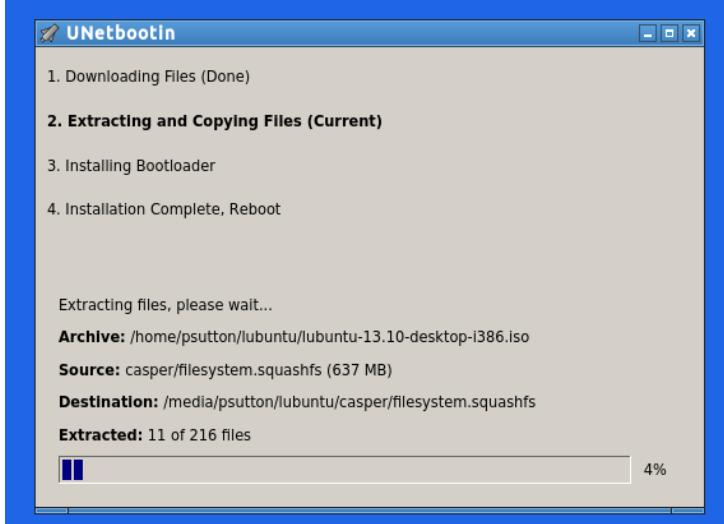
man ls

man df

If you need to format the flash disk, using disks, this is a case of
Unmount the flash disk

Select format

MAKE SURE YOU HAVE THE RIGHT DEVICE SELECTED.
Once this is all done and you are happy with the destination click OK
Progress bar showing how many files have been copied and a percentage



All done you can now reboot, select usb disk from the boot device menu (see your Manual on how to access this) and tryout / install the new OS
unetbootin also works from Windows / Mac

Flash Disks - mkUsb

mkUSB - Make USB
See the URL ref section for links to the information on mkusb [17]

mkusb is split now into one GUI program 'mkusb' and two console or text applications, mkusb-nox and mkusb-bas. The GUI version works in ToriOS (as well as in Ubuntu, Fedora, Debian, openSUSE, Arch to mention a few distros).

mkusb-nox 'can do what mkusb can' but without eye-candy. mkusb-bas is basic and can be used in simple distros, where certain tools are not available (I have tested and tweaked it to work in Wary Puppy and Tiny Core).

<http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual.pdf>
<http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual-nox.pdf>
<http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual-bas.pdf>

Using Windpws XP

Chapter 6

Booting install media

Depending on how your computer is set up, you need to tell the computer to boot off which ever boot media you created either a) cdrom b) dvd c) usb.

6.0.4 UEFI Boot

If you have very new hardware then you may have the new UEFI boot system, this means you can't just boot the install media and there are a few extra steps. I have found a guide [26] on this generally.

Chapter 7

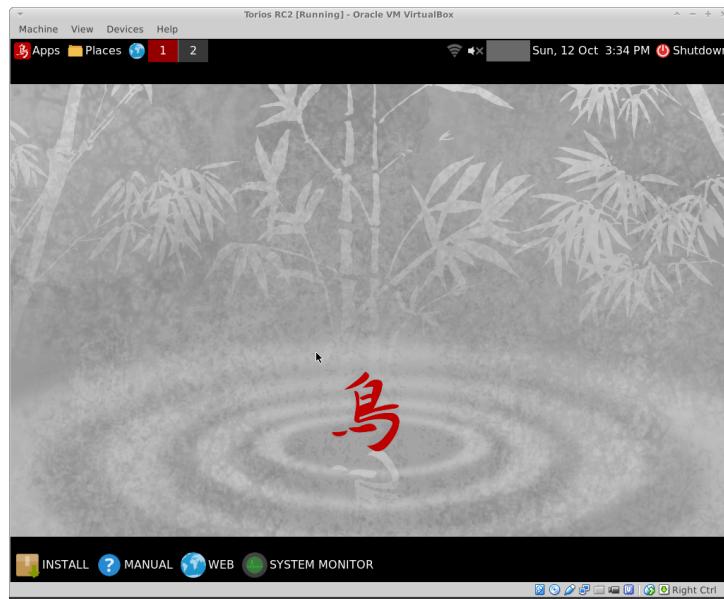
Install Torios

One Button Installer (OBI) <https://help.ubuntu.com/community/OBI>
For more help with the One button installer please refer to the OBI- quick start manual. This can be found on the OBI website [15] with a direct link to the manual at [16]. You are **STRONGLY ADVISED TO READ THE DOCUMENTATION**

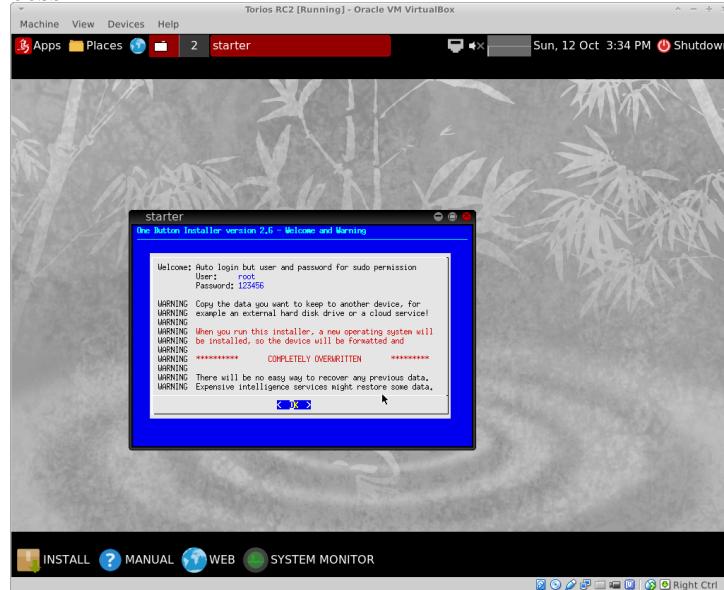
Note ; This is based on the RC-2 test version.

I set up virtual box with the default settings (256mb RAM)and added a 16gb virtual hard disk sda.

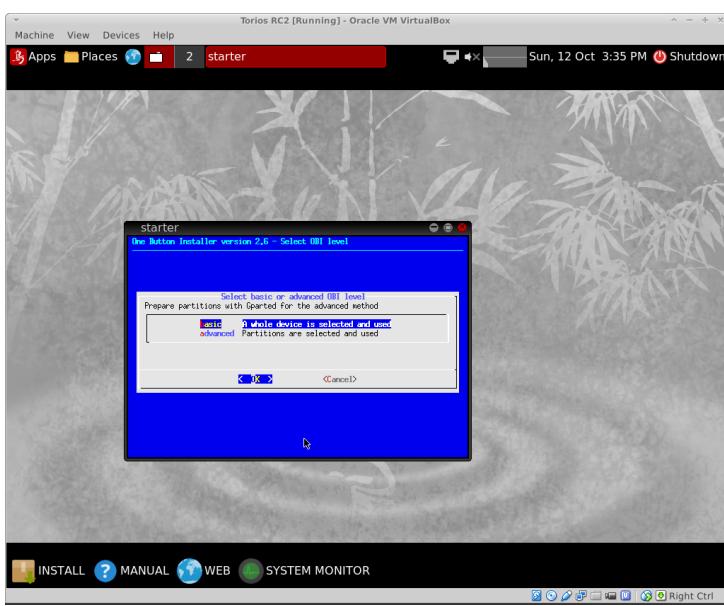
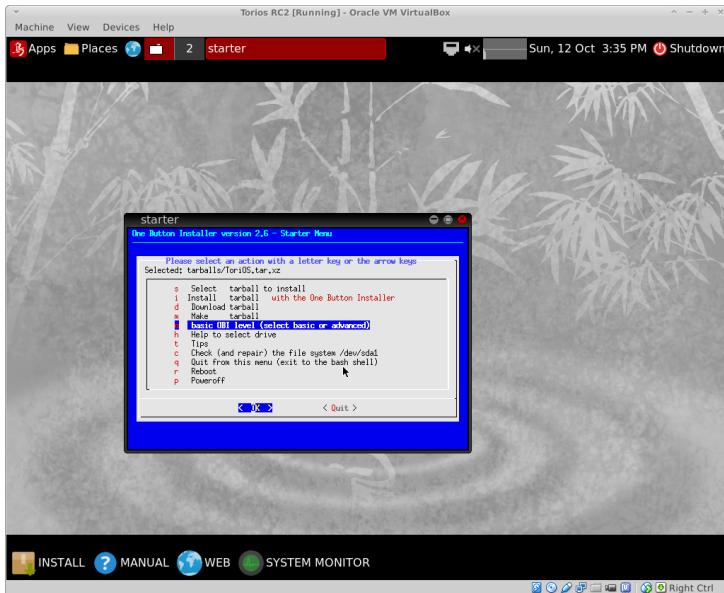
First step in the process is to boot the iso image, this automatically boots in to the new ToriOS desktop

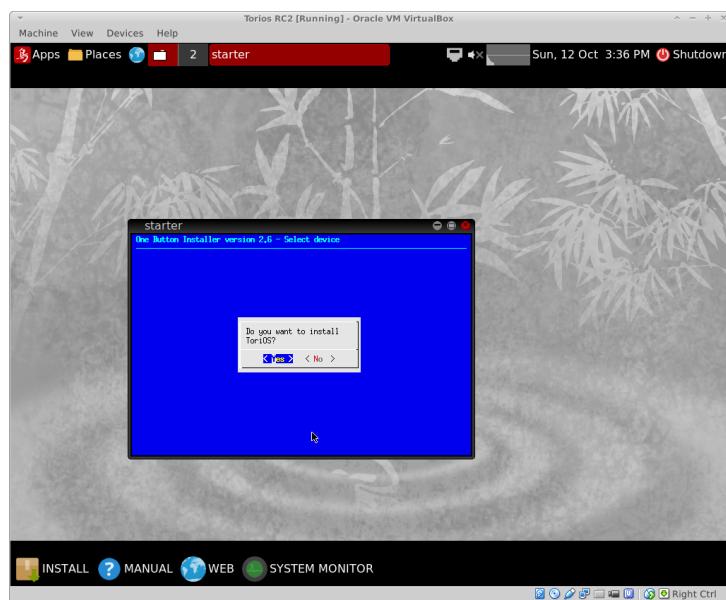
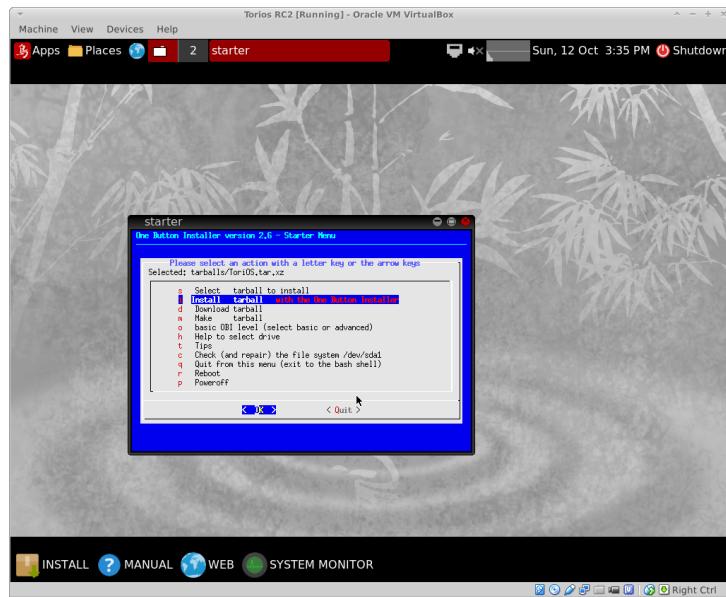


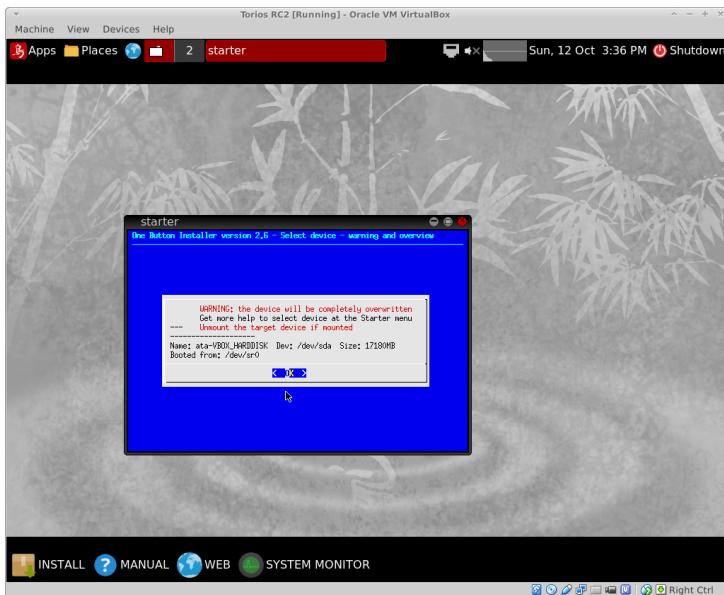
Note the install button at the <http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual.pdf#bottom> of the screen, click this to start the install process.



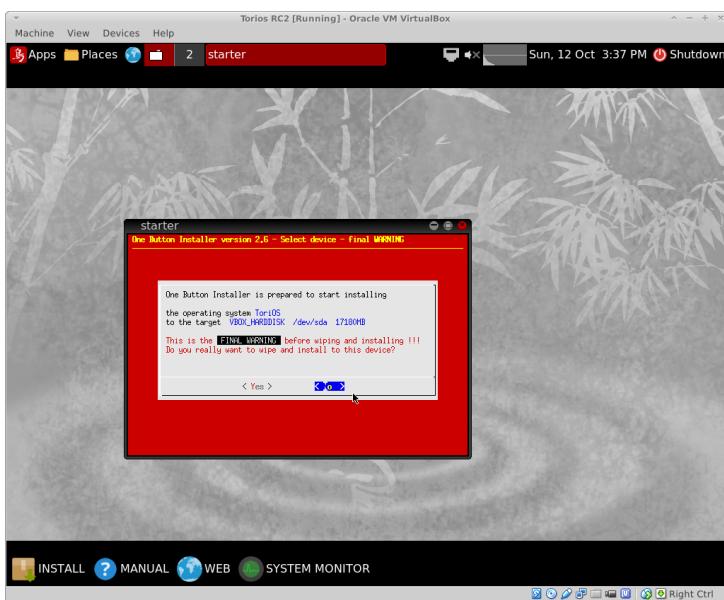
The initial screen is show here, i accepted all the defaults except right at the very end for the confirm, where I had to manually select (yes)

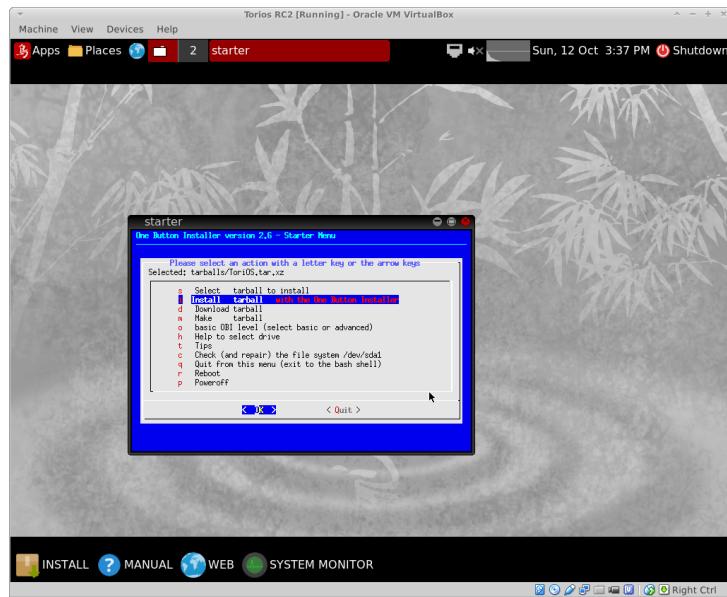






the next screen has a FINAL RED warning.





Chapter 8

Login Manager

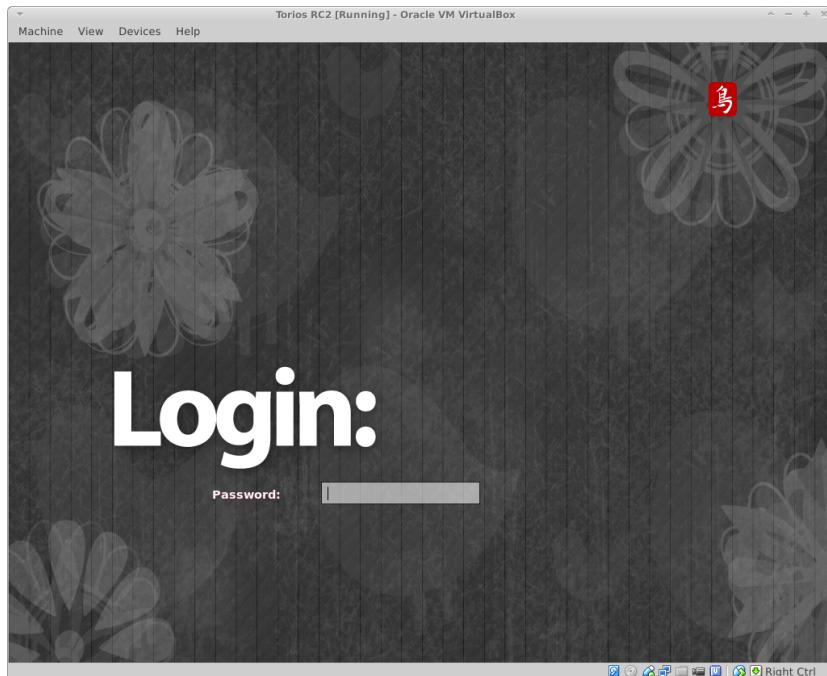
We are using 2 Login managers

SLiM [24]- is used for the installed system SLiM is an acronym for Simple Login Manager. Lightweight and easily configurable, SLiM requires minimal dependencies, and none from the GNOME or KDE desktop environments. It therefore contributes towards a lightweight system for users that also like to use lightweight desktops such as Xfce, Openbox, and Fluxbox.

nodm [25] - nodm is an automatic display manager which automatically starts an X session at system boot. It is meant for devices like smartphones, but can be used on a regular computer as well, if the security implications are acceptable.

Chapter 9

Login



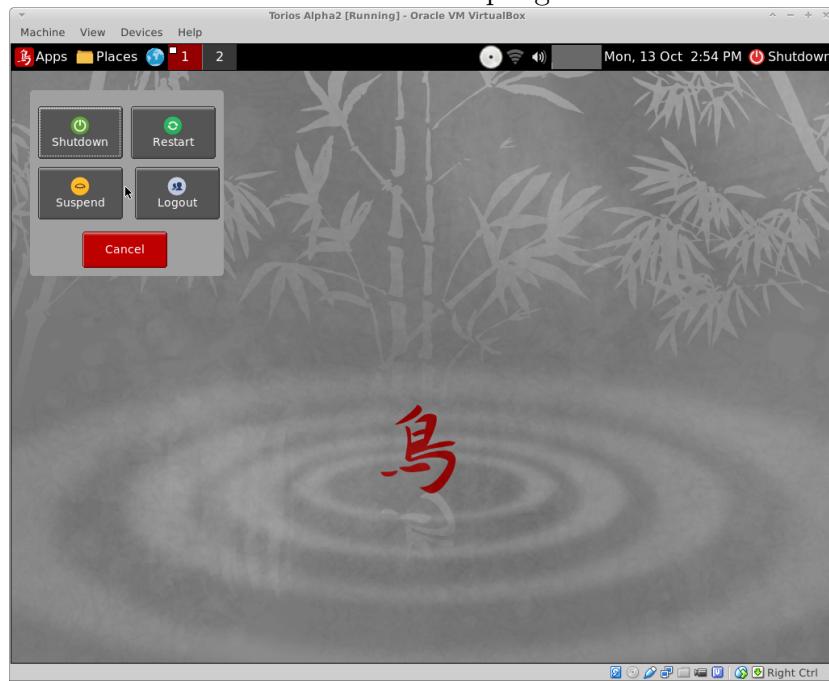
After booting you will be presented with a graphical login screen :

Chapter 10

Logout

Logging out of ToriOS

Click the shutdown menu in the top right corner



Here you are presented with 4 options:

- Shutdown
- Suspend
- Logout
- Restart

Chapter 11

Desktop

Once you are logged in you should see the desktop



Chapter 12

Shortcuts

KEY	FUNCTION
F12	Fullscreen
Mute Key	Mute
RaiseVolume Key	Raise Volume
LowerVolume Key	Lower Volume
WWW Key	Webbrowser
PrintScr	Screen Shot - whole screen
Ctrl+Alt+p	Screen Shot
Ctrl+Alt+t	Open Terminal
Ctrl+Alt+Delete	Open System Monitor
Alt+Tab	Switch to the next stacked window
Ctrl+Alt+Tab	Cycle to the next stacked window
Alt+F4	Close the window
Alt+#+	Move to Desktop #
Alt+F1	Main Menu
Alt+F2	Unmaximize a window
Alt+F10	Maximize a window
Ctrl+Alt+Right	Move Right 1 Desktop
Ctrl+Alt+Left	Move Left 1 Desktop
Ctrl+Alt+Up	Move Up 1 Desktop
Ctrl+Alt+Down	Move Down 1 Desktop
Ctrl+Alt+q	close

This is work in progress

When taking screenshots the resulting file is saved to your home directory as date.png for example 2014-11-06.png

Chapter 13

Applications

As previously stated ToriOS is designed to be very very minimal however it does come with a few applications.

13.0.5 Seamonkey (Internet Suite)

Seamonkey - All in one Internet application suite [9]

From website

Web-browser, advanced e-mail, newsgroup and feed client, IRC chat, and HTML editing made simple?all your Internet needs in one application

ITEM	DESCRIPTION
Application name	Seamonkey
Application Description	Internet Application suite
Menu Name	Seamonkey
Installed Version	?
Screen Shot version	?
Screen Shot Source	?
Website	http://www.seamonkey-project.org/

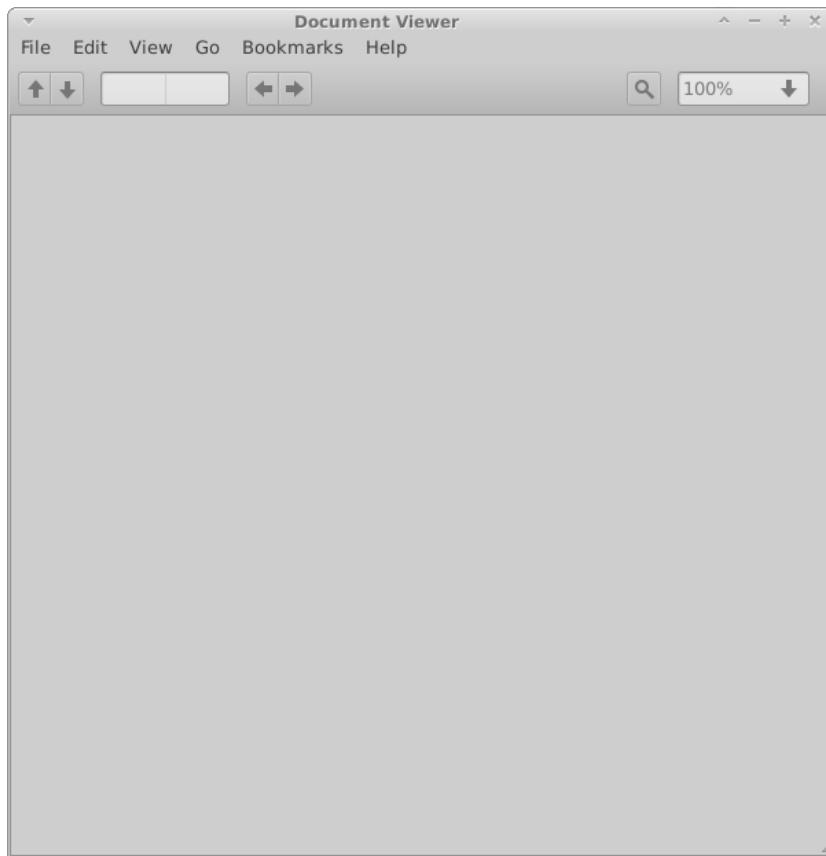
13.0.6 seamonkey (Private Browsing)

13.0.7 Wicd Network Manager

13.0.8 WPA-gui

13.0.9 ART Menu

13.0.10 Evince



Document (PDF) Viewer

ITEM	DESCRIPTION
Application name	Evince
Application Description	PDF Viewer
Menu Name	Document Viewer
Installed Version	
Screen Shot version	3.10.3
Screen Shot Source	xubuntu 14.04
Website	https://wiki.gnome.org/Apps/Evince

For detailed instructions please check out the user manual for Evince [5]

13.0.11 Development

13.0.12 (Python 2.7)

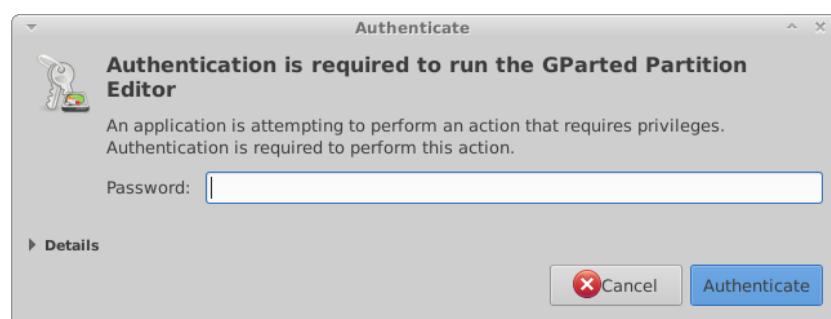
13.0.13 Settings

13.0.14 GParted

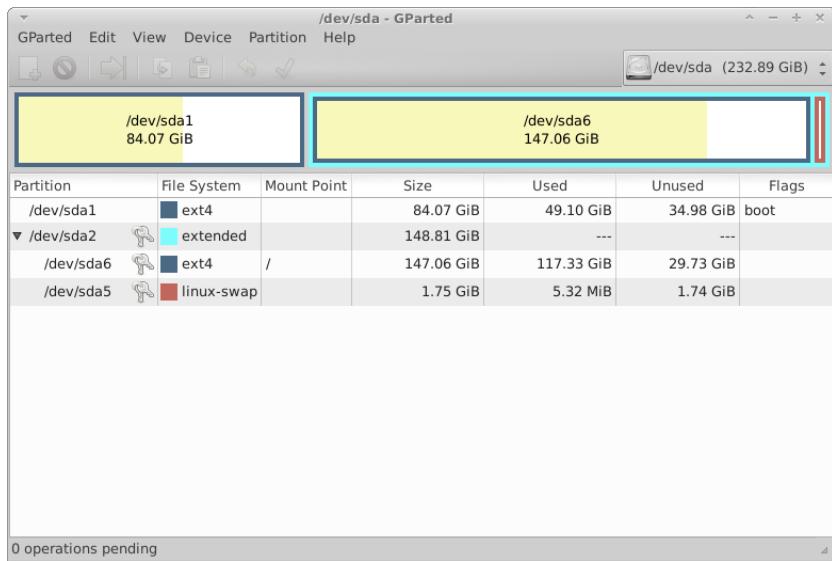
Partitioning Utility

ITEM	DESCRIPTION
Application name	Gparted
Application Description	Partition Utility
Menu Name	Gparted
Installed Version	?
Screen Shot version	0.18.0
Screen Shot Source	xubuntu 14.04
Website	http://gparted.org

THIS PROGRAM CAN DESTROY DATA Gparted is provided to help you manage hard disk partitions. You need root / admin privileges to run this, upon running you may see the screen below before the main programs runs:



enter your administrator password to gain access to the Gparted utility.



For detailed instructions please check out the user manual for gparted
[13]

13.0.15 JWM Settings Manager**13.0.16 Power Manager****13.0.17 System****13.0.18 XTerm**

xterm [22]

13.0.19 UXTerm

uxterm [23] is wrapper for xterm

13.0.20 Htop**13.0.21 synaptic package manager**

see 14.1

13.0.22 JWM Settings

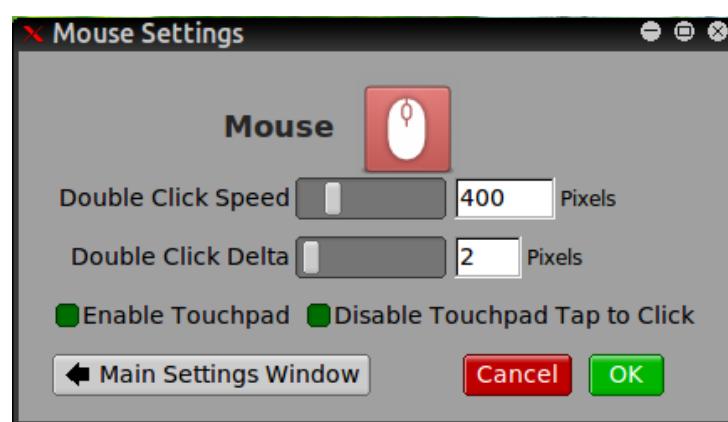
ToriOS will use the JWM (Joe's Window Manager) window environment:

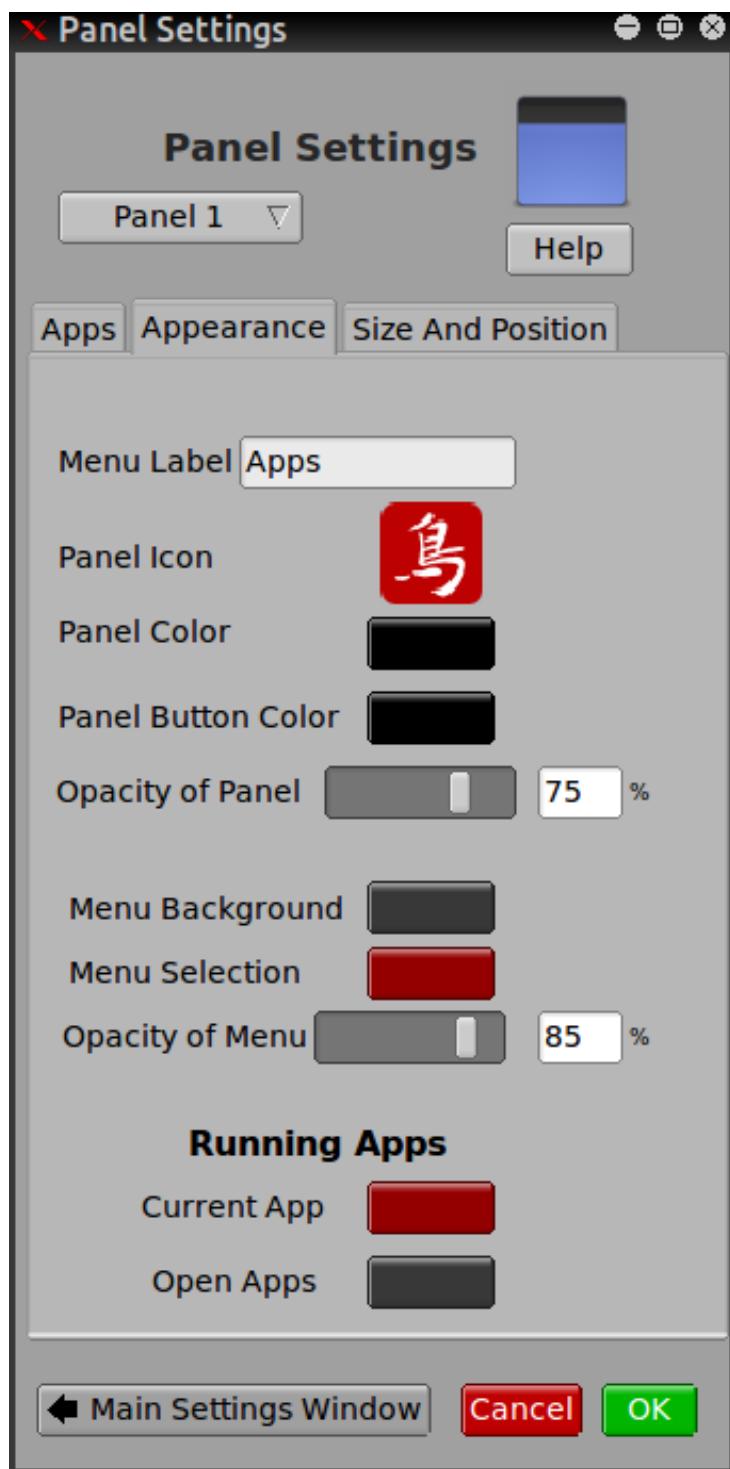
The following is quoted from the projects website

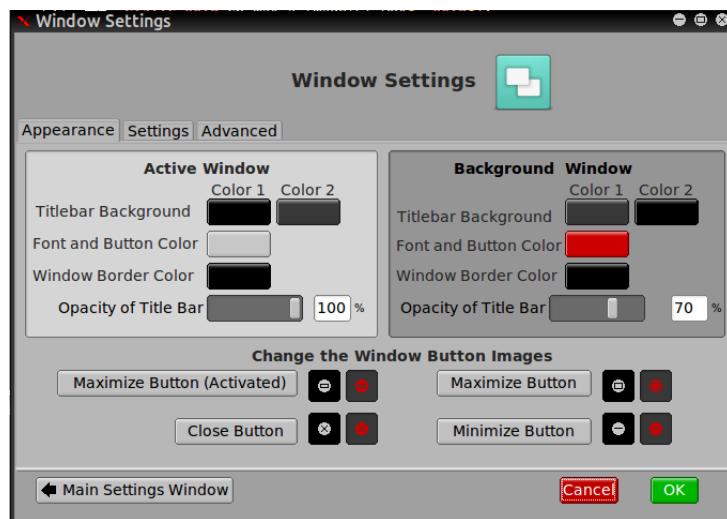
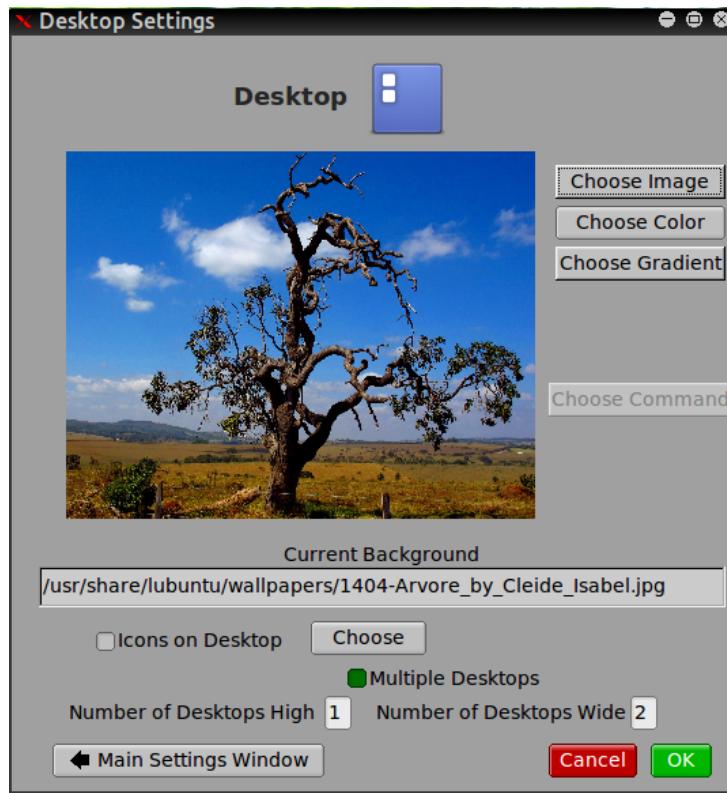
JWM is a light-weight window manager for the X11 Window System. JWM is written in C and uses only Xlib at a minimum. Because of its small footprint, JWM makes a good window manager for older computers and less powerful systems, such as the Raspberry Pi, though it is perfectly capable of running on modern systems. JWM is included in small Linux distributions such as Puppy Linux and Damn Small Linux, and it is available as a separate package in many other distributions.

<http://www.joewing.net/projects/jwm/> Torios jwm development lead Israel israel@torios.org Torios Site Page : <http://torios.org/jwm.html>

JWM Settings manager







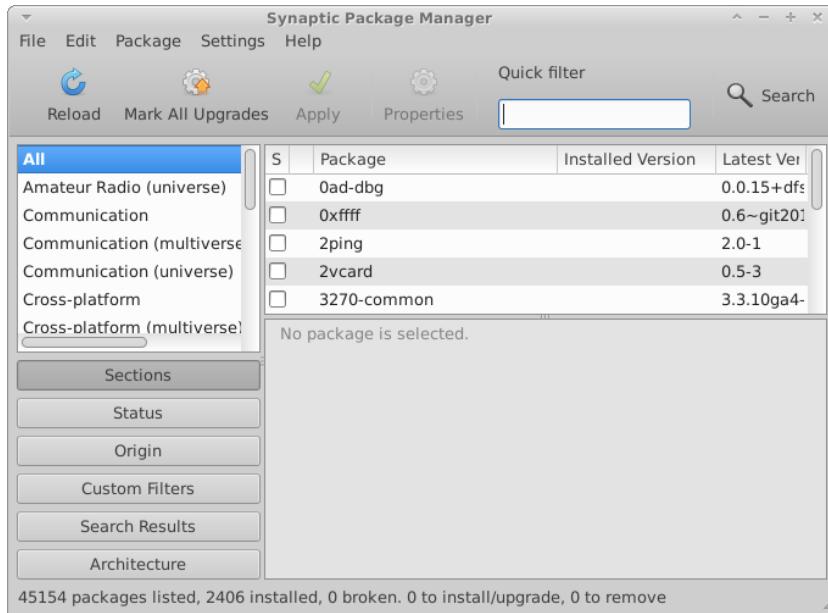
Windows Themes Autostart

Chapter 14

System administration

14.1 Installing Software

Package management with Synaptic



Upon loading Synaptic you need to enter your root / admin password. Once done you will see a list of package which can be selected with check boxes, click apply to install. Synaptic is a front end to apt so will pull in dependencies as needed.

ITEM	DESCRIPTION
Application name	Synaptic
Application Description	Package manager
Menu Name	Synaptic
Installed Version	?
Screenshot version	0.81.1
Screenshot Source	xubuntu 14.04
Website	http://www.nongnu.org/synaptic

Synaptic [6] is the GUI based package manager that comes with ToriOS.

Package management with Apt

If you need to install software from the command line then apt [10] is the main tool for this on Debian / Ubuntu derived systems such as ToriOS

ITEM	DESCRIPTION
man apt	View the help page
sudo apt-get update	Update package info
sudo apt-get upgrade	Upgrade packages
apt-cache search string	Search for packages
sudo apt-get install package	Install package
sudo apt-get remove package	Remove package
apt-get clean	clears downloaded .deb files

You need to be root to undertake some of these tasks, sudo is used along with your ROOT password.

14.2 User management

ToriOS user manager. Adding and removing users,

Chapter 15

Get Involved

- Create a Launchpad Account [1]
 - Join the Team [2]
 - Subscribe to mailing list [3]
 - Send an e-mail to the list to introduce yourself
 - Choose where you would like to help [4]
1. <https://help.launchpad.net/YourAccount/NewAccount>
 2. <https://launchpad.net/torios>
 3. <https://help.launchpad.net/Teams/MailingLists> - see subscribing
 4. <https://blueprints.launchpad.net/torios/+spec/recruit-contributors>
 5. weekly meetings in IRC on freenode : irc.freenode.net channel torios
<http://torios.org/news/team-weekly-meetings/>

https://www.youtube.com/watch?v=P_r2hHqyUa4

http://www.youtube.com/watch?v=PtVxDv_vy8w

Chapter 16

Testing

16.0.1 testing - ISO

PLEASE READ IMPORTANT NOTICE ON NEXT PAGE REGARDING TESTING

Heading	Content
Filenamne	ToriOS-alpha-rc2.iso
URL	http://torios.org/ISO/ToriOS-alpha-rc2.iso
MD5 Sum	6775c77be242e6145552eed9b6e85a7

- save the above to a file e.g MD5SUMS
- place this in the SAME LOCATION as the iso file
- type md5sum -c ToriOS-alpha-iso
- (checking may take a while and you should get an OK if it checks out)
- any problems please ask

Known issues (2014-Aug-29):

- Menu does not display items that do not use a desktop file
- Missing features in the Settings Manager
- USB mounting support ONLY (no CD/DVD mounting unless using a terminal)
- Hardly any apps installed (this is a feature) :D

- Menu categories do not support localization yet, though all desktop files that have it are supported in the menu

This uses the OBI installer.

It should run quite easily on 128MB ram for the Live version, and in even less for the installer. It currently uses around 60-70MB Ram to run.

Currently you can try out the Live version, and install ONLY from the text installer (or you can use the terminal and launch OBI). It is highly suggested that you use the Live version ONLY

**THIS WILL OVERWRITE THE ENTIRE DEVICE IF YOU
INSTALL IT**

You should backup all your personal files, and your OS if you choose to install this.

ToriOS contains a tool called mktbl, this tool can backup your entire disk as a tarball to easily reinstall

<http://torios.org/contact.html> and click ask us if you need help

16.0.2 Testing virtual box images

Please see the virtual box webpage for more information and and a detailed manual [12]

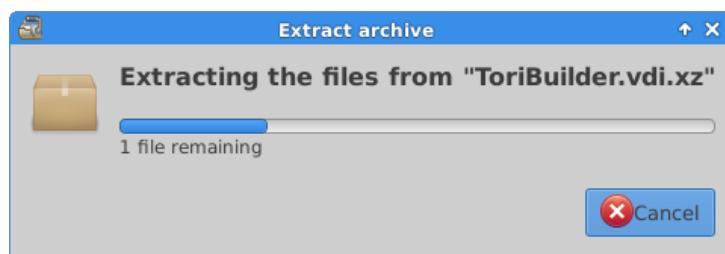
Once you are signed up then you can start testing the latest build this can be downloaded as a Virtual box image with.

```
wget -c http://torios.org/VB/ToriBuilder.vdi.xz
```

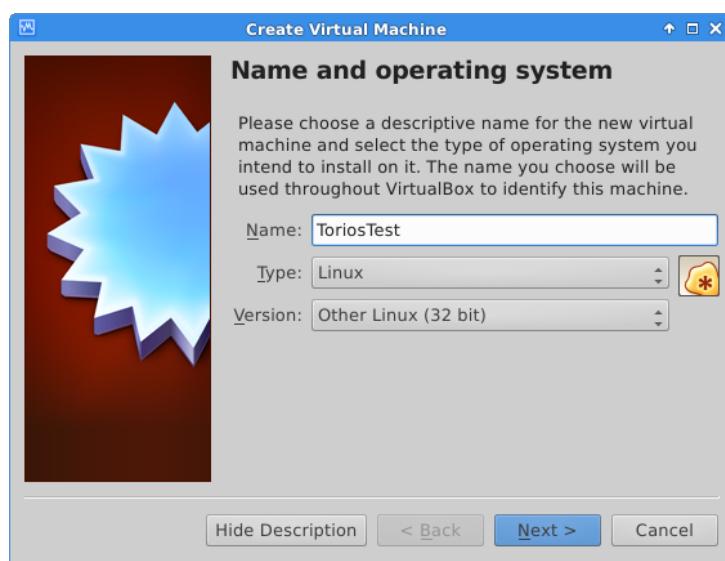
Once done you need to extract, either right click and select extract here or use the command line. Due to the size of the Virtual box image this may take some time.

Once this is done you will have a new file called: in the ToriBuilder.vdi folder,

Open virtual box



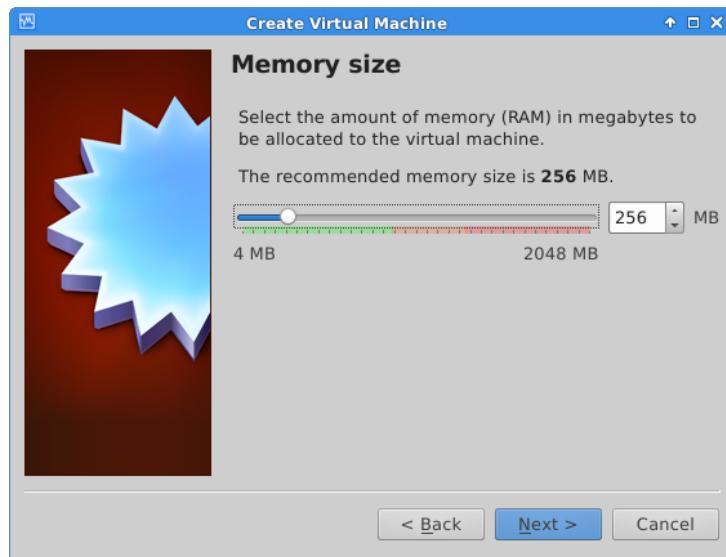
Virtual box Click New



Use the following options

- Name : Torios
- Type : Linux
- Version : Ubuntu 32 bit

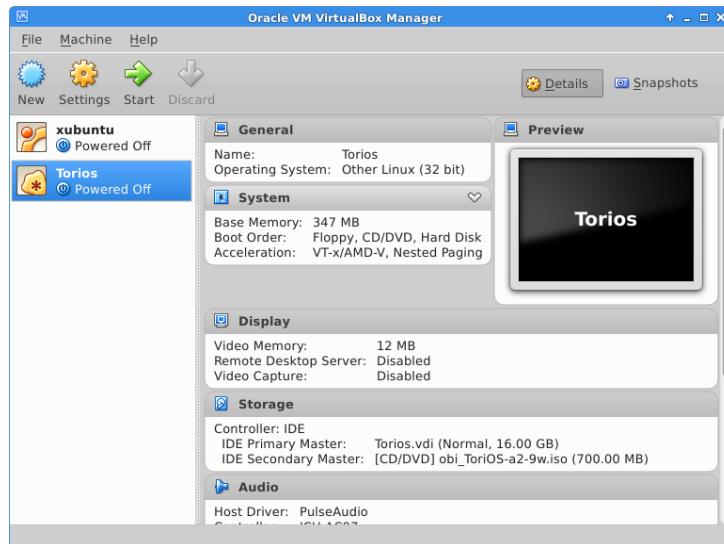
Click Next



Should be Ok to leave the default memory as 256MB, so click next.

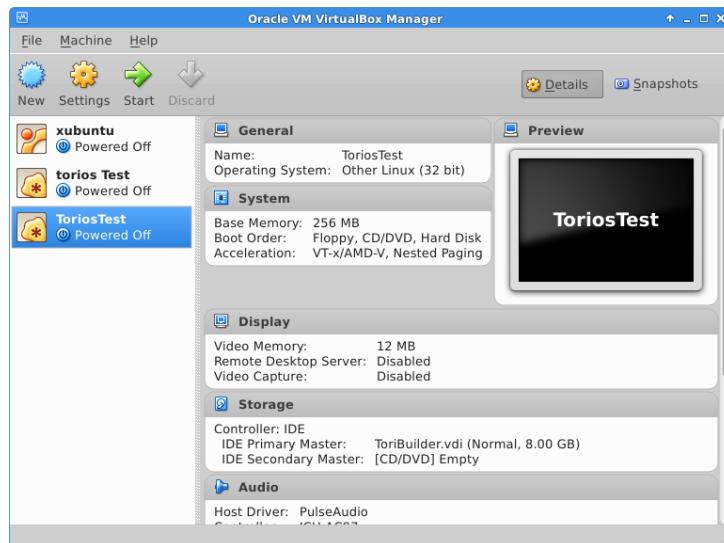


Upon opening virtual box you will see this screen:

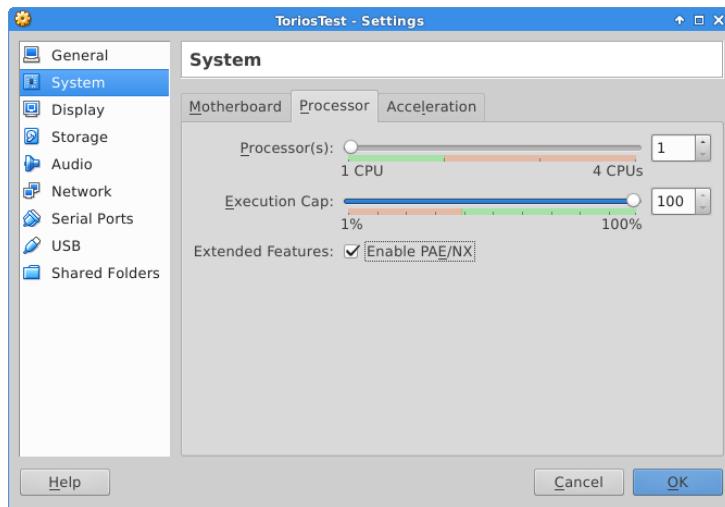


Click use existing and select the file you downloaded earlier, so in this case its ToriBuilder.vdi

Click done.



Torios needs PAE support enabled to do this select the virtual box image you just created, and click settings.



Click system, then processor tab then check the box EnablePAE/NX then press OK.

You should then be returned to the main virtual box window, the image should still be selected so press start and you should boot in to the Torios Test Image.

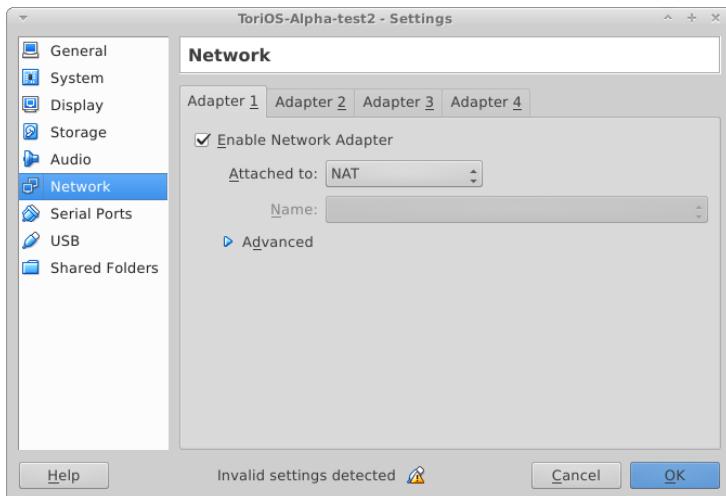
Note yours may look different as I have a few images, also note in this screen shot i have a different VM set up. We still need to open up the Torios image we downloaded.

We will assume here you have thus already installed.

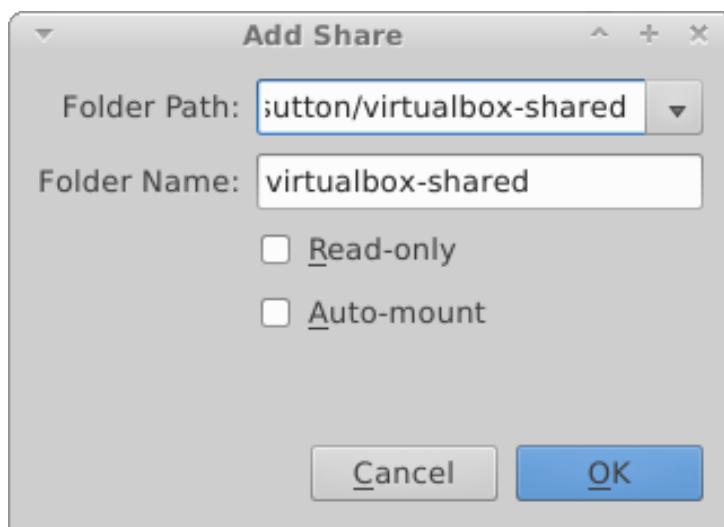
USB support

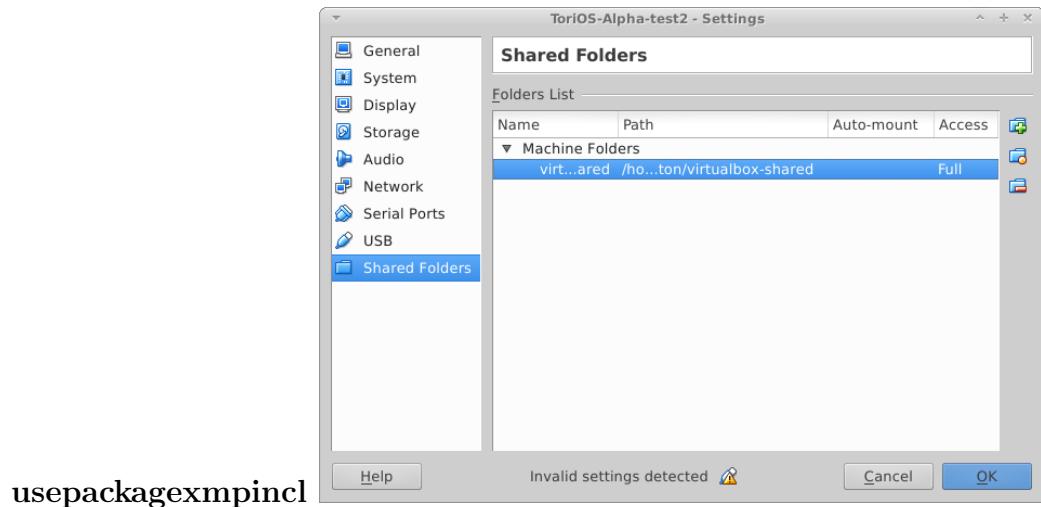


Network support



Sharing files with host system





usepackage **xmpincl**

Chapter 17

Document License

Attribution-ShareAlike 4.0 International (CC BY-SA 4.0)
<http://creativecommons.org/licenses/by-sa/4.0/>

Chapter 18

Software License

...

Chapter 19

URL References

Topic	URL
ToriOS Home Page	http://torios.org/
ToriOS ISO	http://torios.org/ISO/ToriOS-alpha-rc2.iso
Evince	https://wiki.gnome.org/Apps/Evince
unetbootin	http://unetbootin.sourceforge.net/
mkusb	http://phillw.net/isos/linux-tools/mkusb/README.txt
Virtualboxxx	https://www.virtualbox.org/
CC License	http://creativecommons.org/licenses/by-sa/4.0/

Chapter 20

PDF References

PDF	Location
Quick start	mkUSB-quick-start-manual.pdf
nox manual	mkUSB-quick-start-manual-nox.pdf
bas manual	mkUSB-quick-start-manual-bas.pdf
x	
x	
x	
x	

Bibliography

- [1] <http://www.torios.org> 2014
- [2] http://en.wikipedia.org/wiki/Physical_Address_Extension
September 2014
- [3] <https://help.ubuntu.com/community/PAE>
- [4] <http://torios.org/ISO/ToriOS-alpha-rc2.iso>
- [5] <https://wiki.gnome.org/Apps/Evince>
- [6] <http://www.nongnu.org/synaptic/>
- [7] <http://unetbootin.sourceforge.net/>
- [8] <https://help.ubuntu.com/community/Installation/FromUSBStick>
- [9] <http://www.seamonkey-project.org/>
- [10] <https://wiki.debian.org/Apt>
- [11] <https://help.ubuntu.com/community/mkusb>
- [12] <https://www.virtualbox.org/>
- [13] <http://gparted.org/>
- [14] <http://creativecommons.org/licenses/by-sa/4.0/>
- [15] <https://help.ubuntu.com/community/OBI>
- [16] <https://help.ubuntu.com/community/OBI?action=AttachFile&do=view&target=OBI-quick-start-manual-3.pdf>
- [17] <http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual.pdf>

- [18] <http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual-nox.pdf>
- [19] <http://phillw.net/isos/linux-tools/mkusb/mkUSB-quick-start-manual-bas.pdf>
- [20] <https://bugs.launchpad.net/ubuntu/+source/usb-creator/+bug/1325801/comments/49>
- [21] <https://bugs.launchpad.net/ubuntu/+source/usb-creator/+bug/1325801/comments/55>
- [22] <http://invisible-island.net/xterm>
- [23] <http://invisible-island.net/xterm/manpage/uxterm.html>
- [24] <https://wiki.archlinux.org/index.php/SLiM>
- [25] <http://www.enricozini.org/sw/nodm/>
- [26] http://www.linwik.com/dealing_with_uefi_on_linux
- [27] <http://www.ubuntu.com/download/desktop/burn-a-dvd-on-windows>

Index

- About ToriOS, 7**
- Bibliography, 64**
- CD-R/RW/DVD-R/RW, 13**
- Creative Commons, 57**
- Document License, 57**
- Downloading - Browser, 11**
- Downloading - CLI, 11**
- Evince, 38**
- Flash Disks, 13**
- Further Reading, 64**
- GNU, 7**
- GNU / Linux, 7**
- GParted, 40**
- GPL, 7**
- Installation, 11**
- Introduction, 5**
- ISO Testing, 51**
- JWM Settings Manager, 42**
- Linux, 7, 51**
- MkUSB, 18**
- Non PAE, 7**
- OBI, 20**
- Package management, 47**
- PAE, 7**
- PDF References, 63**
- Seamonkey, 36**
- Shortcuts, 33**
- Software License, 59**
- Synaptic, 47**
- system administration, 47**
- Table of Contents, 4**
- Technical overview, 8**
- testing, 51**
- Testing virtual box images, 53**
- The Team, 9**
- UEFI, 19**
- Unetbootin, 13**
- URL References, 61**
- Virtualbox, 53**