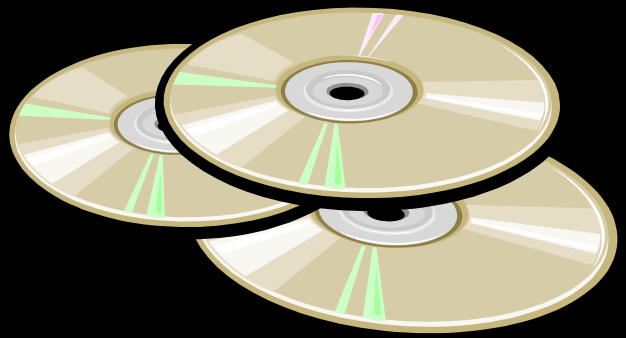
BOOT DEVICES:
OR IN CANADIAN, WHAT IS THIS ALL ABOOT

Adrian Crenshaw



About Adrian

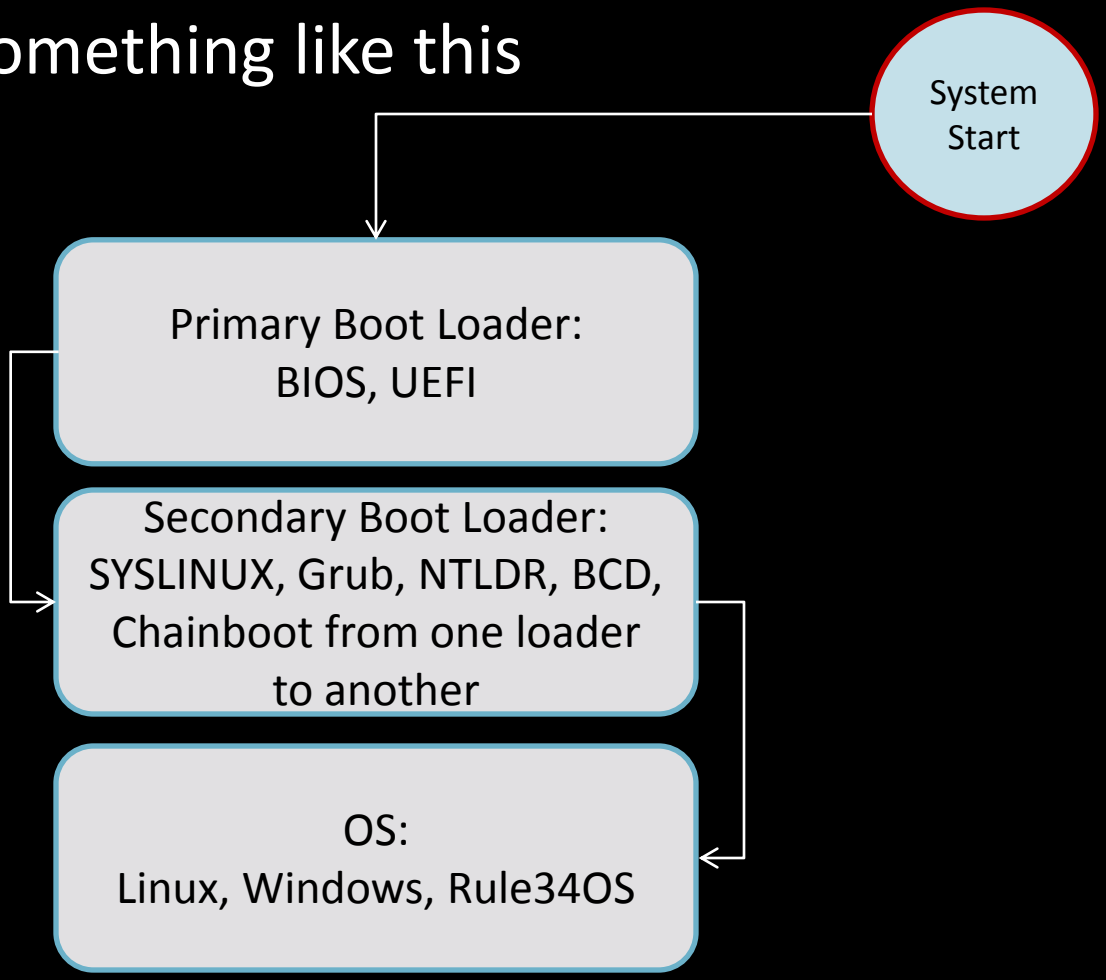
- I run Irongeek.com
- I have an interest in InfoSec education
- I don't know everything - I'm just a geek with time on my hands
- (ir)Regular on the ISDPodcast http://www.isd-podcast.com/
- Prepare yourselves for a disorganized boot CD/DVD/UFD braindump, but as notes they may help you to avoid my mistakes

Why care?

- Malware removal
- Forensics
- Privacy
- Access to restricted tools
- Imaging
- Physical access = pwnage
- These guys may come to visit

Dumbed down boot process

- Something like this



RAM Disks

Why use memory?

- For optical media, it's read only (mostly)
- For USB, it only has so many write cycles
- For both: Speed
- For some hardware, RAM disk just works better than UFD

Not quite the same thing

- UnionFS, AuFS or EWF, which redirect writes to what would otherwise be a read only file system

Distros/Boot environments

Just a few:

- BackTrack Linux
  http://www.backtrack-linux.org
- Tails (The Amnesic Incognito Live System)
  http://tails.boum.org/
- Bart's PE/UBCD4Win
  http://www.nu2.nu/pebuilder/
  http://www.ubcd4win.com/
- Winbuilder/Win7PE SE
  http://winbuilder.net/ & http://reboot.pro/12427/
- Konboot
  http://www.piotrbania.com/all/kon-boot/

BackTrack Linux

- Tons of security tools
- Awesome hardware support for odd wireless needs
- Well maintained
- Can do a hard drive install if you wish

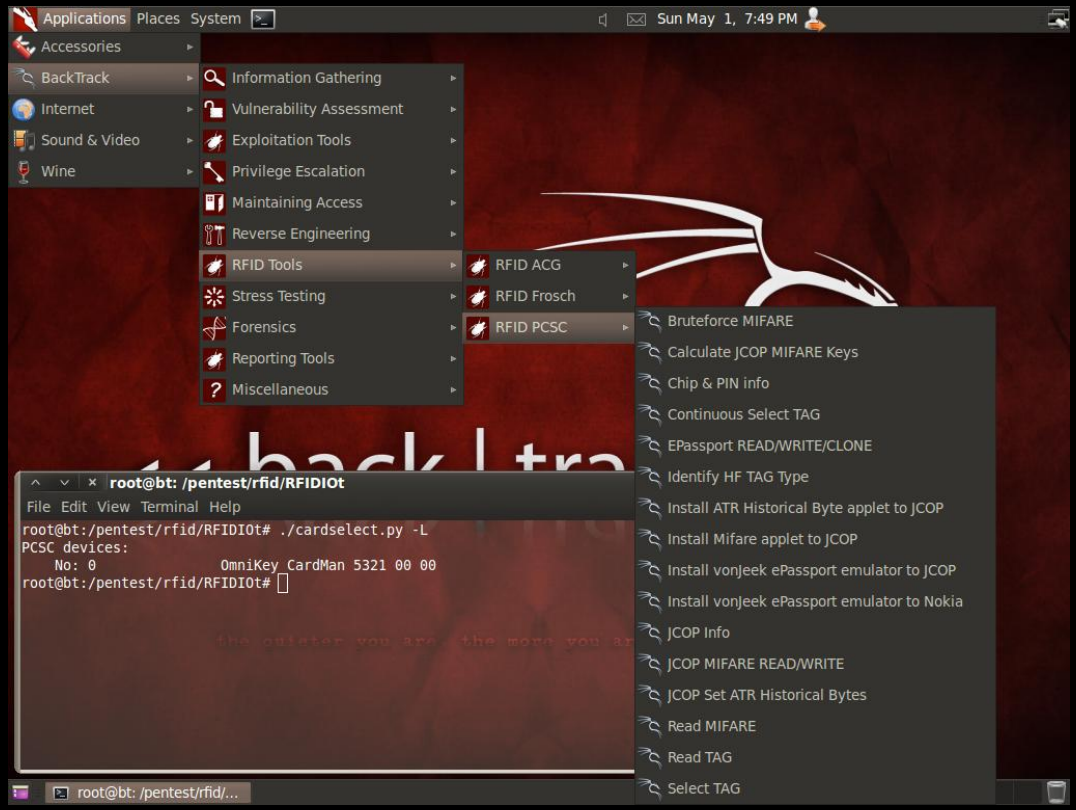
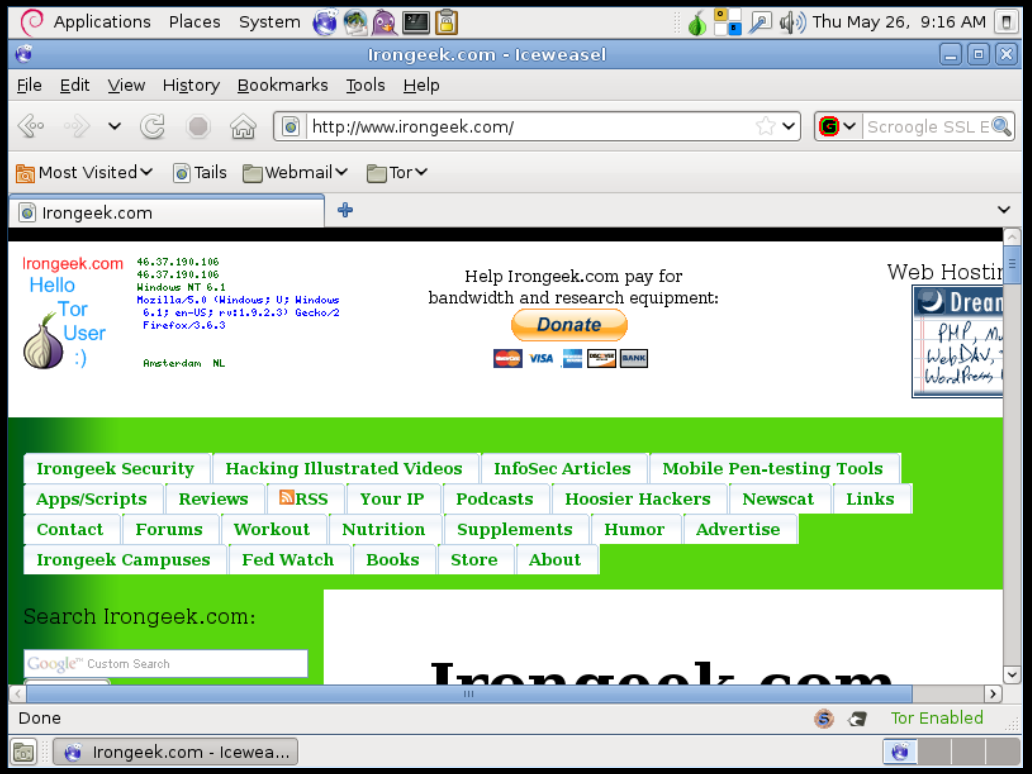


Image from http://www.backtrack-linux.org/screenshots/

Irongeek.com

Tails

- Boot from CD/DVD to leave less of a trail
- Use Tor to anonymize traffic



Bart's PE/UBCD4Win

- Bart's PE can be build from the files on a Windows XP CD
- UBCD4Win is Bart's Pe with a bunch of extras + Multi-boot (DBAN)
- Plugins can be made to add functionality

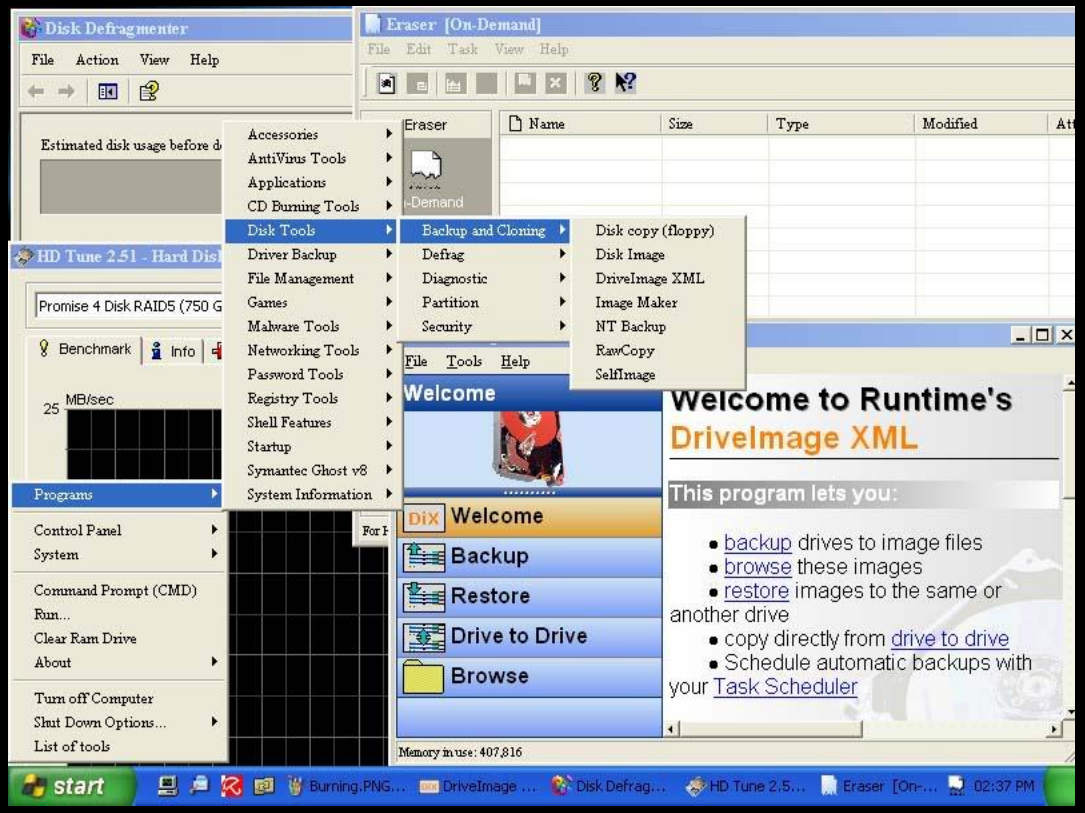


Image from http://www.ubcd4win.com/screen.htm

Irongeek.com

Winbuilder/Win7PE SE

- Make a Windows based boot USB/CD/DVD
- Starting OS needed depends on build
- Plugins can be made to add functionality
- Build even up to Win7 SP1 32/64bit
- Hardcore roll your own

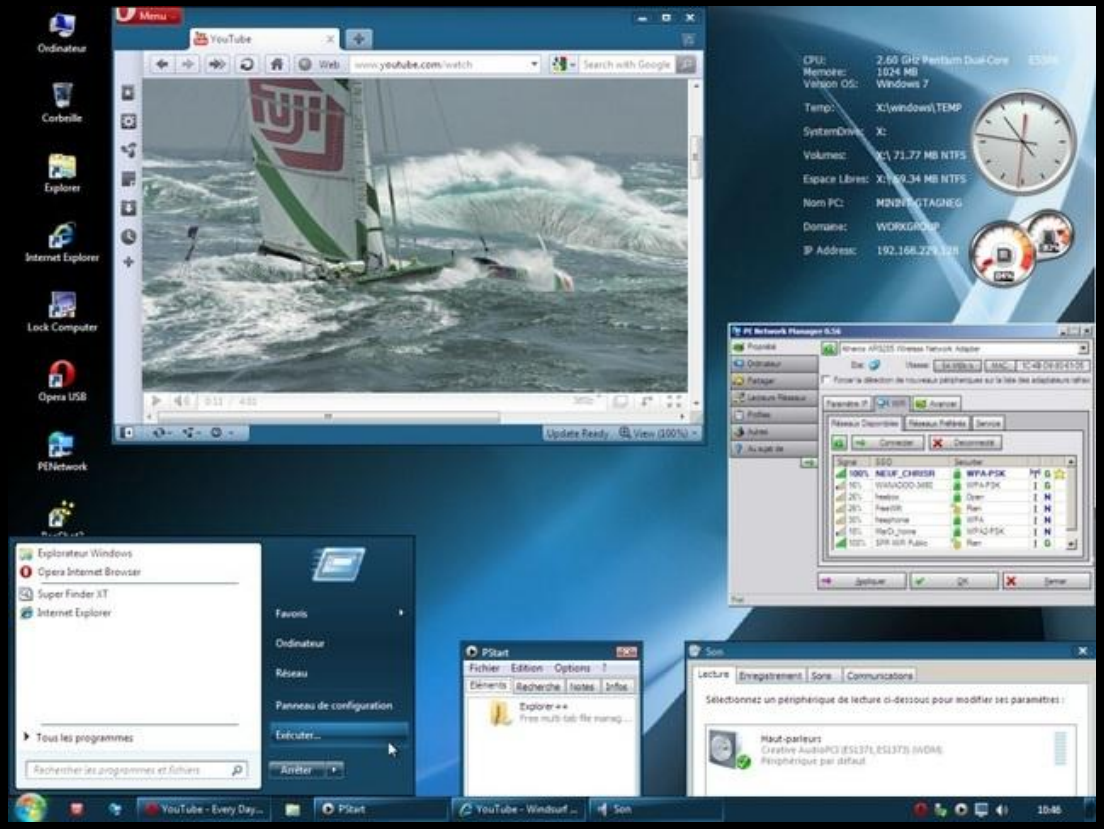
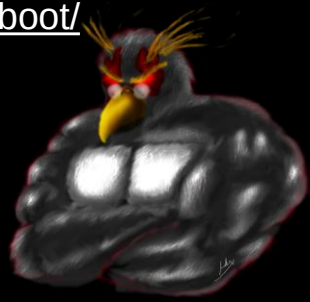


Image from http://reboot.pro/12427/

Konboot

- Bypass password on some versions of Windows and Linux
- Changes kernel on boot
- Login to Linux with “kon-usr” as username.
- Use a blank password in Windows
- Meant to run from a CD/Floppy, sometimes works from a UFD using instructions found here: http://www.irongeek.com/i.php?page=security/kon-boot-from-usb

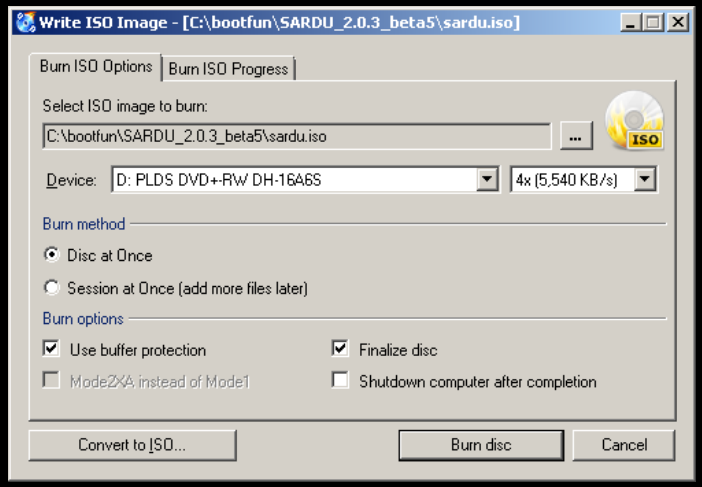
Image from http://www.piotrbania.com/all/kon-boot/



Burn an ISO

Windows

- CD Burner XP
  http://cdburnerxp.se/
- ImgBurn
  http://www.imgburn.com/



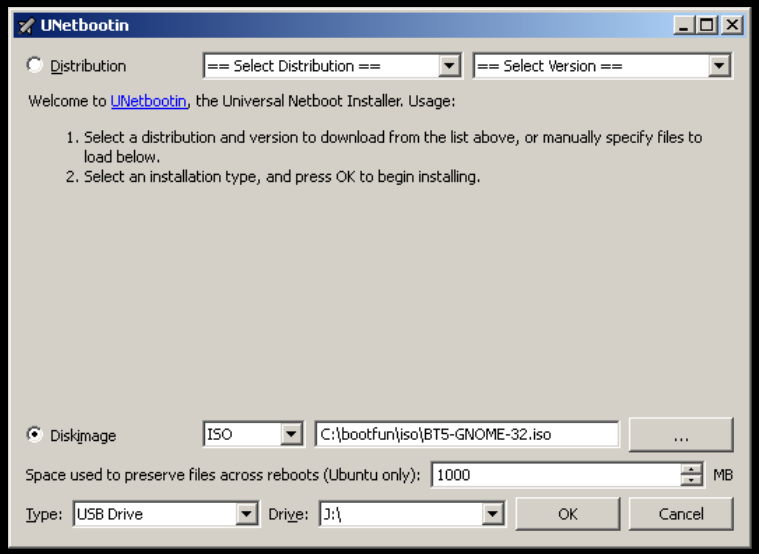
Linux

- Brasero
  http://projects.gnome.org/brasero/
  https://help.ubuntu.com/community/Brasero

Don’t forget to close an finalize!!!

Make that Linux ISO a bootable USB

- UNetBootin (multiplatform)
  http://unetbootin.sourceforge.net/
- Universal USB Installer
  http://www.pendrivelinux.com/universal-usb-installer-easy-as-1-2-3/
- Persistence



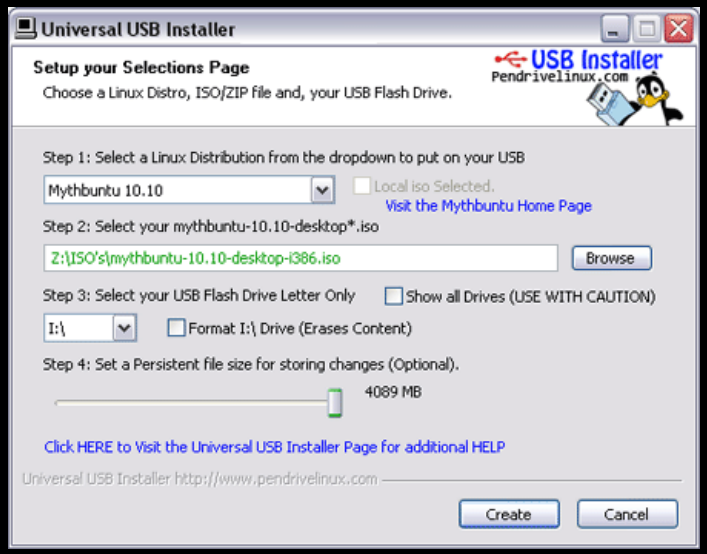
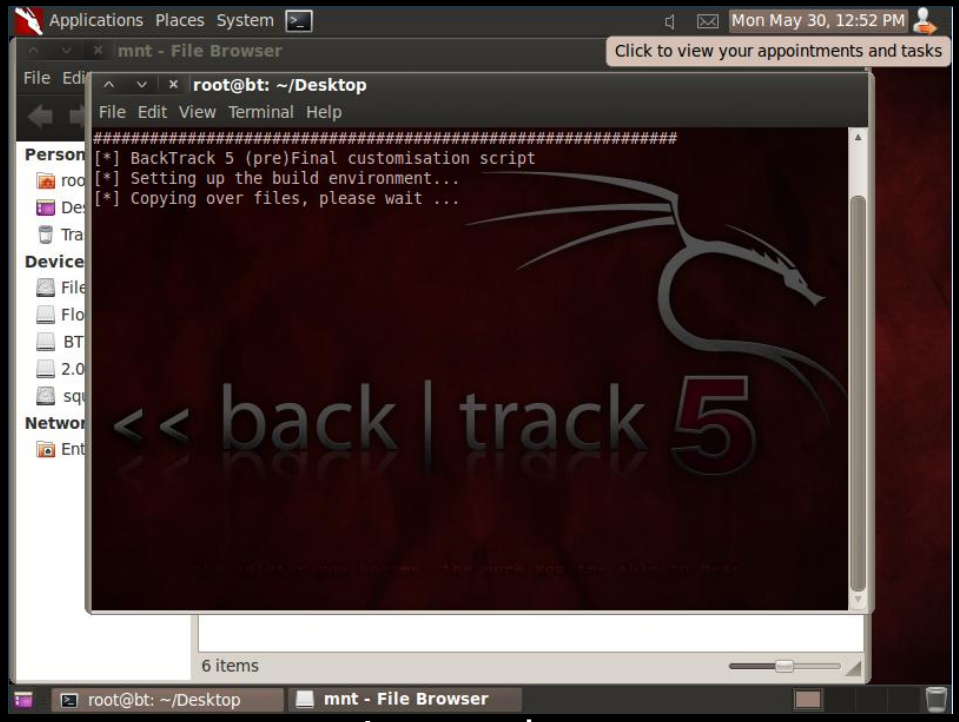


Image from http://www.pendrivelinux.com

Irongeek.com

Linux Remastering

- Mount the ISO , Chroot, Edit, make a new ISO
- Made a script base on morning_wood's post here: http://www.backtrack-linux.org/forums/backtrack-5-beginners-section/40515-customise-script-bt5.html



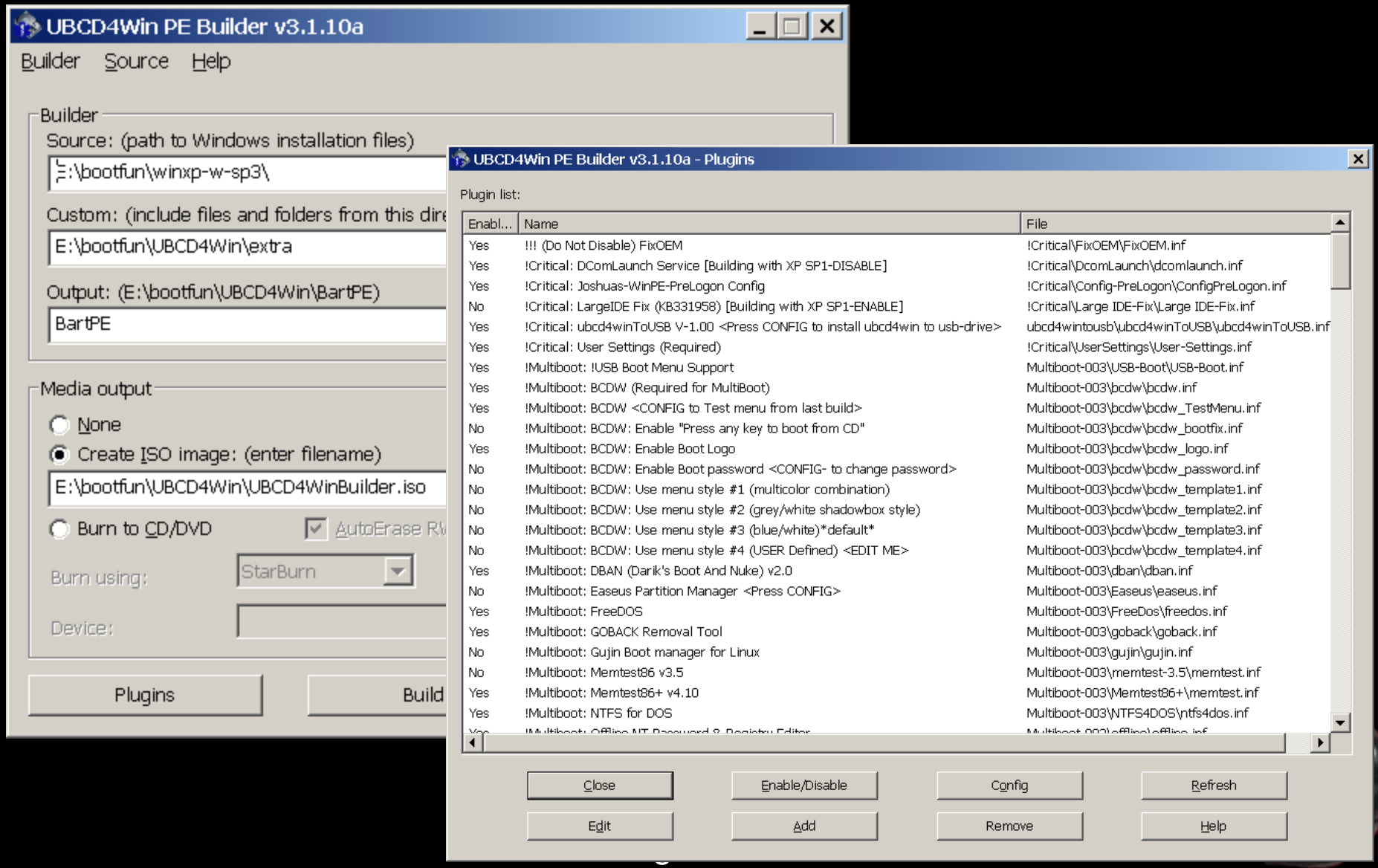
Windows based bootables

- What is Windows PE?
  - Windows Preinstallation Environment
  - Part of Microsoft's Windows Automated Installation Kit (WAIK)
  - Cut down version of Windows for installs/repairs/diagnostics
  - Not all Windows features are available
- Other PE based tools give us extra capabilities

A few notes on the Windows based tools and AV

- May want to turn off anti-virus while building
- Speed reasons
- Some tools trip it, like Nir's password tools

UBCD4Win/Bart's PE



UBCD4Win/Bart's PE

Demo/Overview

Common issues with UBCD4Win

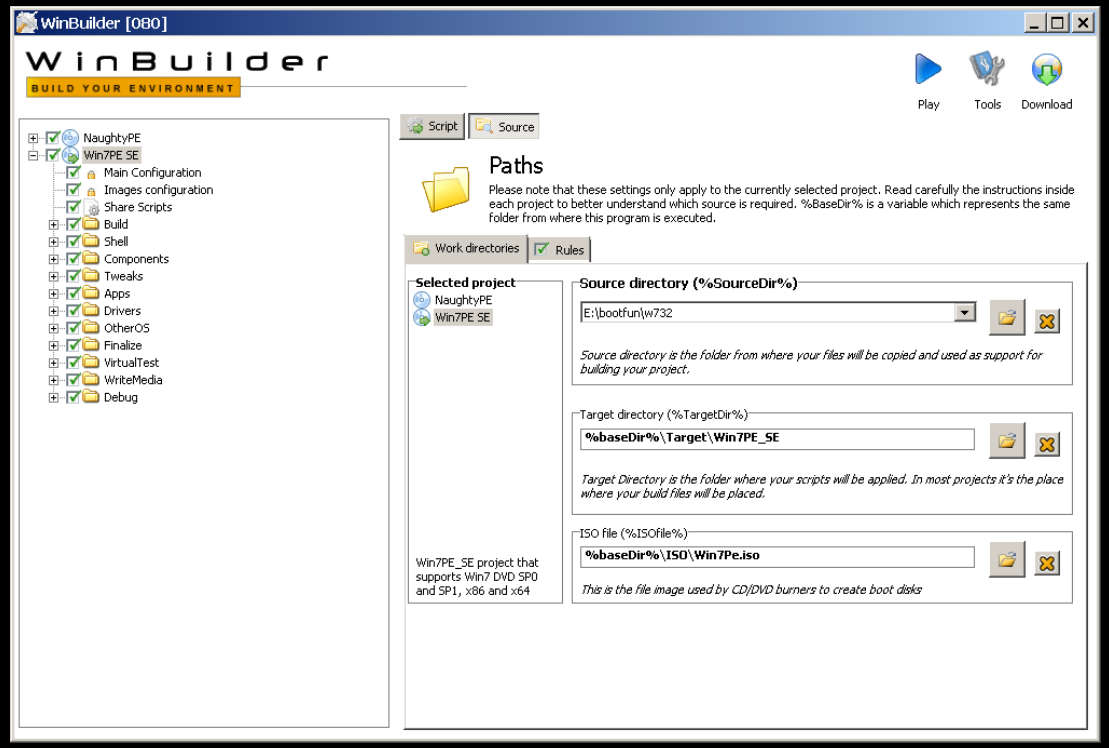
- Problems may be cause by building from Vista/Win 7
- PreLogon File Not Found
- Copy C:\Windows\Registration\R000000000001.clb to USB at \MININT\Registration\R000000000001.clb
- Blue Screen of Death 0x0000007B error may require a hacked ntdetect.com

Putting UBCD4Win to a USB

- UBUSB Utility (act's like it's locked up, just give it time) http://www.ezpcfix.net/ubcd4win/UBUSB.exe
- UBUSB Instructions http://ubcd4win.com/forum/index.php?showtopic=11375
- Other options:
- RMPrepUSB (Nice details on problems) http://sites.google.com/site/rmprepusb/tutorials/ubcd4win
- Bootable USB-Drive Utility http://www.911cd.net/forums//index.php?showtopic=21702

WinBuilder/Win7PE SE

- Tons of scripts to roll your own
- Demo is the best way to show you
- Download from http://winbuilder.net/



Needed files to build

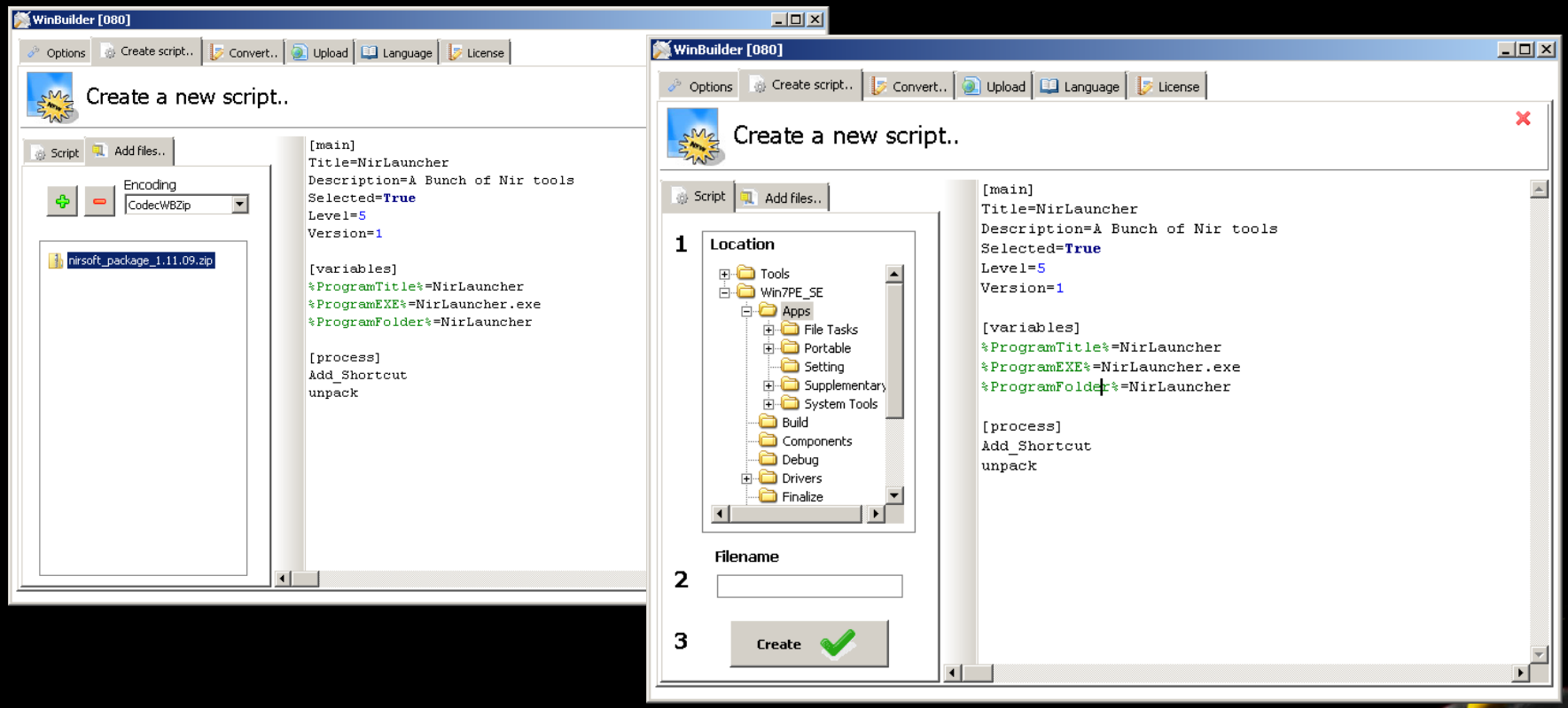
- Download and install KB3AIK_EN.iso from http://www.microsoft.com/downloads/en/details.aspx?FamilyID=696dd665-9f76-4177-a811-39c26d3b3b34&displaylang=en
- After install copy the following files from C:\Program Files\Windows AIK\Tools\amd64\
  - bcdedit.exe
    imagex.exe
    wimgapi.dll
    wimmount.inf
    wimmount.sys
    wimserv.exe
- to C:\bootfun\winbuilder\Projects\Tools\Win7PE_SE\x64
- Path will vary depending on build platform
- WinFE may already have the needed tools

If you get this error, reboot and try again

- Some of the WIM tools may be mismatched

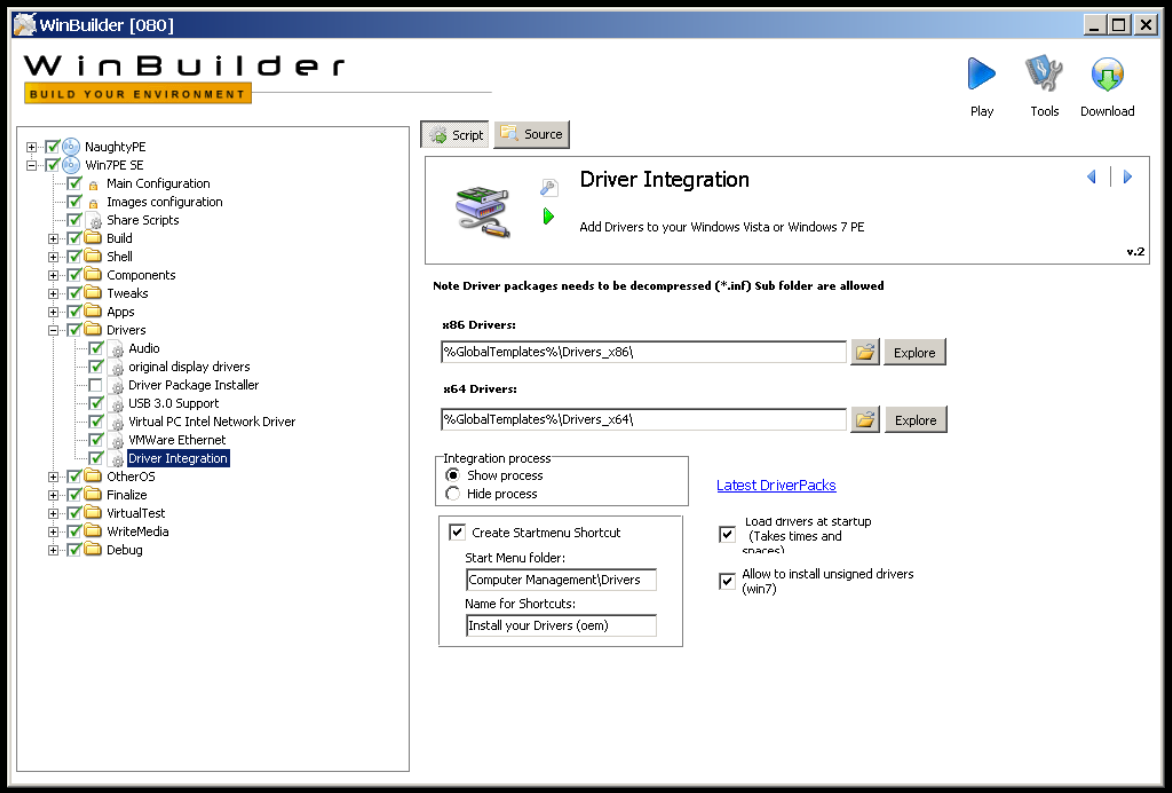
WinBuilder Scripts

- Best of luck



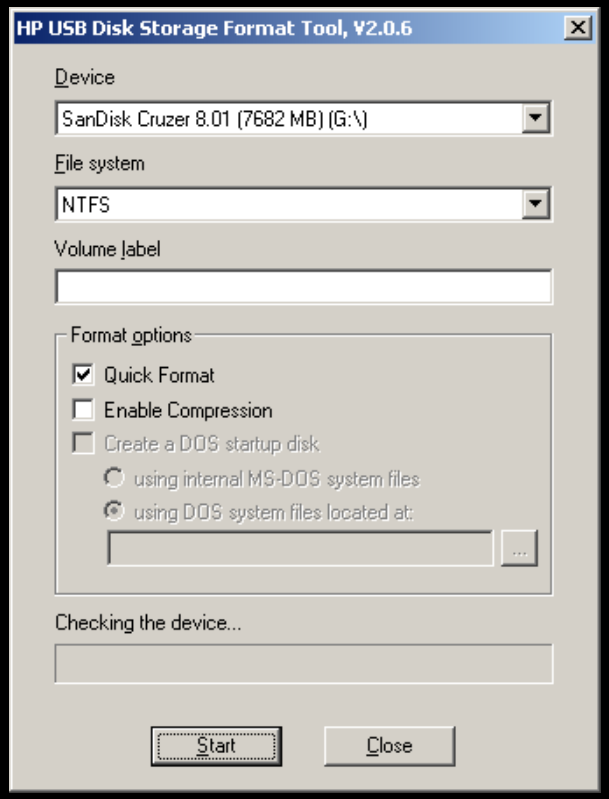
Driverpacks

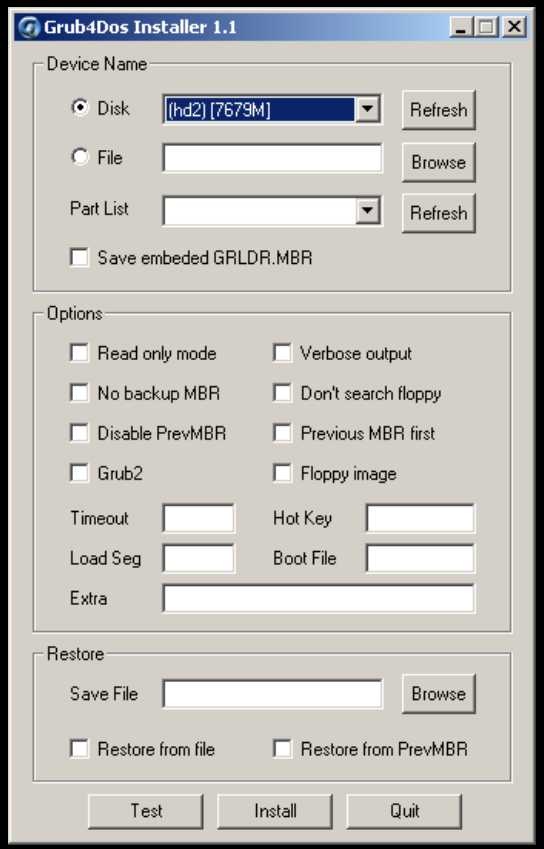
- Grab some drivers
  http://driverpacks.net



Putting WinBuilder to a USB

- Using Built-in USB creator





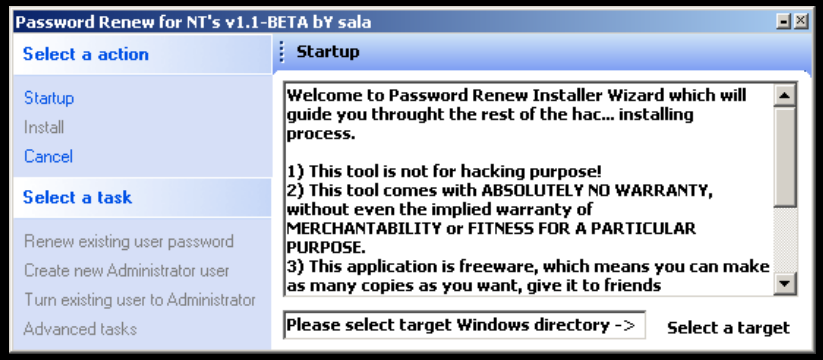
WinBuilder/Win7PE SE

Demo/Overview

A few key tools

- Runscanner for registry redirection
  http://www.paraglidernc.com/winbuilder/Scripts/scripts.htm

- Portable Apps
  http://portableapps.com/

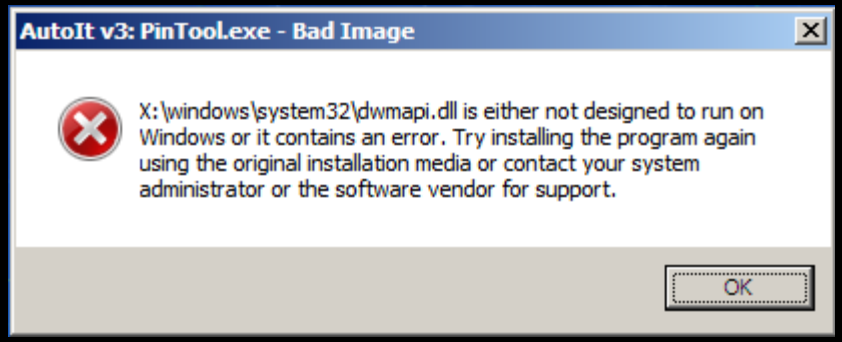


- Sala's Password Renew
  http://www.kood.org/windows-password-renew/
  http://thuun.boot-land.net/WinBldr/XP-2K3/Projects/

- Tons more scripts for Winbuilder can be found at
  http://reboot.pro/forum/65/

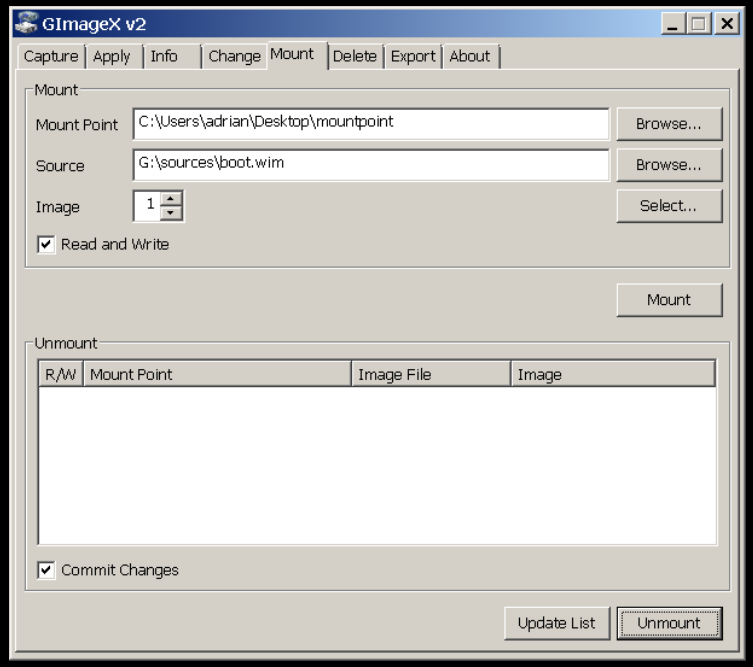
Other Winbuilder Projects

- NaughtyPE
  http://reboot.pro/3866/
- WinFE
  http://winfe.wordpress.com/
- Note on building FE with the wrong sources…



Edit a WMI file

- Might me easier to do than writing a script



- May have to use “subst y: f:\” or the like to get paths to match for shortcuts

Saving your WinBuilder project for later USB creation

Saving:

- Zip up all the files

Re-deploying to a new USB:

- Unzip to a new USB
- Reinstall GRUB4DOS boot loader with http://download.gna.org/grubutil/grubinst-1.1-bin-w32-2008-01-01.zip

You could also make an image, but that might be space restrictive

Multibooting

- Katana
  http://www.hackfromacave.com/katana.html
- YUMI
  http://www.pendrivelinux.com/yumi-multiboot-usb-creator/
- Xboot
  http://sites.google.com/site/shamurxboot/
- SARDU
  http://www.sarducd.it/

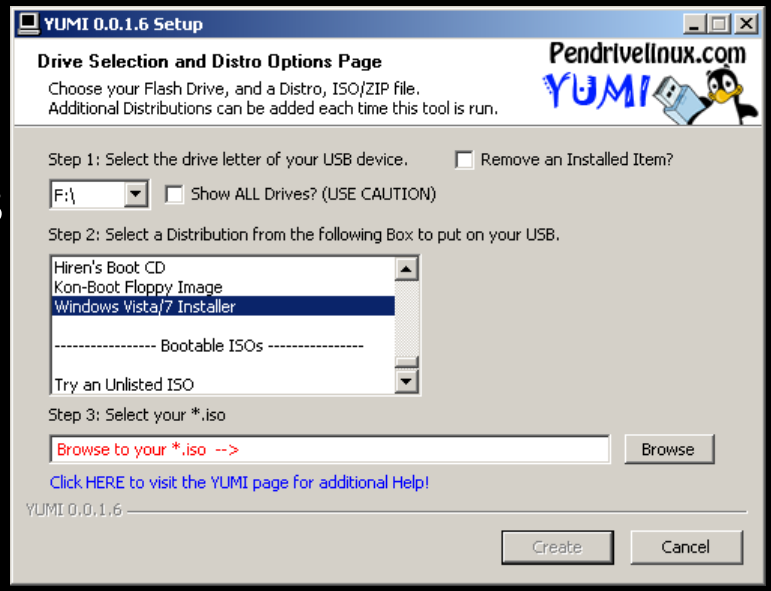
Katana Notes

- Bear to download, but has a bunch of ISOs already there
- May have to update yourself

Image from http://www.hackfromacave.com

YUMI Notes
ver. 0.0.1.6

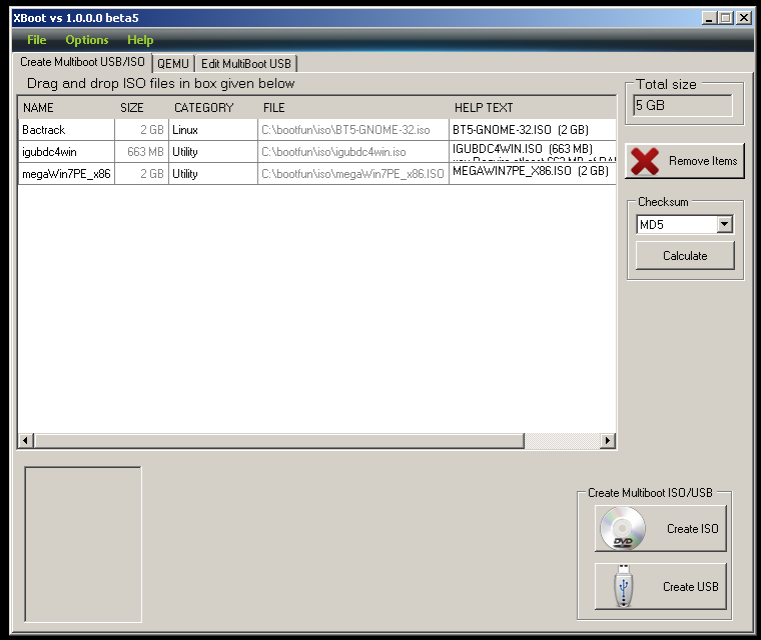
- WinBuilder from ISO with “Windows 7/Vista Installer” works fine
- UBCD4Win from ISO fails/Bluescreens/locks up/reboots
  - Windows 7/Vista Installer
  - Try an Unlisted ISO
  - Try an Unlisted ISO (from memory)
- Backtrack sometimes works, sometime fails



XBOOT Notes

ver. 1.0.0.0 beta 6

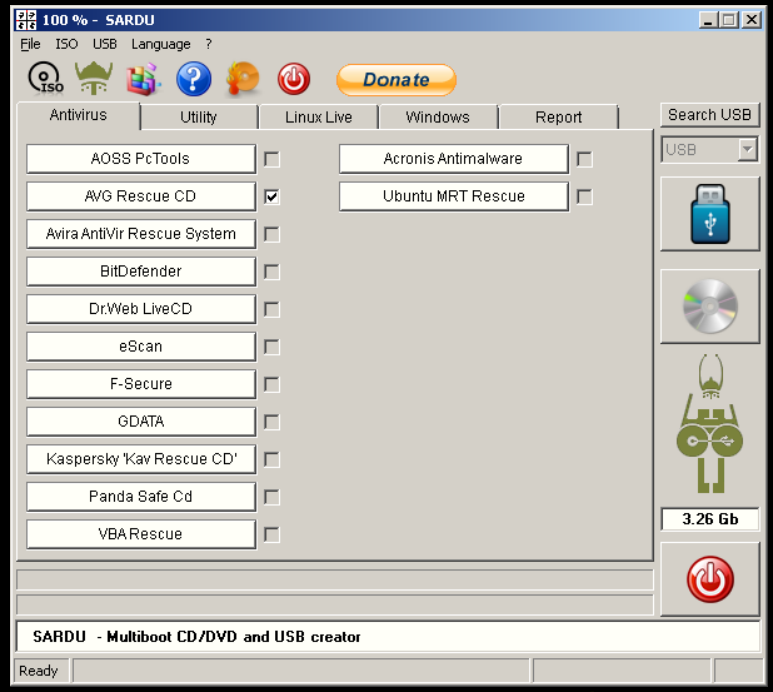
- Create ISO or UFD
- Look at ErrorLog(CreateISO).txt
- Edit category
- Rename Bactrack to Backtrack
- From USB:
  - WinBuilder from ISO with “Windows 7/Vista Installer” works fine
  - UBCD4Win with (PE, MSDART, ERD (Windows XP Only)) copies to memory but seems to work
  - Backtrack fails to pass 2nd boot menu
- From ISO:
  - Had to use VMWare to emulate the DVD from the ISO, Burned both a DVD-R and a DVD+RW and neither worked
  - Same results as USB above in VM



SARDU Notes

ver. 2.0.3 beta 5

- Create ISO or UFD
- Auto-download, like some others
- Having to give the ISOs a certain name suck
- Seems to update regularly
- UFD defrag option
- From USB:
  - Had problems getting BT5 to fully load
  - UBCD4Win rebooted
  - Even Win7PE SE dies
- From ISO:
  - UBCD4Win Bluescreens 0x0000007B
  - BT5 works
  - Win7FE SE works (slowly)



Irongeek.com

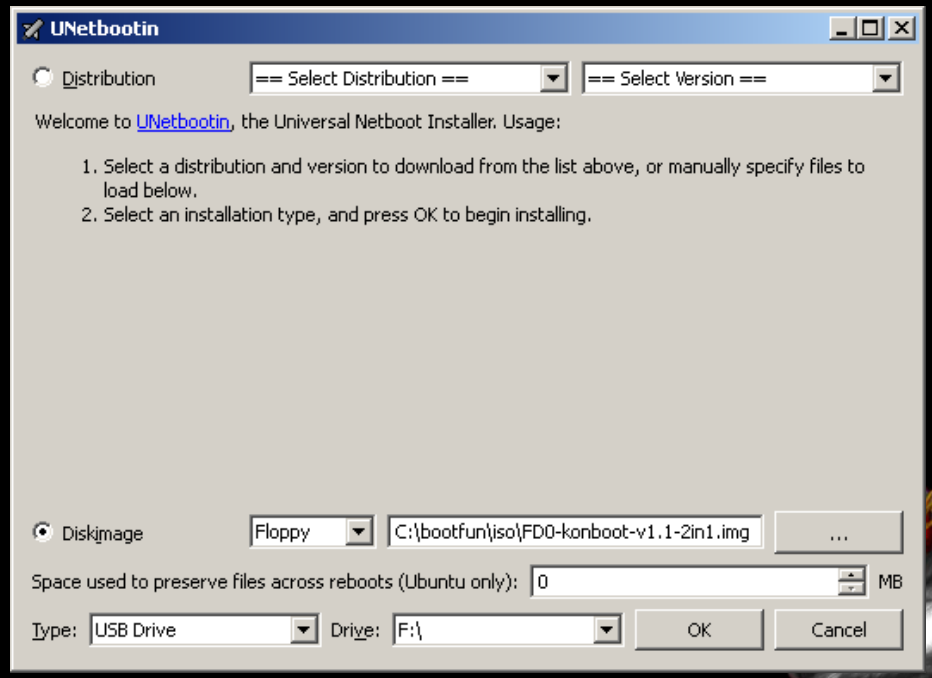
Best way to dual boot Backtrack and Win7PE SE

- Install Backtrack 5 to the UFD with Unetbootin
- Copy over the Win7PE files
- Get chain.c32 from http://www.kernel.org/pub/linux/utils/boot/syslinux/syslinux-4.04.zip in \com32\modules
- Add something like the following to your syslinux.cfg:

```
LABEL WinPE via Grub
COM32 /chain.c32
APPEND ntldr=/grldr
```

Putting Konboot on a USB

- Details at http://www.irongeek.com/i.php?page=security/kon-boot-from-usb
- Use Unetbootin to write the floppy image to the drive
- Chain booting to HD
- Best to show you the syslinux.cfg



Other distros of interest

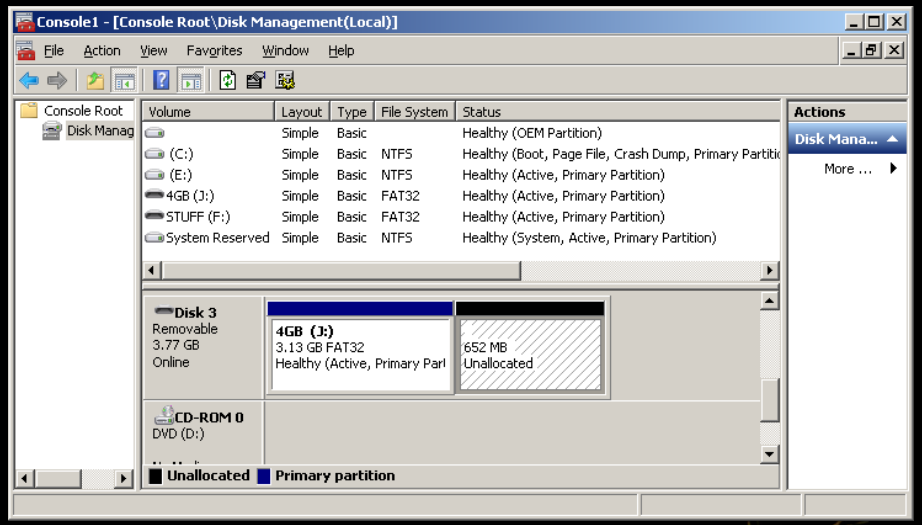
- GParted
  http://gparted.sourceforge.net/
- WinFE (Windows Forensic Environment)
  http://winfe.wordpress.com/
- Hiren's Boot CD
  Seems to be partly pirated, Google if you care
- Ultimate Boot CD
  http://www.ultimatebootcd.com/
- Symantec Ghost Boot Wizard

U3 Notes

- Yet to ever get an ISO on a U3 to boot
- Still useful for “read only” feature
- Grab the following tools:
  http://u3-tool.sourceforge.net/
  http://code.google.com/p/create-iso-file/

Making/Loading your own U3

1. Make an ISO from a directory (ImgBurn is also an option):
   CDIMAGE.EXE -lU3 -nt -h nirsoft_package_1.11.09 myU3.iso
2. See u3-tool options by running it without parameters.
3. See information about thumb drive K: (or whatever)
   u3-tool.exe -i k
4. Find the size of your ISO:
   dir myU3.iso
5. Repartition:
   u3-tool.exe -p 14655488 k
6. Load ISO:
   u3-tool.exe -l myU3.iso k
7. If you have issues getting rid of partitions, use Linux instead of Windows drive tools



More resources

- My guide and files for Konboot from a USB:
  http://www.irongeek.com/i.php?page=security/kon-boot-from-usb
- Pen Drive Linux
  http://www.pendrivelinux.com
- Reboot Pro (change the default skin)
  http://reboot.pro
- My dated Pebuilder tutorial
  http://www.irongeek.com/i.php?page=security/pebuildertutorial
- Live CD List
  http://www.livecdlist.com/?order=field_lastrelease_value&sort=desc
- Linux Live scripts
  http://www.linux-live.org
- USB Flash Drive Speed Tests
  http://usbspeed.nirsoft.net/

Booting Demos

- Not sure if there will be time…

Thanks

- ISSA Kentuckiana for having me
- By buddies from Derbycon and the ISDPodcast

Events

- DerbyCon 2011, Louisville Ky
  Sept 30 - Oct 2
  http://derbycon.com/
- Louisville Infosec
  http://www.louisvilleinfosec.com/
- Other Cons:
  http://www.skydogcon.com/
  http://www.dojocon.org/
  http://www.hack3rcon.org/
  http://phreaknic.info
  http://notacon.org/
  http://www.outerz0ne.org/

QUESTIONS?

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