

CAIA Lightning Talk: Multiboot USB Key

Jason But

jbut@swin.edu.au

Centre for Advanced Internet Architectures (CAIA)
Swinburne University of Technology



Boot Images



Why do we need them

- Install CDs
- System Recovery CDs
- Other Utilities

Burning Discs Sucks

- Repetitive burning
- Losing discs
- New versions – reburn
- Nice collection – **ooh, glittery things**

Boot USB Keys



Can put the ISO on a USB Key

- Save the environment
- Quicker boot times
- Works for systems without CD/DVD player
- Portable

But it Still Sucks



- One ISO only
- Need multiple keys
- Can still lose keys
- Keys are now big, waste of space

Can we be cool? – One Mega Multiboot USB Key

- Lots of boot images on one key
- Boot menu to select what to boot right now
- Easily updateable from a central location
- **YES WE CAN!!**

Introducing GRUBv2



- GRUB is a boot loader
- GRUBv2 allows for booting from an ISO file
 - GRUB will loopback mount the ISO (inside the boot loader)
 - GRUB will boot kernels and RAM disk images inside the mounted ISO file
 - Once the kernel boots, the ISO is no longer mounted

What do we need to do

- Format a USB Key with:
 - FAT32
 - Make bootable
 - Install GRUBv2
- **Fortunately I have created a script**
- Script currently requires:
 - BASH
 - Linux running with GRUBv2 installed (can use the Parted image)

Modular booting



Some effort has resulted in a modular system

- Each (set of) bootable image is self contained
- If the sub-directory doesn't exist, no errors
- Flexible adding and removing of images/modules

Another Script

- Download and place in the `/boot` folder of the USB key
- Requires BASH to run
- Can run from any system after mounting
- Syncs with an RSYNC server – currently on my desktop
 - Updates itself
 - Updates existing installed modules
 - Menu to select your modules – and new ones
 - Support for manually managed boot modules

DEMO – Running the Script



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<http://www.caia.swin.edu.au>

jbut@swin.edu.au

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DEMO – Booting the Key



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jbut@swin.edu.au

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Currently Supported Boot Modules



- Gentoo Linux Minimal Installer – 32 and 64 bit
- Ubuntu Install/Live CD – 32 and 64 bit
- mfsBSD FreeBSD 9 Live CD – 32 and 64 bit
- Parted Partition Magic Live CD – 32 bit
- SystemRescueCD – 32 bit
- Utilities – Memtest+ and DBAN

Where to from here



- Update script to support FreeBSD
- Update script to check for required tools (eg. *BASH*, *dialog*)
- Move the RSYNC server to a better location
- More modules
 - Develop your own, when it works send me the module and I will install it to the RSYNC server
 - Background images for modules, more boot options (32/64 bit, etc)
- Technical Report coming soon