



Clonezilla

An Open and Flexible Imaging-based Architecture for System Deployment



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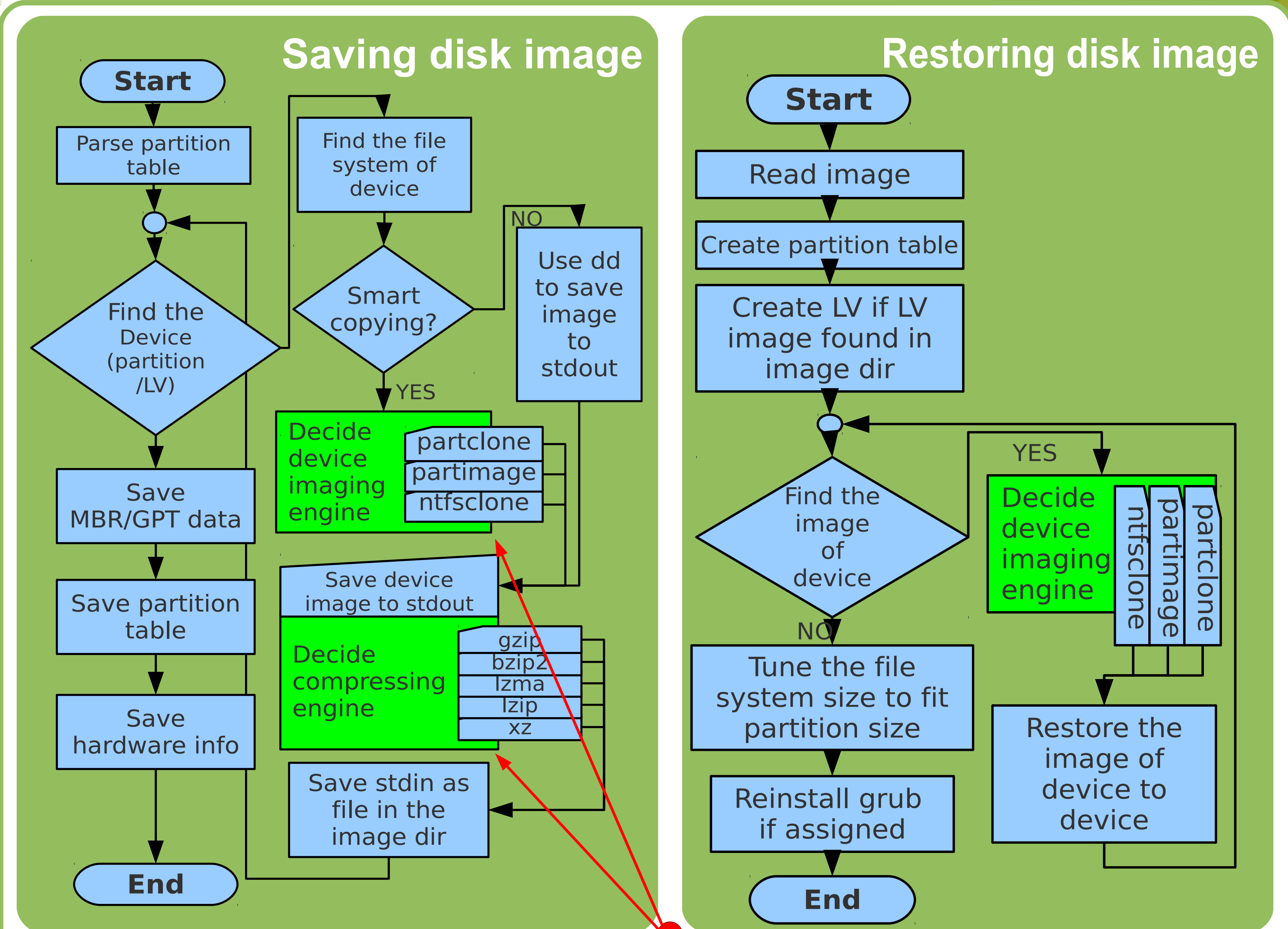
ABSTRACT

Clonezilla is an open-source disk imaging and cloning suite. It is based on Partclone, Partition Image, ntfsclone, and UDPcast with features such as plug-ins for subsystems like partitioning and a multicast mode for massive deployments. In this research, its open architecture (Figure 1 and 2) and the comparisons (Table 1 and 2) with other similar software would be presented.

<http://clonezilla.org>, <http://clonezilla.sourceforge.net/>

FEATURES

- Free (GPL) Software
- File systems supported: Ext2/3/4, ReiserFS, Reiser4, XFS, JFS, Btrfs (testing), HFS+, FAT, NTFS, UFS+ and VMFS (Table 1)
- Linux Logical Volume Manager 2 (LVM2) stackable block device (Table 2) is supported
- Grub 1 and grub 2 is supported
- Serial console is supported
- Multicast supported in Clonezilla Server Edition (SE)
- The MBR, partition table, partition(s) or entire disk(s) can be saved and restored
- Smart copying on supported file systems whereas use sector-to-sector copying via dd
- A tunable image format is implemented (Figure 2)



Imaging and compressing engines can be easily added

Figure 1. The open and flexible architecture of Clonezilla

LIMITATIONS

- The destination partition must be equal or larger than the source one
- Differential/incremental backup is not implemented yet
- Online imaging/cloning is not implemented yet
- Software RAID/fake RAID is not supported by default (extra manual processing is required)
- Recovery Clonezilla live with multiple CDs or DVDs is not implemented yet

	ext2/3	ext4	reiserfs	reiser4	xfs	jfs	btrfs (testing)	HFS+ (Mac)	FAT (MS Win)	NTFS (MS Win)	UFS+ (*BSD)	VMFS (Vmware Esx(ii))
Clonezilla 1.2.6-24	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FOG 029	Y	N	Y	N	Y	Y	N	N	Y	Y	N	N
Fsarchiver 0.6.10	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	N
G4L 0.34	Y	N	Y	N	Y	Y	N	N	Y	Y	N	N
Mondo Rescue 2.2.9.4	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N
Partimage 0.6.9	Y	N	Y	N	Y	Y	N	N	Y	Y	N	N
True Image 2011	Y	Y	N	N	N	N	N	N	Y	Y	N	Y
Ghost 15.0	Y	N	N	N	N	N	N	N	Y	Y	N	N

Table 1. Comparison – Smart copying file systems of other OSes

The partition layout of the disk to be imaged

The screenshot shows the GParted interface with a disk layout of /dev/sda. The terminal window shows the output of the command 'ls -lFh /home/partimag/lucid-2010-07-28-07-img/'.

root@debian:~# ls -lFh /home/partimag/lucid-2010-07-28-07-img/

total 220M

drwxr-xr-x 2 root root 512 07:12 ./

drwxr-xr-x 7 root root 168 07:12 ../

-rw-r--r-- 1 root root 420 07:12 disk

-rw-r--r-- 1 root root 34K 07:12 Info-dmi.txt

-rw-r--r-- 1 root root 18K 07:12 Info-lshw.txt

-rw-r--r-- 1 root root 1.4K 07:12 Info-lspci.txt

-rw-r--r-- 1 root root 260 07:12 Info-packages.txt

-rw-r--r-- 1 root root 10 07:12 parts

-rw----- 1 root root 216M 07:12 sda1.ext4-ptcl-img.gz.aa

-rw----- 1 root root 2.3M 07:12 sda5.ext4-ptcl-img.gz.aa

-rw-r--r-- 1 root root 36 07:11 sda-chs.sf

-rw-r--r-- 1 root root 1.0M 07:11 sda-hidden-data-after-mbr

-rw-r--r-- 1 root root 512 07:11 sda-mbr

-rw-r--r-- 1 root root 434 07:11 sda-pt.parted

-rw-r--r-- 1 root root 310 07:11 sda-pt.sf

-rw-r--r-- 1 root root 53 07:12 swappt-sda2.info

Annotations:

- image name: /home/partimag/lucid-2010-07-28-07-img/
- hardware information: Info-dmi.txt, Info-lshw.txt, Info-lspci.txt, Info-packages.txt
- real data of partition sda1, sda5: sda1.ext4-ptcl-img.gz.aa, sda5.ext4-ptcl-img.gz.aa
- disk C.H.S. value via sfdisk: sda-chs.sf

Figure 2. Files about the image taken by Clonezilla

	Interface	Based on	License	Provides Live CD/USB	Live copying	Differential backup	Smart copy full disk			Raw copying	Without server	Server/client
							basic	with LVM2	with firmware RAID			
Clonezilla 1.2.6-24	TUI	partclone	GPL	Y	N	N	Y	Y	N	Y	Y	Y
FOG 029	GUI	partimage	GPL	N	N	N	Y	N	N	Y	N	Y
Fsarchiver 0.6.10	CML		GPL	Y	Y	Y	N	N	N	N	Y	N
G4L 0.34	TUI	g4u, dd, partimage, ntfsclone	GPL	Y	N	N	N	N	N	Y	N	Y
Mondo Rescue 2.2.9.4	TUI	afio, mondi	GPL	Y	Y	Y	Y	Y	N	Y	Y	N
Partimage 0.6.9	TUI		GPL	Y	N	N	N	N	N	N	Y	Y
True Image 2011	GUI	Proprietary	Proprietary	Y	Y	Y	Y	Y	N	Y	Y	Y
Ghost 15.0	GUI	Proprietary	Proprietary	Y	Y	Y	Y	N	N	Y	Y	Y

Table 2. General comparisons

"Clone as Free as You Want"

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