Encrypted fs and cd/dvd backup mini-howto

This document explains how to make his own encrypted backups on linux, using standard tools.

1. Prepare an encrypted file system

Create a file of the size of a dvd (make sure there are at least 4.5Gb available on the target filesystem (/opt for instance)

```
dd if=/dev/zero of=/opt/encrypted_filesystem bs=1024k count=4489 (for a dvd R)
dd if=/dev/zero of=/opt/encrypted_filesystem bs=1024k count=4450 (dvd RW are a bit smaller)
dd if=/dev/zero of=/opt/encrypted_filesystem bs=1024k count=700 (700 Mb cdrom)
```

Make sure to have the following modules loaded :
(you can also use blowfish or serpent instead of aes - consult /lib/modules/*/kernel/crypto/)

```
modprobe loop
modprobe cryptoloop
modprobe aes
```

Prepare the loop device - you will be prompted for a password :

```
losetup -e aes /dev/loop0 /opt/encrypted_filesystem
```

Format the filesystem

```
mkfs -t ext2 /dev/loop0
```

The following command makes more space available for the data :

```
tune2fs -m 0 /dev/loop0
```

2. Copy your files to the new encrypted filesystem

The filesystem is now ready and can be mounted by :

```
mount /dev/loop0 /mnt/encrypted
```

You may now copy your files on it :

```
cp ~/* /mnt/encrypted
```

Unmount the encrypted filesystem after that :

```
umount /dev/loop0
losetup -d /dev/loop0
```

3. Burn the data on a cd/dvd

Burn the data now :

```
growisofs -dvd-compat -Z /dev/dvd=/opt/encrypted_filesystem
```

4. Use your backups when needed

Mount the cd/dvd by :

```
losetup -e aes /dev/loop0 /dev/dvd
mount /dev/loop0 /mnt/cdrom
```

Unmount it once finished :

```
umount /dev/loop0
losetup -d /dev/loop0
```

5. Create new backups, using the same password

Re-mount the encrypted filesystem created before :

```
losetup -e aes /dev/loop0 /opt/encrypted_filesystem
mount /dev/loop0 /mnt/encrypted
```

Delete the existing files :

```
rm -rf /mnt/encrypted/*
```

Copy the new files :

```
cp -R /usr /mnt/encrypted/
```

Umount the filesystem :

```
umount /dev/loop0
losetup -d /dev/loop0
```

Burn to a dvd (see cdrecord for burning cdroms):

```
growisofs -dvd-compat -Z /dev/dvd=/opt/encrypted_filesystem
```

More info :

```
man losetup
```

Authors