

Linux encrypted swap-space

This guide will outline the basics of encrypting your swap-space in Linux; I'm using Linux Mint Maya in this example due to me ditching Ubuntu (sort of).

The benefits of having an encrypted swap-space are ones of security & plausible deniability in the unfortunate event that your Linux machine falls into the wrong hands and someone tries to gain access to your important data; etc you get the idea.

Here is a breakdown of the required steps to get your swap-space encrypted:

- Install the pre-requisites.
- Comment out the swap entry in your `/etc/fstab` file.
- Disable the swap-space (temporarily).
- Overwrite the swap partition with pseudo-random data.
- Add the cryptoswap entry to `/etc/crypttab`.
- Add a new entry in your `/etc/fstab` file for the encrypted swap-space.
- Verify.

Lets begin;

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Install the pre-requisites

Syntax: `sudo apt-get install cryptsetup libpam-mount`

Here we're installing the cryptsetup suite and the pam_mount library which is a pluggable authentication module to allow the mounting of volumes for a user session.

Comment out the swap entry in your /etc/fstab file

Syntax:

`sudo cp -p /etc/fstab /etc/fstab.bak ; sudo nano /etc/fstab`

All we're doing here is taking a backup copy of our current /etc/fstab to /etc/fstab.bak then opening the /etc/fstab for editing; all as root (sudo).

In this file you see an entry similar to this:

```
UUID=bc000b00-f00d-0a0a-0ce0-0ff0bb000ddd none          swap  sw          0      0
```

All we have to do here is insert a '#' at the beginning of this line, this will tell the mount process that this is a comment meaning that no action will be taken against this entry:

```
#UUID=bc000b00-f00d-0a0a-0ce0-0ff0bb000ddd none          swap  sw          0      0
```

Disable swap-space (temporarily)

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Syntax:

```
sudo swapoff /dev/sdxy
```

Where "/dev/sdxy" is the volume designation and partition number, you can get this from gParted if you are unsure (I'm not going to cover this here & besides if you need to encrypt your swap-space, I'd expect you to know what you're doing).

Make a note of the volume designation and partition number; we'll need it for the next few steps also.

Overwrite the swap partition with psuedo-random data

Syntax:

```
sudo dd if=/dev/urandom of =/dev/sdxy bs=1M
```

Here we're overwriting the swap-space partition with pseudo-random data (further reading here: <http://en.wikipedia.org/wiki/dev/random>) if you're interested in the differences between /dev/random & /dev/urandom. You will need to change the value of "/dev/sdxy" based upon the configuration of your system.

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Add the cryptoswap entry to /dev/crypttab

Syntax:

```
sudo gedit /etc/crypttab
```

Then we need to add the line:

```
cryptoswap /dev/sdxy /dev/urandom  
cipher=aes-cbc-essiv:sha256,size=256,hash=sha256,swap
```

Here we are telling the system that we want it to create an encrypted volume on "/dev/sdxy" (change this to the correct information for your system).

Add a new entry in your /etc/fstab file for the encrypted swap-space

Syntax:

```
sudo nano /etc/fstab
```

Add the following entry:

```
/dev/mapper/cryptoswap none          swap    sw          0          0
```

Save the changes and reboot.

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Verify

All being well, you should have a system with an encrypted swap-space. To verify this issue the following command:

```
sudo cryptsetup status cryptoswap
```

You should see the following:

```
/dev/mapper/cryptoswap is active and is in use.
```

We're done.