

Encrypt non-root devices (LUKS)

If you have more than one hard disk that you need to encrypt (e.g. SSD as main disk, HDD as data disk) there are a few things to keep in mind to ensure continued smooth operation without any loss of convenience.

The layout is as follows:

Type	File System	Description
Home File System	LUKS2	Stores user home directories and personal files

Preparing the disk

Determine the disks that are installed on your system. This can easily be done with `fdisk`:

```
fdisk -l
```

Start partitioning the disk with `cgdisk`:

WARNING: Make sure you are modifying the correct device, else you *will* lose data!

```
cgdisk /dev/sda
```

If the disk has no partition table yet, `cgdisk` will ask you to specify one. The default partition table format for UEFI systems is `gpt`. Create a layout with at least 3 partitions:

Size	FS Type
(disk size)	Linux home

NOTE: Specifying the correct file system type allows some software to automatically detect and assign appropriate mount points to partitions. See [Discoverable Partitions Specification](#) for more details.

Formatting partitions

Before writing a file system to the disk a LUKS container needs to be created with the `cryptsetup` utility:

WARNING: Do **NOT** forget your passphrase! In case of loss you won't be able to access the data inside the container anymore!

NOTE: Using `/dev/sda` as an example of a SATA HDD that is intended to be mounted at `/home`.

```
cryptsetup luksFormat /dev/sda1
```

Open the newly created LUKS container and supply the passphrase you just set:

NOTE: `crypthome` is used as an example here. It is the "mapper name" under which the opened LUKS container will be available at, in this example: `/dev/mapper/crypthome`. You may use whatever name you like.

```
cryptsetup open /dev/sda1 crypthome
```

Formatting and mounting partitions

Create a file system for the home file system:

```
mkfs.ext4 /dev/mapper/crypthome
```

Mount the file systems:

```
mount --mkdir /dev/mapper/crypthome -o noatime /mnt/home
```

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