

How To: Linux Hard Disk Encryption With LUKS [cryptsetup Command]

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Linux encryption methods

There are two methods to encrypt your data:

#1: Filesystem stacked level encryption

1. [eCryptfs](#) – It is a cryptographic stacked Linux filesystem. eCryptfs stores cryptographic metadata in the header of each file written, so that encrypted files can be copied between hosts; the file will be decrypted with the proper key in the Linux kernel keyring. This solution is widely used, as the basis for Ubuntu's Encrypted Home Directory, natively within Google's ChromeOS, and transparently embedded in several network attached storage (NAS) devices.

2. **EncFS** -It provides an encrypted filesystem in user-space. It runs without any special permissions and uses the FUSE library and Linux kernel module to provide the filesystem interface. You can find links to source and binary releases below. EncFS is open source software, licensed under the GPL.

#2: Block device level encryption

1. **Loop-AES** – Fast and transparent file system and swap encryption package for linux. No source code changes to linux kernel. Works with 3.x, 2.6, 2.4, 2.2 and 2.0 kernels.
2. **VeraCrypt** – It is free open-source disk encryption software for Windows 7/Vista/XP, Mac OS X and Linux based on TrueCrypt codebase.
3. **dm-crypt+LUKS** – dm-crypt is a transparent disk encryption subsystem in Linux kernel v2.6+ and later and DragonFly BSD. It can encrypt whole disks, removable media, partitions, software RAID volumes, logical volumes, and files.

In this post, I will explain how to encrypt your partitions using Linux Unified Key Setup-on-disk-format (LUKS) on your Linux based computer or laptop.

Step #1: Install cryptsetup utility

You need to install the following package. It contains cryptsetup, a utility for setting up encrypted filesystems using Device Mapper and the dm-crypt target. Debian / Ubuntu Linux user type the following **apt-get command** or **apt command**:

```
# apt-get install cryptsetup
```

OR

```
$ sudo apt install cryptsetup
```

Sample outputs:

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