

# Debian install guide (debootstrap)

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- **Steps**

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1. **Install required packages**

Update packages database:

```
# switch to root
sudo -i
# update package database
apt update
```

Install packages:

```
apt install neovim gdisk debootstrap arch-install-scripts cryptsetup lvm2
dosfstools
```

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2. **Partition disk**

```
gdisk /dev/sda
```

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3. **Prepare encrypted partition and lvm**

Encryption:

```
cryptsetup --type luks2 -v --verify-passphrase --cipher aes-xts-plain64 --key-size 512 --key-slot 0 --hash sha256 --iter-time 11654 --pbkdf argon2id --pbkdf-memory 524288 --pbkdf-parallel 4 --use-random --label xyz-locked --timeout 60
luksFormat /dev/sda3
```

Open encrypted container:

```
cryptsetup open /dev/sda3 xyz-unlocked
```

LVM:

```
pvcreate /dev/mapper/xyz-unlocked
vgcreate vg /dev/mapper/xyz-unlocked
lvcreate -L 30G vg --name root
lvcreate -L 4G vg --name swap
lvcreate -L 40G vg --name home
```

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4. **Format and mount partitions**

```

#
# dir for chroot
mkdir -p /target
# root partition
mkfs.ext4 -L RootFs /dev/mapper/vg-root
mount /dev/mapper/vg-root /target
# boot partition
mkdir -p /target/boot
mkfs.ext2 -L BootFs /dev/sda2
mount /dev/sda2 /target/boot
# efi partition
mkdir -p /target/boot/efi
mkfs.vfat -F 32 -n EFI /dev/sda1
mount /dev/sda1 /target/boot/efi
# home partition
mkdir -p /target/home
mkfs.ext4 -L HomeFs /dev/mapper/vg-home
mount /dev/mapper/vg-home /target/home
# swap partition
mkswap -L SWAP /dev/mapper/vg-swap
swapon /dev/mapper/vg-swap
#

```

## 5. Install base system with debootstrap

```

debootstrap --verbose --arch=amd64 --include=ca-certificates,bash-completion
trixie /target http://ftp.pl.debian.org/debian/

```

## 6. Prepare apt sources file for new installed system

```

#
vim /target/etc/apt/sources.list
#
# Content of file:
#####
#####
## 
## trixie
##
## deb http://ftp.pl.debian.org/debian trixie main contrib non-free non-free-
## firmware
## deb-src http://ftp.pl.debian.org/debian trixie main contrib non-free non-free-

```

```

firmware          #
#
## trixie-backports
#
# deb http://ftp.pl.debian.org/debian trixie-backports main contrib non-free
non-free-firmware          #
# deb http://ftp.pl.debian.org/debian trixie-backports main contrib non-free
non-free-firmware          #
#
## trixie-security
#
deb https://security.debian.org/debian-security trixie-security main contrib
non-free non-free-firmware          #
# deb https://security.debian.org/debian-security trixie-security main contrib
non-free non-free-firmware          #
#
## trixie-updates
#
deb http://ftp.pl.debian.org/debian trixie-updates main contrib non-free non-
free-firmware          #
# deb-src http://ftp.pl.debian.org/debian trixie-updates main contrib non-free
non-free-firmware          #
#
## trixie-proposed
#
# deb http://ftp.pl.debian.org/debian trixie-proposed main contrib non-free non-
free-firmware          #
# deb-src http://ftp.pl.debian.org/debian trixie-proposed main contrib non-free
non-free-firmware          #
##
##
```

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## 7. Chroot

```

# mounting additional filesystems
mount --bind /dev /target/dev
mount --bind /dev/pts /target/dev/pts
```

```
mount --bind /proc /target/proc
mount --bind /sys /target/sys
mount --bind /run /target/run
mount --bind /sys/firmware/efi/efivars /target/sys/firmware/efi/efivars
# chroot
chroot /target /bin/bash -l
# commands in chroot
export PS1="|chroot| ${PS1}"
alias vim="vim.tiny"
```

---

## 8. Update new system

```
# update package database
apt update
#
source /etc/profile
export PS1="|chroot| ${PS1}"
alias vim="vim.tiny"
```

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## 9. Configure locale,keyboard,timezone,language

```
# Install packages
apt install tzdata locales keyboard-configuration console-setup
# configure locales
dpkg-reconfigure locales
# configure keyboard
dpkg-reconfigure keyboard-configuration
# configure console-setup
dpkg-reconfigure console-setup
# configure timezone
dpkg-reconfigure tzdata
#
source /etc/profile
export PS1="|chroot| ${PS1}"
alias vim="vim.tiny"
#
```

---

## 10. Kernel and required tools

```
# install kernel and firmware
apt install linux-image-amd64 linux-headers-amd64 dkms firmware-linux firmware-
linux-free firmware-linux-nonfree
# install other packages needed for base system
```

```
apt install initramfs-tools cryptsetup cryptsetup-initramfs lvm2 man-db manpages  
manpages-pl filevi
```

---

## 11. Set hostname and configure hosts file

```
vim.tiny /etc/hostname  
vim.tiny /etc/hosts
```

---

## 12. Configure user

```
# create new user  
useradd -m -G users,sudo -s /bin/bash -c "Charlie" charlie  
# set password for new user  
passwd charlie  
# Lock root account  
passwd -l root  
#
```

---

## 13. Configure fstab

```
# comand for getting UUID of partition  
blkid -s UUID -o value $DEV  
#  
# File content:  
#####  
#####  
##  
#  
#<file system> <mount point> <type>  
<options> <dump> <pass> #  
## root LABEL=RootFs  
#  
UUID=0875236a-0afe-4b46-8df3-d9eceae911b2 / ext4  
errors=remount-ro 0 1 #  
#  
## boot LABEL=BootFs  
#  
UUID=beb2e793-2e70-4fac-a898-fdbc0171913d /boot ext2 defaults  
0 2 #  
#  
## efi LABEL=EFI
```

```

#
UUID=7DA2-F47E                                /boot/efi        vfat
umask=0077                                     0          1          #
#
##
## home LABEL=HomeFs
#
UUID=797f3a26-9f24-4ae1-b7f0-0f4881c17b4e    /home         ext4      defaults
0          2          #
#
##
## swap LABEL=SWAP
#
UUID=c026a602-bbf4-4fa1-9d15-4b353330c969    none         swap      sw
0          0          #
#
##
#######
#######

```

## 14. configure cryptab

```

# get UUID for Luksrypt partition
blkid -s UUID -o value /dev/sda3
#
# Example crypttab file
# <target name> <source device>           <key file>
<options>
xyz-unlocked   UUID=7f1bcc62-a1c2-4567-93d5-d8183e2da7c1     none
luks,discard
#
# prepare resume file for initramfs
blkid -s UUID -o value /dev/mapper/vg-swap >> /etc/initramfs-tools/conf.d/resume
vim /etc/initramfs-tools/conf.d/resume
# Content
RESUME=UUID=c026a602-bbf4-4fa1-9d15-4b353330c969
#

```

## 15. Configure network

```
# install network-manager
apt install network-manager
# check network interfaces
ip addr
# add following configuration to /etc/network/interfaces file
vim /etc/network/interfaces
#
# Content to add:
## Loopback
#
auto lo
iface lo inet loopback
#
## ens33
auto ens33
allow-hotplug ens33
iface ens33 inet dhcp
#
```

---

## 16. Install grub bootloader

```
# install packages
apt install grub-efi-amd64 efibootmgr os-prober
# install grub bootLoader
grub-install --target=x86_64-efi --efi-directory=/boot/efi
# add resume=UUID=xxxx... to /etc/default/grub
# example:
GRUB_CMDLINE_LINUX_DEFAULT="resume=UUID=c026a602-bbf4-4fa1-9d15-4b353330c969
quiet"
# update grub config and recreate initramfs
update-initramfs -ck all;update-grub2
#
```

---

## 17. finish thing

```
# exit from chroot
exit
# deactivate swap
swapoff /dev/dm-2
# deactivate swap partition
swapoff /dev/dm-2
# umount all filesystems mounted at /target
#
```

```
umount /target/sys/firmware/efi/efivars  
umount /target/run  
umount /target/sys  
umount /target/proc  
umount /target/dev/pts  
umount /target/dev  
umount /target/home  
umount /target/boot/efi  
umount /target/boot  
umount /target  
vgchange -a n vg  
cryptsetup close xyz-unlocked  
reboot  
#
```

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## 18. Install basic packages after restart to newly installed system.

```
apt install neovim htop iotop build-essential gdb git cmake wget  
wget2 curl rsync tcpdump net-tools xclip xsel cryfs age mc fzf aptitude gdisk  
dosfstools mtools ntfs-3g btrfs-progs xfsprogs jfsutils exfatprogs squashfs-  
tools command-not-found 7zip rar unrar zip unzip gzip bzip2 xz-utils zstd pigz  
btrfs-progs exfatprogs jfsutils mdadm xfsprogs aptitude diffutils lsof bc pwgen  
xkcdpass xxd pv jq yq xq trash-cli speedtest-cli links tasksel  
# install standard task with tasksel  
tasksel install standard
```

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## 19. Configure silent boot

```
# configure to /etc/default/grub  
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash loglevel=3 systemd.show_status=auto  
rd.udev.log_level=3 vt.global_cursor_default=0"
```

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## 20. Install some GUI

```
# balanced kde plasma desktop  
apt install kde-standard  
# set default target to newly installed GUI environment  
systemctl set-default graphical.target  
#
```

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## • Reference

- a) <https://morfikov.github.io/post/installacja-debiana-z-wykorzystaniem-debootstrap/>

- b) <https://gist.github.com/varqox/42e213b6b2dde2b636ef>
  - c) <https://gist.github.com/starquake/856b05dc88d68e7509e23f8995f7ac5e>
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