Making a bootable external USB drive with MX Linux 25.1 installed

Compatible with both Legacy/BIOS aka MBR and UEFI 64-bit PCs.

This How-To creates an external drive that boots on all PCs without a need to make any changes in the Pcs Firmware. This is not a persistent-live-USB. You can save any amount of files on the drive.

Use of a USB 'burning' app like Ventoy or Rufus to create the installer USB very is important. Other apps may result in a USB that will only boot in Legacy mode. This USB will boot in both modes.

25.1 Both init systems (SysVinit and systemd) will be installed by the MX Installer. The init system booted when the installation is done will be the default of the installed system. Both will be available.

Preparing the external drive

Boot in UEFI mode if given a choice and run GParted. **KDE**: install GParted to make these partitions.

Both will ask for your/root password 'demo'.

- In the Device Menu, choose 'Create Partition Table…' and choose 'GPT' Partition Table…'
- In Select new partition table type: select 'gpt' and click '✔Apply'.

Create the following new partitions

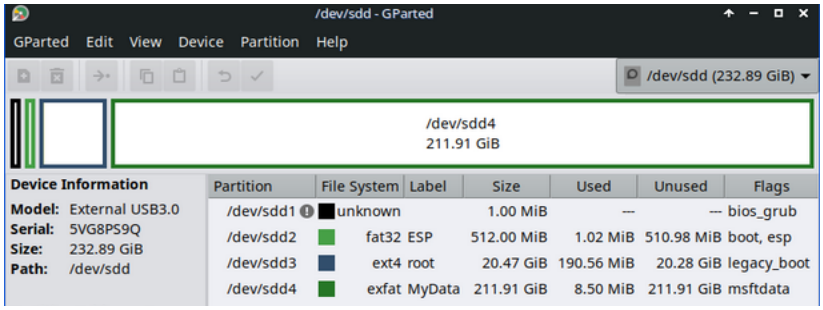
Below 'MiB' refers to megabytes. Other 'Create new Partition options' fields should be ignored.

bios_grub	**Newsize (MiB)**: 1 MiB **File system:** 'cleared' **Label:** and **Partition name:** 'bios_grub'
ESP	**Newsize (MiB)**: 512 MiB **File system:** 'fat32' **Label**: 'ESP'
Root partition	**File system**: ext4 **Label:** 'MX25root' **Newsize (MiB)**: minimum size 20,000 MiB (20 Gb)
Optional 'MyData'	**File system**: 'exfat'[1] **Label:** to 'MyData'

Click the check ✔ on the GParted toolbar (Apply All Operations) when done.

On the popup click '✔Apply'. Wait for 'All operations successfully completed'. Click 'x Close'.

1 NTFS or fat32 could also be used. They both are readable in Windows as those formats are in common between them.



A prepared external drive before MX Linux has been installed.

Set partition flags

Right-click on each of the partion individually and select 'Manage Flags'.

- For the first (1.00 MiB) partition set the flag to 'bios_grub' then click 'x Close'.
- For the 'ESP' partition, set the flag: 'esp' then click 'x Close'.
- For the 'MX25root' partition set the flag to 'legacy_boot' then click 'x Close'.

Disable the OS-prober

The OS-prober app needs to be disabled, so that the Grub menu will only list the external drive.

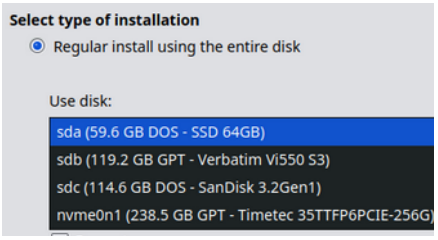
Type Ctl-Alt-T to open a terminal window. In this terminal window type:

```
sudo chmod -x /etc/grub.d/30_os-prober                    (sudo password = demo)
```

Close the terminal window by typing 'exit' and pressing enter.

NOTE: This removes the execution bit (-x) and will be carried over into the installed external drive.

Start the MX 25.1 Installer

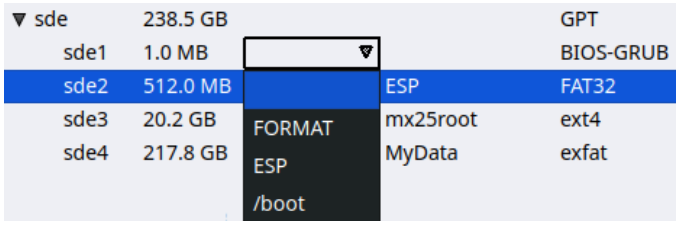


Start the MX Installer. Verify you have to correct drive selected .

At the Select type of installation screen click → Next.

Choose the ESP partition

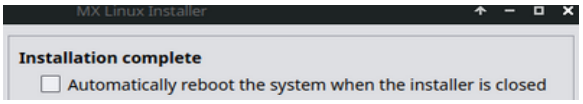
Choose the ESP partition **on the external drive** as the ESP target. Below right shows sde2 being selected in preparation to setting ESP in the 'Use For' column.



Choose the Root partition

Set the root partition **on the external drive** to the mx25root on the external drive. See sde3 at right.

DO NOT reboot! Uncheck the 'Automatically reboot the system when the installer is closed' checkbox. See right. Click '→ Finish' on the MX Installer.



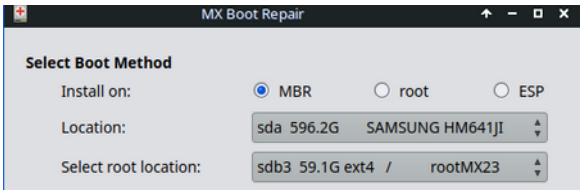
Install GRUB for Legacy/BIOS/MBR boot

Note: skip this section if you had created the USB on a Legacy aka BIOS only PC.

1. Run MX Boot Repair.
2. Leave selected: '◉ Reinstall GRUB bootloader on ESP, MBR or PBR (root)'. Click '→ Next'.
3. For 'Install on:' choose '◉ MBR'.
4. Set 'Location: ⬍' pull-down to the external drive.

   The drive make and size is included as a hint.
5. Set 'Select root location: ⬍' pull-down to the / partition of the drive.

   The partition label and size is included as a hint.
6. Click '✔ Apply'.
7. In the 'Authenticate' pop-up enter 'demo' for the 'Password:' prompt and click 'Authenticate'.
8. A 'Select /boot location: ⬍' pull-down on a pop-up ask you to choose.
9. Select the ESP partition (if encryption isn't in use) with the ⬍ and then click '✔ OK'.
10. When asked 'Do you want to exit MX Boot Repair?' click '✔ Yes'.



Install GRUB for UEFI boot

Note – skip this section if the drive was made on a UEFI PC.

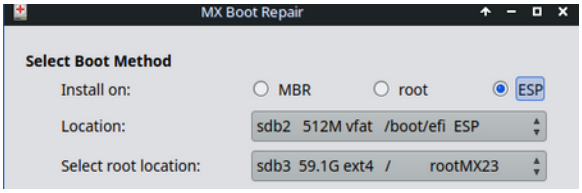
To make the drive usable for UEFI boot mode:

1. Boot MX Linux USB in UEFI mode and run MX Boot Repair and select:

   '◉ Reinstall GRUB bootloader on ESP, MBR or PBR (root)'. Click '➔ Next'.

2. In the 'Authenticate' pop-up Enter 'demo' for the 'Password:' prompt and click 'Authenticate'.

3. For 'Install on:' Choose '◉ ESP'. The volume Label 'ESP' is included as a hint.



4. Set 'Location: ⬍' pull-down to the external drive ESP partition.

5. Set 'Select root location: ⬍' pull-down to the / partition of the external drive.

6. Click '✔ Apply'.

7. A 'Select /boot location: ⬍' pull-down on a pop-up ask you to choose.

8. Select the ESP partition (if encryption isn't in use) with the ⬍ and then click '✔ OK'.

9. Enter 'demo' for the 'Password:' prompt and click 'Authenticate'.

10. When asked 'Do you want to exit MX Boot Repair?' click '✔ Yes'.

Test hardware

Boot up / installer drive: Ventoy 1.1.10 with MX 25.1 booted in SysVinit mode.

Boot/install drive media: PNY 256 GB PRO Elite V2 USB 3.2 Gen 2 Flash Drive – 600 MB/s

External storage media: Timetec 256 GB SSD 3D NAND SATA III 6 Gb/s M.2 2280 NGFF 128 TBW Read Speed Up to 550 MB/s

External drive enclosure: ORICO M.2 SATA B+M/B Key SSD Enclosure USB 3.1 Type-C Omnispeed 5 Gbps M.2 NGFF SSD 2TB Max

Resultant ESP drive

```
$/media/ESP/tree
└── EFI
    ├── BOOT
    │   ├── BOOTX64.EFI
    │   ├── fbx64.efi
    │   ├── grubx64.efi
    │   └── mmx64.efi
    ├── debian
    │   └── grub.cfg
    └── MX
        ├── BOOTX64.CSV
        ├── fbx64.efi
        ├── grub.cfg
        ├── grubx64.efi
        ├── mmx64.efi
        └── shimx64.efi
5 directories, 11 files (efi mounted as ESP)
```

Links

GParted Manual for version 1.6.0 - https://gparted.org/display-doc.php?name=help-manual