

Troubleshooting with a Linux Live Session

This book contains all documentation relevant to making and using Linux on a USB for recovering systems, files, or querying hardware issues.

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Getting started and creating boot media

What is a Linux Live Session

Linux is a great OS that has a major advantage when it comes to troubleshooting, it can be run from a USB flashdrive in a 'live' state without installing to a hard disk. This allows you to use a wide range of tools to manipulate the disks, data, and hardware of your computer/OS without worrying about anything running on it.

Obtaining media

r/Techsupport Rescue Media

A Linux ISO has been made for r/Techsupport that has many of the proper tools pre-installed to make rescuing a system easier.

[Download](#)

[Source files for Debian live-build](#)

Official Xubuntu Media

You may also use the official Xubuntu ISO and load your own tools as needed.

[Download](#)

Creating bootable media

This will require a USB that is at least the size of the ISO you downloaded.

All methods of creating boot media are destructive and will WIPE the USB flasdrive or external disk.

Windows

1. Download and run [Rufus](#)
2. Select "ISO Image" and then browse for the ISO image.
3. Select which flash drive you want to put the installer on.
4. Select the target system type, `GPT/UEFI` or `MBR/BIOS`
 - For modern systems `GPT/UEFI` is preferred. For legacy systems use `MBR/BIOS`
5. Click "Start" and wait for it to finish.

MacOS

1. Download and run [Etcher](#)
2. Select your downloaded ISO
3. Select your target drive
4. Click "Flash" and wait for it to finish.

Linux

1. Run `lsblk` to list all disks in your system, identify your flash drive by size. It will look something like `/dev/sd[letter]`

The following command is dangerous. Ensure it is run against the correct disk

2. Use `dd if=/path/to/image.iso of=/dev/sd[letter]` to create a bootable drive from the ISO.
3. Wait until dd finishes. dd does not display progress, but when it finishes, the terminal will display the next prompt.

Boot the live media

1. Press your 'Boot menu' key when you power on the machine to access your boot options.
 - You may need to go through BIOS and change boot priority if you cannot find or hit

the boot options key during boot.

2. Choose your USB
3. Once it boots select 'Try' or 'Live'

What is next

Continue onto the next page for [things-to-do-in-a-live-session](#)

Things to do in a live session

Things to do in a live session

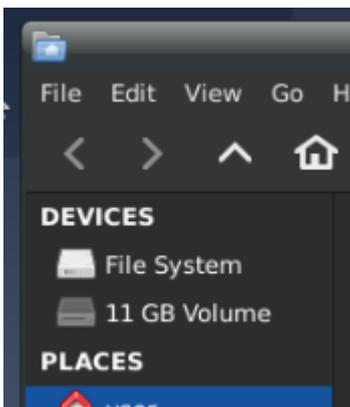
Data Recovery

This article relies on the live media [created here](#)

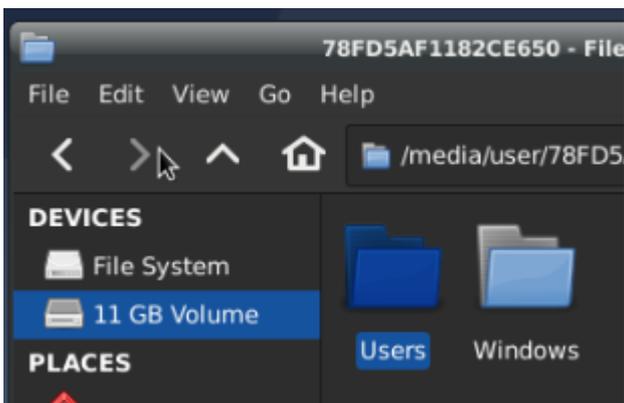
[old wiki article](#)

From a readable disk

Open the File Manager from the applications menu, you should see your disk in the pane on the left. In the below image, it is the "11GB Volume"



Double click the desired disk and it should open in the file manager.



Once opened, you can drag and drop files to another disk that you mount into the system just like in Windows.

Testdisk to recover partitions or a partition table

[Using Testdisk to recover partition tables](#)

Things to do in a live session

Checking the health of disks

This article relies on the live media [created here](#)

1. Open `gsmartcontrol` from the application menu,
2. Select your disk once the application is opened.

If your disk is anything but 'passed' then your disk is dying and needs to be replaced.

3. To share your results choose 'View output' then 'Save as' and upload that file to a helper for review.

Things to do in a live session

Manipulating partitions and disks with Gparted

This article relies on the live media [created here](#)

Overview

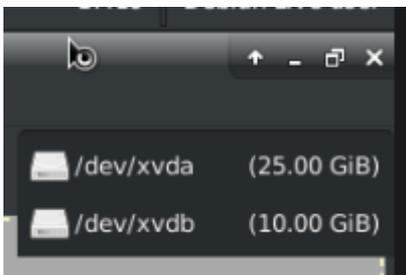
Gparted is a Linux/gnu front-end to the `parted` tool. It is the recommended method for manipulating disks when using a [Linux live session](#).

Working with a new disk

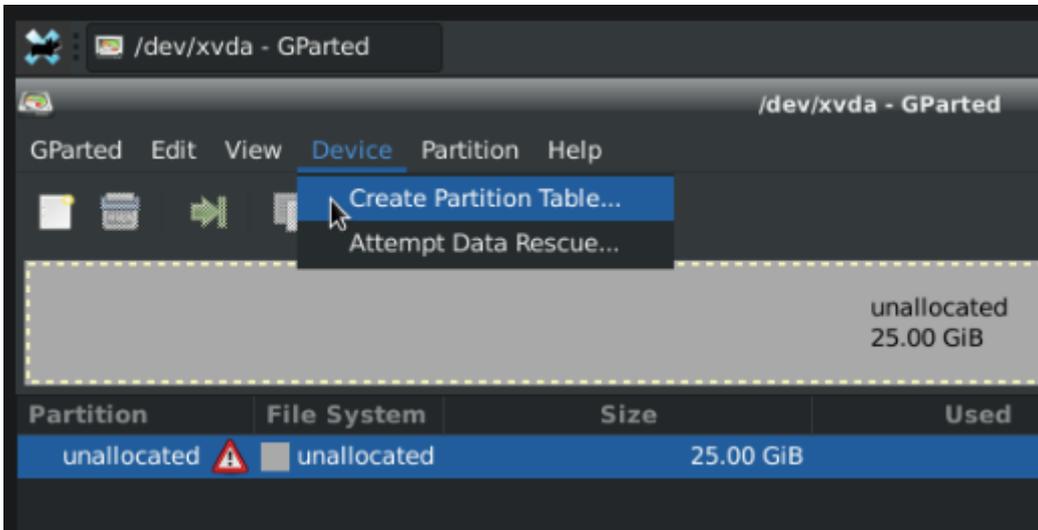
Create partition table

A disk needs a partition table made as the first step in formatting. This is generally an `MBR / msdos` or `GPT` table. `GPT` is preferred for all modern applications.

Select a disk in Gparted from the drop-down in the top right

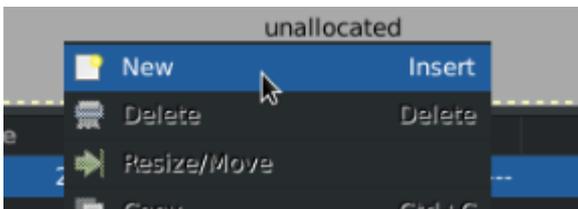


To create your table, hover over 'device' with your disk selected.



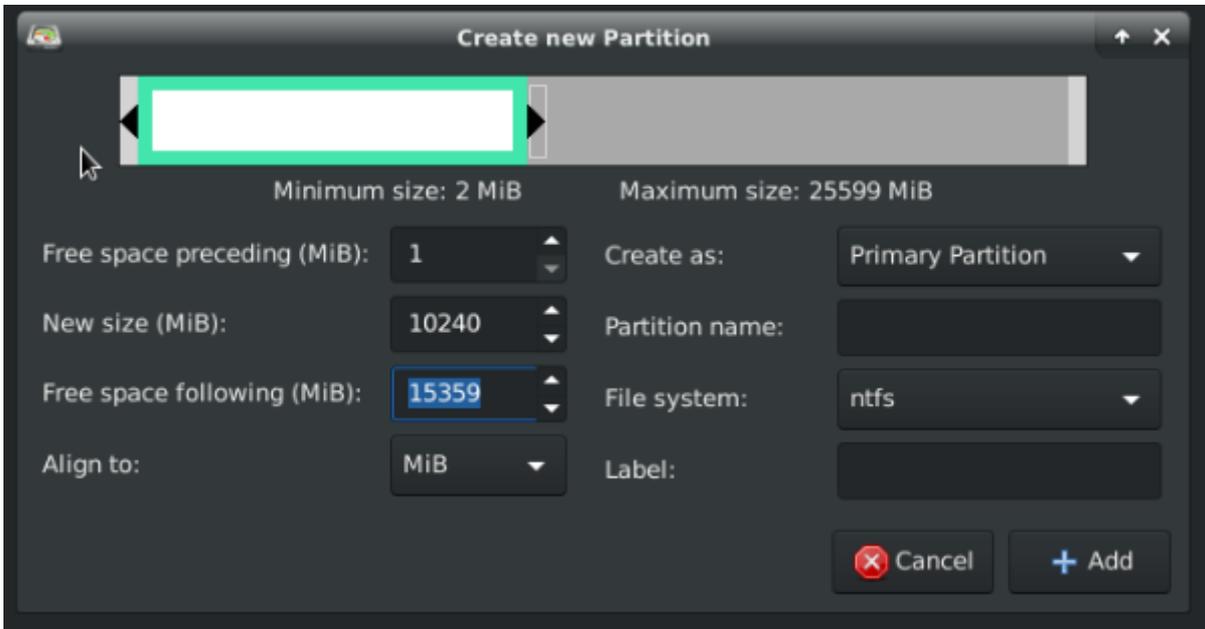
Create partition

To create a partition on a disk right click any unallocated space and choose 'New'.



Choose your size and location on the disk by dragging the sliders, the entire box or entering values manually. It is recommended to make partitions starting at the head (start) of the disk and work your way right.

Primary partitions are the typical user partition. Logical or extended are for more advanced setups.



Typical file system types and uses are:

File System Type	OS Compatibility	Typical Uses
NTFS	Windows, Linux, macOS	Windows OS, data partitions
ext2/3/4	Linux, BSD, other OS	Linux/BSD OS, data partitions

Type	OS Compatibility	Limitations
Fat32	Windows, macOS	File size limited to 4GB Cannot hold most files larger than 4GB
exFAT	Windows, macOS	Removable media Most OS
HFS+	macOS	Native with macOS Other OS data via partitions Third party tools

Working with existing disks

Manipulating partitions is dangerous and can result in a loss of data. It is recommended you have your data/disks images backed up prior to executing the following procedures.

How partitions can move

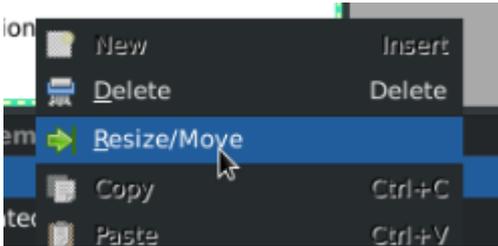
When working with partitions it is important to understand how you can move them.

1. You can only enlarge a partition to the right

2. You can only shrink a partition to the left
3. Partitions can move left or right
4. Partitions cannot move around each other

Enlarge/Move/Shrink partitions

To change the size of a partition right click it and choose 'resize/move'. You can manipulate the size the same way as when making a new partition.



Enlarging

If enlarging a partition ensure you have enough **empty** space to the immediate right of the partition. If you do not, move the neighbor partition far enough right that you have space for your enlargement operation.

Shrinking

Shrinking is not recommended, make a new partition and move your data.

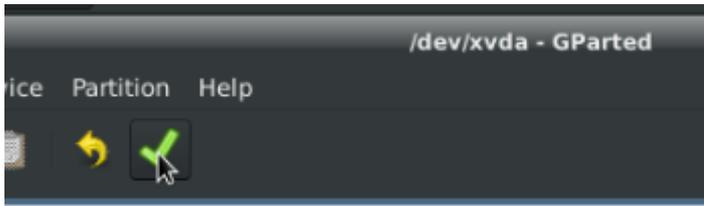
You can only shrink a partition as far as data is dispersed through a partition. A partition may need to be defragmented before significant size changes are possible.

Moving

Moving partitions takes a very long time. It is recommended that you restore data to an desired disk layout rather than change an existing one.

Finalizing changes

When you are done making changes to disk choose the 'Check' at the top to save those changes, confirm and the changes will start processing. **If you shrunk, or moved partitions this can take a very long time.**



Things to do in a live session

Wiping disks

This article relies on the live media [created here](#)

HDD

`nwipe` is a fork of `dwipe` which is the utility used in the popular [DBAN](#) solution.

1. Open "terminal emulator" from the application menu
2. Run `sudo nwipe` in the terminal to launch our nwipe session
3. Navigate up and down the list with the arrow keys, select disks by size with the space bar.
 - Removing extra disks from the machine may make this selection easier. **Choosing the wrong disk will cause data loss**
 - You can change the wipe method by pressing `m`. DoD short is the default and recommended method. It makes 3 passes over the disk.
 - You can change the number of rounds by pressing `r`. This multiplies the method. Leaving DoD short and setting 2 rounds would make 6 passes (1 is recommended).
4. Press capital `S` to start the process

SSD

[Secure erase article on kernel.org](#)