GoDistro USB Base Image file

MBR, GRUB, root & swap partitions

July 13, 2020

WARNING !!! (Read all & Accept the below Disclaimer on last page)

Improper Use of Linux dd command or Gparted can destroy hard drive.

Aways launch gparted using command: sudo gparted /dev/sdxX

x for usb device name usually /dev/sdb, /dev/sdc, etc. also /dev/hdb, etc.

X refers to device partition number:

The GoDistro USB BASE image file will create USB Stick with:

- Master Boot Record
- Gub Bootloader
- root partition /dev/sdx1 11GB (Empty)
- swap partition /dev/sdx2 3GB

Image file size is only 1 Megabyte (uncompressed)

Just needs a Debian 9 or 10 filesystem & 3 files configured

Summary: Debian, MBR, Grub, 11GB ext4, 3GB Swap Base USB Stick

The usb-debian-grub-ext4-swap.img is only 1MB in size but, it is the BASE (See BASE comment below) to create Master Boot Record, Grub, 11GB ext4 and 3GB swap partitons on a USB Stick. All you then do is:

add the filesystem via dd command to /dev/sdxX;

modify a few files after your file system is written to USB BASE root partiton;

reboot, update initramfs and grub2 (all explained below); and

distribute your own Custom Distro on a USB Stick.

BASE being defined as,

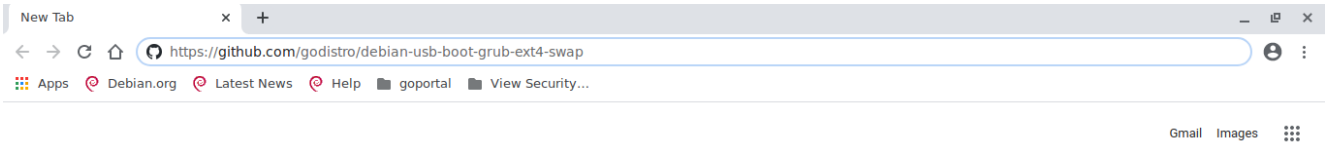
"missing the required Linux OS filesystem from ext4 root partition on /dev/sdx1”.

The BASE image does NOT include the required LinuxOS filesystem in its (root) partition. You must add your own complete customized Debian System. To use another filesystem type, simply format sdx1 with your type of filesystem.

Obtain the GoDistro Base USB Stick image - Download github.com

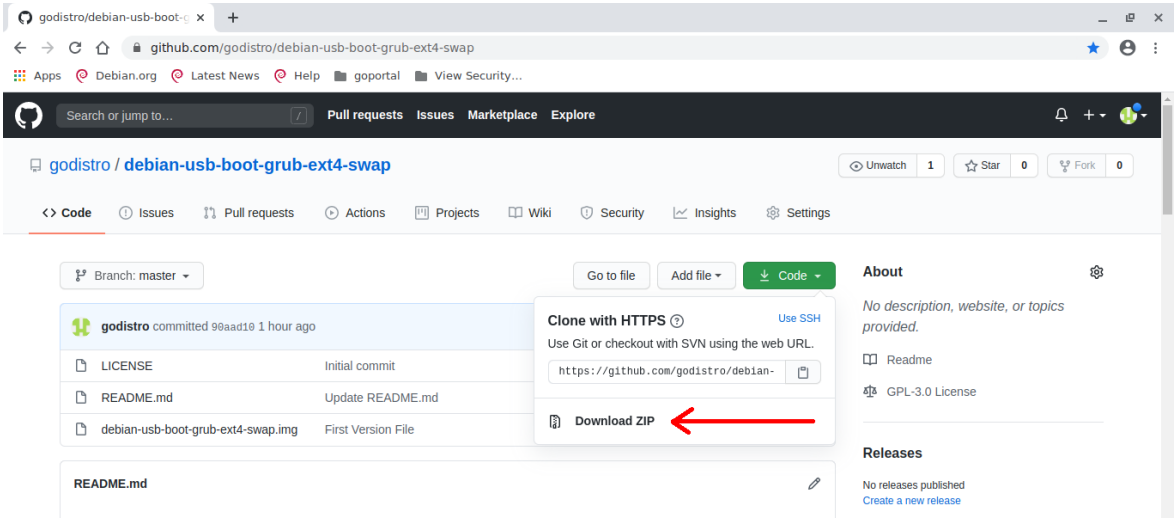
1. Open your browser go to http:// link below:

   https://github.com/godistro/debian-usb-boot-grub-ext4-swap



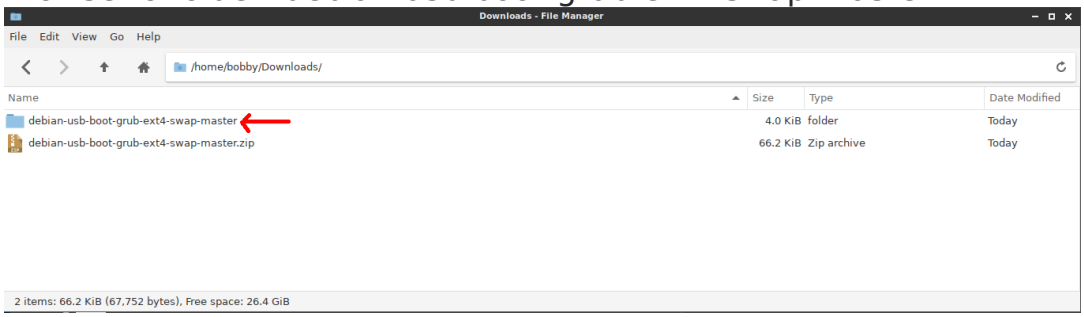
2. At Github.com godistro/debian-usb-boot-grub-ext4-swap:

   Click "Code" ---> Click "Download ZIP"



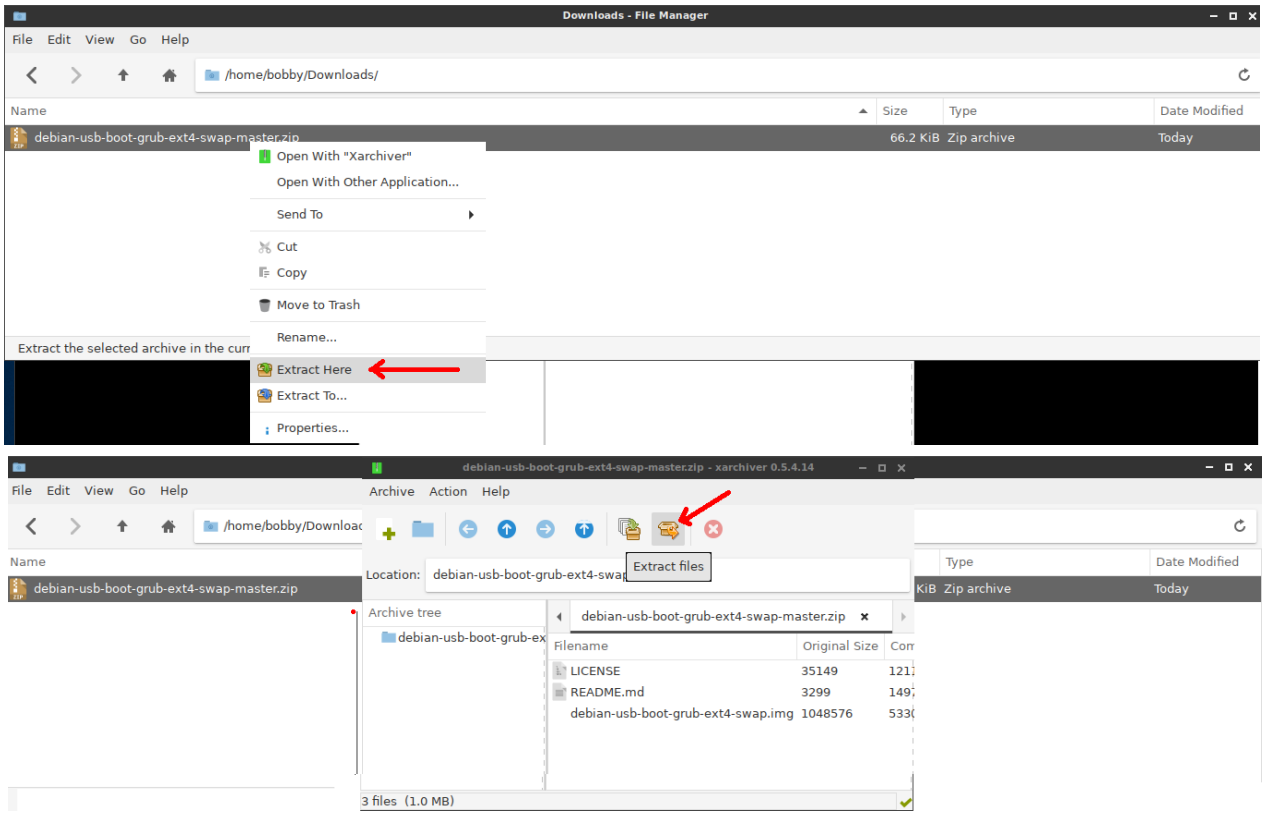
3.Change to directory debian-usb-boot-grub-ext4-swap-master

1. Browse to folder: debian-usb-boot-grub-ext4-swap-master

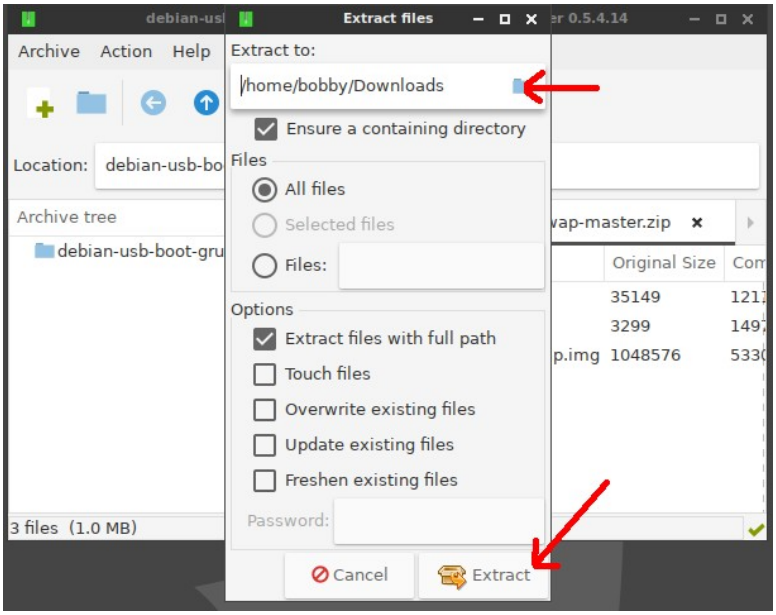


If using teminal: Use cd /path/debian-usb-boot-grub-ext4-swap-master

2. Right click → Click “Open Terminal Here”



3. In archiver program, 1. browse to folder to unzip file: 2. Click Extract



If using Terminal, Unzip file the GoDistro BASE USB ith this command:

```
sudo unzip ./Debian-usb-boot-grub-ext4-swap-master.Zip
```

(Files will be unzipped to a directory (folder) with the name of:

debian-usb-boot-grub-ext4-swap-master

4. Remove root ownership of unzipped file if necessary: run: ls -al command

```
bobby@PERSONAL:~/Downloads$ ls -al
total 1104
drwxr-xr-x  3 bobby bobby    4096 Jul 12 22:03 .
drwxr-xr-x 30 bobby bobby    4096 Jul 12 21:14 ..
-rw-r--r--  1 root  root  1048576 Jul 12 22:03 BaseUsbMbrGrubExt4Swap-1MB.img
drwxr-xr-x  2 bobby bobby    4096 Jul 12 19:04 debian-usb-boot-grub-ext4-swap-master
-rw-r--r--  1 bobby bobby   67752 Jul 12 19:04 debian-usb-boot-grub-ext4-swap-master.zip
```

Then run command to change ownerhsip, user:group mine is bobby:bobby

```
bobby@PERSONAL:~/Downloads$ sudo chown bobby:bobby ./BaseUsbMbrGrubExt4Swap-1MB.img
```

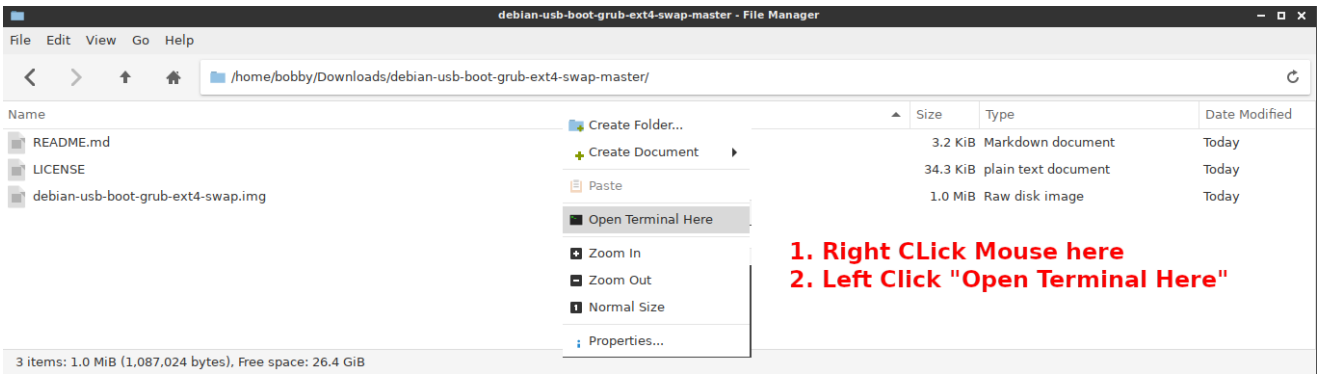
sudo chown user:group ./BaseUsbMbrGrubExt4Swap.img

```
bobby@PERSONAL:~/Downloads$ ls -al
total 1104
drwxr-xr-x  3 bobby bobby    4096 Jul 12 22:03 .
drwxr-xr-x 30 bobby bobby    4096 Jul 12 21:14 ..
-rw-r--r--  1 bobby bobby 1048576 Jul 12 22:03 BaseUsbMbrGrubExt4Swap-1MB.img
drwxr-xr-x  2 bobby bobby    4096 Jul 12 19:04 debian-usb-boot-grub-ext4-swap-master
-rw-r--r--  1 bobby bobby   67752 Jul 12 19:04 debian-usb-boot-grub-ext4-swap-master.zip
```

File is now correct owner:group in my case bobby:bobby

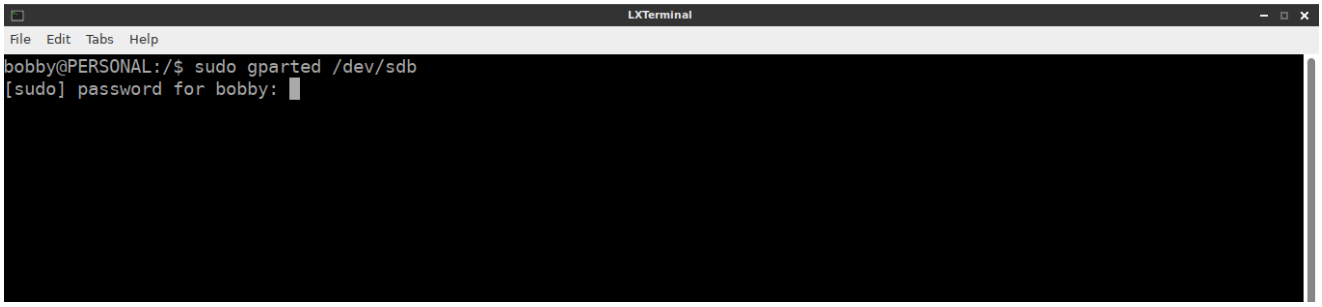
Prepare new USB Stick for GoDistro BASE USB image install

1. If using Filemanager - Open Terminal from GoDistro folder:



2. Open Gparted accessing *USB Stick:*

sudo gparted /dev/sdx



enter your sudo password & press the Enter Key

Write Custom Distro image file to GoDistro USB root partition

Use dd to write Custom Distro image to GoDistro BASE USB root partition /dev/sdx1

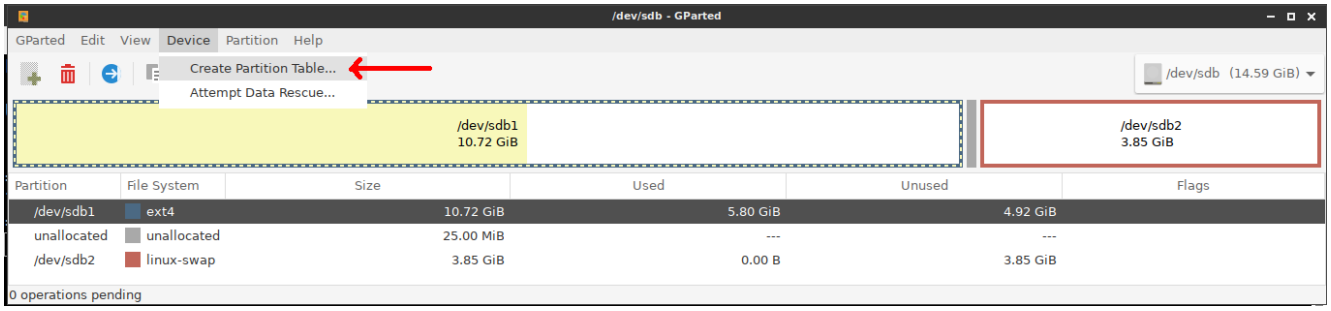
---

sudo dd if=/dev/sda2 of=./my-distro.img bs=4M count=1775 status=progres && sync

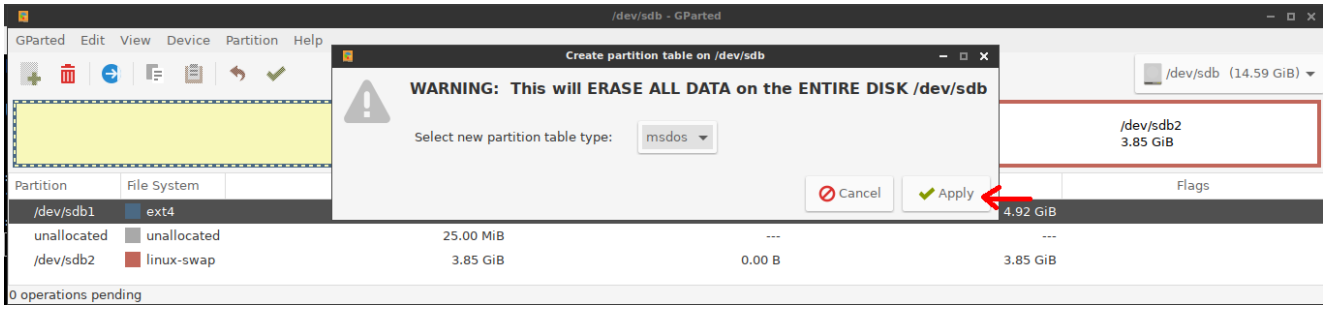
Use Gparted to Prepare USB Stick for GoDistro Base Image

1. Erase USB Stick Partition information:

A. Click “Create Partition Table”



B. Click “Apply”



USB Stick is now setup for new image.

Exit Gparted

Write GoDistro BASE image to USB Stick using dd command

1. Write the debian-usb-boot-grub-ext4-swap.img file to USB Stick - 16GB+

```
bobby@PERSONAL:~/Downloads$ sudo dd if=./BaseUsbMbrGrubExt4Swap-1MB.img of=/dev/sdb

2048+0 records in
2048+0 records out
1048576 bytes (1.0 MB, 1.0 MiB) copied, 0.182974 s, 5.7 MB/s
```

sudo if=./debian-usb-boot-grub-ext4-swap.img of=/dev/sdx

NOTE: Your new GoDistro BASE USB Stick is now ready for a Debian filesystem.

The filesystem is the complete partition build "all files" of your custom distro.

There are a few options how to make an image of your Custom Distro Build and how to directly transfer your filesystem to the GoDistro BASE USB Stick root parttion /dev/sdx1. In either case, we need to know the total space used on the source (Custom Distro) partition.

1. Using Gparted to tell us how much space is used by source partition.

- Open Gparted;
- Select Source Partition

- Click Resize/Move Icon
- Click and hold arrow right of bar and drag it all the way left. The new size listed is the Megabytes of used space. We will add 100 to this number.
- We really don't want to resize this partition, so click "Cancel"
- Exit Gparted.

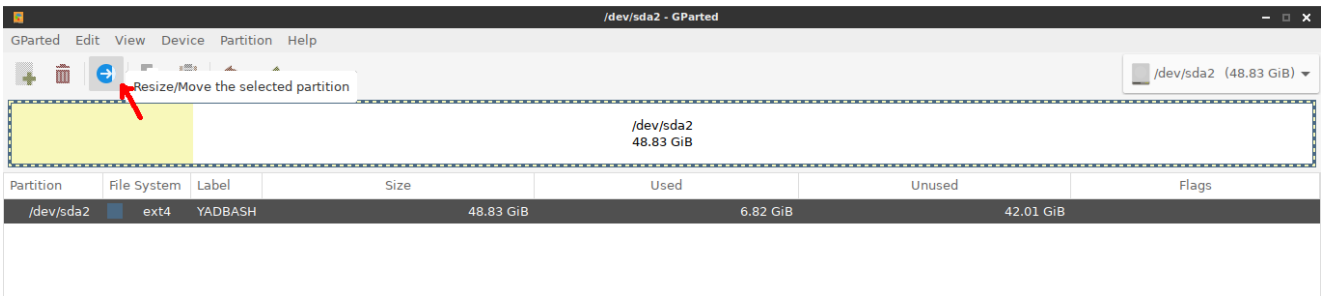
Now that the used space in MB is known for the source partition, you can:

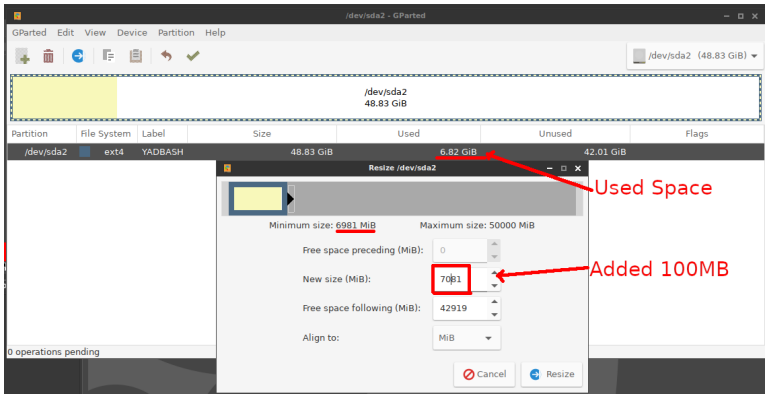
- use this MB number in a dd command to create of your Custom Distro Build; or
- you can directly transfer your Custom Distro Build to the root partition of the GoDistro USB Stick.

Use Gparted to Shrink partion of your Custom Distro Build:

In termial open Gparted: sudo gparted /dev/sda2

Select ext4 partition & Click Resize/Move Icon





In the above Gparted screen we see the hard drive /dev/sda2 partition has about 6.9GB used.

I drag arrow on right all the way left and add 100 (MB) to the New size. The use space an 100 MB additional is close to 7100. We can use this size number to truncate your Custom Distro Build partition.

7.1GB is 7100MB: 7100 (divided by) 4 (bs=4M) = 1775

```
sudo if=/dev/sda2 of=./my-distro.img bs=4M count=1775 status=progress && sync
```

Most accurate way to get all data plus 1000 block sectors (always extra)

- Use Gparted and shrink your Custom Distro Partition as much as possible
- Run command: `df -m --output=used /dev/sda9`

```
Used
4649
```

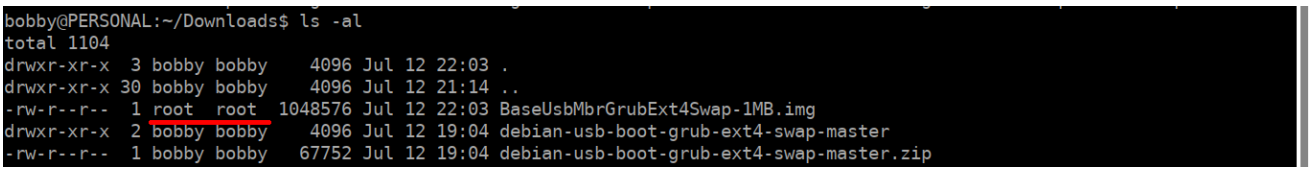
This command shows us the total block sectors in Megabytes for /dev/sda9.

We add 100 (MB) = 4749 and run this dd command to create image.

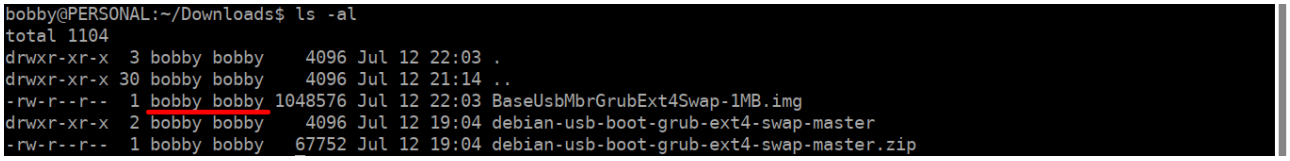
```
sudo dd if=/dev/sda9 of=./my-distro.img bs=1M count=4749 status=progress && sync
```

The Custom Distro image has been written to the my-distro.img file. (Size=4.6GB)

When you do this, root:root is set as the user:group setting so we need to make this your user:group



So run this command: `sudo chown bobby:bobby ./my-distro.img`



Write Custom Distro image file to GoDistro USB root partition

Use dd to write Custom Distro image to GoDistro BASE USB root partition /dev/sdx1

```
sudo dd if=/dev/sda2 of=./my-distro.img bs=4M count=1775 status=progres && sync
```

Compress your Custom Distro image using gzip compression

```
bobby@PERSONAL:~/Downloads$ sudo gzip -k -9 ./my-distro.img
```

```
sudo gzip -k -9 ./my-distro.img
```

```
bobby@PERSONAL:~/Downloads$ ls -al
-rw-r--r--  1 bobby bobby 4979687424 Jul 13 14:08 my-distro.img
-rw-r--r--  1 bobby bobby 1895437669 Jul 13 14:08 my-distro.img.gz
```

```
my-distro.img        Original Size: 4.6GB
my-distro.img.gz     Compressed Size: 1.8GB
```

How to mount GoDistro USB Stick to be able to edit 3 configuration files (Pre-Boot)

```
bobby@PERSONAL:~$ sudo fdisk -l
```

When you execute the above command, you will get the output similar to below. you will find the USB device probably at the end of the output labeled as sdb, sdc or sdd, etc.. Note down the device name and the file system. In our case, it is /dev/sdb

```
Disk /dev/sdb: 14.6 GiB, 15664676864 bytes, 30595072 sectors
Disk model: Cruzer Glide
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xc3aa4a0b

Device     Boot    Start      End  Sectors  Size Id Type
/dev/sdb1           2048 24240127 24238080 11.6G 83 Linux
/dev/sdb2       24250368 30595071  6344704    3G 82 Linux swap / Solaris
```

So we will mount root /dev/sdb1

```
bobby@PERSONAL:~$ sudo mkdir /media/usb
bobby@PERSONAL:~$
bobby@PERSONAL:~$ sudo mount /dev/sdb1 /media/usb
bobby@PERSONAL:~$
bobby@PERSONAL:~$ cd /media/usb
bobby@PERSONAL:/media/usb$ ls
bin   etc         initrd.img.old  lib64       media  proc  sbin
boot  home        lib             libx32      mnt    root  srv
dev   initrd.img  lib32           lost+found  opt    run   sys
bobby@PERSONAL:/media/usb$
```

Preboot configuration of GoDistro BASE USB Stick

1. Update uidd numbers in 3 files: resume / fstab / grub.cfg

A. Insert correct uuid numbers for your new GoDsitro USB Stick.

```
sudo blkid /dev/sdx1 && sudo blkid /dev/sdx2
```

```
/dev/sdb1: UUID="37ab1ca9-78a7-4d21-b2f9-65fe9bab34eb" TYPE="ext4" PARTUUID="c3aa4a0b-01"
/dev/sdb2: UUID="066dbf55-036b-47c1-8418-44f518d5014e" TYPE="swap" PARTUUID="c3aa4a0b-02"
```

B. /dev/sdb1 root uuid ->/etc/initramfs-tools/conf.d/resume & /etc/fstab

```
RESUME=UUID=37ab1ca9-78a7-4d21-b2f9-65fe9bab34eb
```

C. /dev/sdb1 root & /dev/sdb2 swap partiton uuid -> /etc/fstab file

```
# /etc/fstab: static file system information.
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>

# root /dev/sdb1
UUID=37ab1ca9-78a7-4d21-b2f9-65fe9bab34eb       /       ext4    errors=remount-ro,defaults
# swap /dev/sdb2
UUID=066dbf55-036b-47c1-8418-44f518d5014e       none    swap    sw      0       0
# cdrom
/dev/cdrom      /media/cdrom0   udf,iso9660     user,noauto,exec,utf8   0       0
```

To edit files: use cursor keys / backspace / copy & paste / CTRL+o / CTRL+x

```
sudo nano /media/usb/etc/initramfs-tools/conf.d/resume
```

```
sudo nano /media/usb/etc/fstab
```

/media/usb is the mout to /dev/sdb1 (created on previous page)

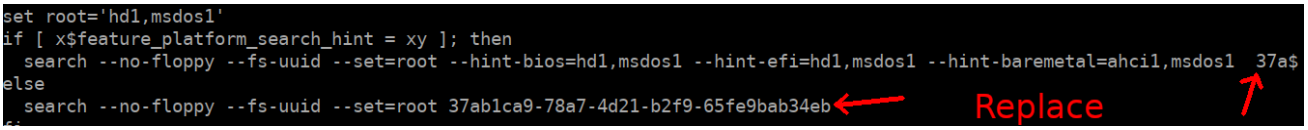
```
bobby@PERSONAL:~$ sudo blkid /dev/sdb1
/dev/sdb1: UUID="37ab1ca9-78a7-4d21-b2f9-65fe9bab34eb" TYPE="ext4" PARTUUID="c3aa4a0b-01"
```

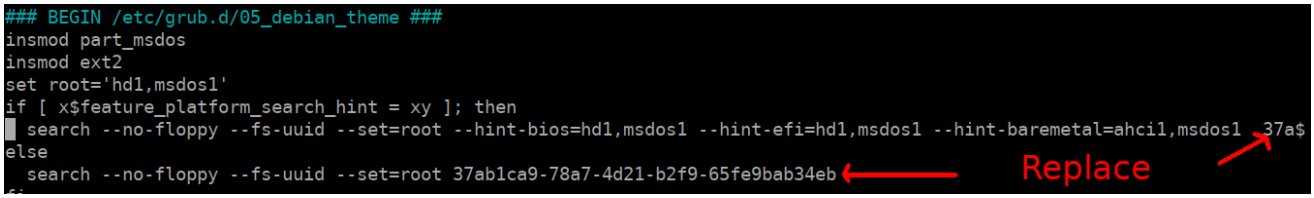
D. Insert correct uuid number for /dev/sdb1 /boot/grub/grub.cfg

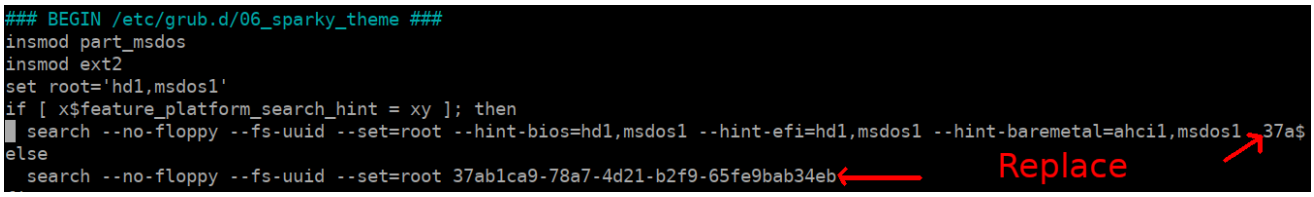
Open Terminal --> `sudo nano /media/usb/boot/grub/grub.cfg`

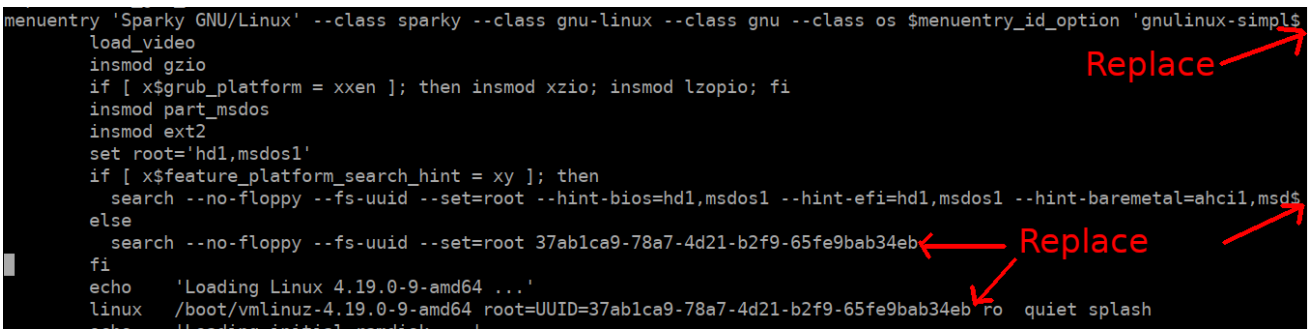
Insert correct root uuid number in the 1st "menuentry" section and above this section but, any sectoin below 1st menuentry section.

If using nano of vi editor: use cursor keys / backspace / Copy & Paste. To save in nano: CTRL+o & exit nano: CTRL+x









Disable 30_os-prober of Grub2 bootloader.

This will prevent hard drive partitions being listed on USB Stick

Open Termianl --> `sudo chmod -x /etc/grud.d/30_os-prober`

Reboot Computer

Boot from USB Stick

Login as you normally do on your custom distro.

Open terminal and update initramfs and grub:

```
sudo update-initramfs -u

sudo update grub (Since)
```

DONE !

Distribute your Custom Distro USB to friends and family or use gzip to reduce the size of your my-distro.img

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