# Creating a Full Install of Ubuntu 22.04 to USB that works in both BIOS and UEFI

Following is based on using a 16GB Target drive, you may adjust partition sizes for a larger drive.

The following looks like a long procedure but it should take less than ten minutes to do the work.

## **Step 1: Preparation**

- 1. Create a Live 22.04 USB or DVD using SDC, UNetbootin, mkusb, dd, etc. (See Note 1 at bottom)
- Turn off and unplug the computer.
- Unplug the power cable from the hard drive or unplug the hard drive from
- the laptop. (See Note 2 at bottom) This is important if the computer boots in UEFI mode.
- Plug the computer back in.
- Insert and boot the Live USB or Live DVD. (Booting BIOS mode preferred).
- Select Language and Try Ubuntu.
- Insert the target flash drive.

## Step 2: Partitioning

- Start GParted.
- Unmount any mounted partitions on the Target drive..
- Select Device tab and create a GPT partition table on the Target drive.
- Create a 1GB NTFS or FAT32 partition on the right side. (optional Linux / Windows data partition, See Note 3 at bottom). Size may be increased on larger drives.
- Create a 1MB partition on the left side, format as unformatted.

- Create a 300MB FAT32 partition next to the 1MB partition.
- Create a 9GB ext4 partition next to the 300MB partition.
- In the remaining space create an ext4 partition, (optional for /home partition on larger USB).
- Highlight the 1MB partition.
- Apply All Operations.
- Flag the 1MB partition as **bios\_grub**.
- Flag the 300MB partition as **boot,esp**.

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GParted Edit View Device Partition Help													
	/dev/sd	f (14.91 GiB) ~											
/dev/sdf4 8.79 GiB						/dev/s 4.85 G	idf5 iB						
Device Informat	ion	Partition	Name	File System	Size	Used	Unused	Flags					
Model: SanDis	Cruzer Fit	/dev/sdf2	I BIOS	unknown	1.00 MiB			bios_grub					
Size: 14.91 G	в	/dev/sdf3	🕕 UEFI	fat32	300.00 MiB			boot, esp					
Path: /dev/sd	f	/dev/sdf4	Ubuntu	ext4	8.79 GiB	109.31 MiB	8.68 GiB						
Destition tables ant		/dev/sdf5	/home	ext4	4.85 GiB	103.53 MiB	4.75 GiB						
Heads:	255	/dev/sdf1	Data	ntfs	999.00 MiB	5.46 MiB	993.54 MiB	msftdata					
Sectors/track:	2	unallocated		unallocated	1.00 MiB	-	-						
Cylinders: 61307 Total sectors: 31266816													
Sector size:	512												
0 operations pending													
0 operations pe	ending												

• Do not reboot or unplug the target USB.

## **Step 3: Installation**

- Start Install Ubuntu.
- Select Language, click "Continue".
- Select Keyboard layout, click "Continue".
- Select Wireless network, (optional), click "Continue".
- Select installation preference and select "Download updates while installing Ubuntu", (optional), and Select "Install third-party software ...", (optional), click "Continue".

- If asked about unmounting partitions that are in use, select Yes, click "Continue".
- Do not use Advanced feature disk encryption for this install method. (See Note 4 at bottom).
- At "Installation type" select "Something else", click "Continue".
- Under Device for boot loader installation select the target drive.
- Select partition sdx4 and click change, select use as Ext4, select "format this partition", and Mount point = "/" then OK.
- If asked to Write previous changes... click Continue.
- Select partition sdx5 and click change, select use as Ext4, select format this partition, and Mount point = "/home" then OK. (optional).
- Click Install now.

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				Install		-	×
Installation	type						
mototton	Cype						
		_					
mapper/ventoy 3.4 GB	1 (unknown)	4.4 MB	2 (unknown)	307.2 kB	512.0 B		
Device	Туре	Mount point For	mat? Size	Used System			
/dev/sdf2	biosgrut	D	1 MB	unknown			
/dev/sdf3	efi		314 MB	33 MB			
/dev/sdf4	ext4	/	9437 MB	253 MB			
free space			0 MB				
/dev/sdf5	ext4	/home	5206 MB	159 MB			
/dev/sdf1	ntfs		1047 MB	5 MB			
+ – Chang	e				New Partition Table	Revert	
						No. or .	
Device for boot loa	der installatio	n:					
/dev/sdf	SanDisk C	ruzer Fit (16.0 GB)				$\sim$	
					Quit Back Insta	Il Now	
			•••				
Confirm	nartiti	ons to he	formatt	ed if asked cl	ick continue		
00111111	partiti		Torritati				
Select v	our loc	cation clic	k "Con	tinue"			

• Insert your name, computer name, username, password and select if you want to log in automatically or require a password. - Click "Continue".

• Wait until install is complete.

# Step 4: Finishing

- Turn off computer and re-plug in the HDD.
- Replace the computer's cover.

## Note 1: Problems

• If there are any problems booting, first try re-installing GRUB:

```
sudo mount /dev/sdx3 /mnt
sudo grub-install --boot-directory=/mnt/boot /dev/sdx
```

• Next, if there is an efi entry in fstab, # it out.

## Note 2: Hard drive removal.

• You may omit disabling the hard drive in BIOS boot if after partitioning you choose to install grub to the root of the USB drive you are installing Ubuntu to, (ie sdx not sdx1). Be cautious, many people have overwritten the HDD MBR as default location for boot loader is sda, any items in the internal drive's grub will be added to the USB's grub. You may do an update-grub later. If you leave the HDD plugged in with UEFI install, fstab may use the HDD's UUID for /boot/efi. In this case # or delete the /boot/efi.UUID line in fstab.

## Note 3: Apple compatibility.

• If you own an Apple computer make this partition FAT32.

## Note 4: Encryption (optional).

 For method of creating Full Encryption BIOS/UEFI USB drive see: <u>How to</u> <u>Make BIOS/UEFI Flash Drive with Full Disk Encryption</u>