

# Install EndeavourOS Desktop on Arch Linux ARM

September 15, 2020

The allure of an arm device for everyday use is it's small size and very low power consumption. The arm device could be used for browsing, email, typical office files, listening to music, light image editing such as Gimp, etc. The powerful PCs available today could be reserved for gaming, compiling, rendering image files, and other CPU/GPU intensive chores.

Theoretically you can install EndeavourOS on any ARM device that Arch Linux Arm supports. Just go to the Arch Linux Arm site, <https://archlinuxarm.org/> hover over "Platforms" then the Architecture, brand name, etc. to see if your device is supported. Click on your device and get a page with overview and installation tabs. In reality, most ARM devices are not powerful enough to run a full blown EndeavourOS with a Desktop environment, but some are.

A script is now available for installing EndeavourOS running on Arch Linux Arm. In our testing we used an Odroid N2, an Odroid XU4, and a Raspberry Pi 4b as the test beds. For running an Operating System with a DE, the Odroid N2 was the best, the Odroid XU4 was second, and the Raspberry Pi 4b third. All three were acceptable for most daily usage. I am sure there are others available, but these are the three that were available for testing. All three were also very proficient for running a headless LAN server, or NAS which is also available with the script.

## Flash the micro SD card with the OS and bootloader.

The storage device for the Operating System will be either a Micro SD card or an eMMC card. The micro SD card must be at least 32GB, 64 GB gives more head room for logs and etc. Use a good name brand micro SD such as Samsung or SanDisk ultra, not an off brand. SD cards come in different speed classes, 2, 4, 6, and 10, with 10 being the fastest. Since the advent of 4k devices, there is also UHS class speed 1 and UHS class speed 3. UHS = Ultra High Speed. Get at least a class 10 HC1 device. Here is what to look for.



The speed class is the number 10 inside what looks like a C. The speed class is followed by A1 which is a new specification I am not familiar with.

The UHS speed is the number 1 inside a U and also referred to as HC1. This one sold for \$8.98 USD at amazon including a Micro SD to SD adapter.

The Odroid N2 and Odroid XU4 will also run off of eMMC

On a working x86\_64 computer, insert the latest USB EndeavourOS ISO installer. Use the USB EndeavourOS ISO because it includes GParted, and cleaning up directories and files created during the flash process is not necessary as the ISO is not persistent.

Boot into the msdos/MBR version of the EndeavourOS installer ISO.

Insert the USB card reader containing the Micro SD to SD adapter with the micro SD card. In the Endeavour welcome screen, select Partition Manager (Gparted)

## INSTALL Base ARCH LINUX ARM on an ODROID XU4

Click on "GParted" tab and select the USB SD READER (ensure the right device is selected)  
Note the Device Name of the SD READER, such as /dev/sdb. Write this down.

Click on "Device" tab, and create a msdos Partition Table.

If an existing partition is mounted, this will fail. Highlight the partition with the key symbol, right click on it, select "unmount" then try again.

Click on "Partition" tab, then new

Free Space preceding MiB: 1	Create as: Primary Partition
New Size MiB: leave as is	Partition name:
Free Space following (MiB): 0	File System: ext4
Align to: MiB	Label: Odroid-XU4

Apply All Operations

Close GParted

Close the Welcome screen and open a terminal window.

Some of the following commands can take several minutes, so be patient.

```
$ mkdir Odroid
$ cd Odroid          (isolates the process from the rest of the OS)
$ sudo su
# mkdir MP           (MP = temporary Mount Point for the USB SD Reader)
# mount /dev/sdX1 MP  (change /dev/sdX1 as noted in Gparted, e.g. /dev/sdb1)
# wget http://os.archlinuxarm.org/os/ArchLinuxARM-odroid-xu3-latest.tar.gz NOTE: 1
# bsdtar -xpf ArchLinuxARM-odroid-xu3-latest.tar.gz -C MP
# cd MP/boot
# ls -l              ( should see the file sd_fusing.sh )
# sh sd_fusing.sh /dev/sdX  (change /dev/sdX to what's appropriate. e.g. /dev/sdb)
# cd ../..
# umount MP          (this could take a while)
# exit
$ exit
```

The Arch Linux ARM Operating System is now installed. NOTE: 2

Shut down the x86\_64 computer, and remove the uSD card from the USB SD Reader.

Set the boot switch selector on the Odroid-XU4 board, next to the HDMI jack, to the uSD position (to the left). Insert the micro SD card into the XU4. Connect a monitor, keyboard, ethernet. Apply 5 VDC.

NOTE 1 Notice the URL starts with http and not https, and the URL has xu3 in the filename. The XU-3 and XU-4 use the same SOC (System On a Chip) so they share the same image.

NOTE 2 To install OS on an emmc card, see "Flash an emmc card" at the end of this tutorial.

## INSTALL Base ARCH LINUX ARM on an ODROID N2

Click on "GParted" tab and select the USB SD READER (ensure the right device is selected)  
Note the Device Name of the SD READER, such as /dev/sdb. Write this down.

Click on "Device" tab, and create a msdos Partition Table.

If an existing partition is mounted, this will fail. Highlight the partition with the key symbol, right click on it, select "unmount" then try again.

Click on "Partition" tab, then new

Free Space preceding MiB: 1	Create as: Primary Partition
New Size MiB: 256	Partition name:
Free Space following (MiB): XXXX	File System: fat32
Align to: MiB	Label: BOOT

Create a second partition

Free Space preceding MiB: 0	Create as: Primary Partition
New Size MiB: XXXXXX	Partition name:
Free Space following (MiB): 0	File System: ext4
Align to: MiB	Label: ROOT

Apply All Operations

Close GParted

Close the Welcome screen and open a terminal window.

Some of these commands can take several minutes, so be patient.

```
$ mkdir Odroid
$ cd Odroid          (isolates the process from the rest of the OS)
$ sudo su
# mkdir MPboot       (MP = temporary Mount Point for the USB SD Reader)
# mkdir MProot
# mount /dev/sdX1 MPboot (change /dev/sdX1 as noted in Gparted, e.g. /dev/sdb1)
# mount /dev/sdX2 MProot
# wget http://os.archlinuxarm.org/os/ArchLinuxARM-odroid-n2-latest.tar.gz NOTE: 1
# bsdtar -xpf ArchLinuxARM-odroid-n2-latest.tar.gz -C MProot
# mv MProot/boot/* MPboot
# dd if=MPboot/u-boot.bin of=/dev/sdX conv=fsync,notrunc bs=512 seek=1
*** For eMMC Edit MProot/etc/fstab change boot partition to /dev/mmcblk0p1 ***
# umount MPboot MProot
# exit
$ exit
```

The Arch Linux ARM Operating System is now installed.

Shut down the x86\_64 computer, and remove the uSD card from the USB SD Reader.

Set the boot switch selector on the Odroid-N2 board to MMC. Insert the micro SD or eMMC card into the N2. Connect a monitor, keyboard, ethernet. Apply 5 VDC.

NOTE 1 Notice the URL starts with http and not https.

## INSTALL Base ARCH LINUX ARM on a Raspberry Pi 4b

Click on "GParted" tab and select the USB SD READER (ensure the right device is selected)  
Note the Device Name of the SD READER, such as /dev/sdb. Write this down.

Click on "Device" tab, and create a msdos Partition Table.

If an existing partition is mounted, this will fail. Highlight the partition with the key symbol, right click on it, select "unmount" then try again.

Click on "Partition" tab, then new

Free Space preceding MiB: 2	Create as: Primary Partition
New Size MiB: 150	Partition name:
Free Space following (MiB): XXXX	File System: fat32
Align to: MiB	Label: BOOT

Create a second partition

Free Space preceding MiB: 0	Create as: Primary Partition
New Size MiB: XXXXXX	Partition name:
Free Space following (MiB): 0	File System: ext4
Align to: MiB	Label: ROOT

Apply All Operations

Close GParted

Close the Welcome screen and open a terminal window.

Some commands can take several minutes, so be patient.

```
$ mkdir Rpi4
$ cd Rpi4          (isolates the process from the rest of the OS)
$ sudo su
# mkdir MPboot     (MP = temporary Mount Point for the USB SD Reader)
# mkdir MProot
# mount /dev/sdX1 MPboot (change /dev/sdX1 as noted in Gparted, e.g. /dev/sdb1)
# mount /dev/sdX2 MProot
# wget http://os.archlinuxarm.org/os/ArchLinuxARM-rpi-4-latest.tar.gz For 32 Bit
# bsdtar -xpf ArchLinuxARM-rpi-4-latest.tar.gz -C MProot For 32 Bit
# wget http://os.archlinuxarm.org/os/ArchLinuxARM-rpi-aarch64-latest.tar.gz For 64 Bit
# bsdtar -xpf ArchLinuxARM-rpi-aarch64-latest.tar.gz -C MProot For 64 Bit
# sync
# mv MProot/boot/* MPboot
For 64 bit only # sed -i 's/mmcblk0/mmcblk1/g' MProot/etc/fstab For 64 bit only
# umount MPboot MProot
# exit then $ exit
```

Use a file manager (Thunar) to dismount your USB SD reader for removal.

The Arch Linux ARM Operating System is now installed.

Shut down the x86\_64 computer, and remove the uSD card from the USB SD Reader.

Insert the micro SD card into the Rpi4. Connect a keyboard, ethernet, and monitor to HDMI 0 (next to USB C power connector). Apply 5 VDC.

## Install EndeavourOS on ARM

The following SHOULD work with any ARM SBC (Single Board Computer) once Arch Linux ARM base is installed on the device.

The default user is *alarm* with the password *alarm*, the default root password is *root*.  
FYI, alarm = Arch Linux ARM and it is also the default hostname.

After the SBC boots up:

```
Login as root                (enter root for the username and root for the password)
# use vi or nano to edit /etc/pacman.d/mirrorlist
    comment out the server under "## Geo-IP based mirror selection and load balancing"
    un-comment servers near you
# pacman-key --init
# pacman-key --populate archlinuxarm
# pacman -Syu                (always update the OS before installing packages)
# pacman -S git
# reboot & Login as root    (do NOT log back in as user "alarm" and use sudo)
```

### RUN SCRIPT TO INSTALL EndeavourOS

```
# git clone https://github.com/endeavouros-arm/install-script.git
# cd install-script
# ls -l
-rwxrwxr-- 1 root root 5607 May  5 01:39 endeavour-ARM-install-V1.0.sh
```

If endeavour-ARM-install-V1.0.sh is not executable, use chmod to alter it and recheck  
# chmod 774 endeavour-ARM-install-V1.0.sh

```
# sh endeavour-ARM-install-V1.0.sh (run the installer script)
```

Choose to install a desktop environment. The following procedures are performed.

The first thing the ARM script does is ask for information involving the install.  
Next base-devel and other commonly used packages are installed. The packages are installed as per the package lists from x86\_64 EndeavourOS. The ARM install is, as much as possible, the same as the X86\_64 install package for package. After a bit of configuration, the packages for the selected Desktop Environment are installed. Finally, the EndeavourOS welcome and additional packages from the EndeavourOS-arm repository are installed.

Arch Linux ARM uses the same AUR as regular Arch. The script also installs yay, so you are ready right out of the box to use the AUR.

The script installs three alias's which you might see in the instructions.

```
alias la='ls -al --color=auto' I think of it as "list all" including dot files
alias lb='lsblk -o NAME,FSTYPE,FSSIZE,LABEL,MOUNTPOINT' think "ls blks" (partitions)
alias ll='ls -l --color=auto' I think of as "list long".
```

After the script runs, it should reboot into Lightdm, or GDM depending on DE  
If it is Lightdm, be sure to use lightdm-gtk-greeter-settings to customize your login screen.

I believe that some ARM devices do not support sleep mode or hibernation. If you experience a problem, it is recommended in power management for your DE to disable sleep and hibernation if possible.

Also, the storage capabilities of micro SD cards is limited. There are two ways to remedy this.

1 Keep your data on a LAN file server. The ARM server installation instructions are at:  
<https://github.com/endeavouros-arm/manuals/blob/master/EOS-server-instructions.pdf>  
Click on Download and the PDF will be downloaded to your browser's specified directory.  
This is a guide to build an ARM LAN file server. If you already have a LAN file server with SSH enabled, it will also guide you through preparing your new EndeavourOS ARM computer to access the LAN server using SSH and FUSE. Go to page seven  
SET UP A LINUX CLIENT COMPUTER, and follow the guide.

2 Consider installing a SSD in a USB3 enclosure for an external /home directory. It makes your data more transportable between devices, and it is also easy to back up your data to another USB3 SSD using rsync. Since the data and config files are separate from the uSD card, you can re-install and not touch the data. All you have to do is, after the re-install edit the fstab file to mount your USB SSD enclosure on /home. Because all of your dotfiles are in your home directory, when you launch your various applications, they'll find all of your settings, preferences, and data.

If you want to add an external USB SSD enclosure as the /home directory, it is best to do so immediately after installation.

Instructions for Installing an external SSD as the /home directory are here:  
[https://github.com/endeavouros-arm/manuals/Add\\_USB-SSD\\_as\\_home.pdf](https://github.com/endeavouros-arm/manuals/Add_USB-SSD_as_home.pdf)

Have fun customizing your vanilla DE.

## Flash an eMMC card on Odroid XU4

On an Odroid XU4, if you opt to use a emmc card as the boot device, then additional steps are necessary. There are many opinions on micro SD VS emmc. The choice is yours.

To create an emmc card, first create a micro SD card as above including booting up the Odroid-XU4, installing keys, and update. Now that everything is working up to this point, place the emmc card on the emmc to microSD converter card. Then into the USB SD READER. Boot up the x86\_64 computer with the latest EndeavourOS ISO.

Now repeat the above steps for the micro SD card but with the emmc card. When you shut down the x86\_64 computer come back here and do the following.

Set the boot switch on the Odroid-XU4 board next to the HDMI jack to the uSD position (to the left). Ensure the micro SD card is in the XU4 SD slot. On the back side of the Odroid-XU4, Connect the eMMC module to the XU4, ensuring you hear a click when doing so.

Connect a monitor, keyboard, ethernet, & apply 5VDC.

The default user is *alarm* with the password *alarm*, the default root password is *root*.

Login as root

```
# cd /boot
```

```
# sh sd_fusing.sh /dev/mmcblk0
```

fusing should take place without errors. Poweroff the Odroid. Remove the micro SD card.

Switch the boot selector switch to emmc (to the right). Power up the Odroid. You should now be running on the emmc card. Login as root.

```
# pacman-key --init
```

```
# pacman-key --populate archlinuxarm
```

```
# pacman -Syu
```

Now go back to page 4 "Install EndeavourOS on ARM" section and continue installation.