Install EndeavourOS Desktop on Arch Linux ARM

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The allure of an arm device for everyday use is it's small size, very low power consumption, and simplicity. 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.

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

Theoretically you can install EndeavourOS on any ARM device that Arch Linux Arm supports. To see if your SBC device is supported, go to 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.

The first step is to install an Archlinux Arm base image on a uSD or eMMC card. Then the EndeavourOS script installs EnOS on top of the Archlinux Arm base install. There are a few ways to accomplish this. Follow the installation instructions for your SBC device on the Archlinux Arm web site. The next three pages have instructions for a Odroid N2(+), Odroid XU4, or Raspberry Pi 4b. There is also a script for the Odroid N2, Odroid XU4, or Raspberry Pi 4b that will install the Archlinux Arm base image for you available at:
https://github.com/endeavouros-arm/image-install Instructions are in the README.mb

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. If help on the forum is needed, knowing exactly the environment involved is very helpful. Installing from a Live ISO is fairly safe. The only way to bork your working setup is choose the storage device that contains your x86_64 EnOS install. Be careful when selecting a device to install Arm on.

Boot into the EndeavourOS installer ISO.
Insert the USB card reader containing the Micro SD to SD adapter with the micro SD card.
Install the Archlinux Arm base image in one of the above three methods.

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)
ping -c 4 endeavouros.com (check internet connection, should get 4 good pings)
If the ping does not work, mostly involving RPi4b, enter the following
systemctl enable dhcpcd.service
systemctl start dhcpcd.service (then re-check with ping)
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 git libnewt (always update the OS before installing packages)
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-V2.3.sh
```

If endeavour-ARM-install-V2.2.sh is not executable, use chmod to alter it and recheck
chmod 774 endeavour-ARM-install-V2.3.sh

sh endeavour-ARM-install-V2.3.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.

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/blob/master/Add_USB-SSD_as_home.pdf

Have fun customizing your vanilla DE.

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.