

Rooting Xperia XA2 on Lineage OS

After a successful installation of Lineage OS on the phone, it's time to get it rooted. Lineage OS doesn't come with root by default, since it's not always desirable to have a rooted phone. However, if we want to change some major things and take back control of our devices, we will need root privileges.

DISCLAIMER: I AM NOT RESPONSIBLE FOR ANY DAMAGE CAUSED TO YOU OR YOUR DEVICE. YOU ARE ON YOUR OWN *(but feel free to ask anything in the comments).*

But seriously, the process is not super difficult, just follow the instructions and you should be fine.

Rooting process

*To avoid confusion, my bootloader is already unlocked. In case yours isn't - this **won't work**. However, I assume you have already unlocked it because you have Lineage OS installed.*

Download Magisk

Magisk is a fairly advanced open source tool for customizing Android, but also very simple to use with a modern app and many tutorials online. To mention some of the main features of Magisk from their GitHub page:

- MagiskSU - root access for apps
- Magisk Modules - modify read-only partitions by installing modules
- MagiskHide - prevent system and apps from detecting you are rooted
- MagiskBoot - tool for unpacking and repacking Android boot images

Only download Magisk from the official GitHub page: <https://github.com/topjohnwu/Magisk>. Any other sources may contain unwanted things like malware. Install (you have to enable installation from third party sources, on the newest Androids this is done on app-to-app basis).

Extract files from the newest image

Head over to <https://download.lineageos.org/pioneer> and download the latest signed zip build - the one that you used to install Lineage OS.

Compare the SHA256 signature from the website with the downloaded file. If you are on Windows, you can use simple powershell cmdlet *Get-FileHash*. You don't have to check the entire string, just some of the characters, since if the file was modified, the hash would be completely different.

```
Get-FileHash .\lineage-18.1-20210826-nightly-pioneer-signed.zip
```

Algorithm	Hash	Path
-----	----	----
SHA256	DD82D969CA7898F3C42F7B2373F3C354E2733CED4DF94721E7D06472E6D665A0	D:\Exemplerdir\dir...

Download this utility: https://github.com/vm03/payload_dumper to extract *boot.img* from *payload.bin* located in the ZIP file you just downloaded. You need python and a couple of other dependencies, everything should be described on the GitHub page.

Extract the Lineage OS ZIP and place *payload.bin* to the root folder of *payload_dumper*

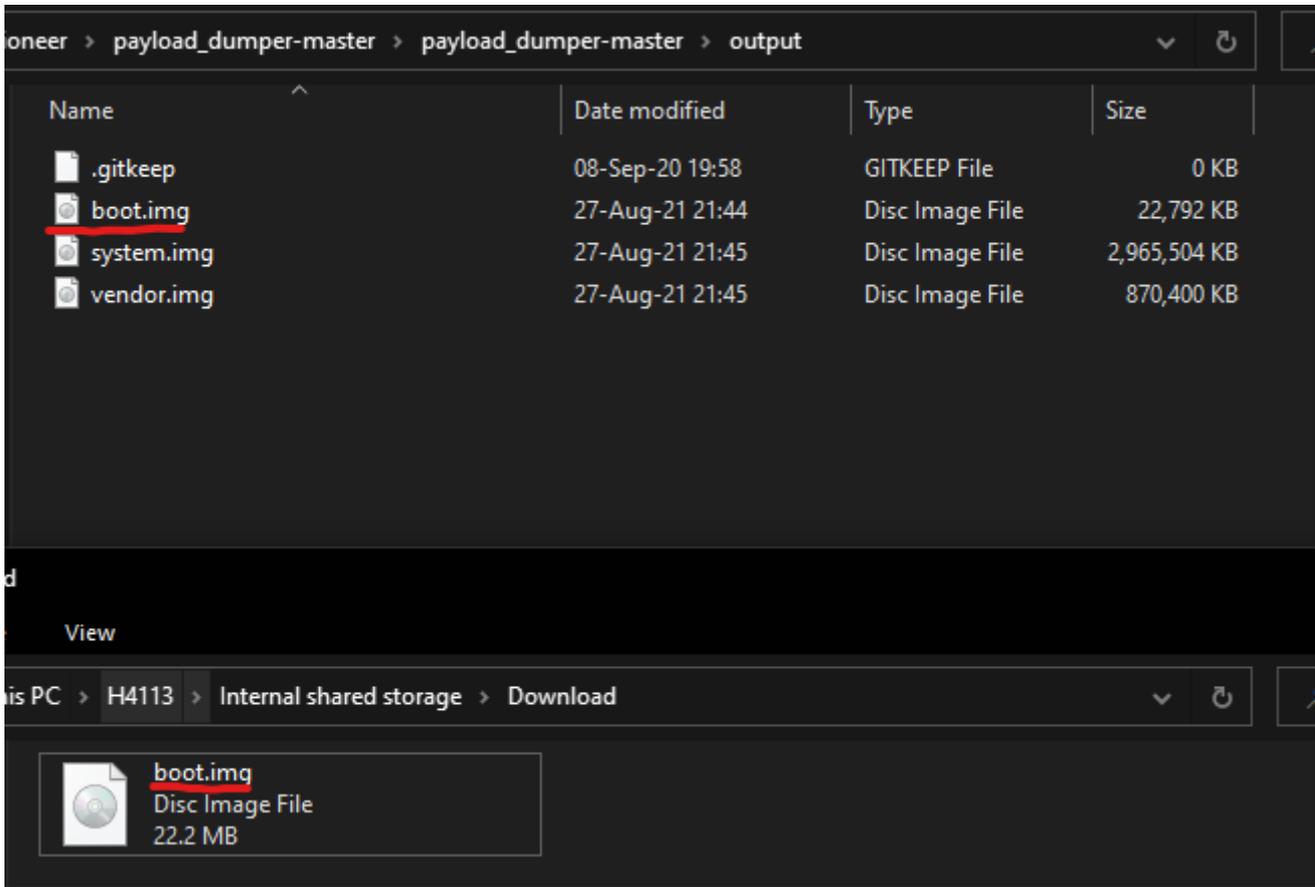
Name	Date modified	Type	Size
META-INF	27-Aug-21 21:41	File folder	
care_map.pb	01-Jan-09 00:00	PB File	1 KB
<u>payload.bin</u>	01-Jan-09 00:00	BIN File	637,855 KB
payload_properties.txt	01-Jan-09 00:00	TXT File	1 KB

__pycache__	11-May-21 10:06	File folder	
old	11-May-21 10:06	File folder	
output	26-May-21 22:23	File folder	
.gitignore	08-Sep-20 19:58	Text Document	1 KB
payload.bin	01-Jan-09 00:00	BIN File	637,855 KB
payload_dumper.py	08-Sep-20 19:58	Python File	5 KB
README.md	08-Sep-20 19:58	MD File	1 KB
requirements.txt	08-Sep-20 19:58	TXT File	1 KB
update_metadata_pb2.py	08-Sep-20 19:58	Python File	29 KB

and run

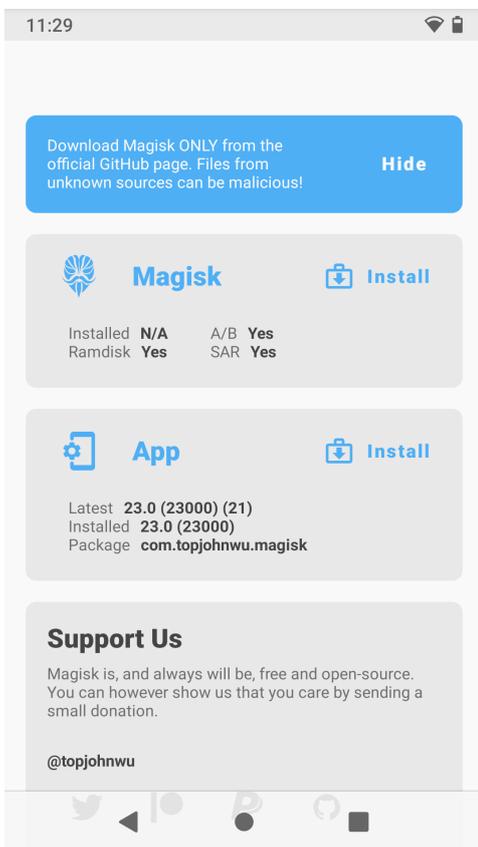
```
python payload_dumper.py payload.bin
```

Output in the terminal should look something like this:

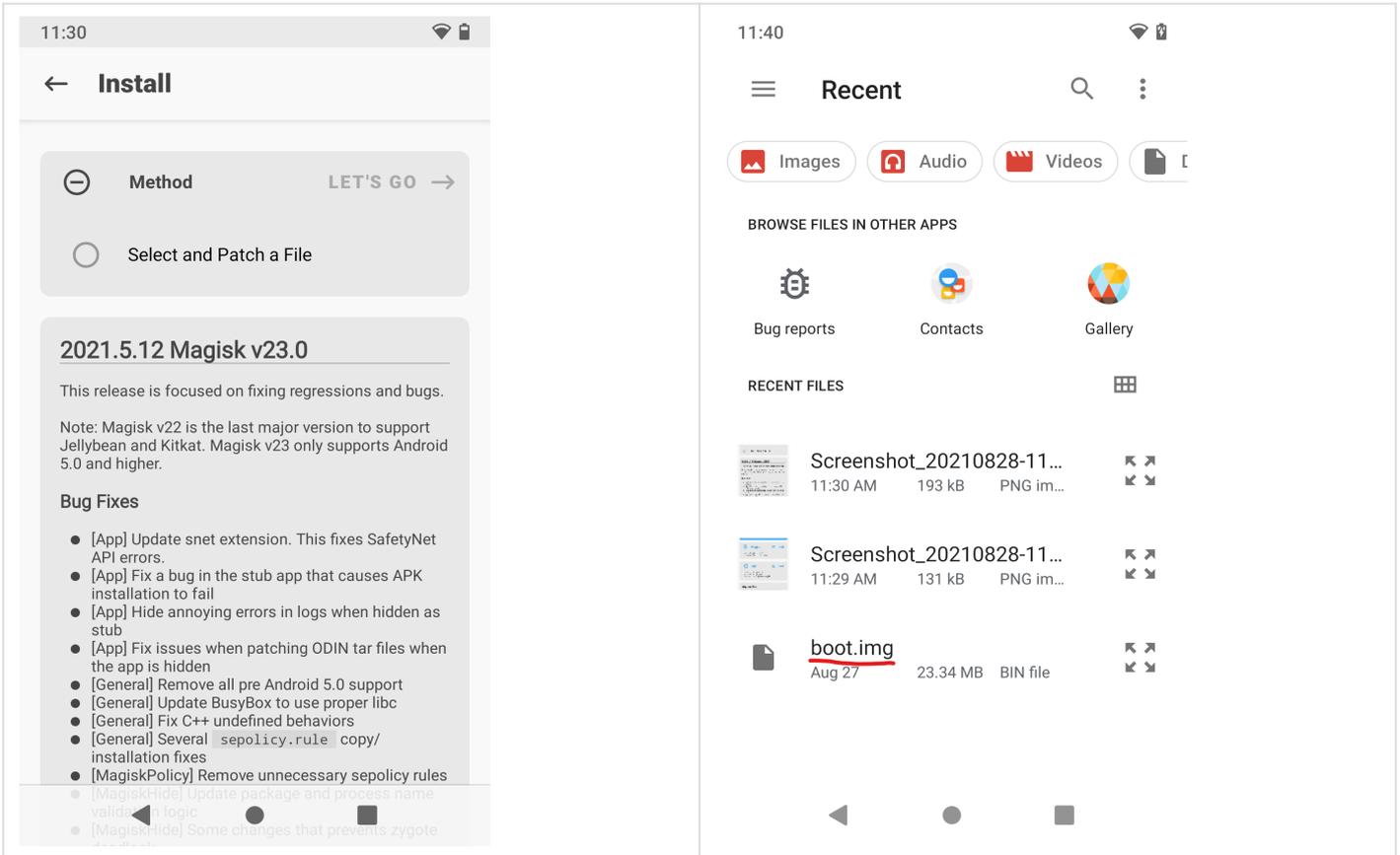


Patch the extracted image with Magisk

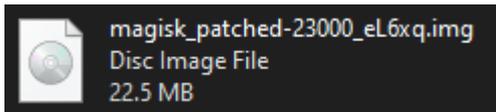
Next to Magisk, click Install



Select and Patch a file



This will take a few seconds and after it has finished, there should be a new file called something like this:



Flash the patched image using ADB

First of all, download appropriate drivers and tools. You should only need these

<https://developer.android.com/studio/releases/platform-tools>, but in case it doesn't work, look around the internet for more.

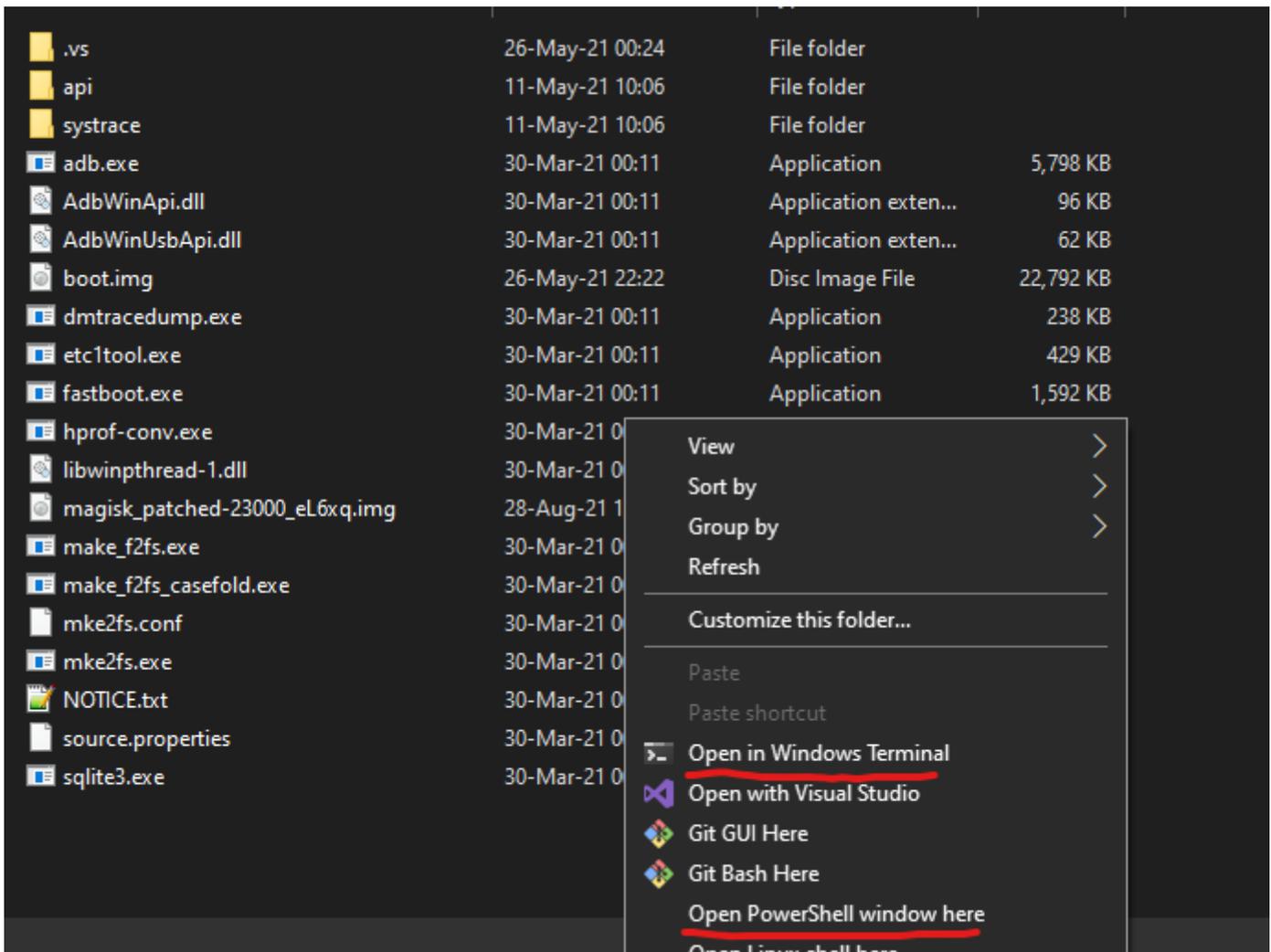
Copy this file from your phone back to your PC, ideally into the same folder as you ADB tools that you have just downloaded.

Name	Date modified	Type	Size
.vs	26-May-21 00:24	File folder	
api	11-May-21 10:06	File folder	
systrace	11-May-21 10:06	File folder	
adb.exe	30-Mar-21 00:11	Application	5,798 KB
AdbWinApi.dll	30-Mar-21 00:11	Application exten...	96 KB
AdbWinUsbApi.dll	30-Mar-21 00:11	Application exten...	62 KB
boot.img	26-May-21 22:22	Disc Image File	22,792 KB
dmtracedump.exe	30-Mar-21 00:11	Application	238 KB
etc1tool.exe	30-Mar-21 00:11	Application	429 KB
fastboot.exe	30-Mar-21 00:11	Application	1,592 KB
hprof-conv.exe	30-Mar-21 00:11	Application	43 KB
libwinpthread-1.dll	30-Mar-21 00:11	Application exten...	227 KB
magisk_patched-23000_eL6xq.img	28-Aug-21 11:41	Disc Image File	23,070 KB
make_f2fs.exe	30-Mar-21 00:11	Application	484 KB
make_f2fs_casefold.exe	30-Mar-21 00:11	Application	484 KB
mke2fs.conf	30-Mar-21 00:11	CONF File	2 KB
mke2fs.exe	30-Mar-21 00:11	Application	738 KB
NOTICE.txt	30-Mar-21 00:11	TXT File	685 KB
source.properties	30-Mar-21 00:11	PROPERTIES File	1 KB
sqlite3.exe	30-Mar-21 00:11	Application	1,189 KB

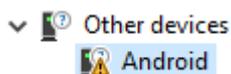
- Plug a USB cable to your phone and PC.
- Enable developer mode - *Settings* --> *About phone* --> Click *Build number* 5x times
- Enable USB debugging - *Settings* --> *System* --> *Advanced* --> *Developer options* --> Flip on switch in *USB debugging*
- Advanced settings on reboot - *Settings* --> *System* --> *Advanced* --> *Gestures* --> *Power menu* --> Flip on switch on *Advanced restart*
- Hold down the power button --> *Power* --> *Restart* --> *Bootloader*

Device should now reboot into boot loader, make sure the USB cable is connected.

Now Shift+right click into the folder with ABD tools and your patched image file and open either Windows Terminal (if you have it installed) or regular PowerShell/cmd window.



Try running `.\fastboot.exe devices`. If you can't see any output, open *Device Manager* in Windows and look for something like this:



Right click it --> *Update driver* --> *Browser my computer for drivers* --> *Let me pick from a list of available drivers on my computer* --> *List all devices* --> *Google Inc.* --> *Android Bootloader Interface*

Now try running `.\fastboot.exe devices` again, you should get this:

```
>.\fastboot.exe devices
CQ3000952E    fastboot
```

Flash the patched image to your Android device (*the name of the file might be different*)

```
>.\fastboot flash boot magisk_patched-23000_eL6xq.img
```

```
Sending 'boot_b' (23069 KB)          OKAY [ 0.498s]
```

```
Writing 'boot_b'                    OKAY [ 0.180s]
```

```
Finished. Total time: 1.172s
```

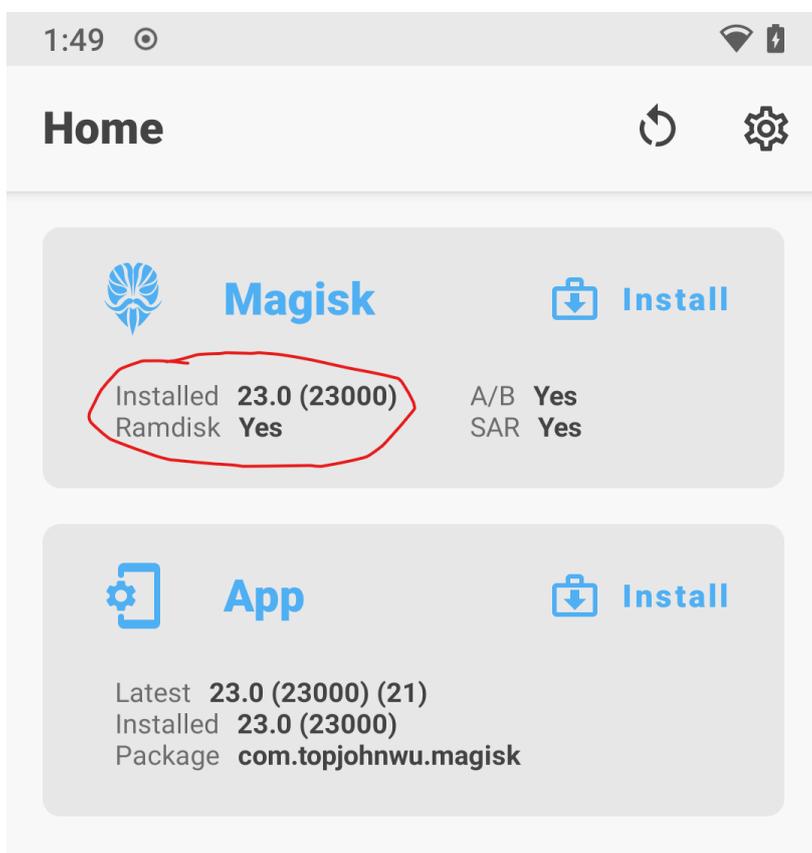
Reboot the device

```
.\fastboot reboot
```

```
Rebooting                            OKAY [ 0.000s]
```

```
Finished. Total time: 0.002s
```

After the reboot, open up Magisk and check if it is recognized as installed.



That's it! You now have a rooted Lineage OS device. What to do next? Everything you want. In case you need some tips, I have created a [list of things that I do](#).

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