

# Flashing the Jolla C2 using the Unisoc flash mode

This information was originally in a forum post: <https://forum.sailfishos.org/t/flashing-the-jolla-c2/21020/3>

The Jolla C2 contains a Unisoc UMS9230 (Tiger T606) SoC. All Unisoc SoCs implement a special USB flashing protocol in their boot ROM, which can be entered by pressing the Volume Up and Power keys. This provides a way to reflash the phone even if a broken bootloader was flashed.

This flashing interface is usually used with Unisoc's flashing software to flash PAC files containing the entire factory image for the phone and a loader signed with device-specific keys. However, the signature check can be [bypassed](#) on this SoC, and tools have been developed to allow flashing partitions directly with an unsigned loader.

## Initial Setup

Follow these steps to set up your environment for flashing the Jolla C2:

1. Download [https://github.com/TomKing062/spreadtrum\\_flash](https://github.com/TomKing062/spreadtrum_flash) and build it using make (for Windows users, a prebuilt .exe is available in the ums9230 unlock archive, but please note that the examples below assume a Unix-like system)
2. For Linux users: set up udev rules if you want to run the flashing commands with normal user permissions. See [this README](#) for more information.
3. Download the ums9230\_universal\_unlock.zip archive from [here](#) and extract it into the main spreadtrum\_flash directory (required files are `custom_exec_no_verify_65015f08.bin`, `fdl1-dl.bin` and `fdl2-dl.bin`)
4. Obtain a bootloader image for the Jolla C2 / Reeder S19 Max Pro S, from one of the following places:
  - from an archive with images: the file will be named `uboot_a.img`, `uboot_a.bin` or `lk.bin`
  - **or** from the phone directly by using `fdl2-dl.bin` temporarily (make sure to read about the side effects in the "Troubleshooting" section):

```
./spd_dump \  
  exec_addr 0x65015f08 \  
  fdl fdl1-dl.bin 0x65000800 \  
  fdl fdl2-dl.bin 0x9efffe00 exec \  

```

```
r uboot_a reset
```

## Flashing partitions

To flash partitions to the device, use the following command:

```
./spd_dump \  
  exec_addr 0x65015f08 \  
  fdl fdl1-dl.bin 0x65000800 \  
  fdl <path to your FDL2 file> 0x9efffe00 exec \  
  w <partition name> <image path> \ # This line can be repeated for multiple partitions  
  reset
```

It is recommended to use the device-specific bootloader as the FDL2 unless you are flashing a critical bootloader partition (splloader or uboot). The device-specific bootloader does not allow flashing these partitions, while fdl2-dl.bin from the exploit package does. See the "Troubleshooting" section for the expected side effects of using it.

## Flashing Sailfish OS

This should also work with a Reeder S19 Max Pro S: see <https://forum.sailfishos.org/t/installing-sailfish-to-reeder-s19-max-pro-s/21873/20>

Get the Sailfish OS images from <https://releases.sailfishos.org/images/>. Assuming they are unpacked into a directory named SailfishOS, run these commands to flash them:

```
simg2img SailfishOS/sailfish.img001 sailfish.img  
simg2img SailfishOS/fimage.img001 fimage.img  
./spd_dump \  
  exec_addr 0x65015f08 \  
  fdl fdl1-dl.bin 0x65000800 \  
  fdl fdl2-dl.bin 0x9efffe00 exec \  
  w uboot_a SailfishOS/lk.bin \  
  w uboot_b SailfishOS/lk.bin \  
  w dtbo_a SailfishOS/dtbo.img \  
  w dtbo_b SailfishOS/dtbo.img \  
  reset  
# Hold down the volume up key while the phone reboots!  
./spd_dump \  
  exec_addr 0x65015f08 \  
  fdl fdl1-dl.bin 0x65000800 \  
  fdl fdl2-dl.bin 0x9efffe00 exec \  
  w uboot_a SailfishOS/lk.bin \  
  w uboot_b SailfishOS/lk.bin \  
  w dtbo_a SailfishOS/dtbo.img \  
  w dtbo_b SailfishOS/dtbo.img \  
  reset
```

```
fdl fdl1-dl.bin 0x65000800 \  
fdl SailfishOS/lk.bin 0x9efffe00 exec \  
w boot_a SailfishOS/hybris-boot.img \  
w boot_b SailfishOS/hybris-boot.img \  
w vendor_boot_a SailfishOS/vendor_boot.img \  
w vendor_boot_b SailfishOS/vendor_boot.img \  
w userdata sailfish.img \  
w super fimage.img \  
reset
```

## Troubleshooting

### **The flashing tool cannot connect to the phone:**

Make sure to boot into flashing mode using Volume Up + Power. You should not see anything on the screen!

### **The command fails with timeout or connection errors:**

Restart the flashing mode by holding the Volume Up and Power keys for 7 seconds. This is usually required if a command is interrupted.

### **The phone reboots when the Volume Down key is pressed!**

This is a **side effect** of using `fdl2-dl.bin`. This behavior disappears after the phone is shut down completely.

### **The phone reboots while flashing or dumping large partitions:**

This is typically also caused by `fdl2-dl.bin`. Use the device-specific bootloader instead.

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