

# Platform Update, Rescue and Recovery - Tegra Devices

## Intro

The process to factory reset a MinION Mk1C has the following steps:

1. Download an SDCard image to your PC.
2. Copy the SDCard image to a blank Micro SDCard.
3. Insert the SDCard into the MinION Mk1C and power it on.
4. Follow the on-screen instructions.

The rest of this page will guide you through these steps.

You might already have an SDCard with the image already copied to it. In which case, steps (1.) and (2.) can be skipped.

## Download the SDCard Image

SDcard images can be found at [//oxfordnanolabs.local/public/common/Platforms/SDCard Images](https://oxfordnanolabs.local/public/common/Platforms/SDCard%20Images).

Images are named as follows:

`sdcard_201111-1942_20.06.17~xenial.img.gz`

The **green** part is the date and time of the last OS update that has been applied to the image. In this example, 201111-1942 refers to 11-Nov-2020 at 19:42.

The **red** part is the version number of the `ont-mk1c-release` package that is contained in the image.

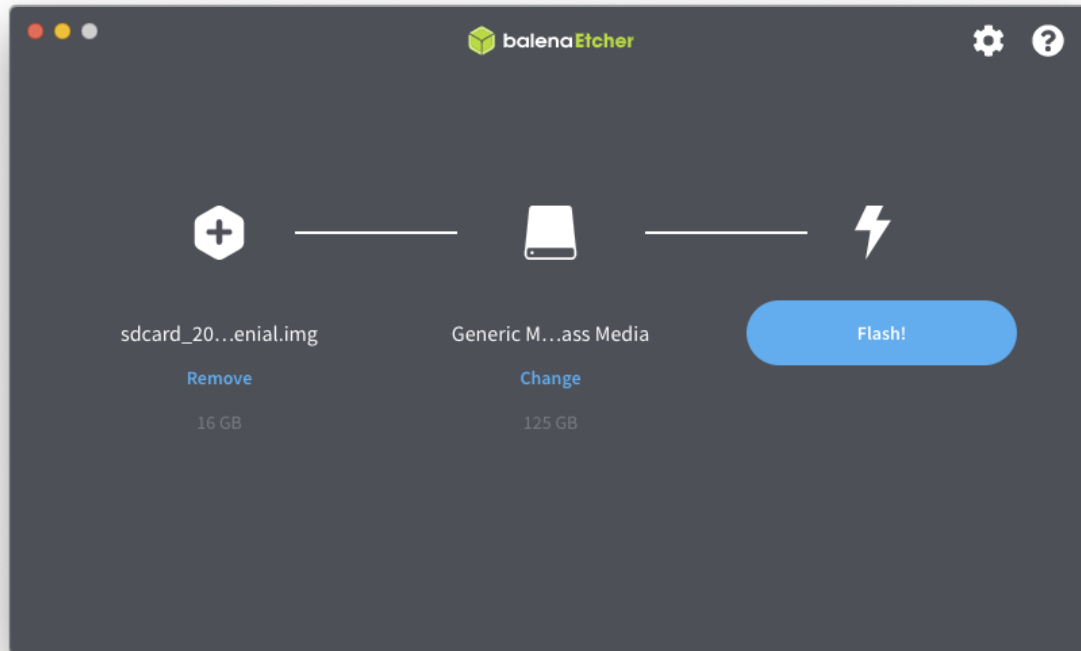
Download the version you require to your local machine.

## Copy the SDCard Image to a Blank SDCard

You will need a Micro SDCard (micro SDXC) that is 16GB or larger. The faster the better. You will also need to be using a machine with an SDCard slot or have a USB SDCard adapter.

## macOS

To copy the resulting image to an SDCard use a GUI tool such a [balena Etcher](#):



**i** The macOS implementation of `dd` is painfully slow so best avoided.

## Linux

Linux's `dd` command :

```
gunzip -c <image_file>.img.gz | sudo dd of=/dev/<sdcard_device> bs=8M status=progress
```

## Using the SDCard

### Factory Restore

Power down the device that you wish to restore.

Insert the SDCard and power the device on.

It will boot from the SDCard and, after about 30s, show the following screen:

## MinION Mk1C System Recovery

**Factory Reset** will wipe your device and any stored data, returning your device to the state it was when it left the factory. **Recover via SSH** will show information for connecting to this device via SSH. **Reboot** will exit this process and restart the device.

Please select an option to continue:

Factory Reset

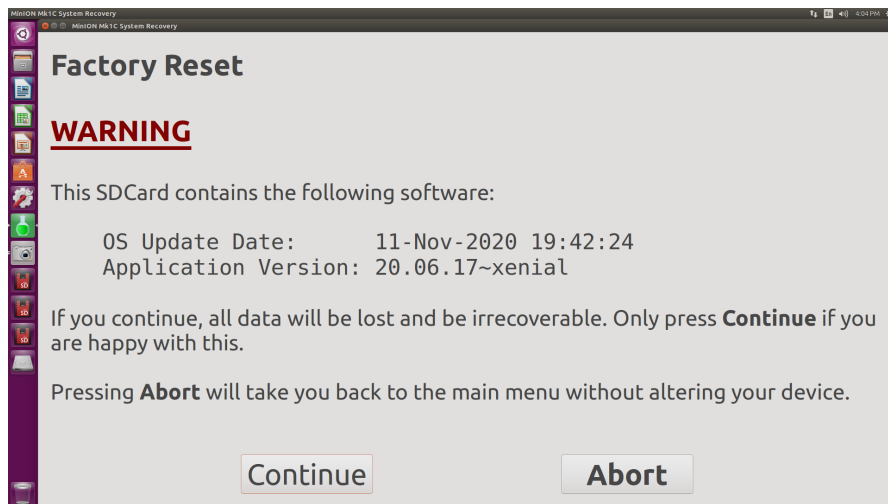
Recover via SSH

Reboot

Select **Factory Reset** to re-image the device with the software on the SDCard.

⚠ You will see the following warning advising that all data on the device will be lost. If do not want to continue, press **Abort**.

If you press **Continue**, the software versions noted will be installed on your device.



A disk image from the SDCard will be copied to the device:

## Factory Reset

```
Unmounting auto-mounts
Mounting existing rootfs
Gathering information from previous installation
Serial number (MC-110003) recovered from identity file
Extracting Payload OS to the device's eMMC

128221184 bytes (128 MB, 122 MiB) copied, 1.00031 s, 128 MB/s
219217920 bytes (219 MB, 209 MiB) copied, 2.00012 s, 110 MB/s
305889280 bytes (306 MB, 292 MiB) copied, 3.00043 s, 102 MB/s
393052160 bytes (393 MB, 375 MiB) copied, 4.00007 s, 98.3 MB/s
483852288 bytes (484 MB, 461 MiB) copied, 5.00006 s, 96.8 MB/s
541589504 bytes (542 MB, 516 MiB) copied, 6.00005 s, 90.3 MB/s
601587712 bytes (602 MB, 574 MiB) copied, 7.00033 s, 85.9 MB/s
679051264 bytes (679 MB, 648 MiB) copied, 8.00029 s, 84.9 MB/s
746061824 bytes (746 MB, 712 MiB) copied, 9.00049 s, 82.9 MB/s
817004544 bytes (817 MB, 779 MiB) copied, 10 s, 81.7 MB/s
```

When the copy is complete, you will see the following message saying *Recovery Phase 1 Complete*:

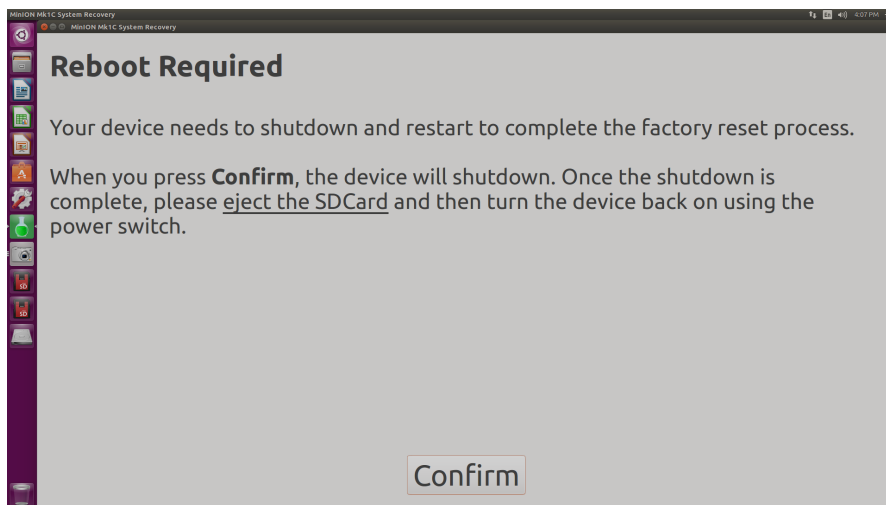
## Factory Reset

```
b31147248 bytes (b.3 GB, 5.9 GiB) copied, /4.0001 s, 85.3 MB/s
6389694464 bytes (6.4 GB, 6.0 GiB) copied, 75 s, 85.2 MB/s
0+194128 records in
0+194128 records out
6404882432 bytes (6.4 GB, 6.0 GiB) copied, 88.9748 s, 72.0 MB/s
Expanding root filesystem to fill partition
e2fsck 1.42.13 (17-May-2015)
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
/dev/mmcblk0p1: 181989/393216 files (0.1% non-contiguous), 1274433/1563692 blocks
resize2fs 1.42.13 (17-May-2015)
Resizing the filesystem on /dev/mmcblk0p1 to 3670016 (4k) blocks.
The filesystem on /dev/mmcblk0p1 is now 3670016 (4k) blocks long.

Mounting root filesystem
Customising root filesystem
Reformatting the data filesystem
Adding fstab entry for the data filesystem

Recovery Phase 1 complete
```

After a short time, the screen will update to:



Press **Confirm** and wait for the device to shutdown. When it has shutdown (screen and the five white LEDs are off), remove the SDCard and turn the device on again.

The device will reboot and, after about 30s, the Software Installation screen will be displayed:

ToDo

The screen shows the progress of the software installation and can take several minutes to complete.

Once it is complete, the device will automatically reboot and the MinKNOW login screen will be displayed.

## Device Recovery (expert users only)

Power down the device that you wish to restore.

Connect your device to the LAN using an RJ45 cable. The LAN should provide a DHCP service for automatically configuring IP connections.

Insert the SDCard and power the device on.

It will boot from the SDCard and, after about 30s, show the following screen:

## MinION Mk1C System Recovery

**Factory Reset** will wipe your device and any stored data, returning your device to the state it was when it left the factory. **Recover via SSH** will show information for connecting to this device via SSH. **Reboot** will exit this process and restart the device.

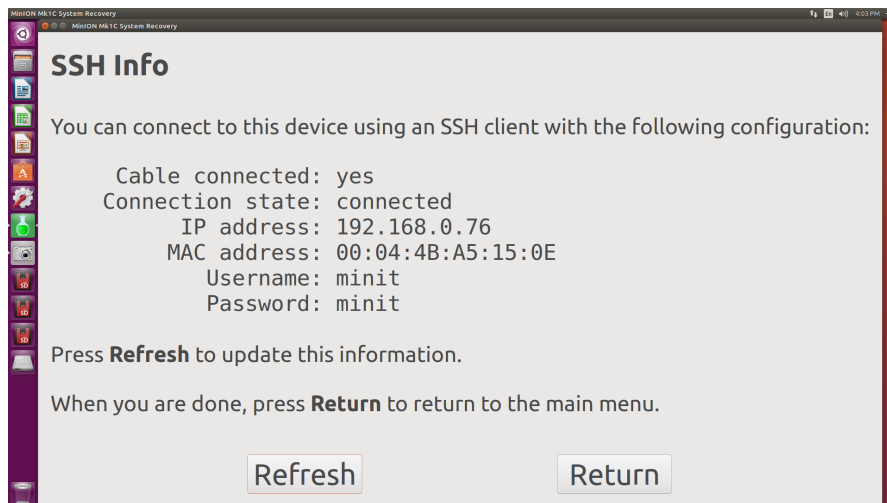
Please select an option to continue:

Factory Reset

Recover via SSH

Reboot

Select **Recover via SSH** to be shown information about how to connect to the device via SSH.



Use the information provided to connect to your device using SSH.

Once connected, you can mount the the device's root filesystem from `/dev/mmcblk0p1` and the `/data` filesystem from `/dev/nvme0n1`.

## Project Notes and Build Instructions

You can find information on this project and how to build a new SDCard image on the [Create MK1c Recovery SDCard](#) page.