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# Keysight Nemo Firmware Manager

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<b>WARNING</b>	Do not operate Nemo Firmware Manager without reading the User Guide, including its warnings, for the devices used by Nemo Firmware Manager.
<b>WARNING</b>	Always stop using Nemo Firmware Manager and switch off the Nemo Firmware Manager device(s) when it is forbidden to use radio equipment or when it may cause interference or danger.
<b>WARNING</b>	Never use Nemo Firmware Manager in an aircraft. The use of mobiles in an aircraft may be dangerous.
<b>WARNING</b>	Do not use the Nemo Firmware Manager device(s) in a hospital. It may interfere with nearby electronic devices.
<b>WARNING</b>	Observe restrictions on the use of radio equipment in gas stations, fuel depots, chemical plants, or sites where blasting operations are in progress.
<b>NOTE</b>	When using the Nemo Firmware Manager devices, the battery operation time is reduced from normal use. The best operation times will be achieved when the batteries are regularly charged and discharged as instructed in the device user manual. See also other instructions and hints from the device user manual regarding the battery use.
<b>NOTE</b>	Note that the local laws and/or regulations may set limitations, restrictions or other obligations on the use of the Nemo Firmware Manager and/or the test devices. Observe the laws and regulations of the country (as well as of any other relevant jurisdiction) where the Nemo Firmware Manager and/or test device is used. Keysight Technologies Inc. assumes no responsibility or liability arising from the failure to comply with the local laws and/or regulations.

### Is the software of your product up to date?

Keysight will periodically release software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Software Manager website at: [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager)

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# 1 Introduction

Welcome to the User Guide for Nemo Firmware Manager. The purpose of this user guide is to provide you with the basic steps for getting started with Nemo Firmware Manager and where you can go to get additional help information.

## 1.1 Quick guide

This quick guide will explain briefly how to update or maintain firmware with Nemo Firmware Manager.

1. Open the Nemo Firmware Manager application by double-clicking the icon.
2. Connect the mobile device(s) to your PC with a USB cable.
3. Check that the ADB is enabled in the mobile device(s).
4. After Nemo Firmware Manager has identified the mobile device(s), click **Check firmware**.
5. Once the desired firmware version is found, click **Update**.
6. Wait until the mobile device(s) have been updated and restarted. *Do not detach the device(s) during the update process!*
7. Once the update is complete, disconnect the device(s) and close Nemo Firmware Manager.

## 2 Nemo Firmware Manager Prerequisites

### NOTE

Note that you are able to use Nemo Firmware Manager only if the device license option supports it.

Before you can start using Nemo Firmware Manager you must provide Nemo administration ([nemo.support@keysight.com](mailto:nemo.support@keysight.com)) with the following information:

- Device name
- IMEI of the device
- Serial number of the device
- Firmware version of the device
- Country Product (CP) code of the device
- Consumer Software Customization (CSC, region-based) code for the software package of the device
- Nemo ID and version number of the Nemo firmware in the device if any.

## 3 Nemo Firmware Manager Setup

This chapter describes the setup process for the Nemo Firmware Manager software.

### 3.1 Installing Nemo Firmware Manager

1. Ensure that you have internet access on your PC.
2. You will receive a web address from which you can download the setup.exe file for Nemo Firmware Manager.
3. Click **Install**.
4. Restart the computer when prompted.
5. You are now able to start using Nemo Firmware Manager.

## 4 Updating Firmware with Nemo Firmware Manager

This chapter describes the process of updating firmware with Nemo Firmware Manager.

### NOTE

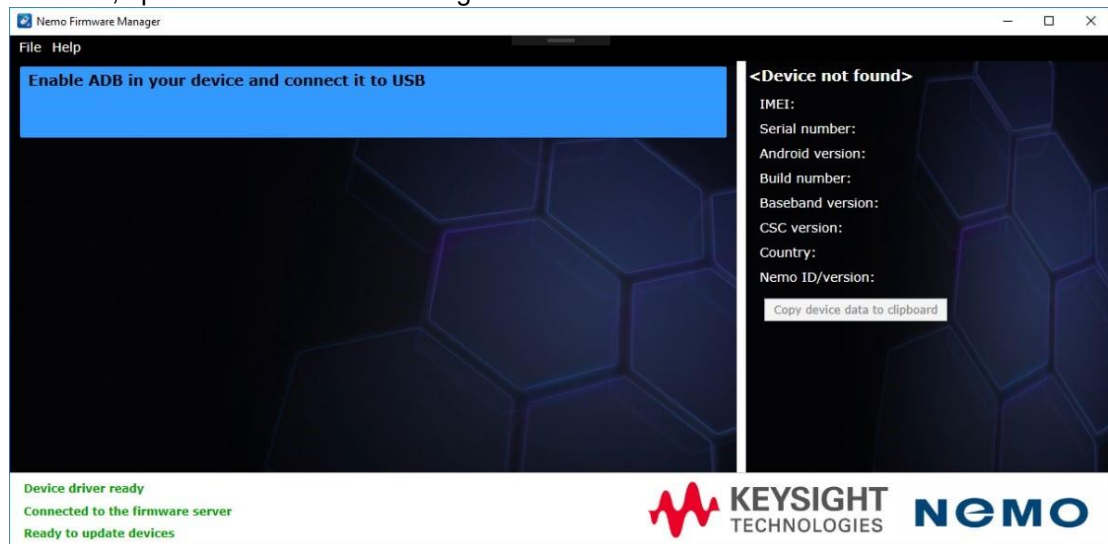
It is recommended to charge the mobile device battery to full/nearly full before updating firmware to secure a smooth updating process.

### NOTE

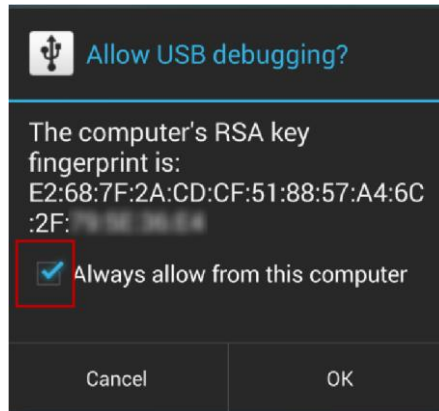
If you update the firmware of your Samsung test device with Nemo Firmware Manager, you must manually install the original Samsung CDC Composite Device driver when connecting the device with Nemo Outdoor for the first time after the update. This needs to be done for each USB port to which a Samsung device is connected. Refer to chapter 4.4 for step-by-step instructions.

### 4.1 Updating the firmware of one mobile device

1. After the initial start-up questions
  - a. Go to **Settings - About device - Software info** and tap the **Build number** item several times to enable Developer options.
  - b. Disable the **Auto update system** setting. The location in settings varies depending on phone model
  - c. Then, go to **Settings - Developer options** and select **Enable USB Debugging**.
2. Next, open Nemo Firmware Manager.



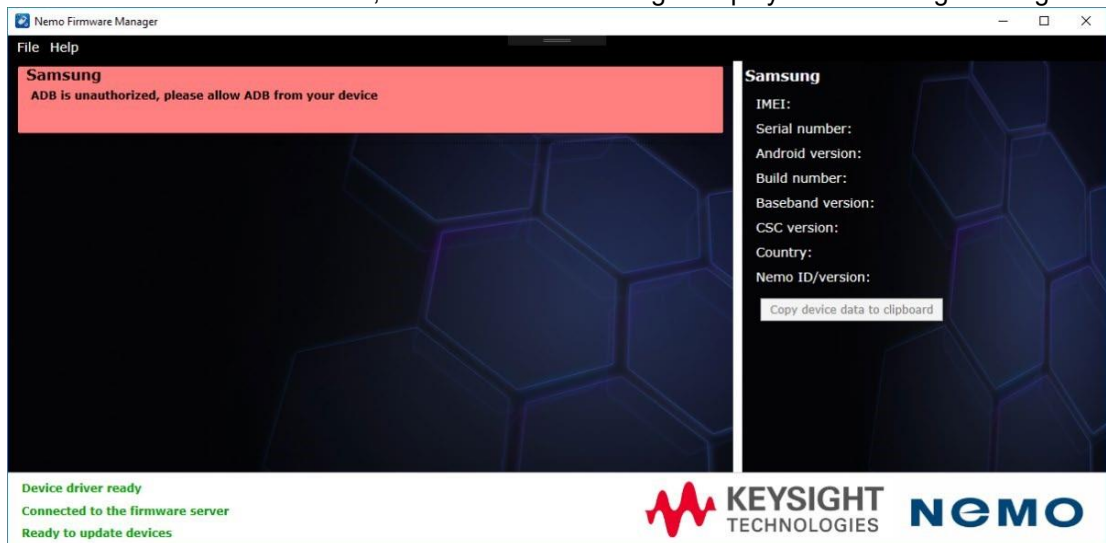
3. Connect the mobile device via an USB cable to the computer in which Nemo Firmware Manager is running.
4. Wait for the device USB driver installation. The installation may take several minutes.
5. A popup for allowing USB debugging appears *on the screen of the mobile device*. Select the **Always allow from this computer** checkbox and tap **OK**.



**NOTE**

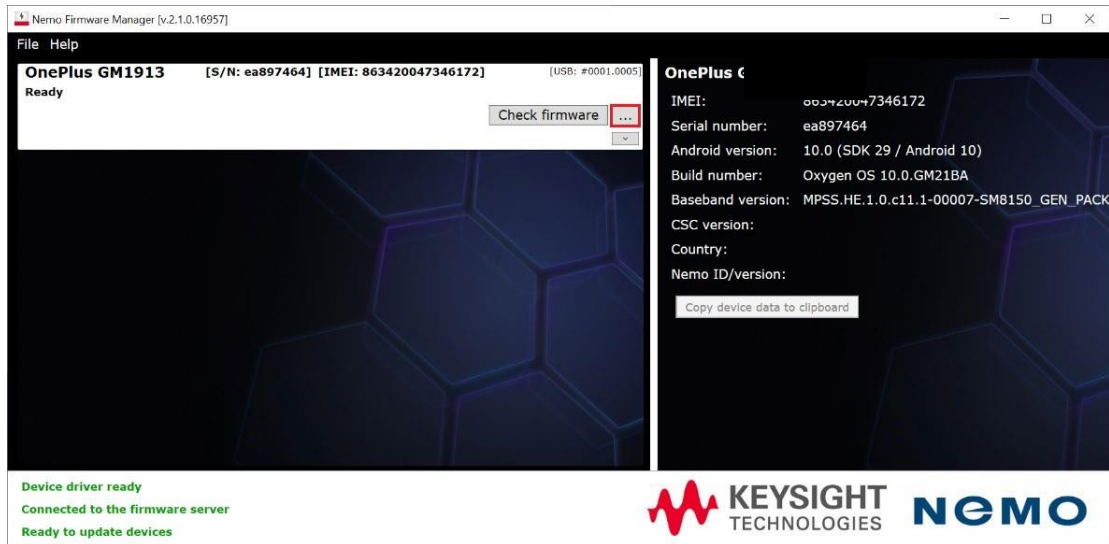
Note that the Allow USB debugging popup is displayed only for a short time, after which it disappears. If the popup disappears before the Always allow from this computer checkbox is selected, disconnect the USB cable from the mobile device and reinsert the cable to the mobile device. The popup should reappear.

6. If the checkbox is not selected, Nemo Firmware Manager displays the following message:

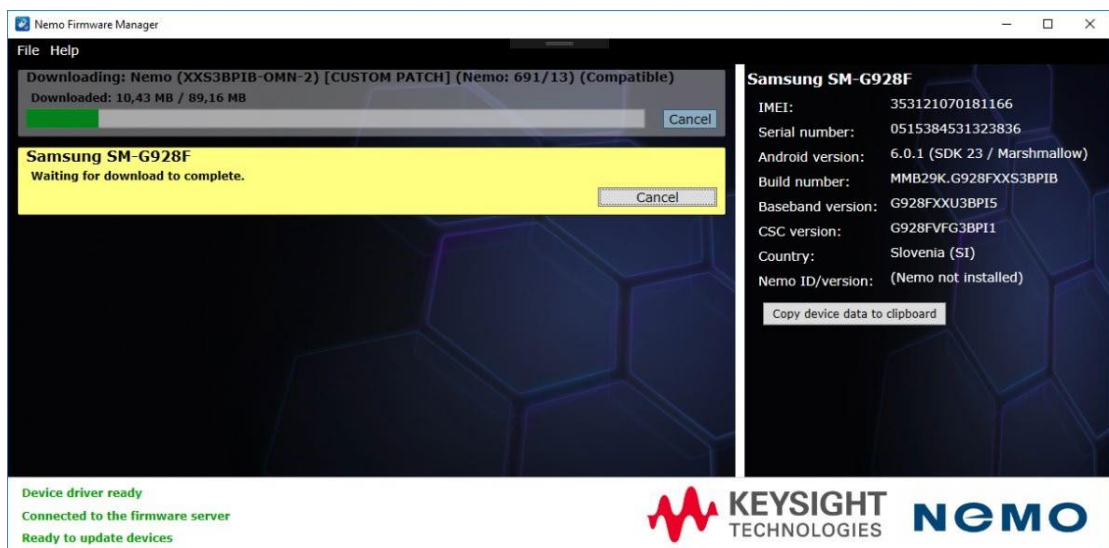


If this message is displayed, select the **Always allow from this computer** checkbox on the mobile device screen.

7. The device should now be visible in Nemo Firmware Manager. Click **Check firmware** to check for an update. If you have downloaded a local copy of the Nemo firmware file (nemofw), click the ... button to select the file.

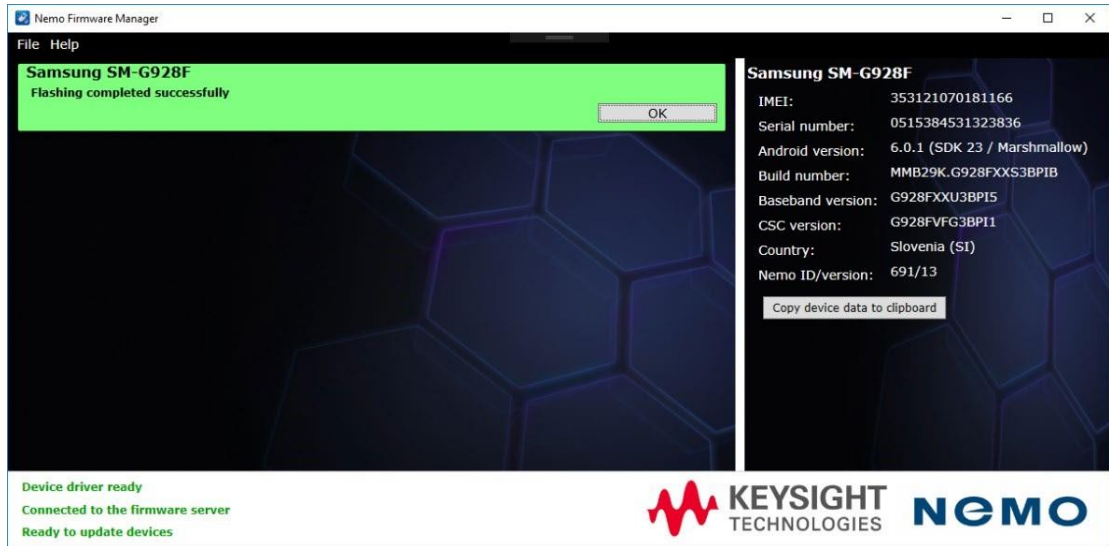


8. Once the correct firmware is found, click **Update**.
9. Nemo Firmware Manager verifies the firmware file and then automatically begins to update the firmware. Please note that this may take several minutes.



**CAUTION** Do not disconnect the device during the updating!

10. Once the firmware has been updated, the mobile device reboots. Do not disconnect the device during the reboot.
11. The notification on Nemo Firmware Manager turns green when updating is completed successfully.

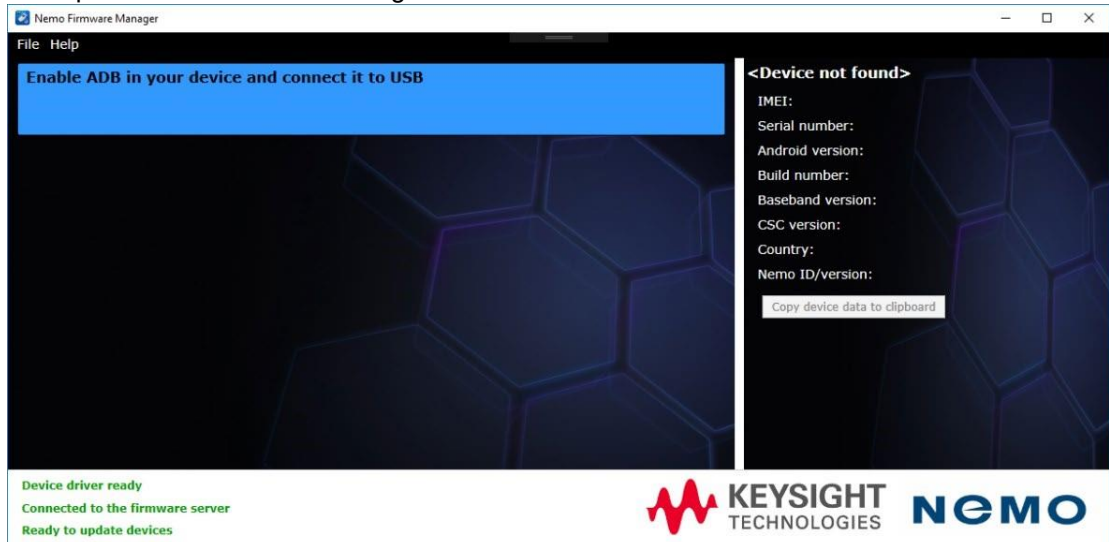


12. Disconnect the mobile device.
13. Close Nemo Firmware Manager.

## 4.2 Updating the firmware of multiple devices

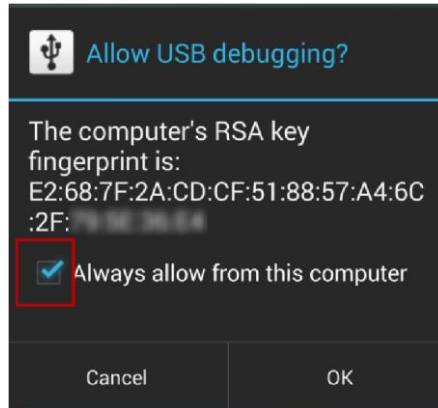
The workflow for updating firmware in multiple devices is quite similar to the workflow for updating the firmware in one device.

1. After the initial start-up questions
  - a. Go to **Settings - About device - Software info** and tap the **Build number** item several times to enable Developer options
  - b. Disable the **Auto update system** setting. The location in settings varies depending on the phone model.
  - c. Then, go to **Settings - Developer options** and select **Enable USB Debugging**.
2. Open Nemo Firmware Manager.



3. Connect the mobile devices via a USB cable to the computer in which Nemo Firmware Manager is running.
4. Wait for the device USB driver installation. The installation may take several minutes.

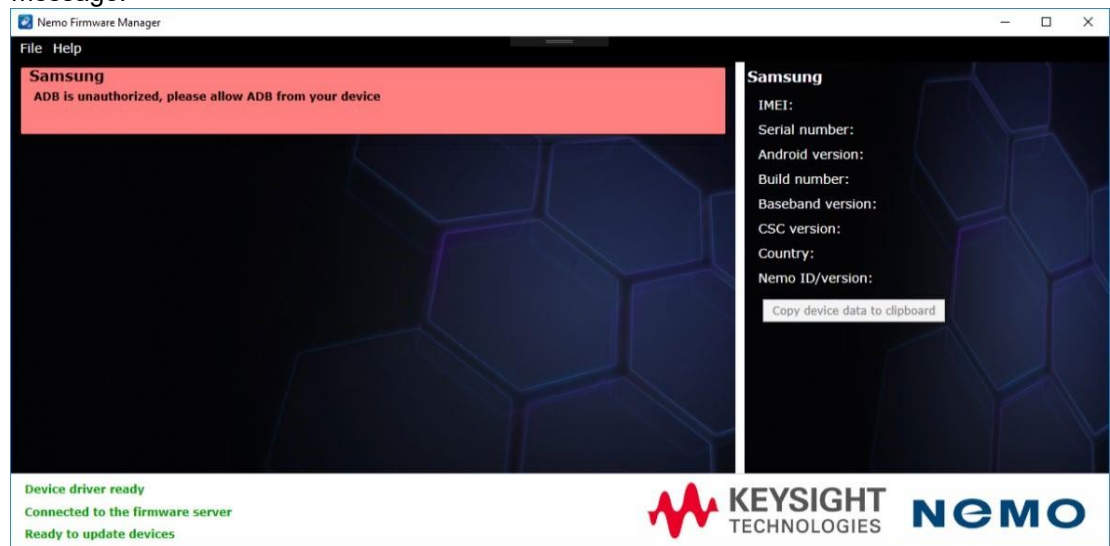
5. A popup for allowing USB debugging appears *on the screen of each mobile device*. Select the **Always allow from this computer** checkbox and tap **OK** on each mobile device.



#### NOTE

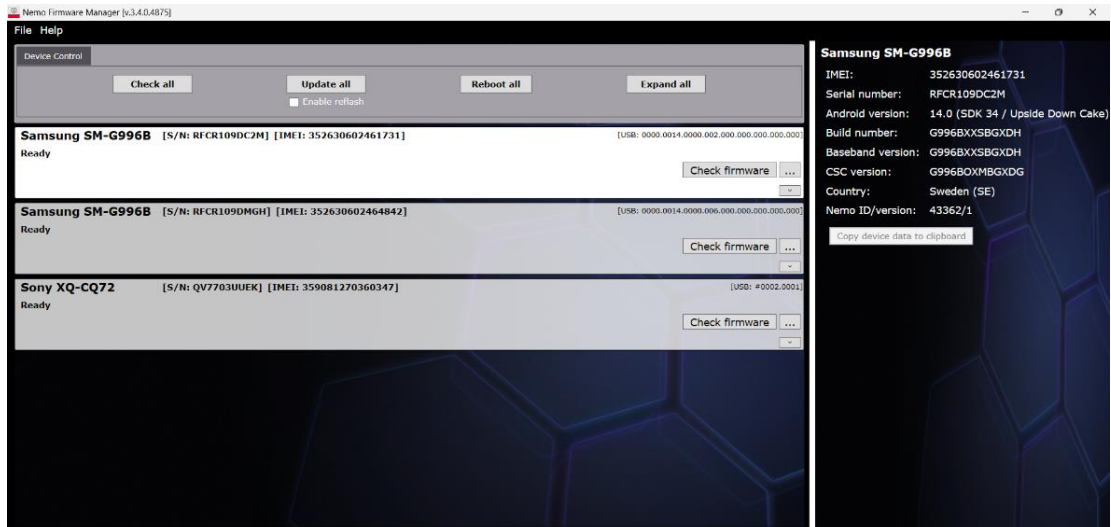
Note that the Allow USB debugging popup is displayed only for a short time, after which it disappears. If the popup disappears before the Always allow from this computer checkbox is selected, disconnect the USB cable from the mobile device and reinsert the cable to the mobile device. The popup should reappear.

If the checkbox is not selected, Nemo Firmware Manager displays the following message:



If this message is displayed, select the **Always allow from this computer** checkbox on the mobile device screen.

6. The devices should now be visible in Nemo Firmware Manager.

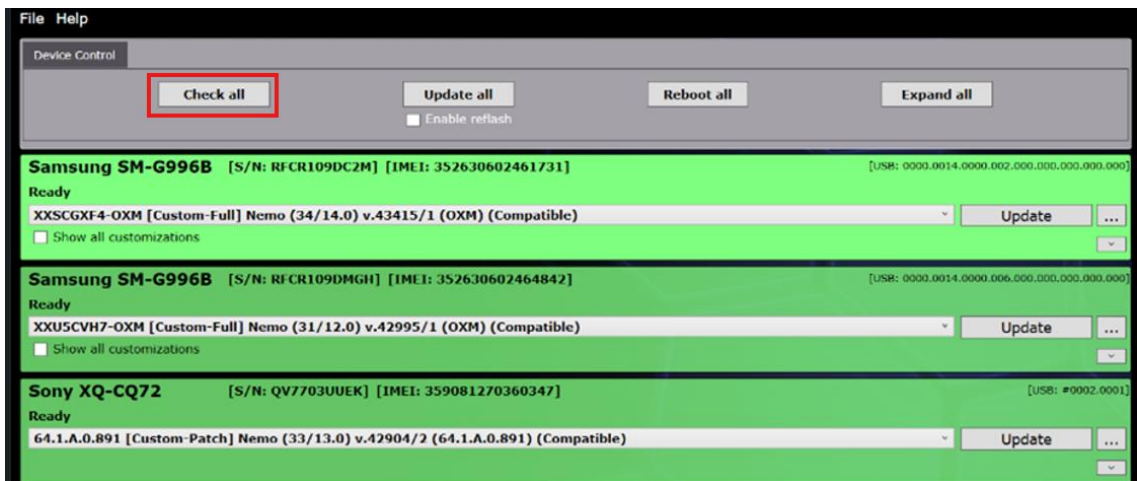


Device driver ready  
 Connected to the firmware server  
 Ready to update devices



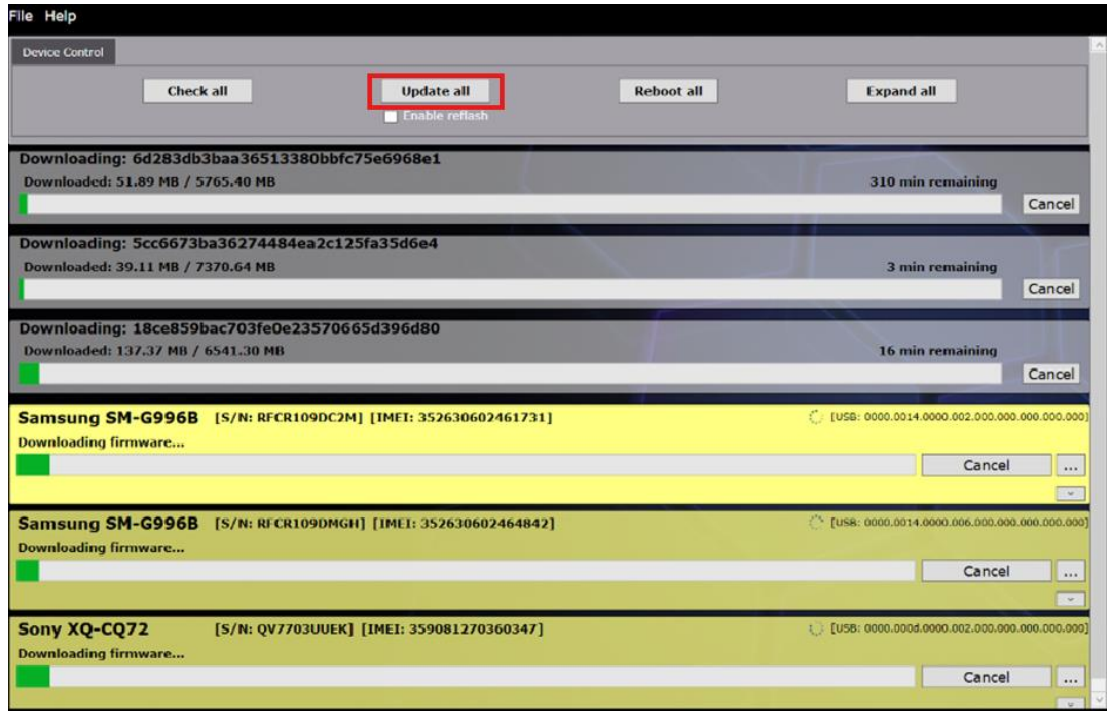
You can view individual device information by tapping on the device name on the left.

7. Click **Check all**.



It is also possible to check firmware for each device individually by clicking **Check firmware** with each device. If you have downloaded a local copy of the Nemo firmware file (.nemofw), click the ... button to select the file.

8. Once the correct firmware is found, click **Update all**



It is also possible to update each device individually by clicking **Update** with each device.

9. Nemo Firmware Manager verifies the firmware files and then automatically begins to update the firmware of the devices. Please note that this may take several minutes. You can still view individual device information by tapping on the device name on the left.

**CAUTION**

Do not disconnect the devices during the updating!

10. Once the firmware has been updated, the mobile devices reboot.
11. The notifications on Nemo Firmware Manager turn green when updating is completed successfully. The notifications disappear from the view after a short time.

**NOTE**

Note that the devices may not be finished at the same time. It is recommended to wait until all devices have been updated successfully before disconnecting the devices.

**NOTE**

After the devices have rebooted, they may appear on the screen again with the Check firmware option selected. Check whether the Nemo ID of the device matches the Nemo ID displayed on the right-hand side of the screen. If the IDs are the same, the device has the latest firmware installed.

**NOTE**

The Update all devices function does not update devices with the selected firmware already installed.

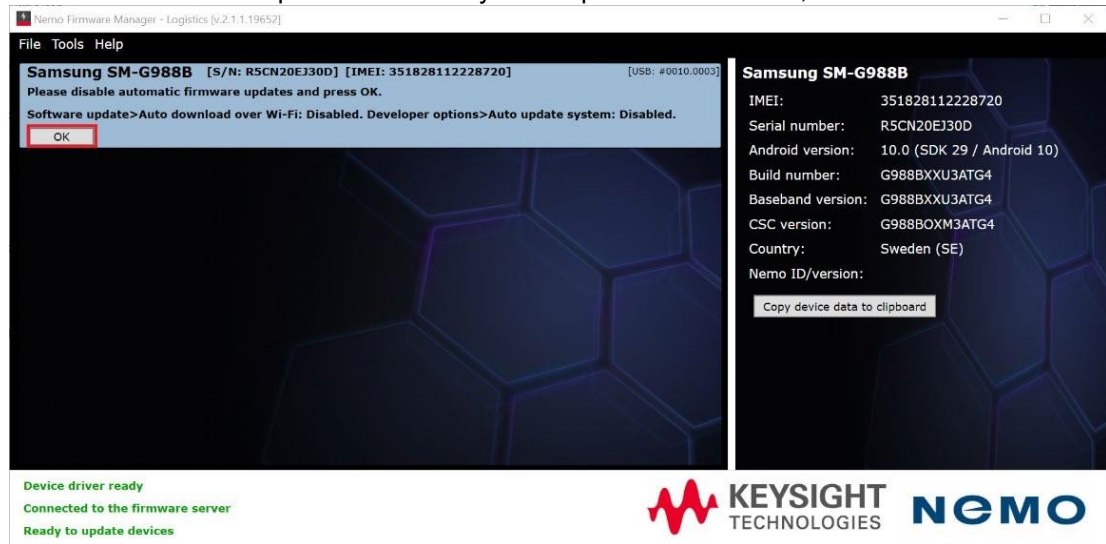
12. Disconnect the mobile devices.

13. Close Nemo Firmware Manager.

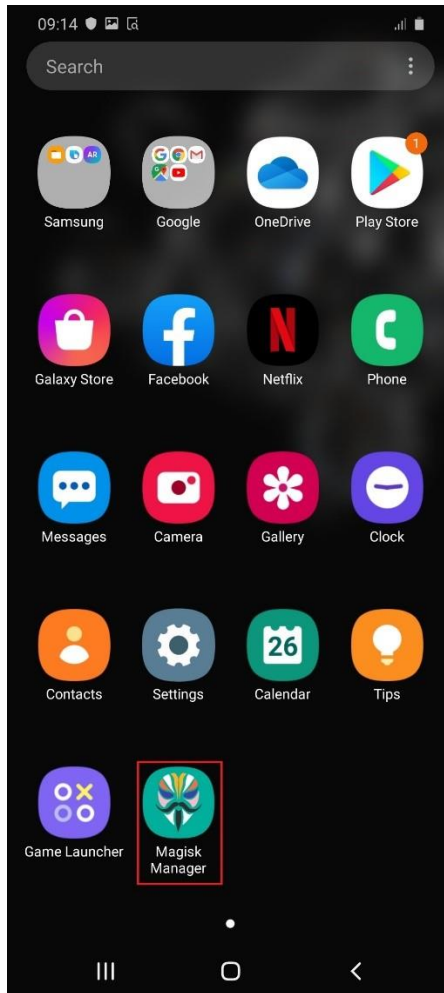
### 4.3 Updating the firmware with Magisk Manager

With some Samsung S20 devices, you need to use the Magisk Manager tool when updating the firmware.

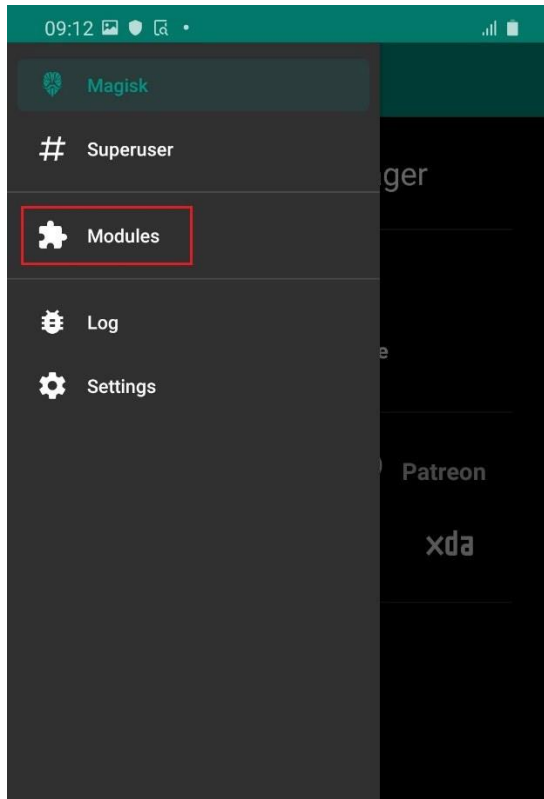
1. Start the update normally from the NFM tool.
2. The phone installs a custom patch and factory resets.
3. Once the device starts up, go to **Settings - About device - Software info** and tap the **Build number** item several times in order to enable **Developer options**.
4. Go to **Settings - Developer options** and select **Enable USB Debugging**.
5. Disable the Auto Update functionality on the phone. Once done, click **OK** on NFM.



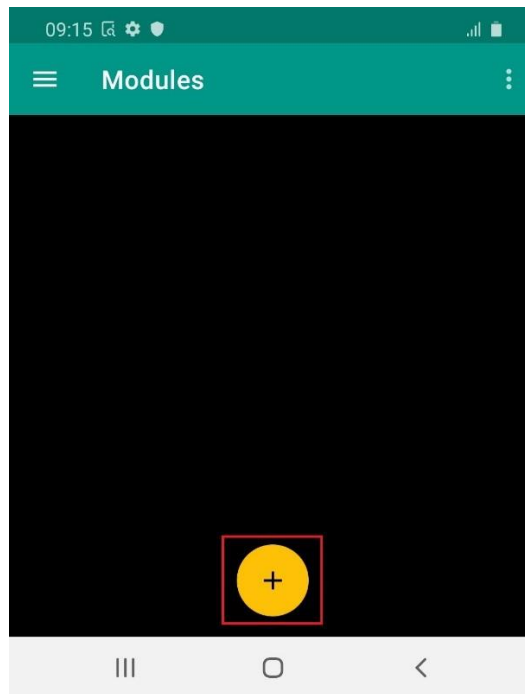
6. Open the **Magisk Manager** app on the phone. Decline any additional setups.



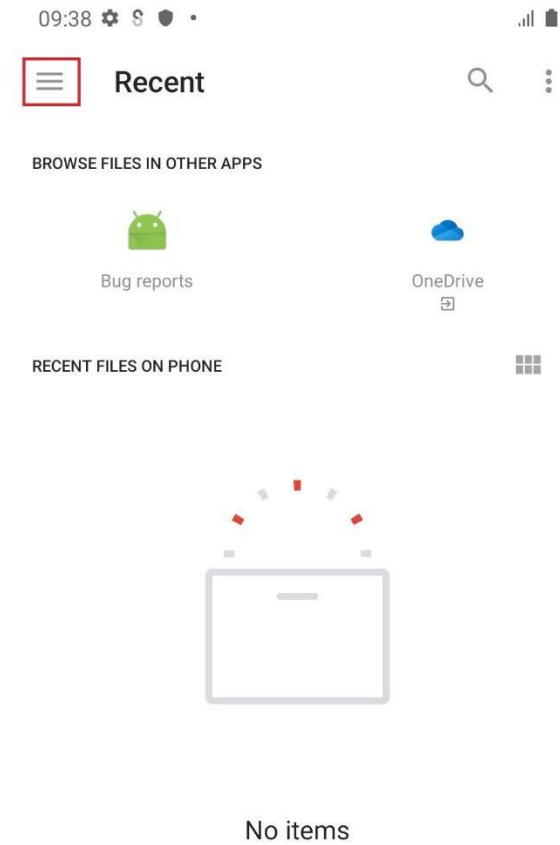
7. From the top left corner menu, select **Modules**.



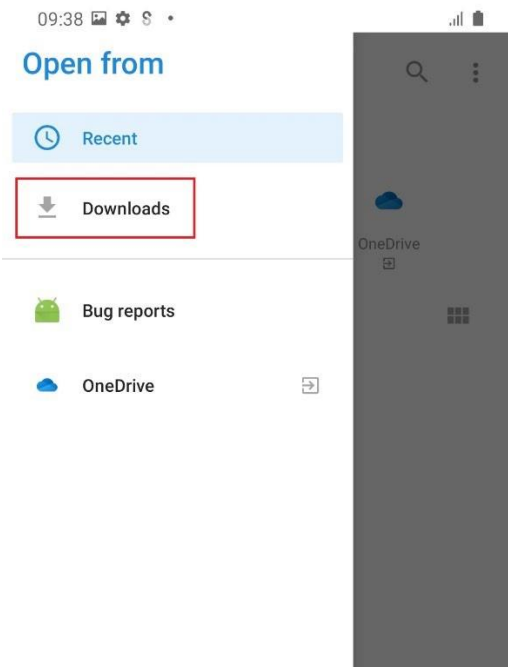
8. Tap the + icon at the bottom of the screen.



9. Tap the menu item in the top left corner of the **Recent** page.



10. Tap the **Downloads** item.

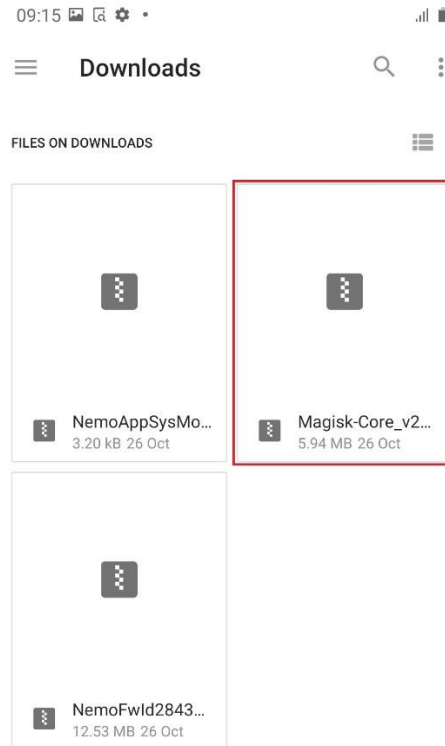


11. Tap the **Magisk-Core** item.

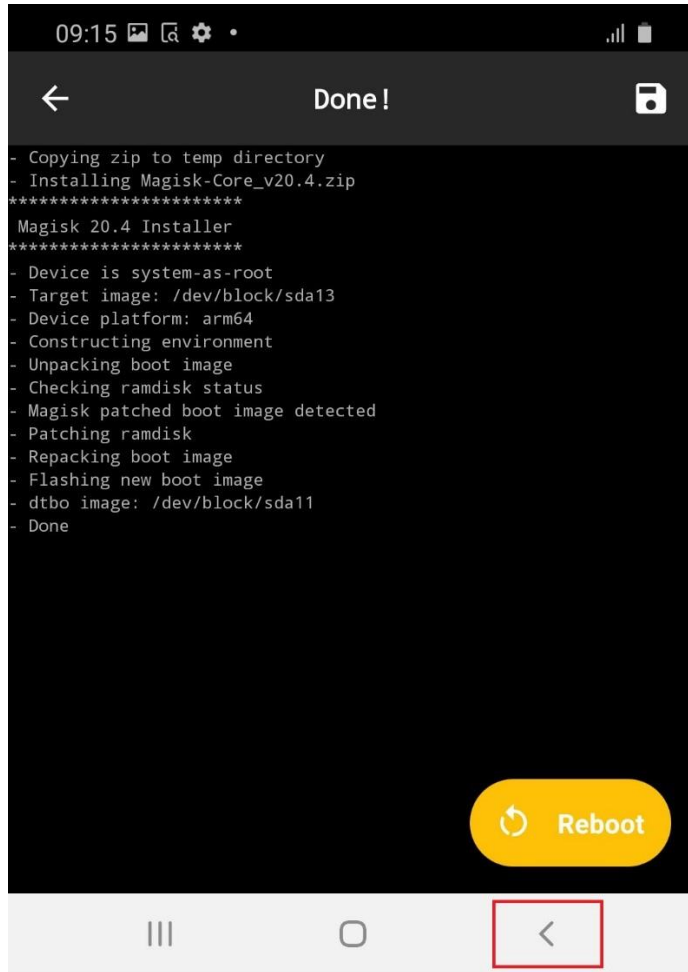
The modules need to be installed in this specific order:

**NOTE**

1. Magisk-Core
2. NemoFwld
3. NemoAppSysMod



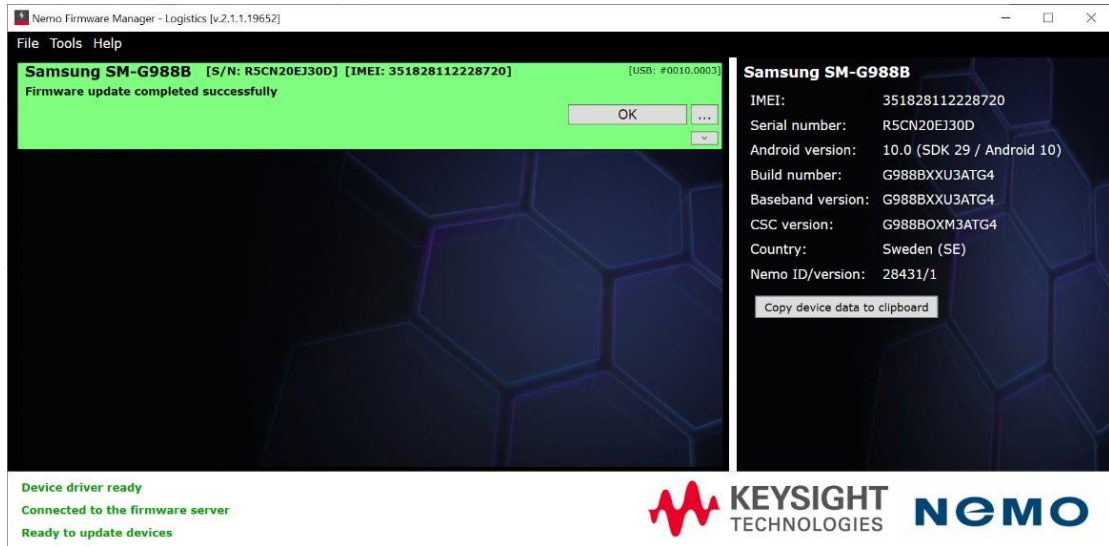
12. Wait until the installation is finished and tap the **Back** button to install the other two modules.



13. Next, repeat steps 7-12 to install the NemoFwld module. In step 11, tap the **NemoFwld28431** item.
14. Finally, repeat steps 7-12 to install the NemoAppSysMod module. In step 11, tap the **NemoAppSysMod** item.
15. After you have installed all three modules, click **OK** in NFM. NFM will reboot the device.



16. The firmware update is now complete.



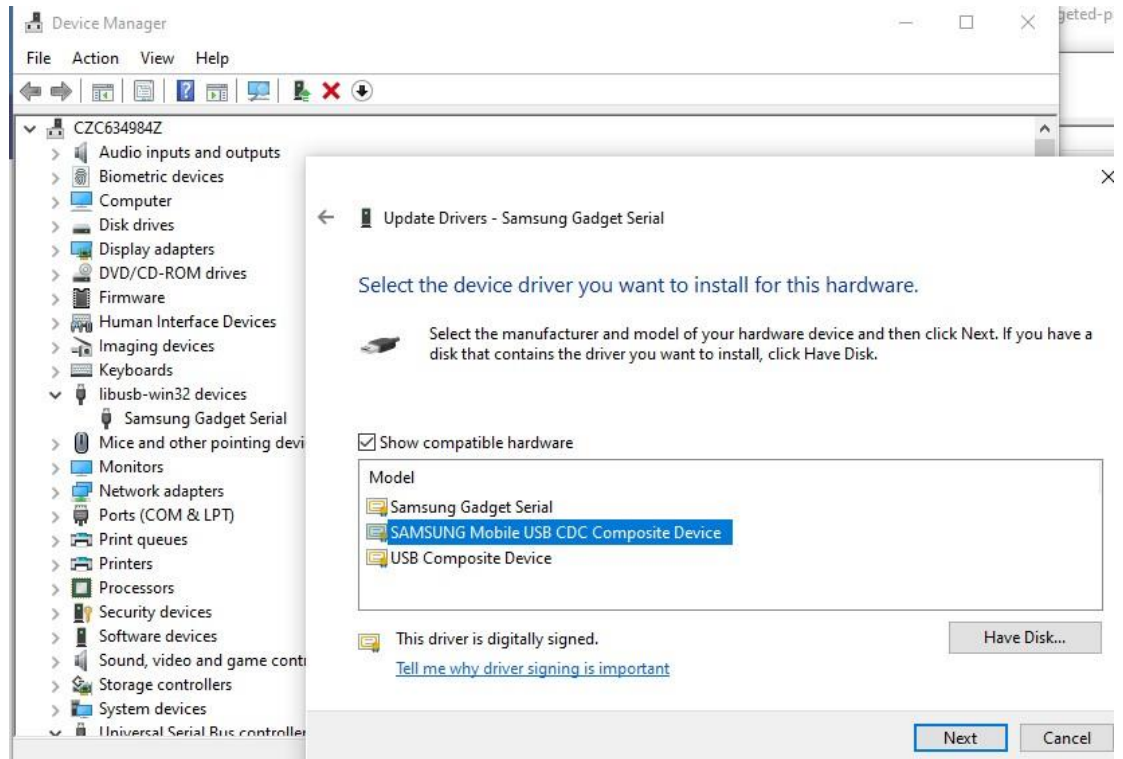
#### 4.4 Install the original Samsung CDC Composite Device driver

If you have updated the firmware of your Samsung test device with Nemo Firmware Manager, you must manually install the original Samsung CDC Composite Device driver when connecting the device with Nemo Outdoor for the first time after the

##### NOTE

update. This needs to be done for each USB port to which a Samsung device is connected.

1. Connect the USB data cable from the device to your laptop.
2. Go to Device Manager.
3. Right-click on **libusb-win32 devices** and select **Update Driver**.
4. Select **Browse My Computer for driver software**.
5. Select **Let me pick from list of available drivers on computer**.
6. Select Samsung Mobile USB CDC Composite Device and click **Next**.

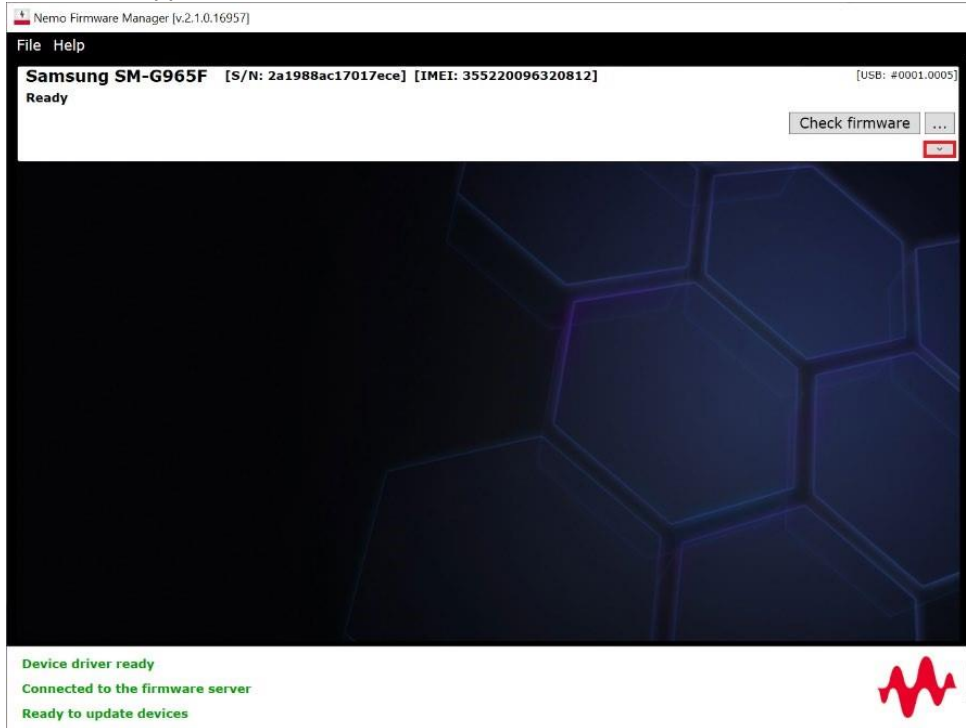


7. Disconnect and reconnect the USB cable to the device.

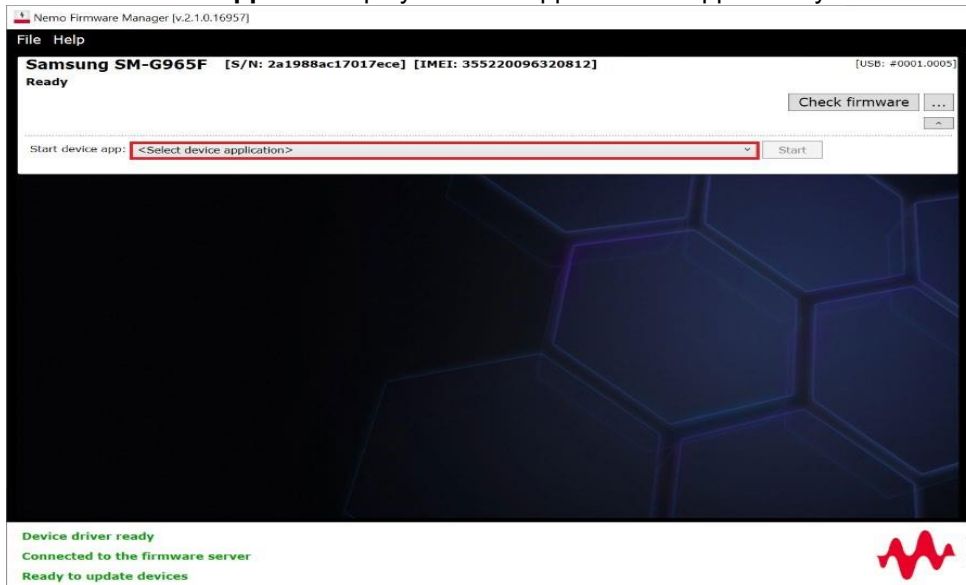
## 5 Start Device Application

With the Start device app tool, you can run a set of applications from the Nemo Firmware Manager.

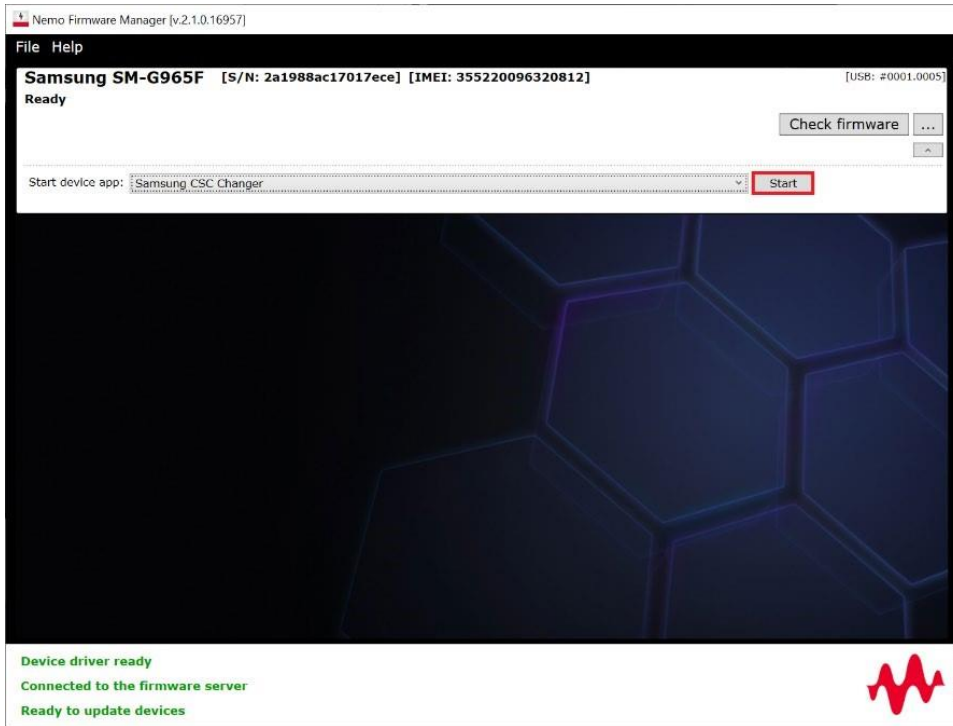
To start an application, click the arrow button next to the Check firmware button.



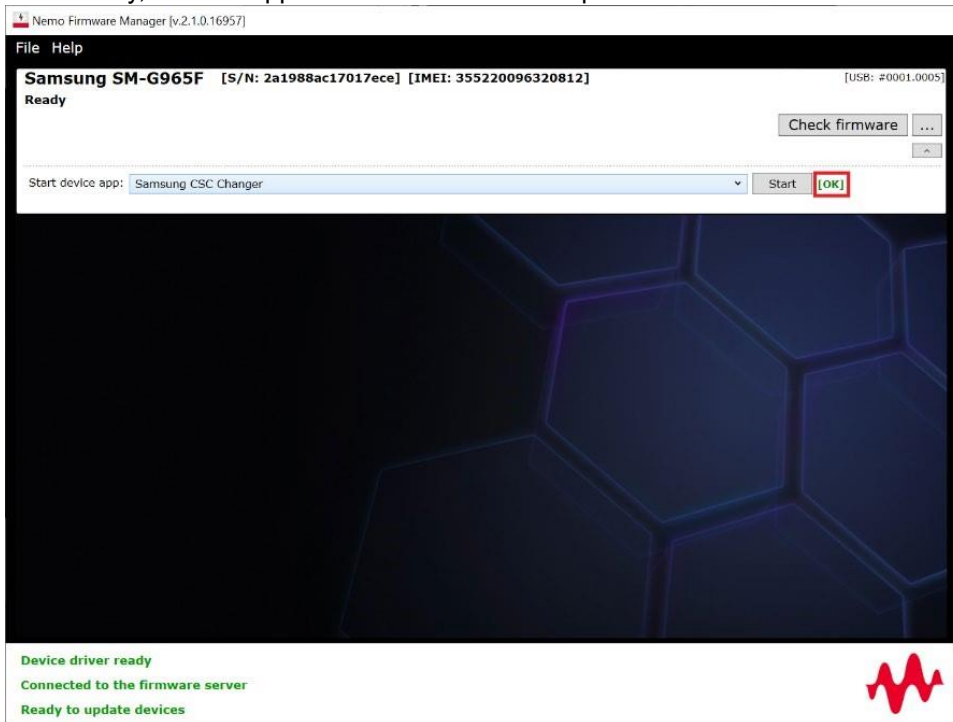
The **Start device app** field displays a list of applications supported by the device.



Select an app and click **Start**.

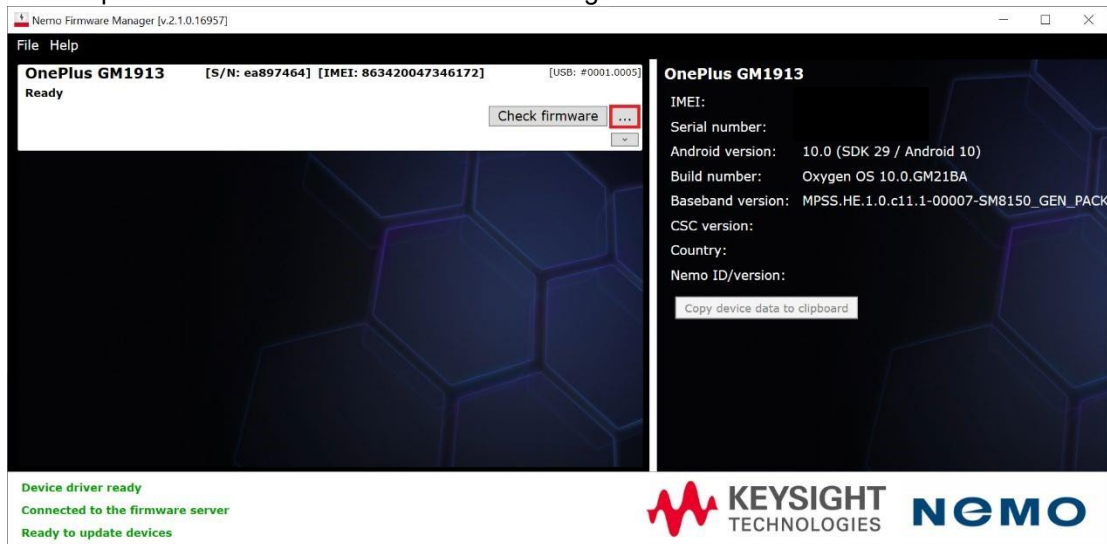


A status field appears next to the Start button indicating whether the application was started successfully, and the application is started on the phone.



## 6 Nemo Firmware Manager User Interface

This chapter describes the Nemo Firmware Manager user interface.



The ribbon bar in Nemo Firmware Manager displays the options *File* and *Help*.

*Check firmware for all devices* checks the firmware for all connected devices simultaneously.

*Update all devices* updates all connected devices simultaneously.

*Check firmware* checks the firmware for the selected device.

*Update* updates the firmware of the selected device.

Device information is visible on the right side of the display in the following order:

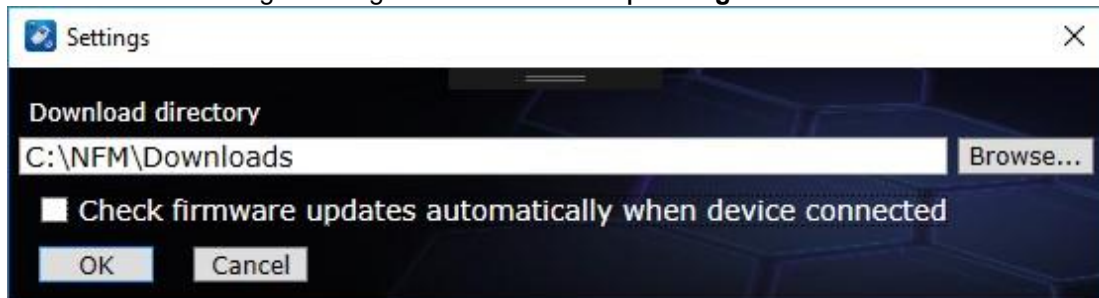
- Device name
- IMEI of the connected device
- Serial number of the connected device
- Android version of the connected device
- Build number of the connected device
- Baseband version of the connected device
- Consumer Software Customization (CSC, region-based) code for the software package of the device
- Country Product (CP) code of the device
- Nemo ID/version displays the ID and version number of the Nemo firmware in the device

*Copy device data to clipboard* copies the device information shown on screen to the clipboard for easy reference/collection.

Warning messages are displayed at the bottom left of the user interface display window.

### 6.1 Nemo Firmware Manager settings

Nemo Firmware Manager settings are located in **File | Settings**.

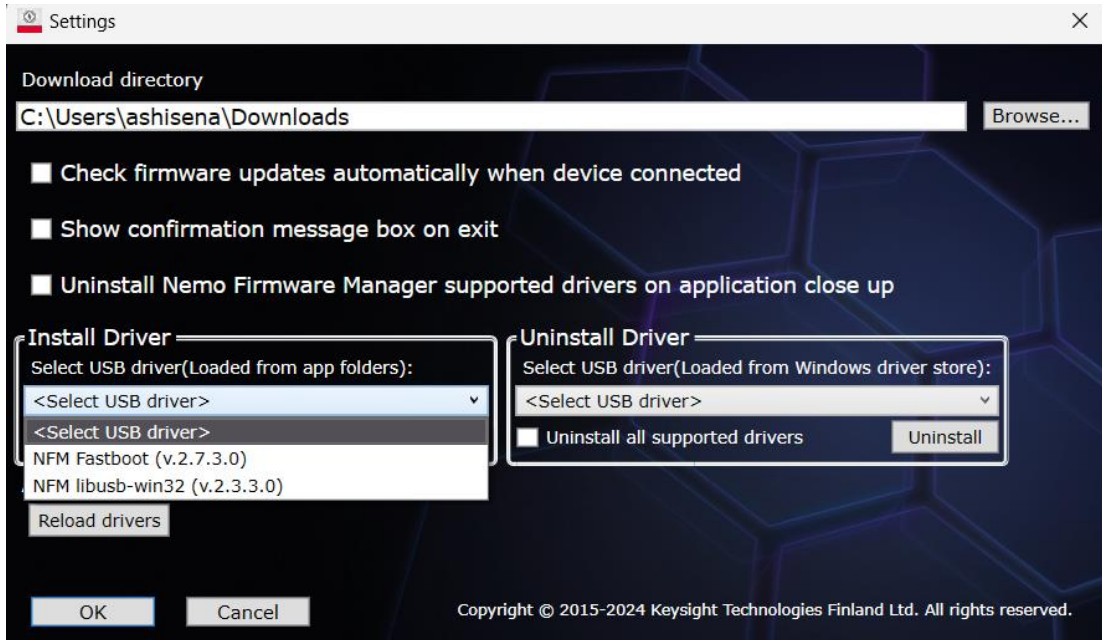


In the Settings dialog box you are able to select the download directory either by typing in the directory or browsing files on the computer.

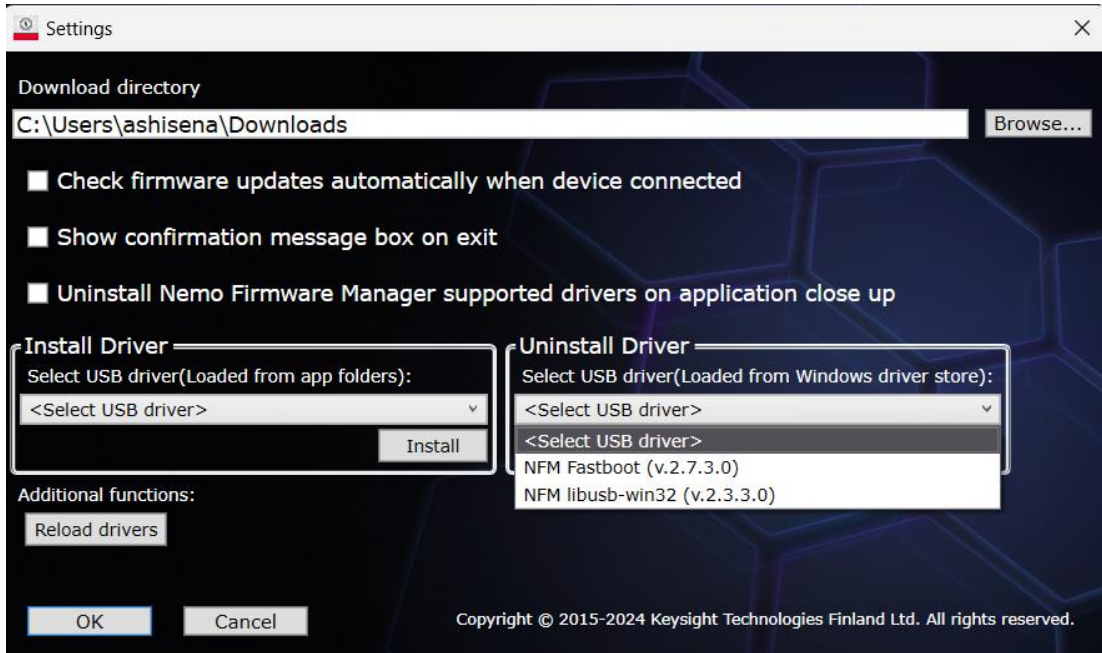
When the **Check firmware updates automatically when device connected** option is selected, Nemo Firmware Manager checks for firmware updates automatically once a mobile device is connected.

## 6.2 Manual Driver Installation/Uninstallation

Post downloading and verification when the flashing starts the supported driver is required to flash the firmware into the device. We can now install the required drivers prior to flashing the device from “Install Driver” section.

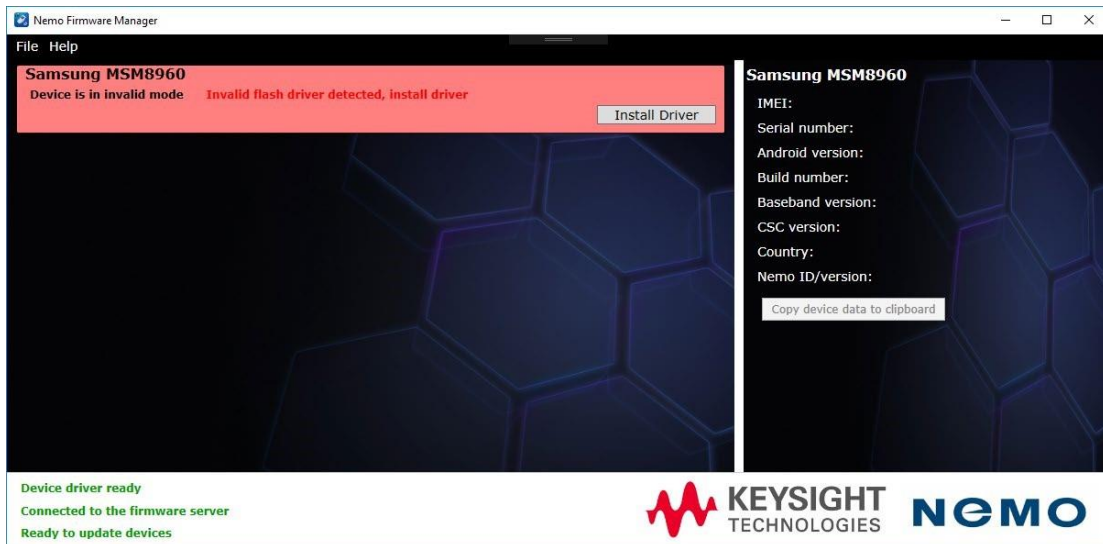


The installed drivers can be manually uninstalled by the user by selecting them from “Uninstall Driver” section.



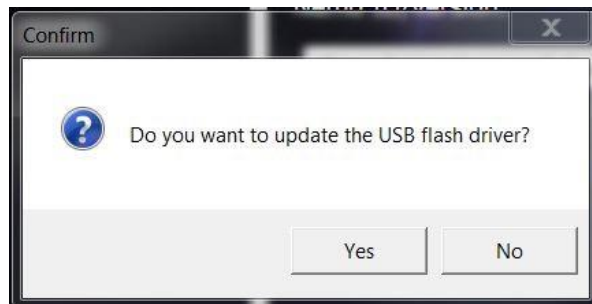
## 7 Warning Messages

### 7.1 Device is in invalid mode – Invalid flash driver detected, install driver



The device does not have the correct flash driver. Click **Install Driver**.

Click **Yes**.

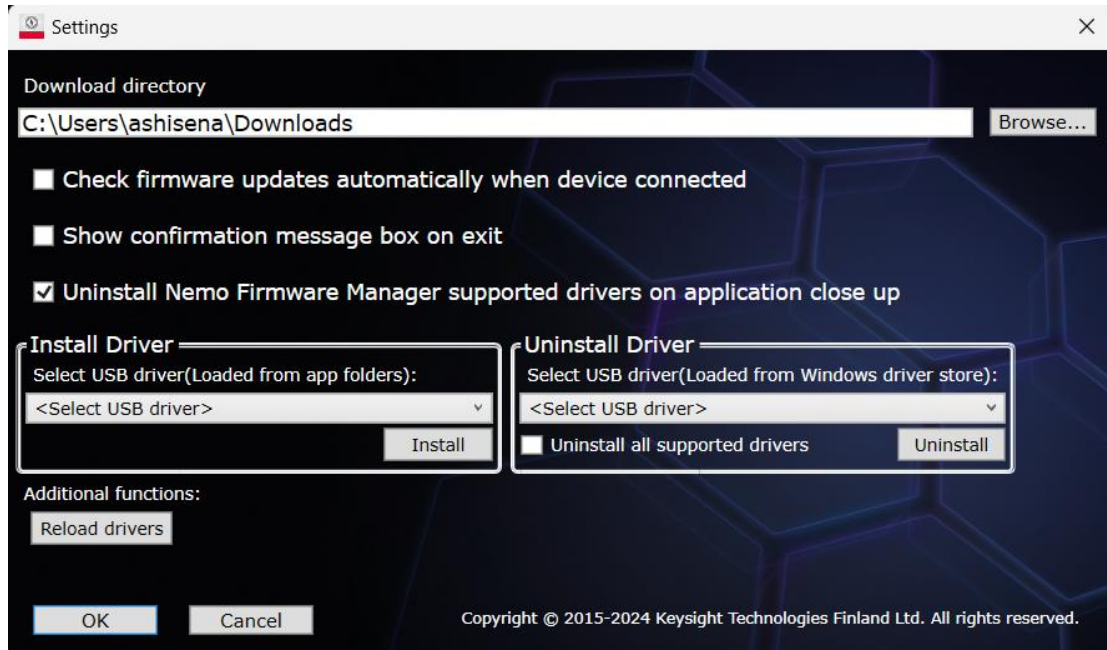


### 7.2 Uninstall all supported drivers on exit

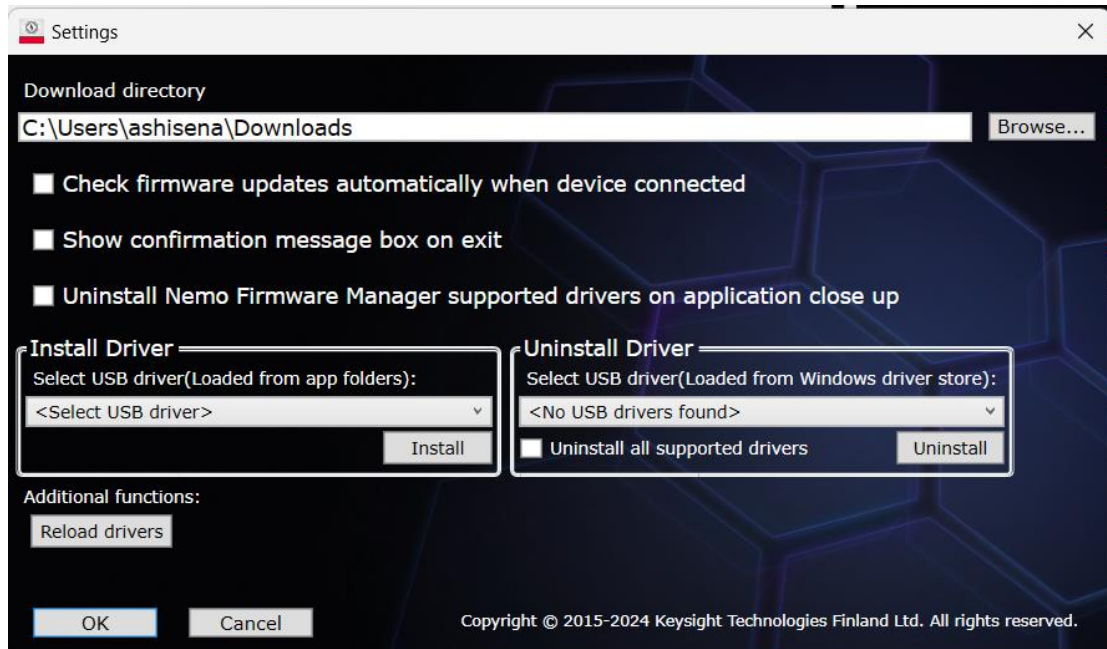
Confirm if you want to uninstall all supported devices every time you close NFM. This notification appears only the first time you close NFM. Note that you need admin rights to install and uninstall drivers.



You can change this setting (Uninstall Nemo Firmware Manager supported drivers on application close up) later from NFM Settings.

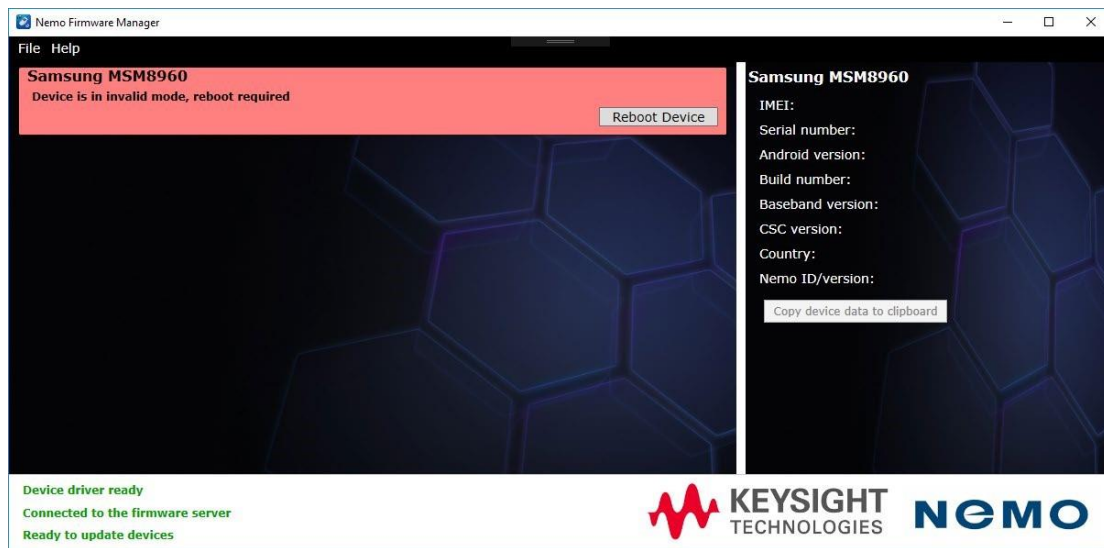


You can also manually uninstall drivers from **Settings**. Select a driver from the menu and click **Uninstall**.



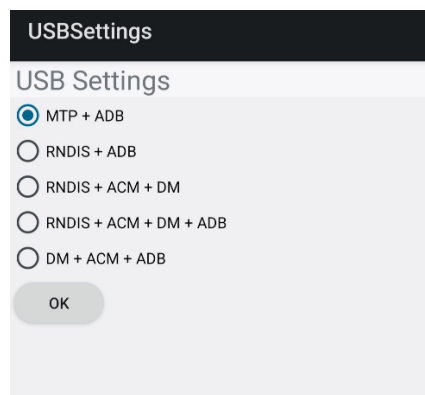
Click the **Reload drivers** button to browse for supported drivers.

### 7.3 Device is in invalid mode, reboot required

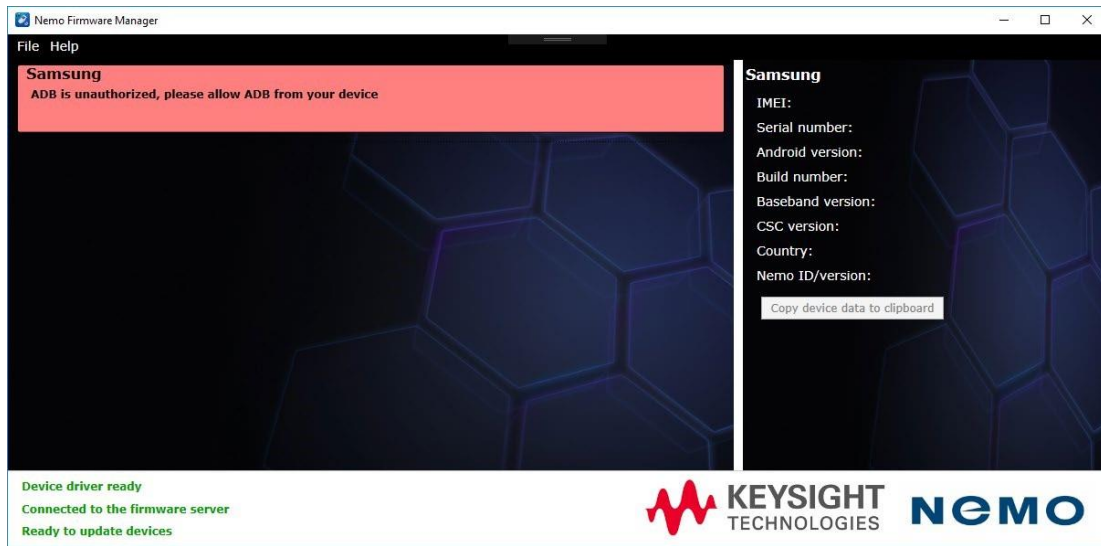


The mobile device is in the wrong mode.

Ensure that the mobile device USB settings are correct by going to **Phone | Keypad** and inserting the following combination to open the USB settings: **\*#0808#** **(for Samsung devices only) or put the device in File Transfer mode(for non Samsung devices)** In USB Settings, select **MTP + ADB** and tap **OK**.

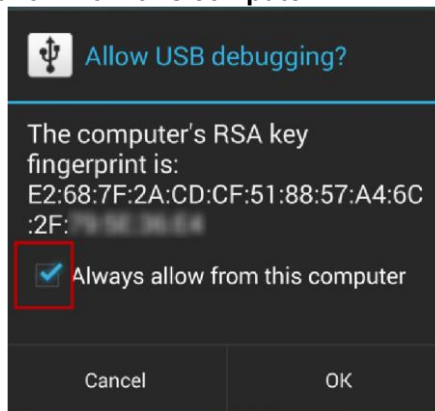


## 7.4 Waiting for ADB authorization



The device USB debugging option is not selected.

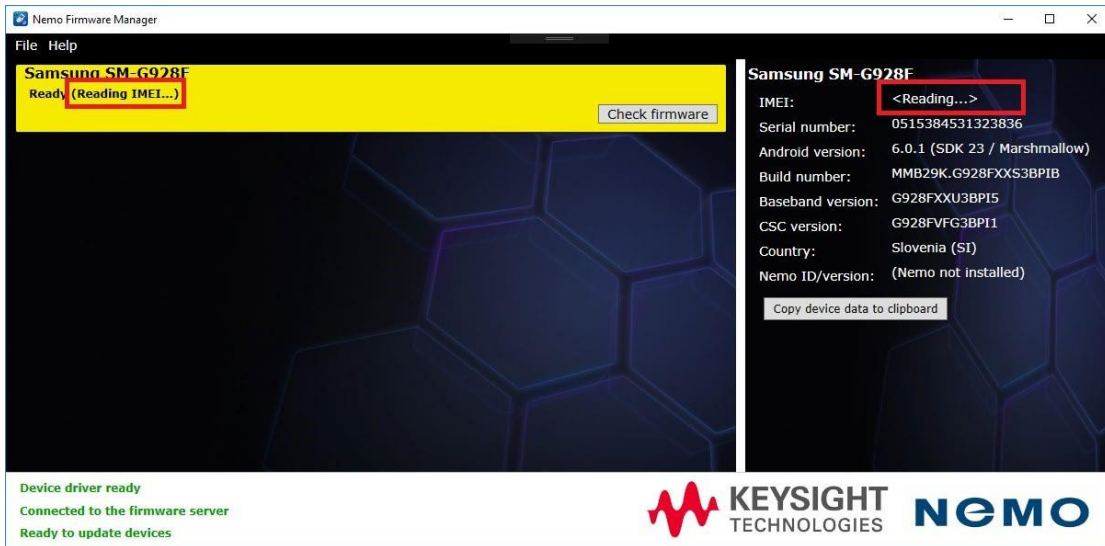
You must select the **Always allow from this computer** checkbox on the mobile device screen.



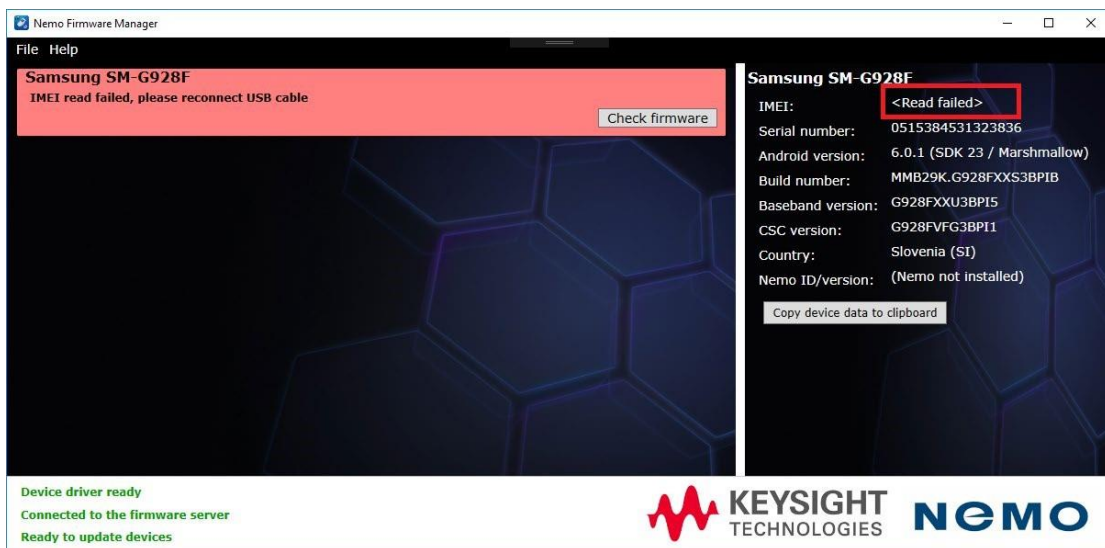
If this popup is not displayed on the mobile device screen, disconnect the USB cable from the mobile device and reinsert the cable. The popup should appear.

## 7.5 IMEI read failed

The IMEI of the device is required to get the firmware update. IMEI is read automatically from the device when it is connected to the USB.



If the IMEI read fails, the firmware update is not possible.



To read the IMEI again, reconnect the USB cable. If the IMEI read still fails after USB reconnect, it is recommended to reboot the device.

## 7.6 No license to update firmware

Firmware update requires a license bind to the IMEI of the device. If there is no license, the firmware update is not started, and the following error message is shown.

Nemo Firmware Manager


File Help

**Samsung SM-G928F**  
No license to update firmware

**Samsung SM-G928F**  
IMEI: 353121070181166  
Serial number: 0515384531323836  
Android version: 6.0.1 (SDK 23 / Marshmallow)  
Build number: MMB29K.G928FXXS3BPIB  
Baseband version: G928FXXU3BP15  
CSC version: G928FVFG3BP11  
Country: Slovenia (SI)  
Nemo ID/version: (Nemo not installed)

Copy device data to clipboard

Device driver ready  
Connected to the firmware server  
Ready to update devices

 **KEYSIGHT**  
TECHNOLOGIES **NEMO**

## 8 Customer Support

If you have questions on or beyond this documentation about Nemo tools, please contact our technical support service through Nemo Support Portal at <http://nemo.support.keysight.com>, call us or send us an email at [nemo.support@keysight.com](mailto:nemo.support@keysight.com). Note that for full support you need to have the Maintenance Agreement.

### 8.1 Nemo Support Portal

Nemo Support Portal is a web interface for technical support, product-related questions, and RMA requests. It offers a fast and convenient way to reach our technical support team and submit repair, warranty repair, and calibration requests. Customers can open a support ticket, follow the status of existing tickets, and request technical support 24/7/365. Furthermore, the Nemo Support Portal includes a Knowledge Base for the most frequent and latest topics on Nemo Products. Submitting a ticket via Nemo Support Portal ensures that our technical specialists have all the necessary information available to solve your support case, resulting in faster response times.

Please go to <http://nemo.support.keysight.com> to access the portal and click **Request access** to obtain a password to the system.

### 8.2 Phone and email support

During the warranty period, *the phone support related to potential software errors* is free of additional charge. Registered users with a valid Maintenance Agreement are entitled to *full support*. For a list of service locations, please visit <http://www.keysight.com/find/assist> Nemo Support Portal is the preferred channel for technical support requests, but you can also send us an email to [nemo.support@keysight.com](mailto:nemo.support@keysight.com). When emailing, please let us know the number of your Software Maintenance and Support Agreement.

### 8.3 Locations for Keysight Technologies

Online assistance: <http://www.keysight.com/find/assist>

Should the Declaration of Conformity be required, please contact a Keysight Sales Representative, or the closest Keysight Sales Office. Alternately, contact Keysight at: [www.keysight.com](http://www.keysight.com)



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