

Release note

Topic u-blox M8 ADR 4.31 firmware for ADR products
UBX- 20009341 C1-Public

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1 General information

This firmware operates with UBX-M8030-KT-DR and UBX-M8030-KA-DR chips and NEO-M8L professional and automotive grade modules.

1.1 Scope

This release note covers the changes to the ADR 4.31 firmware compared to the ADR 4.21 firmware version. For a comprehensive list of changes with respect to earlier versions, this release note should be read in conjunction with the ADR 4.21 release note.

1.2 Released firmware image

1.2.1 Chipset firmware

Image file for software-interfaced sensor data:

```
UBX_M8_301_ADR431_CHIPSET__SWIF.e66975d72c367ecc97b51e273c6af655.bin
```

Image file pre-configured for directly-connected sensor (hardware sensor interface):

```
UBX_M8_301_ADR431_CHIPSET__HWIF.30ff7922e6e270c495d519a7f9ee708f.bin
```

FW ID string: EXT CORE 3.01 (e3981c)
 FWVER=ADR 4.31
 PROTVR=19.20

Supports ROM base: 2.01, 3.01

1.2.2 Module firmware

Image file pre-configured for the NEO-M8L module:

```
UBX_M8_301_ADR431_NEO_M8L_HWIF.e34da735178dd8d11ee8831fccc6b59.bin
```

FW ID string: EXT CORE 3.01 (e3981c)
 FWVER=ADR 4.31
 PROTVR=19.20

Supports ROM base: 2.01, 3.01

1.3 Related documentation

- [1] u-blox M8 Receiver Description including Protocol Specification, UBX-13002887 – Confidential
- [2] GNSS firmware 3.01 release notes, [UBX-16000319](#)
- [3] ADR 4.21 firmware release notes, UBX-18050701 - NDA required

1.4 u-center

u-center for Windows v20.01 or later should be used together with this firmware.

1.5 Firmware update tool

The firmware update utility tool v. 2.01 supports this product.



Earlier versions of the firmware update tool will not operate with this release.

1.6 USB drivers

- u-blox GNSS Standard Driver for Windows v. 1.2.0.8
- u-blox GNSS Sensor Device Driver for Windows v. 2.40 and later
- u-blox GNSS VCP Device Driver for Windows v. 3.10

The latest drivers are available in the Product resources section of the u-blox website - <http://www.u-blox.com>

1.7 USB identification u-blox M8

Vendor ID: 0x1546
Product ID: 0x01A8
Driver string: u-blox GNSS receiver

1.8 Built-in driver support for directly connected sensors

This release includes built-in support for the following sensors connected via a two-wire interface (hardware sensor interface). Additional sensors may be supported on request in the future firmware releases.

Sensor type	Address	Configuration	Notes
Bosch BMI160	0x68	SD0 connected to GND	Connect CSB to VDDIO
Bosch BMI055	0x18 and 0x68	SDO1 and SDO2 connected to GND	PS connected to VDDIO
Bosch SMI130	0x18 and 0x68	SDO1 and SDO2 connected to GND	PS connected to VDDIO
Bosch SMG130	0x18 and 0x68	SDO1 and SDO2 connected to GND	PS connected to VDDIO
Bosch SMI230	0x18 and 0x68	SDO1 and SDO2 connected to GND	PS connected to VDDIO
Invensense MPU6515	0x68	ADO/SDO to GND	PS connected to VDDIO
Invensense MPU6500	0x68	ADO/SDO to GND	PS connected to VDDIO
ST LSM6DSL	0x6A	SDO/SA0 to GND	PS connected to VDDIO
ST LSM6DS3	0x6A	SDO/SA0 to GND	PS connected to VDDIO
ST LSM6DS0	0x6A	SDO/SA0 to GND	PS connected to VDDIO

2 ADR 4.31

2.1 Introduction

This chapter describes the new ADR features and improvements in this release compared to flash firmware ADR 4.21.

2.2 UDR fallback

Note that ADR 4.31 firmware supports UDR fallback. In case of missing wheel tick data, the firmware will automatically switch to UDR mode.

3 Specialties and known limitations

3.1 Special vehicle types

This release has been optimized and tested for light road vehicles including motorbikes. Performance and behavior has not been characterized for trains, trams or trolleybuses.

4 Improvements

The following improvements in terms of positioning accuracy and reliability have been made in this firmware release:

1. Handling of vertically mounted modules or IMU sensors (Gimbal Lock)
2. Handling of modules or IMU sensors mounted with certain roll angle while using manual alignment
3. Positioning performance during vehicle acceleration
4. Switching between DR and no-fix mode
5. Directional output while reversing
6. Map aiding functionality
7. Data transfer via USB interface
8. RTC reset mechanism
9. Hot start behavior under difficult GNSS conditions
10. 3D position accuracy estimation after power cycle
11. Thresholds for turn table mode to enable faster recovery for heading
12. Reduced the effect of vibration on INS offset while the vehicle is stationary
13. GNSS: Starting bit detection strictly after bit synchronization
14. ADR bike platform: INS reset after power cycle
15. Inertial sensor data handling