

Support Bulletin

TRIMBLE GEOSPATIAL

SEPTEMBER 2023

TRIMBLE DISTRIBUTOR CONFIDENTIAL

TRIMBLE SURVEY GNSS FIRMWARE WEEK NUMBER ROLL OVER (WNRO) ISSUE

Description and cause of the issue

Trimble GNSS receiver firmware versions <4.30 have reached the end of their lifespan as of 20 August 2023 and **should no longer be used**. Receivers with firmware versions <4.30 will encounter issues with the date and clocks being off because the GPS week number is incorrect. In order to address this issue, you must update your receivers at a minimum to firmware version 4.30. Any firmware below version 4.30 will have an incorrect week number. Updating to firmware 4.30 will result in an extension of approximately four years before the firmware expires.

Firmware versions ≥ 4.30 are available for all Trimble GNSS receiver products *except* the Trimble 5700 Model 1 and 5800 Model 1. As such, Trimble 5700 Model 1 and 5800 Model 1 receivers should no longer be used for practical field work. We recommend retiring these receivers because they will produce wrong dates.

Remedial actions

If your receiver firmware warranty date is insufficient to install firmware v4.30, please apply the following option code to update the firmware warranty date to April 2011:

Receiver Model	Option Code	Option Code Description
All Trimble Survey GNSS receiver models	kchv/orNZshD	Firmware warranty date: 2011-04-30

Note that the option code will work on all devices in the table below except for the Trimble NetRS. If you are having issues with the code, please contact your Trimble support team and provide your receiver serial number. Do not apply the code to any receiver having a firmware warranty date later than April 2011.

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Receiver Model	Minimum Firmware Version	Minimum Firmware Expiration Date	Most Recent Firmware Version	Most Recent Firmware Release Date	Most Recent Firmware Expiration Date
Trimble NetRS	1.3-2	2032-03-28	1.3-2	2012-09-01	2032-03-28
Trimble NetR3/5	48.01	2030-08-19	48.01	2016-12-22	2030-08-19
Trimble 5700-2	4.43	2028-08-20	4.90	2014-06-01	2031-08-17
Trimble 5800-2	4.43	2028-08-20	4.64	2013-02-01	2029-06-10
Trimble R5	4.43	2028-08-20	5.00	2015-03-09	2032-08-15
Trimble R7	4.43	2028-08-20	4.43	2011-12-01	2028-08-20
Trimble R7-2 (R7 GNSS)	4.43	2028-08-20	5.00	2015-03-09	2032-08-15
Trimble R4	4.43	2028-08-20	4.64	2013-02-01	2029-06-10
Trimble R6, R6-2	4.43	2028-08-20	4.64	2013-02-01	2029-06-10
Trimble R8	4.43	2028-08-20	4.43	2011-12-01	2028-08-20
Trimble R8-2	4.43	2028-08-20	4.64	2013-02-01	2029-06-10
Trimble GeoXR*	4.95	2032-08-16	5.01	2015-04-07	2032-08-16
Trimble Geo7X*	4.10 (4.9X)	2031-08-17	4.50.3 (5.32)	2018-01-09	2035-08-12
Trimble R4-2	4.61	2029-06-10	5.61	2023-08-01	2039-09-11
Trimble R6-3	4.61	2029-06-10	5.61	2023-08-01	2039-09-11
Trimble R8-3	4.61	2029-06-10	5.61	2023-08-01	2039-09-11
Trimble R10	4.63	2029-06-10	5.61	2023-08-01	2039-09-11
Trimble R4-3	4.71	2029-08-19	5.61	2023-08-01	2039-09-11
Trimble R6-4	4.71	2029-08-19	5.61	2023-08-01	2039-09-11
Trimble R8-4	4.71	2029-08-19	5.61	2023-08-01	2039-09-11
Trimble NetR9 (Ti-x, Ti-M)	4.93	2031-08-17	5.61	2023-08-01	2030-08-19
Trimble R8s, R8s LT	5.10	2032-08-15	5.61	2023-08-01	2039-09-11
Trimble R2	5.10	2032-08-15	5.61	2023-08-01	2039-09-11

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Trimble R9s	5.14	2032-08-15	5.61	2023-08-01	2039-09-11
Trimble R10-2	5.37	2034-08-13	5.61	2023-08-01	2039-09-11
Trimble R12	5.37	2034-08-13	5.61	2023-08-01	2039-09-11
Trimble R12i	5.48	2039-11-13	5.61	2023-08-01	2039-09-11
Trimble R750	5.55	2039-11-13	5.61	2023-08-01	2039-09-11
Trimble R780	5.60	2039-11-13	5.61	2023-08-01	2039-09-11

***Note:** The Trimble Geo 7X and Geo XR do not require use of the option code.

Trimble advises that customers update their firmware to the minimum version indicated in the table above.

What is a GPS Week Number Rollover (WNRO)?

The GPS system uses a 10-bit counter to keep track of the weeks since the system's first "epoch," which began on January 6, 1980. This counter can only represent a maximum of 1,024 weeks before it rolls over to zero, starting a new cycle. When this rollover happens, it's referred to as a Week Number Rollover event. The first WNRO event occurred in 1999. Subsequent WNRO events occur approximately every 19.7 years. The most recent WNRO event was in April 2019.

What is a Pivot Date?

A GPS Week Number Rollover related event occurred at the end of the GPS day on 20 August 2023, a so-called pivot date. A Pivot Date is a solution used in the industry to start at any week and counts from there 1024 weeks. The concept is to move the WNRO out as long as possible, independently from the original GPS WNRO.

Why is the WNRO Pivot Date important?

WNRO Pivot Dates affect GNSS receivers in a similar way to WNRO events. If a GNSS receiver is not updated to account for the pivot date, it may incorrectly interpret the actual week number after the pivot date. This can lead to errors in the calculation of time, date, and position, preventing the GNSS receiver from operating.