

GPS Time Update

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On 6-7 April 2019, a parameter in the GPS system will “roll over” to zero, which may affect older GPS equipment, or equipment that has not received firmware or software updates recently.

Background: The GPS satellite constellation transmits the exact time to all GPS receivers. The format for this information includes a parameter that represents the week, called the GPS week number. The week number has been counting incrementally by 1 since January 5th, 1980, and is an integral part of the navigation message received by all GPS receivers. When the week number reaches 1024 at 18 seconds before midnight (UTC) on April 6th, 2019, it will reset to zero as it keeps counting. This has happened once before - in August of 1999.

Older GPS receivers, or receivers that have not been provided manufacturer updates, may be impacted by the rollover. The impact might occur in April, or could affect such equipment at a later date. On these receivers the date might revert back to August 1999, or may revert to another date. Since this issue does not affect the other parts of the GPS navigation message, (it only affects the date), the receiver’s ability to calculate the position and to display the exact time of day should not be impacted.

If you are operating a relatively recently-made piece of GPS equipment, it has likely been designed to handle this rollover event. If you regularly update your equipment’s software/firmware with manufacturer updates, it has likely been prepared to handle it. If you are unsure, check with your manufacturer. If the equipment was built to the following published specification, it will handle the rollover without problem: Global Positioning Systems Directorate Systems Engineering and Integration Interface Specification, IS-GPS-200.

If your receiver shows symptoms similar to those describes above, it is recommended that you contact your equipment manufacturer for further assistance.

To best prepare for this rollover event, users of GPS equipment who are concerned should update their firmware, or contact their equipment manufacturer to ensure their equipment is ready for this event.

Find additional information about GPS and the GPS Week Number Rollover here:

- [GPS.gov](https://www.gps.gov)
- [Department of Homeland Security Memorandum for U.S. Owners and Operators Using GPS to Obtain UTC Time](#)

Civil GPS users are encouraged to report disruptions or anomalies to the [U.S. Coast Guard Navigation Center](#) or via phone at 703-313-5900, 24 hours a day.