



Maritime &
Coastguard
Agency

Guidance

Safety Bulletin 13: GPS Week Number Rollover

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The Maritime & Coastguard Agency would like to make Operators that use the Global Positioning System (GPS) for both position and UTC (Coordinated Universal Time), aware that the GPS Week Number will be rolling over for the second time, on April 6 th, 2019.

This could cause stand-alone GPS receivers and systems using GPS chips, to produce data that is 19.7 years either in the past or future, therefore generating errors in both the GPS position and time. However, if onboard equipment has been installed after August 1999, or has regular firmware updates from the manufacturer, there should be minimal risk of an error occurring. Please note that not all products will Rollover on April 6th, 2019, some may Rollover on a different date due to the implementation in the manufacturer's firmware.

Summary of issue

The Week Number is stored as a 10-bit binary number which allows for a maximum of 1024 weeks (19.7 years) before resetting to 0. Since being rolled out in 1980, this will be the second time this has occurred, which means most manufactures are aware and are prepared.

There are products at a higher risk of going wrong if they are;

- units older than 10 years, and
- units which have had no firmware updates.

Products are at a lower risk if;

- they are relatively new units, and
- units that are regularly updated with firmware.

Actions to take

- Ensure all recent firmware updates are completed;
- Check with your GPS manufacturer for further information on GPS-dependent equipment and identify what action, if any is, required by the operator;

- Identify what effect this could have on your current operations, PNT (position, navigation and timing) solutions and potential issues if failure occurred; and
- Operators of such equipment should monitor and, wherever possible, verify their equipment for any errors.

Legal requirements

Owners are responsible for the correct operation and maintenance and should contact the manufacturer for advice.

Further information

Contact the GPS manufacturer.

[‘Memorandum for U.S. owners and operators who use GPS to obtain UTC Time \(https://us-cert.cisa.gov/sites/default/files/documents/Memorandum_on_GPS_2019.pdf\)](https://us-cert.cisa.gov/sites/default/files/documents/Memorandum_on_GPS_2019.pdf)

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