Trimble R7 and 5700 Firmware issue for receivers with FW less than 2.3

844 Henry Berglund April 19, 2016 Trimble R7/5700 6819

Trimble has indicated that there is an issue with their firmware that will cause the 5700 and R7 models to become inoperable after the GPS week roll over on 14 FEB 2016. The issue also affects the 4700/4800 series receivers too, but there is no solution to fix it. If your receiver is running with a firmware less than 2.3 it will need to be updated in-order for it to operate again.

To assist the UNAVCO community we have written instructions on how to upgrade your firmware to 2.32 and a copy of the program that is needed to upgrade to 2.32. The attachments are available below. If you have bad data, instructions are also below too on how to correct for the week offset.

Please note that it is most likely that you will need a warranty code password to update you receiver. The receivers expiration warranty date can be found using WinFlash. If is older than 1/2004 you need to send your list of serial numbers to Trimble and request the codes.

UPDATE 16 APR 2016: Email addresses for requesting codes:

UNAVCO Community members : marc_dahlberg@trimble.com

non UNAVCO Community members : Sales_TrimbleProtected@Trimble.com

The following is a statement from Trimble that explains the issue.

Trimble message:

On February 14, 2016, certain older versions of Trimble firmware will experience what is akin to a GPS week rollover. Trimble 4700 and 4800 GPS receivers, that are long obsolete and end of service, will not handle this rolloverevent properly and will experience erratic and unreliable behavior for time and date reporting. As those receivers will interpret the GPS time in error by 1024 weeks, receiver data outputs will have the wrong time reference. This will negatively impact subsequent systems that are communicating with that receiver, potentially

including the rejection of data packages.

More recent Trimble GPS/GNSS receivers types, including Trimble 5700, NetRS, NetR3, NetR5, NetR8, and NetR9 with **current firmware** are not impacted by the upcoming rollover on February 14, 2016.

Further testing has shown the 4000SE/SSE/SSi will also handle the rollover without issue.

Unfortunately, there is no technical solution available for the Trimble 4700 and 4800 GPS receivers to c orrect this issue.
Regarding communications, every receiver model is being handled by their respective Business Areas wit hin Trimble as far as how they communicate the rollover to their users. In our case, while these impacte d receivers reside within other Business Areas, we are reaching out to our users in cases where we're awa re they are running such units to give a more advanced heads up.

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IMPORTANT: For users who have bad data that was collected after 14FEB16.

You can correct for the week offset in the data by using TEQC to create your RINEX data. By using the "-week" flag in TEQC, you can force the correct week to be used when creating RINEX files.

e.g teqc -week #### FILENAME.dat > FILENAME.obs (where #### is the GPS week number that that the data was collected on).

For example, here is a RINEX file created using just the raw data file and no TEQC flags:

```
-Unknown-          -Unknown-                      OBSERVER / AGENCY
0440100569         TRIMBLE 5700       1.24        REC # / TYPE / VERS
00000000           TRM41249.00     NONE           ANT # / TYPE
 -1282457.3621 -4718377.6066  4084178.4582       APPROX POSITION XYZ
       0.0530       0.0000       0.0000          ANTENNA: DELTA H/E/N
```

```
     1     1                                      WAVELENGTH FACT L1/2
     7    L1    L2    C1    P2    P1    S1    S2          # / TYPES OF OBSERV
    17                                           LEAP SECONDS
 SNR is mapped to RINEX snr flag value [0-9]               COMMENT
  L1 & L2: min(max(int(snr_dBHz/6), 0), 9)                 COMMENT
  1996     7    12    18    32   30.0000000     GPS         TIME OF FIRST OBS
                                               END OF HEADER
```

Here is the same data but this time the '-week 1885' flag was used:

```
-Unknown-           -Unknown-                        OBSERVER / AGENCY
0440100569          TRIMBLE 5700        1.24         REC # / TYPE / VERS
00000000            TRM41249.00     NONE             ANT # / TYPE
 -1282457.3621 -4718377.6066  4084178.4582          APPROX POSITION XYZ
        0.0530        0.0000        0.0000          ANTENNA: DELTA H/E/N
     1     1                                      WAVELENGTH FACT L1/2
     7    L1    L2    C1    P2    P1    S1    S2          # / TYPES OF OBSERV
    17                                           LEAP SECONDS
 SNR is mapped to RINEX snr flag value [0-9]               COMMENT
  L1 & L2: min(max(int(snr_dBHz/6), 0), 9)                 COMMENT
  2016     2    26    18    32   30.0000000     GPS         TIME OF FIRST OBS
                                               END OF HEADER
```

Online URL:
https://kb.unavco.org/article/trimble-r7-and-5700-firmware-issue-for-receivers-with-fw-less-than-2-3-844.html