

## Trimble® Precision GNSS OEM Receivers, 4.80

This document contains late-breaking product information, updates, and troubleshooting tips not covered in the Trimble® OEM GNSS receivers' documentation.

- [Introduction](#)
- [Upgrade Procedure](#)
- [New Features and Changes](#)
- [Legal Notices](#)

### Introduction

These Release Notes describe improvements made since version 4.71 to the following Trimble GNSS OEM receivers:

- BD910
- BD920
- BD960
- BD970
- BD982
- BX960
- BX982

With this release, all the above receivers can use version 4.80 firmware. To use firmware version 4.80, you must have a valid firmware warranty. You can check the Firmware Warranty Date using the web interface. Make sure the date shown is 2 April 2013 or later. Alternatively, obtain the warranty date from the WinFlash software. Select Verify receiver options and ensure the Firmware Option is 2 April 2013 or later. For further support information, go to [www.trimble.com/support.shtml](http://www.trimble.com/support.shtml).

### Upgrade Procedure

There are two ways to load the new firmware:

- Use the WinFlash utility (BD9xx WinFlash v234\_v480.zip) downloaded from the Trimble website.
- Use the web interface of the receiver to load the firmware image file downloaded from the Trimble website.

# New Features and Changes

The following improvements have been made to the OEM GNSS receivers:

## General

- BeiDou satellites are now tracked and used in the position solution (on receivers that support BeiDou tracking with the BeiDou option installed)
- RTK engine processor usage further improved.
- RTX engine updated to version 3.0, improving convergence times.
- Updated OmniSTAR™ libraries.
- Added SBAS+ functionality, which enables the receiver to use pseudoranges of satellites for which SBAS corrections are present as well as pseudoranges from uncorrected satellites in the position solution. The SBAS+ solution can minimize occurrences of the solution mode switching back and forth between SBAS and Autonomous solution modes; however, the SBAS+ position solution may perform more poorly at times because uncorrected satellites have an influence in the position solution.
- Expanded the limits of the MSAS coverage grid to 110 East longitude from 120 East longitude.
- Minor translation updates.
- For the BD982 and BX982 receivers, a clock constraint is applied for the internal heading vector between the position and vector antenna.

## Tracking

- BeiDou is now tracked in accordance with the Interface Control Document.
- General GNSS constellation tracking updates.
- Improved handling of SBAS ionosphere models.
- Graphical user interface (GUI) display updated to better display GNSS constellations.
- Improved EGNOS positioning performance.
- GAGAN tracking updates.
- Trimble EVEREST™ multipath rejection algorithms improved for new GNSS constellations.

## Data formats

- Resolves issue whereby RTCM version 3 bandwidth limiting would be lost on a reset.
- GSOF updates for new GNSS constellations.

## Networking and security

- Improved resilience against FTP server attacks.
- Bandwidth limiting option now implemented for NTRIP Caster and NTRIP Servers.
- DNS queries via PPP connections now use the PPP IP address.

- Improved handling of DNS entries when switching networks.
- Resolves issue where TCP port connections cannot be reestablished after a UDP broadcast port was configured.
- NTRIP Caster and NTRIP Server mountpoints no longer allow for the following characters:

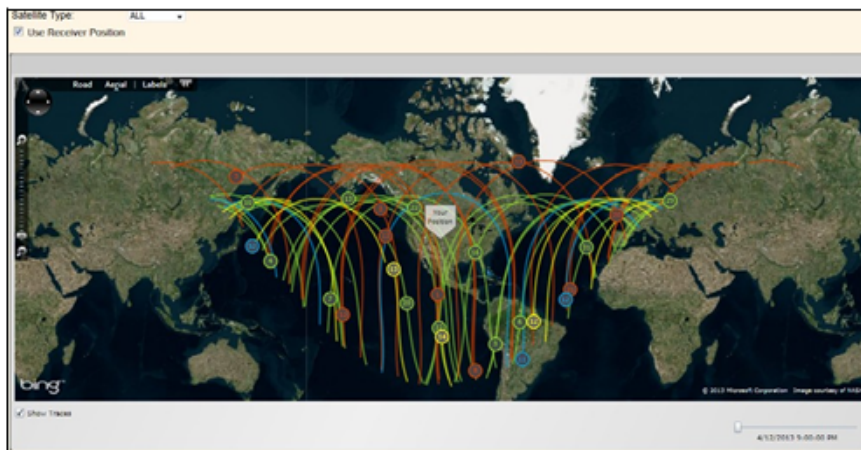
;	@	\$
/	&	'
?	=	(space)
:	+	

If any of these characters are entered, they are automatically replaced with an underscore '\_'.

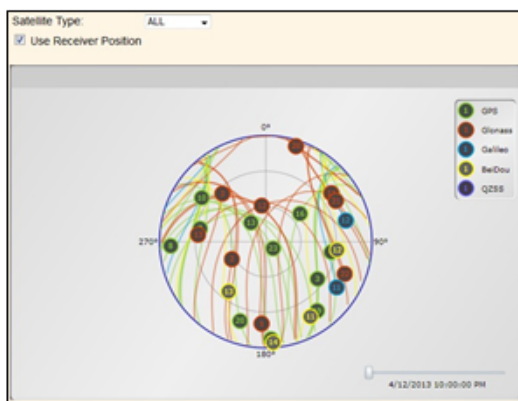
## Web interface

- General updates to improve browser rendering.
- Improved stability of the *Email Alert* feature.
- References to *Compass* have been updated to *BeiDou*.
- *Automatic Firmware* check updated to handle server redirects.

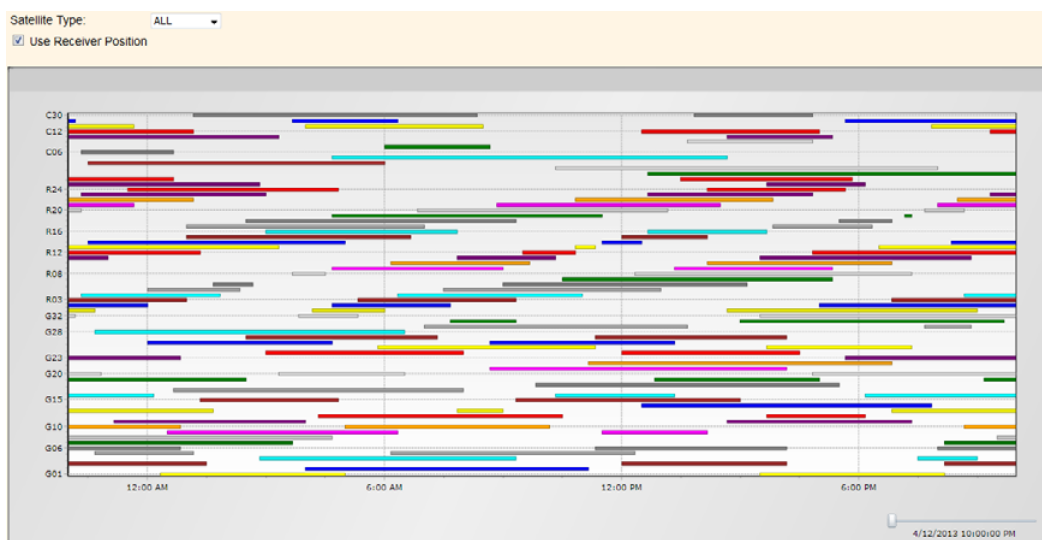
- New web interface menu, *Web Services*, that allows for the following selections:
  - Satellites – Map View:



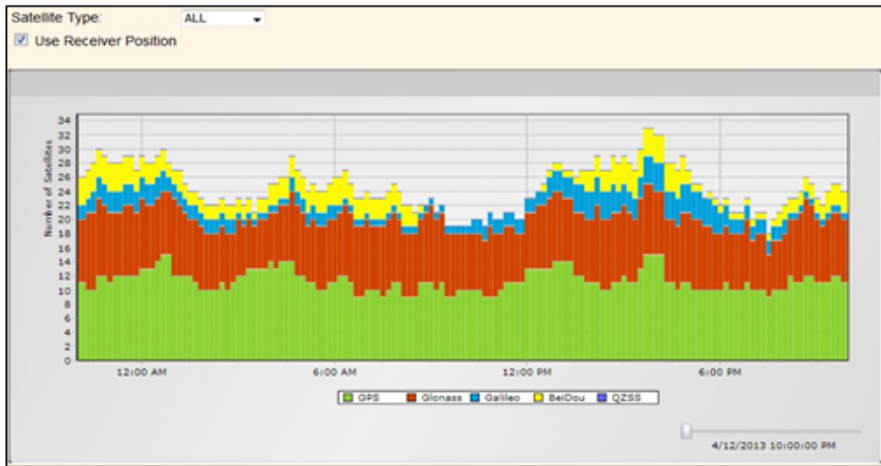
- Sky Plot:



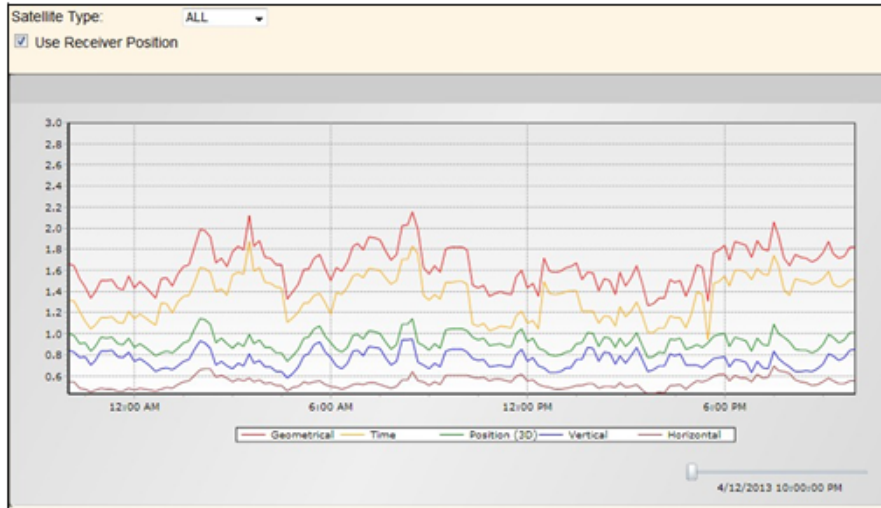
- Satellite Availability:



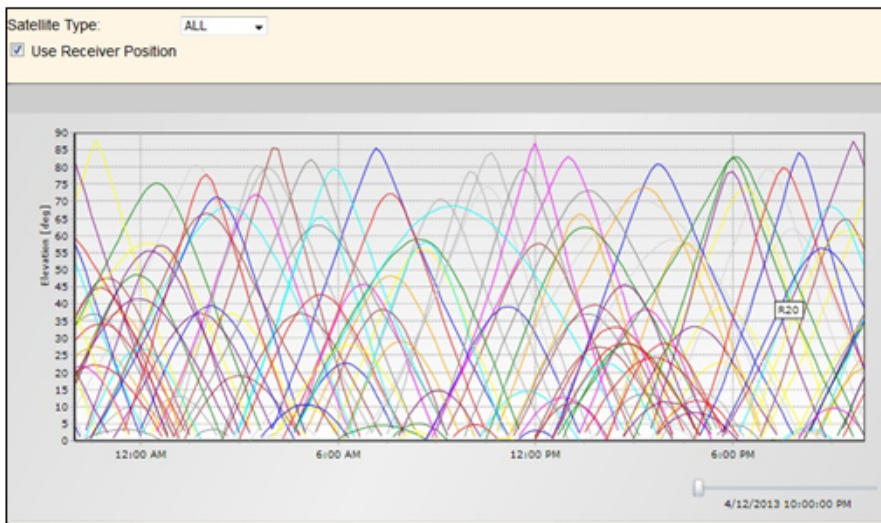
- Number of Satellites:



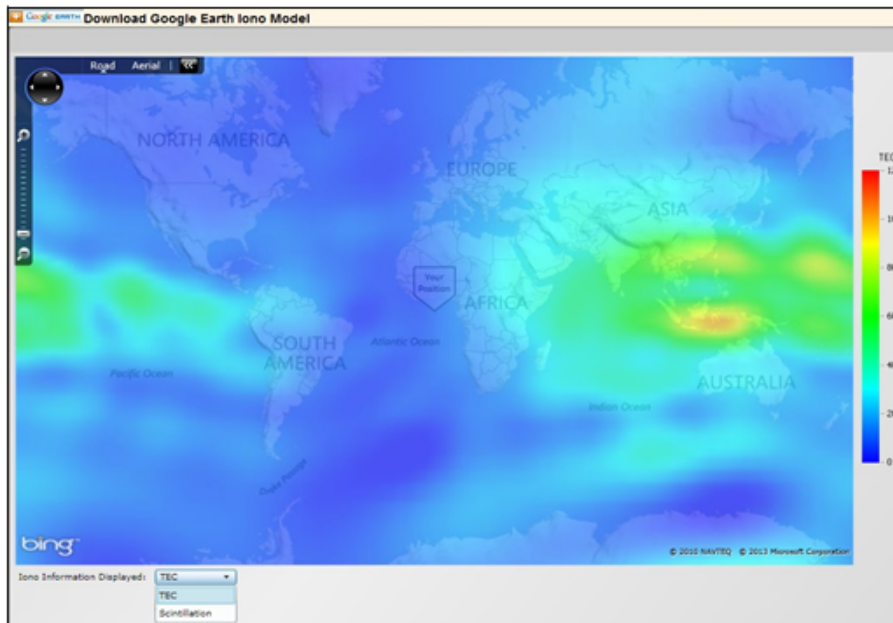
- DOP:



- Elevation:



– Ionospheric Map:



- To use the *Web Services* menu, the receiver must have an Internet connection and the device/browser connecting to the receiver must have the Microsoft® Silverlight® development tool (or variant thereof) installed.

## Documentation updates

The following updates have been made to the online help ([www.trimble.com/OEM\\_ReceiverHelp/V4.80/en/default.html](http://www.trimble.com/OEM_ReceiverHelp/V4.80/en/default.html)).

- Added a description of the SBAS+ functionality.
- Updated the limits of the MSAS coverage grid.
- Updated the BD910 and BD920 1PPS jitter specs.
- The Wi-Fi LED indication is now displayed for the BD920-W3G receiver board.
- Added information and reference designs regarding event input signal conditioning.
- Updated the reference designs for Ethernet.
- Added a note that IO Evaluation board schematics and Gerber files for the BD910 and BD920 receivers can be obtained from [GNSSOEMSupport@trimble.com](mailto:GNSSOEMSupport@trimble.com).
- Added a mechanical, dimensional drawing for the BD920-W3G receiver board.
- Updated the BD920-W3G IO Evaluation board diagram with labeling.
- Added further integration notes to the BD920-W3G receiver board regarding USB design.
- Added a reference design for the BD920-W3G SIM card.
- Modifications to the BD920-W3G regulatory compliance information.
- Updated the manual to reflect the new dual/triple frequency tracking options.
- Updates to the 4Bh RETOPT message to clarify options and include new constellations.
- Updated the 54h and 55h messages for the new BeiDou Almanac message.

- Updated the 57h subtype 0 concise message to include the L2 data fields.
- Included the 64h APPFILE record for the Multiplexed port control.
- Updated the port numbering and identification.
- Clarified the reset functionality.
- Updated the GSOF 33 and 34 (All SV) messages for BeiDou support.
- Added a section for Application Notes. Included are:
  - BD9xx setup.
  - GSOF message parsing and decoding (including sample C source code).
  - Attitude determination (which was previously in the “Basics of GNSS and RTK” section but is better suited as an Application Note).
  - Event input for the BD9xx using the IO development board.

## Legal Notices

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### Release Notice

This is the May 2013 release (Revision A) of the *Release Notes*. It applies to version 4.80 of the OEM GNSS receivers software.