Trimble® Pivot™ Platform GNSS Infrastructure Software

(Version 3.1)

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Introduction

These release notes describe new or changed features in Version 3.1 of the Trimble® Pivot™ Platform and its corresponding Apps when compared to version 2.5. This is an important release of software that adds new Apps, features and capabilities, and incorporates many requests from end users.

Before you upgrade the software, Trimble recommends that you download and back up any user files in the existing installation. For further information, refer to Trimble Pivot Platform software: Update guide, page 7.

New features and enhancements in the Trimble Pivot Platform

RTO (Real Time Output)

RTO Single Station and RTO Net properties allow you to enable and configure new messages and formats:

- Support for RTCM 3.2 MSM (Multi-Signal Message):
  - Output format for both RTO Single Station and RTO Net supports MSM messages 3–7.
  - Input format under the GNSS receiver’s decoder group RTCM3. The new RTCM3 decoder reads MSM messages 4–7.
- Support for text message output (that is, RTCM 3.x message 1029) as part of a new feature in the RTO properties:
  - The default setting is disabled.
  - When enabled, you can set the output rate and output text message.
- RTCM 3.x message 1006 output is now available as an alternative to message 1005. This option can be enabled in the RTO properties.
- RTCM 3.x message 1008 output is now available as an alternative to message 1007. This option can be enabled in the RTO properties.
- RTCM 3.x message 4094 output will send an RTCM equivalent to the previously introduced CMRx content Add PBS coordinates in ITRF current. Trimble rovers may benefit from this message providing improved initialization time.

RTO Net

The RTO Net properties contain a new category for Station Determination settings. They allow defining properties for Verbose logging and Check for closest PBS (Physical Base Station) regularly:

- **Verbose logging** allows you to turn on / turn off detailed output from network/station determination to the status view history.
- **Check for closest PBS regularly** determines the most appropriate PBS for rovers. The module will perform regular checks for each connected rover and verify if it is still connected to the most appropriate available PBS. If not, the better-performing PBS will be selected automatically.
  - A switch to a better-performing PBS will result in the affected rover being initialized again.
– *Check duration* default setting is 60 seconds.
– *Verbose logging* default setting is *Disabled.*
– *Check for closest PBS regularly* default setting is *Disabled.*

**GNSS receiver**

- In the *Remote Access* section, a **Copy** button has been added to the receiver name's *IP address* field. Click **Copy** to copy the GNSS receiver module IP address or host name from the *Incoming Connection* settings in the GNSS Receiver module. This enables you to configure IP addresses and hostnames configuration more quickly and reliably throughout the system.
  
The connection details are also copied to the *Remote Access* section; the information is used for *Firmware Upgrade* connections in the *Device Manager* module.
- The following receivers have been added to the list of supported receivers:
  - Leica GR25
  - Javad Sigma G3T

**Note** – *An additional G3 non-Trimble receiver license is required for each receiver to work in the software.*

- The **GNSS Receiver** module now offers a new option for the *Backup Connection* property setting. It is now possible to turn off the status log when a receiver connection switches from primary to secondary connection and vice versa. Once the backup connection is activated, the new property *Log backup connection usage* is available.
  - The main benefit is when you are operating in an environment with unstable primary data communication links. This allows to avoid too many status messages from connection switches.
  - Default setting is *Yes* if the *Use backup connection* option is activated.
- Beidou observations can be decoded when the BINEX format is used for data input.

**Device Manager**

*New SNR Filtering* is now available in the *Device Manager* properties. Satellite signals with high signal-to-noise-ratio can be filtered individually for respective signals in the following signal groups:

- **CA / P1 / E1 / B1 [db/Hz]**
- **L2 / L2C / L2CA [db/Hz]**
- **L5 / E5 / E5A / E5B [db/Hz]**
- **E6 / B3 [db/Hz]**

The thresholds and respective filtering will be applied to real-time data processing only. It will not affect data storage.
Network processor storage

GRIB (GRidded Binary) format has been added as new storage format for the Weather Condition module. GRIB is a standardized, concise data format that is commonly used for meteorology applications. GRIB version 2 is available on the Trimble Pivot Platform and stores IPWV (Integrated Precipitable Water Vapor) values.

- Files are stored in binary grb2 format.
- This option is available only if the Atmosphere Watch module’s tropospheric output type is Zenith total delay (ZTD).

RTK Engine PP module

The new RTK Engine PP module (Post Processing) works in a similar way to RTK Engine—it uses stored observation data instead of real-time data. The module allows stored raw observations files as input data in formats such as RINEX, DAT, or T02. Processing results at the rate of 15 seconds is written into the RTK Engine PP database table.

- The processor supports GPS and GLONASS observations.
- Adding an Integrity Monitor module allows you to use the respective charts and alarms.
- RTK Engine PP may fill missing data into database tables of other active Integrity Monitor modules to avoid gaps when real-time processing data was not available.
  - Available in an Integrity Monitor module that is inserted below an RTK Engine PP.
  - An additional property is added that then allows the operator to select another Integrity Monitor in the system.
  - It is used to store results from RTK Engine PP processing in an existing Integrity Monitor database table, for example, to load an RTK Engine IM with post-processing data.
  - Only active Integrity Monitor modules can be selected.
- Two processing modes are available:
  - Baseline processing mode
  - VRS™ processing mode
- Processing results are:
  - Baseline components
  - Offsets from the known coordinates
  - Errors
- These options are available with a valid license for the Trimble Integrity Manager Post Processing Engine.

RTX Engine

- RTX™ Engine now supports QZSS observations. The QZSS processing setting requires a valid Trimble Integrity Manager QZSS license.
- RTX Engine now allows selection of individual satellite systems (GPS, GLONASS, QZSS).
**Synchronizer**

The Synchronizer module’s general configuration now includes *Handling of Delayed Receivers*.

The new setting allows operators to define thresholds in order to exclude receivers in the Synchronizer if certain stations should constantly show large delays. Stations that have constant delays can have a negative impact on the processing performance in real-time processing engines. Excluding such stations might increase the overall performance.

The new property allows the following settings:

- *Exclude delayed receivers* (Yes / No).
- *Exclude delayed receivers after* (s)
- *Add healthy receiver after* (s)

*Note – Values for Max. delay (ms) and Station timeout (s) are hardcoded and cannot be changed.*

**Transformation Generator**

RTCM message 1025 (*Projection parameters*) support has been added to the Transformation Generator module. Settings are available in the module's property settings; RTCM message 1025 can be turned on/off. When turned on, a selection of various projections is available and the projection parameters can be set.

**Atmosphere Watch App/Weather Condition**

- *Radiometer data model support* has been added to the Atmosphere Watch App.

  Radiometer data model is available as new type of weather model. This type of weather model can be selected in the *General Settings* that are available in the Weather Condition module’s properties. Once *Radiometer data* is selected as type of weather model, you must set the following properties:

  - Path for radiometer data (radiometer data must be available in csv files)
  - Radiometer model (*Interpolated* or *Nearest*)
  - Maximum distance to radiometer [km]

- *Start/Stop post processing* is a new option in the Atmosphere Watch context menu. This setting is available when post processing is enabled as processing mode in the Atmosphere Watch module’s properties.

**DB Server**

The communication traffic between DB Server and the SQL data base has been significantly reduced by caching the accounting services. This new implementation will reduce the overall CPU load.
Supported operating systems and SQL Server

The Trimble Pivot Platform software, version 3.1, now supports the following operating systems:

- Windows Server 2008 x64
- Windows Server 2008 R2
- Windows® 7 Professional x64
- Windows Server 2008 R2, Chinese Simplified

**Note** – Trimble Pivot Platform is currently designed as a 32-bit service that can also run on 64-bit operating systems. Trimble plans to change the services into true 64-bit services in an upcoming release to make full use of the 64-bit technology. Once this is done, the software will no longer operate on 32-bit operating systems (that is, on Windows Server 2003, x86). Please consider this when updating your server hardware.

**Note** – The Web Application requires Microsoft® IIS (Internet Information Services). The software supports IIS 6.0 or later. If you are running IIS6, additional configurations might be necessary to correctly use Open Layers within the web application. For more information, email infrastructure_support@trimble.com.

The installation DVD now includes installation files for the Microsoft SQL Server® 2012 Express. Microsoft SQL Server 2008 Express is also supported.

**Note** – If you are using Windows SQL Server 2008 R2 on the Windows Server 2003, x86 operating system, you must install .Net 3.5 SP1 and Power Shell for Windows Server 2003 prior to installing the SQL Server. If you do not do this, the SQL Server installation will terminate without completing.

If you consider building a bigger network with more processing engines, Trimble highly recommends upgrading from the SQL Express version to a full SQL installation.

For a new installation of the Microsoft SQL Server 2012 Express, refer to the User Guide on the installation DVD.
Trimble Pivot Platform software: Update guide

Single server system

Updating Trimble Pivot Platform software version 2.5 to version 3.1

1. Create a backup of all important system data and all files that have been edited manually, for example:
   - Registry of Pivot installation
   - Data base
   - DBServer.exe.config
   - Contracts.xml
   - Customized emails (<Install Directory Trimble Pivot Platform>/ DBServer / Email).

   Note – Existing emails are not changed, new emails are added to the system.
   - Customized Reports (<Install Directory Trimble VRSNet> / DBServer / Reports)

2. Select Control Panel / Programs and Features and remove the Trimble Pivot Platform. Click Yes when the software prompts you to keep the data base.

3. Open Windows Explorer and make sure that any DLLs that have been manually added to the installation have also been removed. If not, please delete them manually.

   Note – Delete the Updates folder within the existing Pivot installation folder that was created when you applied a Pivot patch to the software. If you do not delete this folder, it will prevent the installation of future patches based on the current Pivot installation

4. Run the Installation Wizard for the Trimble Pivot Platform, starting from the splash screen.
   The installation process automatically updates the database and applies structural changes where necessary.

5. At the end of the installation, you are prompted to start the services now—click No.

6. Make the necessary changes to the DBServer.config.exe (Section <App settings>); do not copy the old file across as the content of this file has changed.

7. Update the license:
   - Update the license on the dongle with the Trimble License Activator tool—go to Start / All Programs / Trimble Infrastructure / Trimble Pivot Platform. Use the login credentials provided to you by email to access your license file.
   - Online licenses are updated automatically from 2.5 to 3.1 and are downward compatible. That is, the upgrade from version 2.5 to 3.1 can be done at any time; the online license will be available.

8. Start the Trimble Pivot Platform services in the Trimble Service Administrator (TSA)—the last used configuration will start automatically.

9. Start the user interface and reactivate the Tree View, App View, and Status Message view.
10. If you have changed the installation folder (for example, if you are using the default folder), copy the following files to the new installation folder:
   - Contracts.xml
   - Multipath files

11. Restart the DBServer once you have copied the new file into the folder.

**Distributed server system**

**Updating Trimble Pivot Platform software version 2.5 to version 3.1**

In principle, updating a distributed server system follows the same rules as described in the previous section.

1. Complete Step 1 through Step 5 from Single server system on each of the servers used in the distributed environment. You must create a registry backup for each server, as the configuration details are distributed on the different registries on each server. Make sure that you delete the Updates folder on each server within the distributed environment.

2. Make the necessary changes to the DBServer.config.exe; do not copy the old file across as the content of this file has changed.

   **Note** – With Pivot Platform version 2.1.2 the DBServer ID has been introduced to improve the handling of redundant installations. Make sure that the DBServer ID is correctly set within your DBServer.config.exe.

3. Update the license:
   - Update the license on the dongle with the Trimble License Activator tool—go to Start / All Programs / Trimble Infrastructure / Trimble Pivot Platform. Use the login credentials provided to you by email to access your license file.
   - Online licenses are updated automatically from 2.5 to 3.1 and are downward compatible. That is, the upgrade from version 2.5 to 3.1 can be done at any time; the online license will be available.

4. Starting with the master server, start the Trimble Pivot Platform services in the Trimble Service Administrator on each server. The last used configuration starts automatically.

5. Start the user interface and reactivate the Tree View, App View, and Status Message view.

6. If you have changed the installation folder (for example, if you are using the default folder), copy the following files to the new installation folder:
   - Contracts.xml
   - Multipath files

7. Restart the DBServer once you have copied the new file into the folder.
Web application

Updating Trimble Pivot Web Application version 2.5 to version 3.1

This update requires you to carry out some manual changes—there is no automated process to apply changes that the system administrator may have added manually to the system.

1. Backup the complete installation directory of the current Web Application Advanced.
2. Select Control Panel / Add or remove programs / Trimble Pivot Web.
3. Open Windows Explorer and make sure that any manually edited files have been removed. If not, please delete them manually.
4. Run the Installation Wizard for the Trimble Pivot Web software, starting from the splash screen.
5. Navigate to the installation directory of the Web Application and reapply any customizations you had earlier. Manual changes could have been done in any of the following files:
   - Layout.css
   - *.sitemap and site.master
   - AppSettings.config
   - Resource files

⚠️ CAUTION – Do not simply copy any file back from the previous installation as this might result in an inconsistent web installation. If you need help with the manual adaptation, email infrastructure_support@trimble.com.

6. Start the Web Application to check the final installation.
**Legal Notices**

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**Release Notice**
This is the April 2014 release (Revision A) of the Trimble Pivot Platform GNSS Infrastructure Software Release Notes. It applies to version 3.1 of the Trimble’s GNSS Trimble Pivot Platform software.

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For applicable product warranty information, please refer to the Warranty Card included with this Trimble product, or consult your Trimble dealer.