## RELEASE NOTES



# Trimble Positions Desktop Add-in

Version 10.5.0.1 Revision A November 2016



## Introduction

These release notes provide important information about the Trimble Positions Desktop Add-in version 10.5.0.1. Please read these release notes carefully.

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Welcome to version 10.5.0.1 of the Trimble Positions Desktop Add-in. The Trimble Positions software suite adds support for Trimble high-accuracy GNSS receivers using Esri ArcGIS for Windows Mobile and ArcPad technology, and provides deeper Esri integration for users of Trimble TerraFlex™ software and Trimble TerraSync™ software.

An add-in for the Esri ArcGIS Desktop 10.1 - 10.5 application, the Trimble Positions Desktop Add-in is used to set up the required projects, devices, and sessions, and for the day-today management of data collected by the Trimble Positions Mobile extension, a custom field application built using the Trimble Positions toolkit, or by the Trimble Positions ArcPad extension, including postprocessing of collected GNSS data. It can also facilitate checkout/check-in workflows with the TerraSync software and publish/download workflows with the TerraFlex software.

For detailed information on installing, configuring, and using the Trimble Positions Desktop Add-in, see the Trimble Positions Desktop add-in Administrator's Guide and the Trimble Positions Desktop add-in User Guide.

## New in this release

This section describes what's new in the Trimble Positions Desktop Add-in version 10.5.0.1.

• Performance improvements when downloading large numbers of forms collected with the Trimble TerraFlex software.

- Support for collecting and editing features in geometric networks. Trimble Positions Desktop add-in can now check in newly collected features (for example pipes or valves) into a geometric network. It also enables updating features which participate in a geometric network without breaking network connectivity.
- Support for Esri ArcGIS Desktop 10.5.
- Feature type library. The feature type library will speed up project creation for users who create multiple projects from the same feature classes in their GIS. Users can store their metadata fields, accuracy requirements and TerraSync data dictionary settings in the library, then automatically load them during new project creation.
- Support for handhelds and GNSS receivers with centimeter accuracy. Trimble Positions Desktop add-in can now postprocess data collected in the Trimble TerraSync software, the Trimble Positions ArcPad extension and Positions Mobile extension with centimeter configurations of the Trimble Geo7X handheld and Trimble R2 GNSS receiver.
- Additional per-position GNSS metadata available. An extended set of per-position GNSS metadata is now available, including horizontal and vertical accuracies, position solution information and DOP values. Access to an expanded set of metadata. Additional metadata options for the TerraSync software and Esri ArcPad workflows are now available.

# New in previous releases

This section describes what was new in earlier versions of the Trimble Positions Desktop Add-in.

#### Version 10.4.0.1

- Enhanced support for the Trimble TerraSync software. The Data Dictionary Editor and Data Transfer utilities from the Trimble GPS Pathfinder® Office software can be installed with the Trimble Positions Desktop Add-in. This enables the full TerraSync software workflow with Trimble Positions Desktop Add-in without needing the GPS Pathfinder Office software installed.
- Enables the creation of a TerraSync project from DDF or SSF. TerraSync software users are able to create a project within the Trimble Positions Desktop Add-in from an existing DDF or SSF file.
- Improved postprocessing options. Trimble Positions Desktop Add-in users have additional controls when postprocessing data which allows them to re-correct positions

that were corrected in real-time, choose either the best postprocessing result or the last postprocessing result, and to restore sessions and positions to their original status.

- Increased device support. The Trimble Positions Desktop Add-in now supports the Trimble R2 GNSS receiver and Trimble Nomad® 1050 handheld. Additionally, support for Trimble FieldPoint RTX correction service and 5 minute RTX convergence has been added for the Trimble Geo 7X handheld and R2 GNSS receiver.
- Enhanced TerraFlex support. The Trimble Positions Desktop Add-in includes the latest enhancements to the Trimble TerraFlex workflow that were included in version 3.5 of the TerraFlex plugin for Esri ArcMap, released in January 2016.
- Database management improvements. The Trimble Positions Desktop Add-in can be configured to use a SQLite database. This offers a more scalable option for users who were experiencing limits with JET databases. Additionally, the Trimble Positions Desktop Add-in can be configured using DSN-less connection strings.
- Additional troubleshooting tools. These include the ability to copy projects to a new SQLite database, to see additional information about a session (satellite count, average SNR), and a new tool which provides better control over downloading sessions from a geodatabase for ArcGIS for Windows Mobile workflows.
- Support for ArcGIS Desktop 10.3.1 and 10.4.

#### Version 10.3.0.2

- Support for the Trimble R1 GNSS receiver. The Trimble Positions Desktop add-in can be used to postprocess data from devices paired with a Trimble R1 GNSS receiver via Bluetooth® wireless technology
- Photo handling was not correct in certain TerraSync workflows. In certain cases, photos may have been missing the full path information or may have received duplicate names on check-in. This has been resolved.
- Change made to ArcMap.exe.config file during installation caused Version Manager toolbar to stop working. The Trimble Positions Desktop add-in installer will no longer make a change to the <startup> tag in the ArcMap.exe.config file. It will only add a supported .NET runtime version. For more information, refer to the blog.
- Project wizard should not include hidden fields in TerraSync/TerraFlex project layers. If fields are hidden at the time the project is created, they will not be included in the project layers. If changes are made to the geodatabase schema or ArcMap layer definition after the project was created, a new project should be created. The OBJECTID and SHAPE fields should never be hidden in TerraSync project workflows.

- Dockable window should remember last check-out/check-in folder for TerraSync SSF files. This is now functional.
- Layer names > 20 characters were improperly handled in TerraSync workflows preventing check-in. Long layer names are now truncated properly for use in the Data Dictionary Editor. Original layer names in ArcMap should not need to be changed.
- Layer names should have '.' character stripped before being used in TerraSync workflows. Layers added from an enterprise geodatabase will by default contain one or more 'dots' in the name. These will be removed automatically for internal layer name storage in TerraSync workflows. Original layer names in ArcMap should not need to be changed.
- Checked-out features (in TerraSync SSF files) that weren't updated were incorrectly included in a new session on check-in. Unmodified features will now always be excluded from sessions on check-in.
- Feature accuracy values were not populated on check-ins from TerraSync SSF files. In some cases, feature accuracy values were not always populated on check-in. This has been resolved.
- Export to Excel from feature grid did not work in some locales. This has been resolved.
- TerraSync workflow did not work properly if layer or attribute names contained special characters. This has been resolved.
- Changes made from DDF import were lost if wizard was continued. This has been resolved.
- Out-of-date coordinate system database caused "missing datum" errors when loading newer base station lists. This has been resolved.

#### Version 10.3.0.1

- Support for TerraSync workflows. This version significantly expands support for TerraSync software workflows. You can create projects which contain a dictionary and information required for mapping between SSF and geodatabase data. A dictionary will be used when checking out features to an SSF file, and can also be updated from a dictionary edited in the Data Dictionary Editor. Data (including photos) can be checked in from the SSF using the Trimble Positions Desktop add-in; sessions can be managed in the same way as other workflows.
  - **NOTE** This new functionality has been tested with TerraSync 5.60 and above. Use of earlier versions of TerraSync in the Trimble Positions workflow may not produce the desired results.
- Support for TerraFlex workflows. Trimble Positions Desktop add-in users can now publish projects and form templates to InSphere without having to use a separate add-in.

Completed forms (including photos) can be downloaded directly into geodatabase feature classes.

- New wizard for project creation and editing. A new project wizard significantly
  improves the user experience when creating and editing projects. Project wizard steps
  are hidden or shown depending on whether or not they are required for a given project type. Map document validation and GNSS-enabling are now part of this new wizard. Other benefits include:
  - New layers (from the same workspace) can be added to existing projects
  - New fields for metadata transfer can be added through the wizard (file/personal gdb only)
  - Accuracy thresholds can be set for multiple layers at once
  - Unused project types can be turned off through the Configuration tool
  - Simpler administration screens (project-type specific items are largely constrained to the wizard)
  - Additional metadata transfer attribute vertical estimated accuracy
- Esri ArcGIS Desktop 10.3 support. This version of the Trimble Positions Desktop add-in will support ArcGIS Desktop 10.3 when it is publically released.
- Support for RTX field configurations. Field configurations can now be created to support the forthcoming Trimble RTX technology support in the Trimble Geo 7X handheld firmware. There is minimal configuration for this type of field configuration.
- Improved use of TrimbleSessions for transferring binary GNSS session and construction data. Geodatabases and map documents that are GNSS-enabled using version 10.3.0.1 of the Trimble Positions Desktop add-in use a slightly different schema for the TrimbleSessions feature class and layer (except when using ArcGIS Desktop Basic). This new schema supports the storage of both GNSS measurements AND feature constructions as attachments and will not store any binary data in the feature class itself. This means that a TrimbleSessions feature (in the new schema) will have at least 2 attachments when it is harvested. There is also a configuration (file) option for splitting long GNSS sessions into multiple attachments; this will be covered in a blog post.
- Improved usability. This version includes various enhancements designed to improve the usability of the software:
  - the ability to export the current features-in-a-session and positions-in-a-feature grids to Excel
  - the ability to import a field configuration that was exported from a different Trimble Positions database
  - the ability to turn off unused project types through the Configuration tool

#### Version 10.2.2.1

- Esri ArcGIS 10.2.x support. The Trimble Positions Desktop add-in now properly supports Esri ArcGIS Desktop 10.2.x in addition to 10.1 and 10.2.
- Support for precise feature heights. This version adds support for antenna height and type for ArcGIS for Windows Mobile workflows (real-time and postprocessed) and antenna height for ArcPad workflows (postprocessed) for the purpose of collecting high-accuracy feature heights. Desktop users can specify how Height Above Ellipsoid values are converted to Mean Sea Level elevations (or not) using a fixed geoid separation or calculated from a GGF file downloaded from the Trimble website. Accordingly, the metadata value formerly known as Height Above Ellipsoid is now named Feature Height.
- Additional hardware support. The Trimble Positions Desktop add-in can now postprocess data from additional field devices in ArcGIS for Windows Mobile workflows: Trimble Juno® 5 Enhanced GPS, Trimble Juno T41™, and Trimble Juno T41 Enhanced GPS.
- Improved usability. This version includes various enhancements designed to improve the usability of the software. Such enhancements include control over session outline display and defaulting new Internet-based real-time correction sources to NTRIP.

#### Version 10.2.0.1

- Trimble GeoExplorer® Geo 7 series and the Geo 7 rangefinder module support.
  - The Geo 7 series' orientation sensors are used to rotate the Skyplot, and to show the current heading in the Navigation section, even when stationary.
  - The Geo 7 rangefinder module, together with the orientation sensors, can be used to collect position offsets and record attribute information for distance and angle measurements.
- Legacy workflow support. This version adds basic support for a few legacy workflows that have been requested: create data dictionary (DDF) from the layers in the current map document (for the TerraSync software), and create a projection file (PRJ) from the coordinate system used in the current map document (for the GPS Pathfinder® Office software). These are both available from the Create... button in the projects administration area. The projection file export feature is the same as that provided in the separate add-in referenced in the GPS Pathfinder Office support note PRJ File Extraction Add-In for ArcMap.
- Field-to-office session notes. Mobile users can now enter descriptive text about the session and this text will be visible to the Positions Desktop add-in user. The columns vis-

- ible in the sessions grid of the dockable window have been adjusted to display start time, end time, and these notes.
- Populating device names from the field. For large organizations that have named their devices using the standard Windows Mobile® registry key, this data can be used to populate the device name visible in the Trimble Positions Desktop add-in. Please contact your Trimble reseller or consult the Trimble Positions Development Team Blog for more information.
- Improved usability. This version includes various enhancements designed to improve the usability of the software. Such enhancements include better labeling for functionality that applies to ArcPad versus ArcGIS for Windows Mobile workflows, clearer messaging in the integrated mobile cache synchronization tools, integrated check for proper modifications to the ArcMap.exe.config file prior to postprocessing, session grid groupable by day portion of start date/time (to group sessions by the day they were collected), and directly editable QuickProject check-in path.
- Improved diagnostics. Additional information is now included in the log file to assist in troubleshooting.

#### **Version 10.1.1**

- ArcPad workflow support. Version 10.1.1 of the Trimble Positions Desktop add-in supports data collected using ArcPad with the Trimble Positions ArcPad extension version 10.0.1. This includes support for AXF check-in/-out and the handling of QuickProjects created in ArcPad.
- Juno 5 series support. Version 10.1.1 of the Trimble Positions Desktop add-in supports GNSS measurements from a Juno 5B or 5D receiver.

#### Version 10.1.0.3

• Localization. The Trimble Positions Desktop add-in is now available in the Japanese language, in addition to French, German, Spanish (South American), and Portuguese (Brazilian) languages.

#### Version 10.1.0.2

- Trimble Positions Mobile extension offset support. The Trimble Positions Desktop addin now supports feature geometry data collected using offsets with the Trimble Positions Mobile extension version 10.1.1.1. This includes support for simple left-/right- offsets alongside a path or perimeter and complex distance-bearing offsets for point
  features or polyline and polygon vertices.
- Development Team Blog. The Trimble Positions Software Suite Development Team Blog is now available at http://positionsblog.trimble.com. Be sure to visit and sign-up to

this blog. It was started by the Trimble Positions product development team as a way to better communicate directly with dealers and customers. Please check back frequently for new content.

- Support for ArcGIS Desktop Basic edition. The Trimble Positions Desktop add-in now supports the ArcGIS Desktop Basic edition, with the following limitations:
  - For ArcPad workflow with Trimble Positions ArcPad extension: Limited or no support for enterprise geodatabases and ArcSDE services; refer to Esri documentation.
  - For ArcGIS for Windows Mobile workflow with Trimble Positions Mobile extension:
  - Cannot enable or synchronize attachments.
  - Cannot add GlobalID fields through the User Interface to allow synchronization.
  - Degraded performance when collecting session data in the field.
- Polyline geometry extension support. The Trimble Positions Desktop add-in now supports the geometry created with the Trimble Positions Mobile extension version 10.1.1.1 after extending an existing polyline feature in the field.
- Built-in Mobile Cache creation and synchronization. The Trimble Positions Desktop add-in now has integrated support for creating and synchronizing the Mobile Cache without needing to use the Esri Mobile toolbox. This streamlines workflow within the Trimble Positions solution.
- Map extent used to sort base stations when creating a profile. The Trimble Positions Desktop add-in now allows you to sort the base station list by proximity to the current map extent when creating a postprocessing profile.
- Deletion of previously downloaded base station data. The Trimble Positions Desktop add-in now allows the user to delete and re-download base station data. This is sometimes necessary when a previously downloaded base station file is corrupted or incomplete.
- Virtual PC installations support. The Trimble Positions Desktop Configuration tool now supports activation on virtual PCs. Virtual PC installations are useful when the user wishes to install more than one otherwise conflicting application software versions on a single physical PC.
- Citrix and roaming profiles support. The Trimble Positions Software Suite now supports the concepts of roaming profiles and per-user configurations on the desktop.
   This is useful in larger enterprise organizations where software applications and user configurations are centrally managed. Per-machine configurations are also still supported.

The Trimble Positions system configuration is stored in one of the following folders, dependent on profile type and operating system:

Profile type	Windows® 7	Windows XP
	C:\Users\ <username>\AppData\Ro a ming\Trimble\Positions\10.1</username>	C:\Documents and Settings\ <username>\Application Data\Trimble\Positions\10.1</username>
System	C:\ProgramData\Trimble\Positions\ 10.1	C:\Documents and Settings\All Users\Application Data\Trimble\Positions\10.1

- Base station management support. The Trimble Positions Desktop Configuration tool now supports base station management, including updating the CBS List from the Trimble FTP server, loading of user-defined base stations defined and used in GPS Pathfinder Office and Trimble GPS Analyst™ extension, and saving of user-defined base stations defined in Trimble Positions Desktop add-in.
- Localization. The Trimble Positions Desktop add-in is now available in French, German, Spanish (South American), and Portuguese (Brazilian) languages.
- Educator license program. The Trimble Positions Desktop add-in is now available within the educator license program.

# Installation and configuration

- In this release, the schema for the Trimble Positions database has changed. To upgrade your schema, run the Trimble Positions Desktop Configuration tool and click **Test current configuration**. All existing data and settings will be preserved. This must be done prior to running the Trimble Positions Desktop add-in version 10.5.0.1 and cannot be undone without support from Trimble.
  - It is highly recommended to make a backup of your existing database should you need to revert back to an earlier version of the Trimble Positions Desktop add-in.
- This version of the Trimble Positions Desktop add-in supports Esri ArcGIS Desktop versions 10.1 - 10.5. You must install the Esri software before installing the Trimble software.
- If you have installed an earlier version of the Trimble Positions Desktop add-in on your system, uninstall it completely before installing the new version.

• The settings folders where the configuration files and Jet databases are stored have not changed in this release. They continue to use the 10.1 name in the folder tree.

## Known issues

This section describes known issues with the Trimble Positions Desktop Add-in version 10.5.0.1.

#### NTRIP source table retrieval

 In some network configurations, the Trimble Positions Desktop Add-inmay fail to retrieve the NTRIP source table in the field configuration wizard. The first step in trying to resolve this is to add a section to the ArcMap.exe.config file as described here: http://positionsblog.trimble.com/?p=229

If that fails to resolve the issue, enter the NTRIP address (server + port) in a browser and copy the resulting text (starting with SOURCETABLE and ending with ENDSOURCETABLE) into a new text file. In the field configuration wizard, instead of a simple left-click on the "..." button next to the **NTRIP Source:** text box on the Internet Settings dialog, hold down the Control key and then click the button. This opens a file browse dialog; use this to select the text file saved earlier. You should then be able to select a mount point and continue with the configuration.

#### Installation and configuration

- If you uninstall the Trimble Positions Desktop add-in when the Esri ArcGIS Desktop software is running, the add-in successfully uninstalls, but some files that are used during operation may be left in the file system. Trimble recommends that you exit the Esri ArcGIS Desktop software before you uninstall the Trimble Positions Desktop add-in.
- During the installation process, the Trimble Positions Desktop add-in installer attempts to modify the ArcMap.exe.config file in the C:\Program Files (x86)\ArcGIS\Desktop 10.1\bin folder. Depending on permissions, this can sometimes silently fail. If the Trimble Positions Desktop add- in controls are disabled (grayed out) when you start ArcGIS Desktop and you have confirmed that the extension is properly enabled otherwise, close ArcGIS Desktop and manually edit the ArcMap.exe.config file (using a suitable text editor, for example, Microsoft® Notepad) to make the <startup> tag, located at the start of the XML file, appear as follows (this is also necessary after installing service packs or performing in-place upgrades):

<supportedRuntime version="v4.0" />

<!--<supportedRuntime version="v4.0.30319"/>-->

#### <supportedRuntime version="v2.0.50727" />

#### </startup>

- If you disable and re-enable the Trimble Positions Desktop add-in, Trimble recommends exiting and restarting the Esri ArcGIS Desktop software.
- If the Trimble Positions Desktop add-in is not accessible on your computer after installation and activation/licensing, make sure the Trimble Positions Desktop add-in is allowed to be loaded:
  - a. Start Esri ArcGIS Desktop, click Customize / Add-In Manager..., click the Options tab, and then select Require Add-Ins to be digitally signed by a trusted publisher. Click Close.
  - b. Click **Customize** / **Add-In Manager...**, and then click the **Add-Ins** tab. The Trimble Positions Desktop add-in should now appear in the list. Click **Close**.
  - c. Click **Customize** / **Extensions...**, and select **Trimble Positions Desktop** to enable it for use. Click **Close**.

#### Floating License Manager

- Requirement for Microsoft Chart Controls for Microsoft .NET: The Trimble Positions License Manager requires both Microsoft .NET Framework 3.5 and Microsoft Chart Controls for Microsoft .NET Framework 3.5 to be available on the target computer.
  - The Microsoft Chart Controls for Microsoft .NET Framework 3.5 can be downloaded from http://www.microsoft.com/download/en/details.aspx?id=14422
- Occasionally, the Floating License Manager appears to not be available. This can be caused by the Trimble Positions License Service failing to start on the server due to lack of resources. If you encounter this problem often, do the following:
  - 1. Click Start, right-click Computer and then click Manage.
  - 2. In the Computer Management utility, select Services and Applications / Services.
  - 3. Locate the **Trimble Positions License Service** entry, right click and then select **Properties**.
  - 4. On the **General** tab, if **Startup type** is not already set to Automatic, select Automatic and then click **Apply**.
  - 5. Select the **Recovery** tab, and make sure that **First failure**, **Second failure**, and **Subsequent failures** are set to Restart the Service. Click **Apply** and then click **OK**.

#### Configuring a Jet database on Windows XP

• When you have selected the 'automatic' setting, the Trimble Positions Desktop Configuration utility creates a Trimble Positions office database in the appropriate roaming or local Trimble Positions system configuration folder. The Trimble Positions system configuration is stored in one of the following folders, dependent on profile type and operating system:

Profile type	Window 7	Windows XP
	C:\Users\ <username>\AppData\Ro a ming\Trimble\Positions\10.1</username>	C:\Documents and Settings\ <username>\Application Data\Trimble\Positions\10.1</username>
System	C:\ProgramData\Trimble\Positions\ 10.1	C:\Documents and Settings\All Users\Application Data\Trimble\Positions\10.1

In some cases, when the Trimble Positions Desktop add-in is installed on a computer running the Windows XP operating system, the Trimble Positions system folder will be initially set as read-only. This prevents the Microsoft Access ODBC driver from opening the Trimble Positions office database MDB file as it cannot create an LDB file, and the error message Failed to connect to the office database is displayed when ArcGIS Desktop running the Trimble Positions Desktop add- in is started.

To resolve this problem, open the properties dialog for the Trimble Positions system folder, deselect the Read-only control, and select to apply this change to subfolders and files. Restart ArcGISThe Trimble Positions system folder and the Jet database mdb file should not have read-only permissions set.

**NOTE** – If the Trimble Positions system folder is read-only, the ODBC connection will fail: if the Trimble Positions office database MDB file is read-only, connection to the database will succeed, but the first insert or update operation will fail. for Desktop for these changes to be applied.

#### Trimble Positions Desktop add-in database

• Transient database connection problems may affect the Trimble Positions Desktop add-in. If you experience such a problem, close and re-open Esri ArcGIS Desktop. Avoid leaving Esri ArcGIS Desktop inactive for long periods of time

#### Differential correction

• When setting up the Trimble Positions Desktop add-in for the first time, populating the Community Base Station list (CBS list) of base stations may take some time, during

which the software appears to not be responding and the dialog may flicker.

- When using base stations that require a separate GLONASS navigation file to be downloaded, you must first make a copy of the base station and add the GLONASS navigation file as an additional navigation file address. If GLONASS navigation files are not available, the GLONASS ephemeris data from the receiver is used instead (if available).
- Trimble Positions Desktop add-in does not support multiple base station groups for sessions collected using Trimble H-Star™ receivers.
- If the differential correction process is cancelled during a lengthy base station data download, it is best to close and restart the application before reattempting differential correction.

#### Map and layer projections

• For proper spatial integration of feature layers and Trimble Positions GNSS positions, all editable feature layers in a specific coordinate system in a map should have the same datum transformation method defined.

#### Real-time spatial reference

• The Esri ArcGIS for Windows Mobile application ships with a reduced set of spatial references. Make sure that any spatial reference defined in a field configuration exists in Esri ArcGIS for Windows Mobile before deployment. See the relevant Esri documentation for further information.

#### Checking-in ArcPad files from network drives

• Trimble Positions Desktop add-in may fail to make a backup copy of an AXF file if the backup folder is located on a network drive. If this situation occurs, a record is added to the log file but the user is not notified.

#### Counter-clockwise polygon features

• Polygon features collected in a counter-clockwise direction will not properly import to an enterprise geodatabase. You must import directly into a file geodatabase and then import the file geodatabase into the enterprise geodatabase.

# Technical assistance and documentation

If you have problems using the Trimble Positions Desktop Add-in, the following documentation should be your first point of reference:

- The Trimble Positions Desktop Add-in Administrator's Guide.
- The Trimble Positions Desktop Add-in User Guide.

If you still cannot find a solution to the problem, contact your Trimble reseller.

# **Legal Notices**

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#### **Release Notice**

This is the November 2016 release (Revision A) of the Release Notes. It applies to version 10.5.0.1 of the Trimble Positions

For a complete list of all relevant legal notices regarding this product, refer to the Trimble Positions Desktop add-in End User License Agreement.