



Trimble Positions Desktop Add-in

Version 10.5.0.2
Revision A
May 2017

Introduction

These release notes provide important information about the Trimble Positions Desktop Add-in version 10.5.0.2. Please read these release notes carefully.

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Welcome to version 10.5.0.2 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-to-day 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 check-out/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 10.5.0.2.

- Create waypoint files: You can generate waypoint files for TerraSync from features in your GIS.
- Create SSF background files: You can generate SSF background files for TerraSync from layers in your GIS.
- Support for multiple images per feature: You can set up multiple image fields per feature in their TerraSync DDF, and all captured images will be stored using Attachments in the GIS.

A new version of Trimble Positions TerraSync Tools (previously Trimble Positions Pathfinder Office Tools) is also available. The TerraSync Configuration Manager is now included and .DDF files will now open in the Data Dictionary Editor correctly.

Issues addressed

This section describes issues that have been addressed in the Trimble Positions Desktop Add-in version 10.5.0.2.

The following table shows which issues affect which workflows:

Software...	...affected by issue numbers
TerraSync workflows	2, 4, 5, 6, 10, 11, 12, 16
TerraFlex workflows	1, 3, 7, 8, 9, 13, 14, 15, 16
ArcPad workflows	6, 10
ArcGIS for Windows Mobile workflows	6, 10

1. **Error when displaying TerraFlex publishing results window.** In rare cases, an unhandled exception would be encountered at the conclusion of the TerraFlex publishing process when the add-in attempts to open the publishing results window.
2. **Centimeter R2 capabilities not recognized in checked-in SSF.** When trying to post-process data collected in TerraSync Centimeter edition using an R2 receiver with cen-

timer capabilities and checked-in from SSF, the results are only sub-meter accurate whereas in the GPD Pathfinder Office software they are 2~3cm accurate.

3. **Feature Type Library is not sufficiently available in TerraFlex workflow.** When the Feature Type Library was added to the add-in, it was not sufficiently exposed in the TerraFlex workflow (when using the TerraFlex Desktop add-in). To use it effectively, the button must be available in the admin window to launch the management form (to add new entries from existing projects) and the checkbox must be available in the wizard to tell the process to look in the Feature Type Library when creating a new project.
4. **Numeric attributes in TerraSync workflows are set even if not entered by a user.** The nullability of numeric fields is not being set properly in the DDF/SSF through the add-in. The attributes in TerraSync should respect the same nullability and default value settings as in the source geodatabase.
5. **OBJECTID field is incorrectly editable when editing an existing feature in TerraSync workflow.** When the OBJECTID field is taken into the field workflow, it should always be read-only (or even hidden) to make sure the updated data coming back from the field can be used to update the correct feature in the geodatabase.
6. **Failure to postprocessing using particular base stations that return large amounts of data.** Some base stations are set to return 24h of 1s data which is not currently handled well in the add-in postprocessing. Although this should be fixable by having proper UFCORS URL templates that specify a 30s data request, there is also an issue in the code where proper URL templates are not applied. A workaround should be employed if this cannot be fixed prior to larger changes in the base station management infrastructure.
7. **Unhandled exception and/or database access error when running Positions Desktop add-in with TerraFlex Desktop add-in.** Although not officially supported, this can sometimes be achieved if the releases are similar in release date (for example, underlying components are the same) even if not necessary since the Positions Desktop add-in includes ALL functionality of the TerraFlex Desktop add-in. The Positions Desktop add-in includes a check to determine if underlying components are being loaded from different directories which would indicate the presence of multiple add-ins. However, recent code changes are causing a crash in this area.
8. **Elevation handling in TerraFlex workflow does not allow Feature Height as transferrable metadata.** In a previous release, elevation handling options were exposed for TerraFlex projects in line with other project types (for example, the ability to calculate MSL using a fixed offset or a geoid grid file). However, the only way to see this elevation or any Z value on the desktop was to start with a Z-enabled feature class. Feature height should be provided as field transferrable metadata (for either 2D or 3D point feature classes) to be consistent with other project types.

9. **Coded value domains applied through subtypes are not respected when downloading TerraFlex forms.** A feature class that uses subtypes can specify different coded value domains for each subtype (for example, to provide different drop down choices for the same field based on the subtype selected). When publishing TerraFlex templates from such feature classes, the add-in correctly publishes a template for each subtype and uses the correct coded value domains in each template. However, when forms are downloaded from these templates, any fields that use these subtype-specific domains will not be populated even when they were collected in the field. The data cloud-side in TerraFlex is correct.
10. **Misleading error message when files are not available for postprocessing.** Sometimes when attempting to postprocess sessions, data is not available from the selected base station for the necessary time period. In these cases, the user is generally notified with an error message such as **No base nav data file found**". However, recent code changes in this area (to validate base station distance) have resulted in an incorrect error message being displayed when files are not available: **Error in processing: Coordinate does not have a Z value**.
11. **Raster fields are not handled properly in the Feature Type Library as part of the TerraSync workflow.** If a layer created from a feature class with a raster field is added to the Feature Type Library, it cannot be re-used as the code fails to match the field from a geodatabase with that from the Feature Type Library. The Feature Type Library should also be made to handle string fields with pre-configured names for photo attributes.
12. **Save to DDF does not remember the last used folder.** The **Save to DDF** function should remember the last used folder to be consistent with other file-based operations.
13. **Unable to upload features or create tasks when TerraFlex contains a large number of previously uploaded/downloaded forms.** If the TerraFlex form layer contains more than 10,000 features that have an OBJECTID value (meaning they were either uploaded from the add-in, or were downloaded to the add-in and stamped with the locally stored OBJECTID), the user will not be able to upload additional features. The API call to get a list of existing OBJECTID values should take pagination into account.
14. **Large integer field values are inappropriately rounded when downloading TerraFlex forms.** Due to incorrect data type handling, integer values longer than 7 digits ($\geq 10,000,000$) are rounded to 7 digits of precision.
15. **Field with field-edited default values are replaced with the original default values when downloading TerraFlex forms.** When a template is published from a feature class, the field definitions will include the appropriate default values. The user can then change these default values in the field when collecting data. However, when downloading such forms, the edited default values get replaced with the original

(geodatabase) default values when stored in the geodatabase. This bug was introduced in the last version of the Positions Desktop and TerraFlex Desktop add-ins.

16. **Units on feature geometry Z values are incorrect when features are selected for some field workflows (TerraSync SSF check-out, TerraFlex tasks).** The Z units are currently always expected to be in meters when exporting features to a TerraSync SSF or uploading features to TerraFlex. If the feature class is Z-enabled with a vertical coordinate system that uses a unit other than meters (for example, feet), the Z values will not be converted on export as they should be and will thus be incorrect in the field application. If those feature geometries are unedited when checked back into the geodatabase (or downloaded as forms), the Z values will still be converted from (presumably) meters to the current unit of the vertical coordinate system resulting in incorrect data.

New in previous releases

This section describes what was new in earlier versions of 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.

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.

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 10.5.0.2.

Feature Geometry Z value handling in office-to-field workflows

- In the TerraSync and TerraFlex workflows, it is possible to select existing GIS features and take them out to the field application for editing. This is implemented as a 'check-out' in the TerraSync workflow and as 'task' management in the TerraFlex workflow (it is also possible to send features to TerraFlex outside of a task but the handling is the same). When feature geometries are converted to the appropriate format for the field application, the distance units of the geometry Z values are converted as necessary (for example, if a vertical coordinate system using feet is used). However, the HAE to MSL handling is not included and all Z values will be exported as if they are HAE values. On SSF check-in (for TerraSync) or form download (for TerraFlex), all feature geometries will be processed the same way with the elevation handling performed based on the project settings (use HAE, calculate MSL from fixed offset, or calculate MSL from geoid grid

file). Thus, it can be possible to get incorrect Z values returned to the geodatabase if attribute-only edits are performed in the field (that is, leaving the existing feature geometry unchanged). This will also affect feature metadata processing for feature height as the underlying feature geometries used as the source of feature height metadata values may be incorrect. If the field user has previously collected 3D features into a 2D feature class and are using a metadata field to store feature height, these values may be lost in attribute-only edits since the geometry being returned on check-in (or form download) is the 'original' feature geometry without Z values. If the field user collects new geometries as part of the field editing, then all feature geometries will be handled correctly.

NTRIP source table retrieval

- In some network configurations, the Trimble Positions Desktop Add-in may 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
Per-user (roaming)	C:\Users\<username>\AppData\Roaming\Trimble\Positions\10.1	C:\Documents and Settings\<username>\Application Data\Trimble\Positions\10.1
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 ArcGIS. The 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 May 2017 release (Revision A) of the Release Notes. It applies to version 10.5.0.2 of the Trimble Positions Desktop Add-in.

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