Trimble Positions
Desktop add-in

Version 10.6.0.1
Revision B
July 2018
Introduction

These release notes provide important information about the Trimble Positions Desktop add-in version 10.6.0.1. Please read these release notes carefully.

- Introduction
- New in this release
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Welcome to version 10.6.0.1 of the Trimble Positions Desktop add-in. The Trimble Positions software suite provides deeper Esri integration for users of Trimble TerraFlex™ software and Trimble TerraSync™ software, and adds support for Trimble high-accuracy GNSS receivers using Esri ArcPad technology.

An add-in for the Esri ArcGIS Desktop 10.1 - 10.6 application, the Trimble Positions Desktop add-in is used to set up the required projects, devices, and correction settings, and for the day-to-day management of data collected through the Trimble TerraFlex or TerraSync software, or the Trimble Positions ArcPad extension.

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 10.6.0.1.

- Support for ArcGIS Desktop 10.5.1, 10.6, and 10.6.1. The installer now properly supports ArcGIS Desktop 10.5.1, 10.6 and 10.6.1.

- Additional metadata is available for TerraSync and ArcPad workflows. The complete list of metadata options is now: horizontal accuracy (worst), vertical accuracy (worst),
feature height (point), feature height – first vertex (line/polygon), feature height – last vertex (line/polygon), X coordinate in current map coordinate system (point), Y coordinate in current map coordinate system (point), project name, session name, receiver type, PDOP, HDOP, created timestamp (local), correction status (most common in solution), and device name.

- **Handling for non-GNSS edits in an SSF file (TerraSync).** The check-in functionality for SSFs has been improved to handle edits to features outside of a GNSS session. Features edited prior to the start of a session will be included in the first session. You will be prompted to import features edited after the end of a session, or from an SSF with no session information. This will include attribute-only feature edits.

- **Manage default data transfer folders for the bundled Data Transfer utility in the TerraSync workflow.** New functionality is available in the Trimble Positions Desktop Configuration utility that allows you to manage the default folders used by the Data Transfer utility.

- **Support for photo URL stored to a string field.** The name of a string field can now be specified for the storage of a single photo URL for TerraFlex forms (for example, to allow for use with Esri ArcGIS Desktop Basic).

- **Select All checkbox added to the Layers page of the project wizard.** The long sought-after Select all checkbox has been added to the Layers page of the project creation wizard.

**Issues addressed**

This section describes issues that have been addressed in the Trimble Positions Desktop add-in version 10.6.0.1.

The following table shows which issues affect which workflows:

<table>
<thead>
<tr>
<th>Software...</th>
<th>...affected by issue numbers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TerraSync workflows</td>
<td>1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14, 16, 18, 20, 21, 22, 23, 24, 25, 26, 27</td>
</tr>
<tr>
<td>TerraFlex workflows</td>
<td>1, 2, 3, 4, 5, 7, 10, 11, 13, 17, 27</td>
</tr>
<tr>
<td>ArcPad workflows</td>
<td>1, 3, 4, 7, 9, 10, 11, 12, 14, 15, 16, 18, 22, 27</td>
</tr>
<tr>
<td>ArcGIS for Windows Mobile workflows</td>
<td>1, 3, 4, 7, 8, 9, 10, 11, 14, 16, 18, 19, 27</td>
</tr>
</tbody>
</table>
1. **Coordinate transformations do not apply Z offset between datums.** When coordinates are transformed between datums, the Esri ArcObjects methods only affect the X and Y portions of the coordinate and not the Z coordinate. This is a recently discovered limitation of the ArcObjects ProjectEx method. A workaround was added within Trimble Positions Desktop add-in to properly apply the Z offset when coordinate transformation operations are necessary.

2. **Feature geometries do not have expected Z values after attribute-only edits in TerraSync and TerraFlex check-out workflows.** In general, the Z values returned from the field in both the TerraSync and TerraFlex workflows are expected to be in meters above the WGS84 reference ellipsoid. If the GIS data storage is in a different coordinate system, a transformation will be applied when the features are stored. If the project specified a particular elevation handling setting (for example, a GGF file), then that calculation will also be performed per coordinate at the time of check-in. Coordinate system unit differences (for example, if the local coordinate system specifies ‘feet’ as the vertical unit) are also handled during check-in. However, if existing features are checked-out for the field for data maintenance activities, the Z values were sent unchanged. So they could go out as feet above MSL. In workflows where only the attributes were edited, this “original” geometry was returned to the office and the aforementioned calculations were reapplied. If the original Z values were anything other than meters above the WGS84 reference ellipsoid, then the newly stored values were wrong. This functionality has been fixed so that geometries sent to the field will have their Z values adjusted at the time of checkout to be consistently in meters above the WGS84 reference ellipsoid. Project and coordinate system settings will be used exclusively to make this determination. All features selected for check-out (or upload in the case of TerraFlex) will be handled in the same way.

3. **Incorrect Z coordinates when VCS Z units are not in meters.** If Vertical Coordinate System (VCS) Z units were not meters, then the Z coordinate conversion was not always correct. This has been resolved in conjunction with the prior issue.

4. **Difference in units between feature height metadata and Z coordinate values.** Due to implementation differences, the units on feature height metadata could be different from the units on the Z coordinate values. This has been changed to consistently use the hierarchy: VCS units, PCS horizontal units, meters.

5. **Auto-fill fields don’t work correctly with subtyped layers.** If you tried to dynamically add new fields to a subtyped feature class during auto-fill field settings in the project wizard, project creation or publish would fail. This has been resolved.

6. **OBJECTID fields should not be visible by default in TerraSync workflows.** Previously, the OBJECTID field was left visible in data dictionaries created from the add-in. This has been changed and these Esri-managed fields will now be set to hidden by default.
7. **String encryption method used was not FIPS compliant.** Used to cache TerraFlex credentials and in the office database connection string, the method previously used ran into FIPS compliance issues. This has been resolved.

8. **Could not save ArcGIS for Windows Mobile project to field database.** The functionality to save a selected project to a field (SQLite) database was broken. This has been fixed.

9. **Processing profiles created with the ‘folder or specific base files’ option do not display correctly in the profile list.** Processing profiles of this type will now display appropriately in the list.

10. **Configuration utility does not check access rights before trying to create ‘all users’ configurations.** The utility will now check if the current user has permission to write to the folder where ‘all users’ configurations are stored and only enable this option if sufficient permission exists.

11. **Project wizard crashes when map document contains feature service with Esri ArcMap 10.5 or above.** Previously unknown workspace information is being provided with ArcObjects version 10.5 and earlier, and this was causing a failure in the layer enumeration part of the project wizard for feature service layers. This has been resolved. Feature services are still not supported as layer types for data collection using Trimble Positions workflows from ArcMap.

12. **Distance-distance offsets with actual vertical offset are not calculated correctly.** Distance-distance constructions with actual vertical offsets (not inclination/slope) were not calculated correctly. This has been resolved.

13. **Error when trying to use attachments with Esri ArcGIS Desktop Basic.** In Esri ArcMap 10.2 and earlier, it was still possible to read/write attachments programmatically even with a Basic license, despite it being disabled through the ArcMap/ArcCatalog UI. This allowed for some limited use of attachments in TerraSync and TerraFlex workflows (for photos) with the Basic license of ArcMap. However, this has been changed in ArcMap 10.3 and later, and this functionality is no longer available programmatically. Layers with attachments will now be marked as not compatible when using a Basic license of ArcMap at 10.3 and later.

14. **List of processing profiles in Correct Sessions window is not very usable.** For customers using multiple profiles to postprocess data against different base stations or in different regions, the combo box listing the available processing profiles was not very usable as it did not sort the profiles by distance from the current session. If you had associated a default profile to a device, it was presented first in the list, but there was no sorting otherwise. This has been resolved by noting an entry as default (for the device) and by displaying/sorting the profiles by distance from the current map.
15. **Import of ArcPad QuickProject may fail if features have incomplete geometries.** This has been resolved by removing features that do not have geometries set properly.

16. **Best results not always selected over Last results when postprocessing a session multiple times.** In certain cases, the last results were always used even if the profile was set otherwise. This has been fixed.

17. **TerraFlex project layers with boolean domains (Yes/No fields) cannot be stored to the Feature Type Library.** This has been fixed.

18. **Processing profiles broken when underlying CBS list is updated.** When the CBS list was updated through the Configuration utility, existing processing profiles and device defaults may be broken unknowingly. Appropriate messaging is now displayed and affected profiles may be removed instead of orphaned.

19. **Some NTRIP sourcetables fail to load in field configuration wizard.** Certain NTRIP casters would return HTML formatting if a particular user agent string was not used in the request. This caused a problem when parsing the results. This has been resolved.

20. **Subtyped feature classes not correctly handled in some TerraSync workflow cases.** The attribute field used to store the subtype “id” is typically excluded from the field schema (data dictionary). However, if you exported the project to a DDF, performed any edits to the DDF, and then updated the project from the DDF, the subtype “id” field would be added back in as a visible (and editable) attribute. In addition, any subtype-specific domain or default value information was lost. This has been fixed.

21. **Nullable numeric fields are presented in a confusing manner in the Data Dictionary Editor.** If a geodatabase feature class numeric field has no default value set, the dictionary attribute default is set to the minimum range. However, if a field is nullable, the proper solution would be to set it to a value which represents NULL in the DDF. To make this work, the Data Dictionary Editor must be changed to disable the **Numeric default values required** menu option. This has been fixed in a new version of the Data Dictionary Editor with the menu setting stored in a registry entry. Clean installs will have it turned off by default.

22. **Line/polygon offsets are not editable in certain cases.** In certain cases, the left/right offsets for lines (in line or polygon features) are not editable when editing a feature in the dockable window. This has been fixed.

23. **Min/max values are set incorrectly for certain numeric data types.** The incorrect number of significant digits (5 instead of 7) were used to differentiate numeric data types (double vs float) when creating a DDF attribute.

24. **Read-only attribute values set to NULL when updating features.** Numeric, nullable fields can be set as **not permitted** (read-only) in the Data Dictionary Editor. If existing data
is checked out and features are edited, these fields will be checked in with NULL values. This has been fixed.

25. **Issues checking-in SSFs.** In some edge cases, SSFs would fail to check in or be split incorrectly. Most of these should be resolved.

26. **Fields selected for metadata transfer should be read-only in the field.** Metadata fields will now be set as not permitted in the Data Dictionary.

27. **Configuration utility Copy Project functionality missed some project data.** In some cases, the Copy Project functionality in the Configuration utility would fail to copy some information between a project in a Jet/MDB database and a new SQLite database. This has now been fixed.

**New in previous releases**

This section describes what was new in earlier versions of 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.

**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 10.6.0.1.

Features extended after SSF is closed and re-opened (TerraSync)

- The TerraSync software supports a workflow of starting feature collection, closing the SSF file, reopening the SSF file, and continuing collection of the same feature. These SSF files are not currently supported in Trimble Positions Desktop add-in. This will be re-evaluated for a future release.

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.

- 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.


- 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.

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 July 2018 release (Revision B) of the Release Notes. It applies to version 10.6.0.1 of the Trimble Positions Desktop add-in.

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