



Leica XML Import to TBC

V1.9 (TBC V2023.1) October 2023. **Update**

Releases:

Revision:	Release Date:	Changes:
V1.0 – UPGLEicaHeXMLImporter_5.6.781.0.msi	1/10/2021	Original release
V1.1 - UPGLEicaHeXMLImporter_5.7.1135.0.msi	1/06/2022	Added ability to handle line control codes
V1.2 - UPGLEicaHeXMLImporter_5.7.1328.0.msi	1/08/2022	Added support for TS Observation offsets
V1.3 - UPGLEicaHeXMLImporter_5.7.1440.0.msi	30/08/2022	Fix Error messaging for GNSS import
V1.4 - UPGLEicaHeXMLImporter_5.7.1479.0.msi	30/09/2022	Allow import from Smartworks Viva equipment
V1.5 - UPGLEicaHeXMLImporter_5.7.1544.0.msi	30/10/2022	Small update
V1.6 - UPGLEicaHeXMLImporter_5.8.1883.0.msi	20/04/2023	Add import of As-staked values into the properties pane for As-staked points & fix Mini 360 prism.
V1.7 (TBC V5.9) - UPGLEicaHeXMLImporter_5.9.1989.0.msi	6/06/2023	Installer redone to work with TBC V5.9. due to Python update. This will not work with previous versions due to folder changes.
V1.8 (TBC V5.9) - UPGLEicaHeXMLImporter_5.9.1996.0.msi	9/06/2023	Fix MPR122 prism constant
V1.9 (TBC V2023.1) - UPGLEicaHeXMLImporter_23.1.2172.0.msi	23/10/2023	Updated to work with TBC V2023.1

Leica XML Import to TBC

This command allows Leica HeXML data (Versions 1.7 to 1.8) to be imported into TBC from the XML file as points using the stored coordinates, with the option to bring in station and observation raw data. It is licenced to the ANZ Toolbox Module in TBC.

Installing the Leica XML Importer

Download and install “**UPGLEICAHEXMLIMPORTER.MSI**”

This will install the required files and will rename the original files “LeicaHeXML.py”, “LeicaHeXML2.py” and “NewOpticalLibrary.xml” to have “.deprecated” after the name so they will not be used but are still available.

Note: Before you install a new version of TBC you need to uninstall this importer, then run this installer again after the new version of TBC has been installed.

Operation Instructions

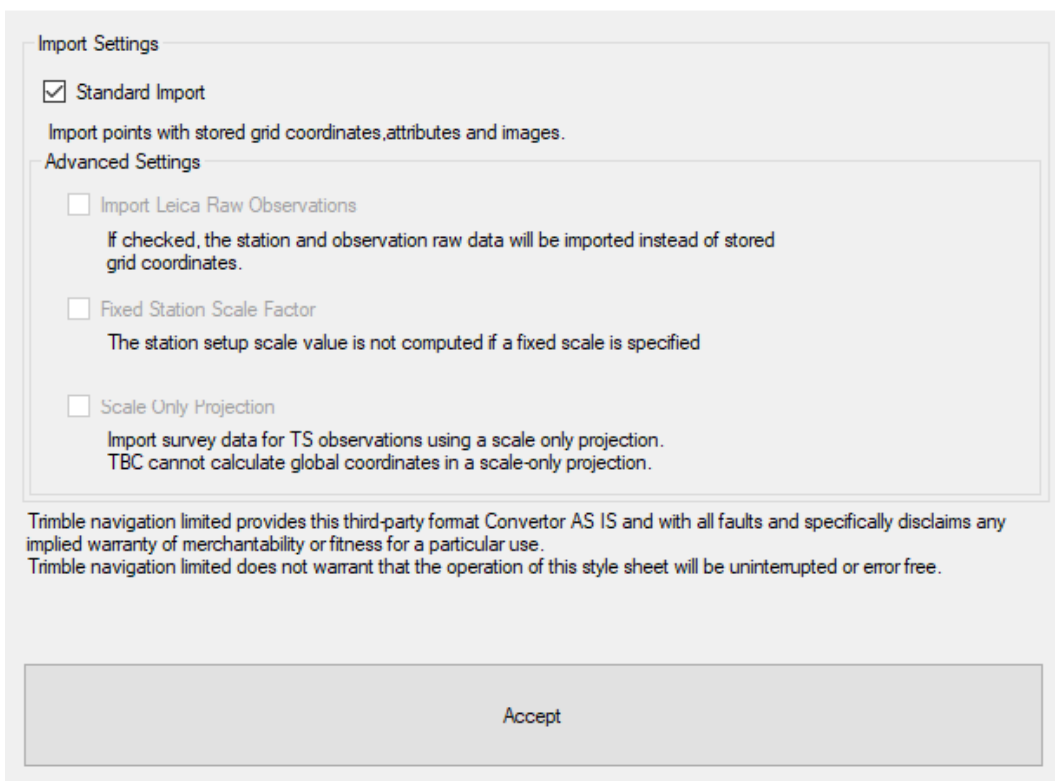
To import a Leica XML file;



1. Navigate to the import pane **Import**, **Home > Data Exchange > Import**.
2. Right click on the file and set the file type to “*Leica HeXML*”, then import.

The import options screen displays as shown below.

Leica Importer



The screenshot shows the 'Leica Importer' dialog box with the following settings:

- Import Settings**
 - Standard Import
Import points with stored grid coordinates, attributes and images.
- Advanced Settings**
 - Import Leica Raw Observations
If checked, the station and observation raw data will be imported instead of stored grid coordinates.
 - Fixed Station Scale Factor
The station setup scale value is not computed if a fixed scale is specified
 - Scale Only Projection
Import survey data for TS observations using a scale only projection.
TBC cannot calculate global coordinates in a scale-only projection.

At the bottom of the dialog, there is a disclaimer: "Trimble navigation limited provides this third-party format Converter AS IS and with all faults and specifically disclaims any implied warranty of merchantability or fitness for a particular use. Trimble navigation limited does not warrant that the operation of this style sheet will be uninterrupted or error free." Below the disclaimer is an "Accept" button.

The import settings are described below:

Standard Import

Works for both GNSS and TS data and is the recommended import for general work.

- Imports the stored coordinate data from the XML file and any attributes and linked images.
- Any project calibrations already in the TBC project will not affect the data being imported and allows both GNSS and TS data to be imported into the same TBC project.
- If multiple readings have been done to the same point (using the same point ID within the instrument) the point ID will display and have an @ symbol after it and another number generated by the Leica instrument.
- Use an FXL file with the appropriate feature coding to match the data imported if you need to process the file.

Advanced Settings

Import Leica Raw Observations

- To use this option, you need to untick the “**Standard Import**” first.
- If you check this box for GNSS Data, then you will need to have the TBC project set with the correct calibration used for the job prior to import. This will import the RTK vectors.
- If you check this box for TS data, this will import the station setup and observations. This data can be imported into an existing project and will set the “Station Scale Factor” type to be “**Free**” allowing measurements to be scaled based on the station setup calculation.

Fixed Station Scale Factor

- If you check this box for TS data, this will set the “Station Scale Factor” type to be “**Fixed**” on import instead of “**Free**”. This will impact the horizontal distances in a resection or station setup+ instrument setup. Generally, if you have used a calibration in the instrument then do not need to check this but you will need to load the calibration into TBC prior to import.

The resection calculation is a least-squares calculation that uses all available data. The corrections to be applied to the estimated instrument position, as well as the orientation and scale values are returned in the corrections matrix. If scale factor has been set to free, scale correction is carried out during calculation using measured slope distance.

Corrected horizontal distance (s) = Horizontal distance (S) × Scale factor (S.F.)

When scale factor is set to fixed(S.F="1.00000000"), the horizontal distance is not corrected

Scale Only Projection

- Check the “Scale Only Projection” box and after pressing **Accept**, enter the scale factor used for the TS job to be imported into a TBC project that does not have a calibration or projection set. You can later change the project coordinate system in TBC to match with the required datum and projection definition. No need to check this if you have a calibration set in TBC prior to import.

Use an FXL file with the appropriate feature coding to match the data imported if you need to process the file.

Note: The resection type is set to “*Standard Resection*” in TBC by default when importing “*Raw Observations*”. We have found that depending on your station setup type this may be changed to “*Helmert Resection*” to get slightly better results. Say **No** to “*Enabled as check*” if this comes up, then recompute the project.

Known Limitations

- **Date and time stamp** – These are found on the observation vectors when using the “*Raw Observation*” import however they are placed in the “*Description 2:*” of the point information when using the “*Standard*” import so that it does not conflict with FXL files.
- **Prism Type** – The standard Leica prisms have been setup in the Optical Library file, however if you have made custom prisms in your Leica instrument then these will come in as a “*Custom*” prism type with a prism constant read from the XML file.

Trimble FXL Requirements

When importing an XML file from Leica the coding used in the Leica instrument needs to match the FXL file used within TBC so that all points are mapped correctly.

Another requirement is if control codes are being used during the field work they also need to match in the FXL file. See below for example.

Control codes in Leica Captivate

Code & attributes <u>Linework</u>	
Begin line	B
Begin 3 pt arc	BC
Continue line	C
Begin spline	BC
End spline	EC
Cont spline	OC
Close line	CLS

Control codes in Trimble FXL

Line Control Codes	
Name	Code
Begin Line	B
Begin Spline	BC
Close Line	CLS
End Spline	EC