- when it has to be **right**

Leica Geosystems

Release Notes

Product	Leica Infinity
Date	November 30th 2022
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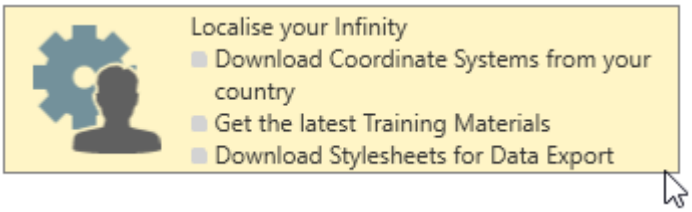
1 WELCOME TO INFINITY

INFINITY V4.0.2	We are pleased to announce a new Infinity version. Each Infinity release contains enhancements and improvements throughout the application. Please read the following chapters carefully to learn more about what is new.
OVERVIEW	▪ Support for SnakeGrid derived coordinate systems ▪ Improved IFC support for creating surface objects ▪ Input and display of bearing directions ▪ Many additional features and improvements described in the release notes
GETTING STARTED – HELP & SUPPORT	Getting Started, users have access to information and useful data including Coordinate Systems, Stylesheets, Tutorials, and sample data all available from the Localisation Tool. From the **Help** menu, click on the **Localise your Infinity** button to access this data and the tutorials to help you get started with Infinity. 
ORDERING INFINITY	Infinity can be ordered either as a perpetual license or based on a subscription plan. Contact your local Leica representative to discuss what options are best for meeting your workflow needs.
YOUTUBE VIDEOS	Check the Leica Infinity YouTube page for what's new and how-to videos.

2 INSTALLATION DETAILS

INSTALLATION INFORMATION

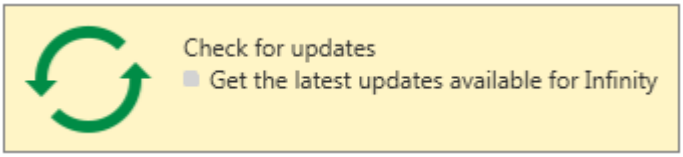
Leica Infinity v4.0.2	Build	Maintenance end date:
	44082	April 20th 2022
Infinity is available as a Windows 64bit application		

With an active CCP users will be able to update to this new version. Confirm that the maintenance end data is on or after the date listed above before installation.

New users can download the latest version from the Leica Geosystems myWorld support website.

CHECK FOR UPDATES

From Help & About choose **Check for updates**. When a new version is available you will be notified that the update can be downloaded from myWorld.



OPERATING SYSTEM REQUIREMENTS

The following Microsoft® Windows™ operating system editions are supported:

- Windows 8
- Windows 10
- Windows 11

Note: you must have administrative privileges on your computer to successfully install Leica Infinity.

MINIMUM HARDWARE

- Display: 1024 * 768
- Input: Keyboard and mouse with wheel
- Processor: Multi-Core 2.4 GHz
- RAM: 8 GB
- Disk storage: 100 GB
- Graphics: DirectX9 compatible

RECOMMENDED HARDWARE

- Dual Display: 1920 * 1280
- Input: Keyboard and mouse with wheel
- Processor: Multi-Core 3.5GHz or greater
- RAM: 32 GB or greater
- Disk storage: SSD 1 TB or greater
- Graphics: DirectX11 compatible 4 GB memory or greater, CUDA capable

RECOMMENDED HARDWARE FOR IMAGE PROCESSING

- Dual Display: 1920 * 1280
- Input: Keyboard and mouse with wheel
- Processor: Multi-Core 3.5GHz or greater
- RAM: 64 GB or greater
- Disk storage: SSD 1TB or greater
- Graphics: DirectX11 compatible 8 GB memory or greater, CUDA capable

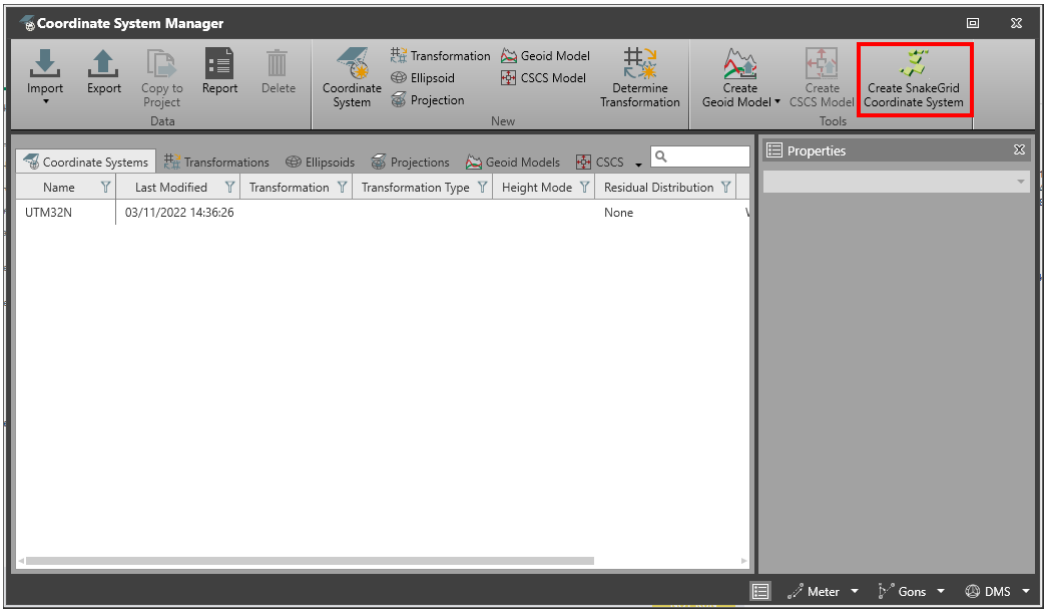
3 COORDINATE SYSTEMS SNAKEGRID LOW DISTORTION COORDINATE SYSTEM

SNAKEGRID BASED COORDINATE SYSTEM

A new tool is added in the Coordinate System Manager that allows a user to create a coordinate system based on the SnakeGrid algorithm. Snakegrid is used to create a low-distortion coordinate system that is typically used for large engineering infrastructure projects (i.e. railways, highways and pipelines). Leica Infinity v4.0.2 allows the user to generate this type of Coordinate System, to manage and export them to be used on the Field Software.

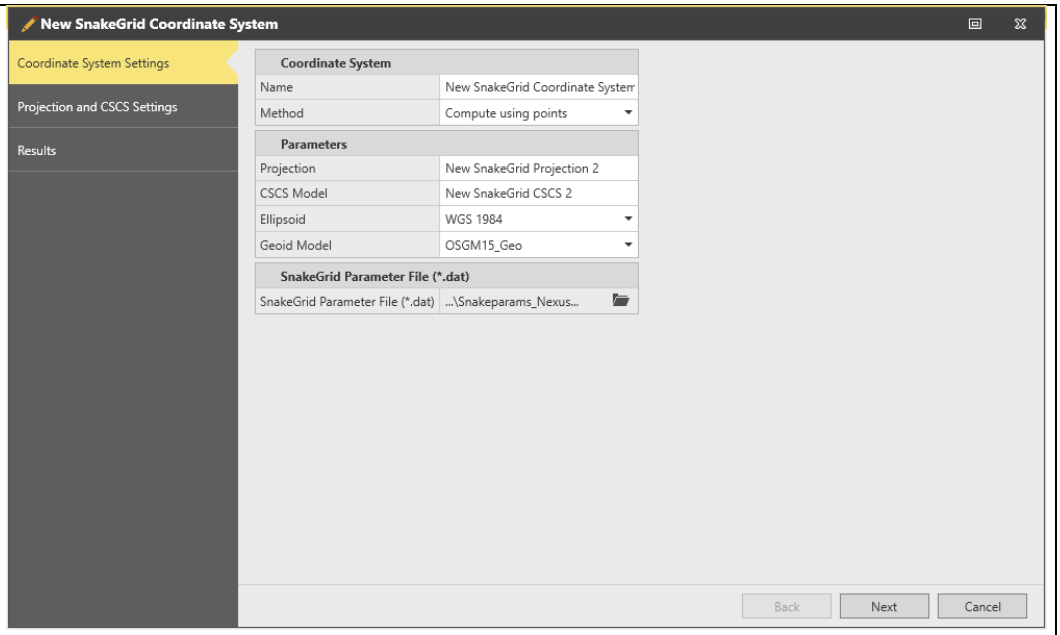
The creation of a SnakeGrid coordinate system requires a parameter file provided by SnakeGrid team, and some input values that will be used to generate a CSCS file that is used in the coordinate system.

In the Coordinate System Manager, click on Create SnakeGrid Coordinate System to start the creation Wizard.

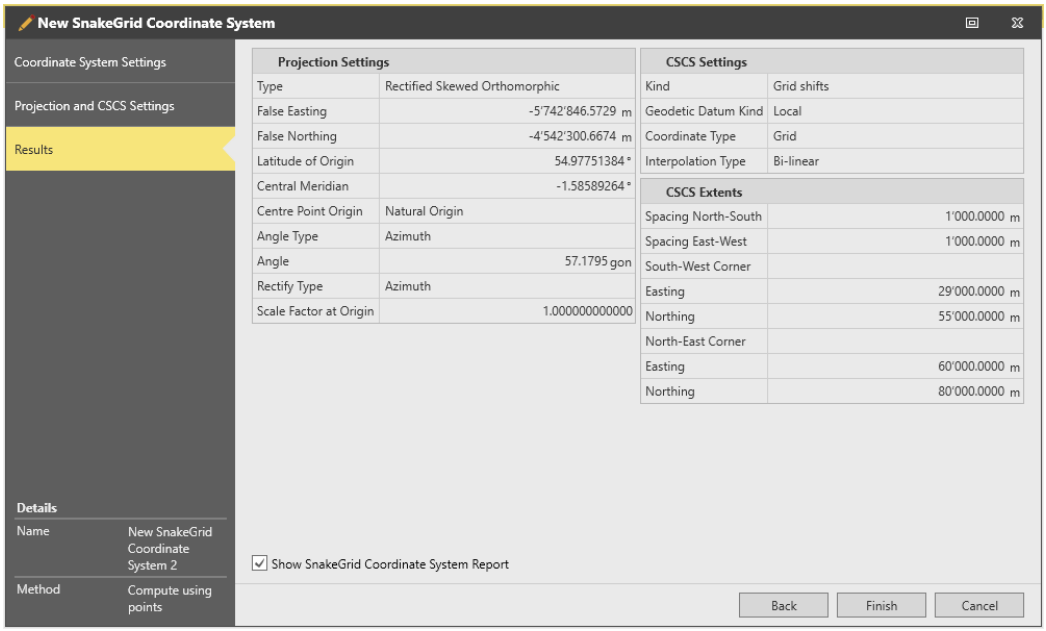


Define the Coordinate System Settings in the first page of the Wizard.

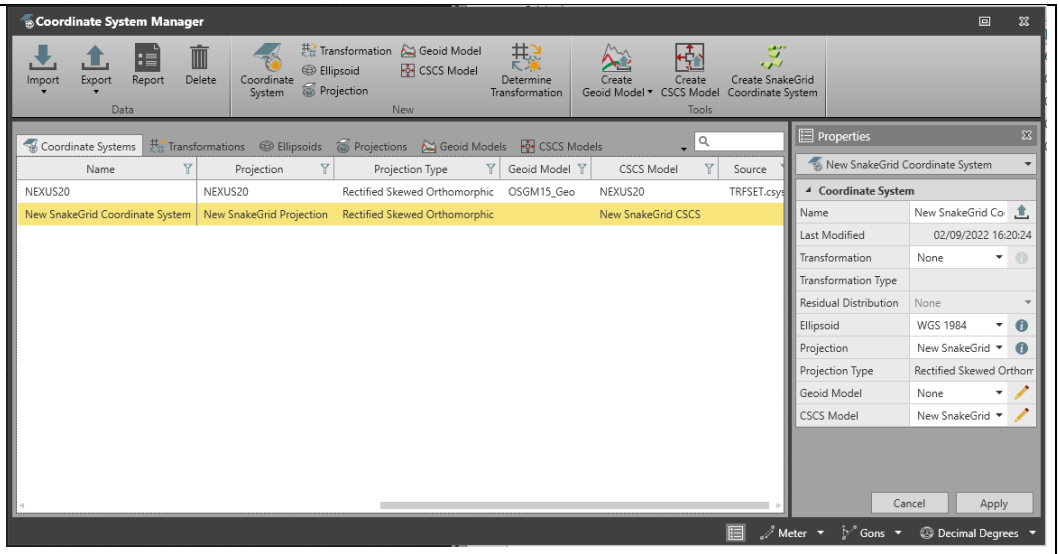
- Enter the names for the Coordinate System, Projection and CSCS Model that the Wizard will generate as result.
- Browse to select the Parameters file (*.dat) for the specific project location and extension.
- Select Ellipsoid and Geoid to be used by the Coordinate System.



Note that projection and CSCS can be calculated using common points or can be manually entered.
The last page of the Wizard will show the Coordinate System results and the possibility of creating a report.



The created Coordinate System will be added to the list in the Coordinate System Manager and can be handled in a similar way as other created Coordinate Systems.



With this new feature it will be possible for Leica Infinity v4.0.2 users to create, use, manage and transfer data to the field software, coordinate systems based on SnakeGrid.

4 General Application Improvements and Fixes

Copy IFC Surfaces to Library

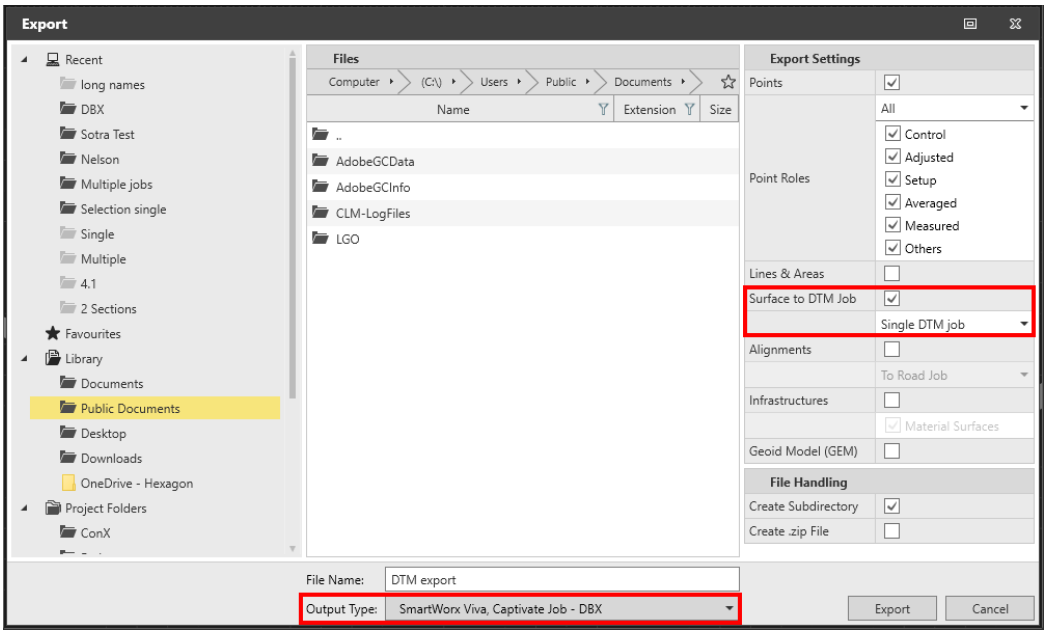
When copying the features from a selected IFC object to the Project Library, Points and optionally Lines were being copied to the Leica Infinity Project.

With Infinity v4.0.2 it will be possible to also copy the Surfaces defined by the IFC objects. To do this, use “All” option within the Copy from CAD toolbox, and Points, Lines are Surfaces will be copied to the Project Library.

This new feature will allow the users of Infinity to manage the IFC objects as any other Surface in the Project and export them to DTM jobs to be used on the Field Software.

Export Surfaces To DTM

A new setting will allow the users to define the way the Surfaces in a Leica Infinity Project will be exported to DTM jobs.



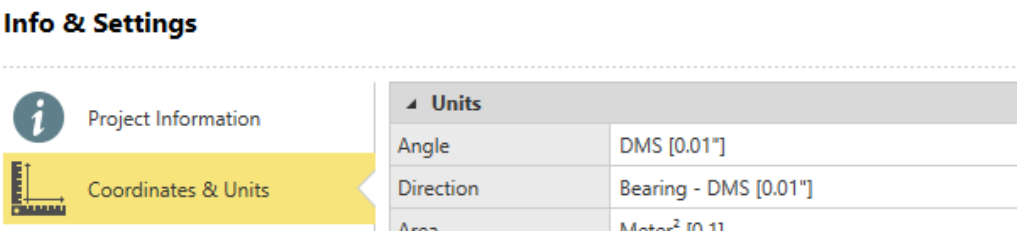
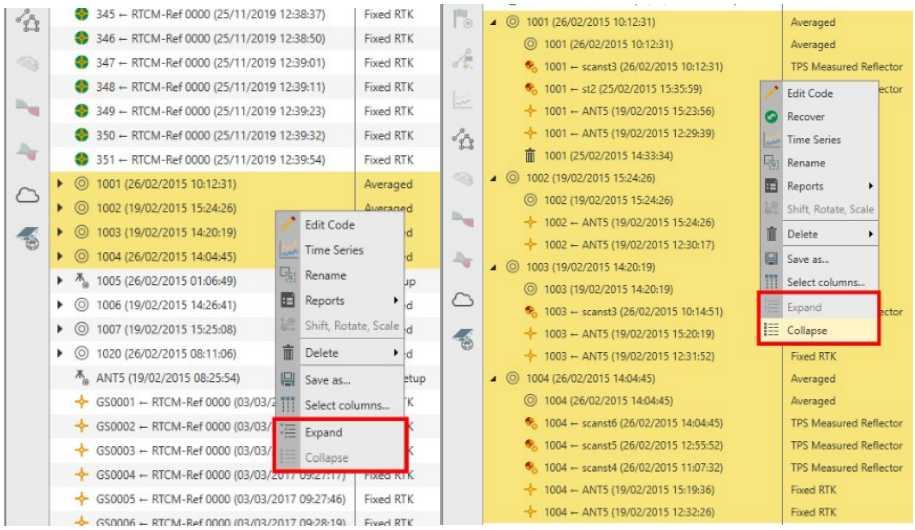
When exporting Surfaces from the Project as DBX DTM jobs, the new Setting will allow choosing:

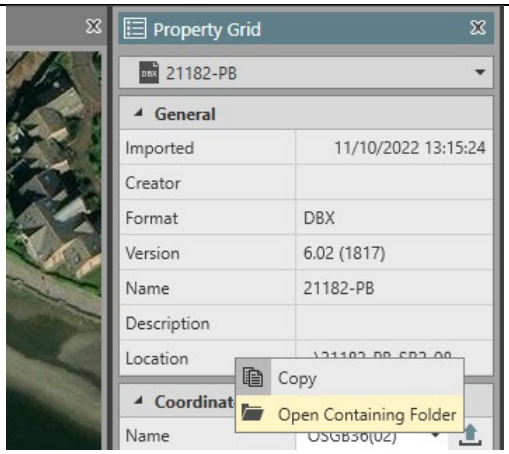
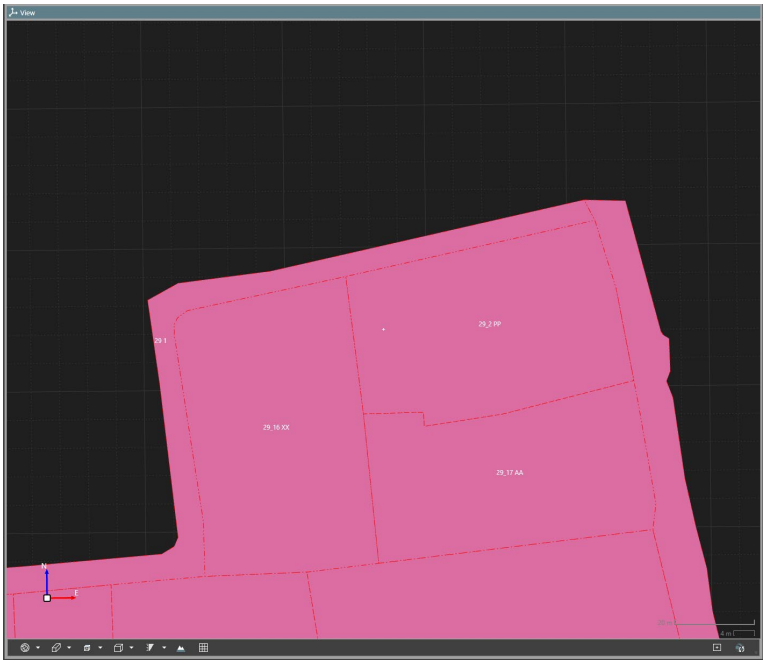
- Multiple DTM jobs: each individual Surface will be stored in an independent DTM job (i.e. generating then as many independent DTM jobs as Surfaces to be exported)
- Single DTM job: all the Surfaces selected to be exported will be stored in one single DTM job. Each Thematic Layer will be stored in a different DTM Layer. In case Surfaces are not organized by Thematic Layers, they will be organized by Survey Layers.

This new setting will allow the user of Leica Infinity v4.0.2 to export multiple files in the same DTM job, making the later usage of these DTM jobs in the Field Software more effective.

Support of Bearings as Direction Angles

In some regions, it is a common practice to enter the direction angles as Bearing values. Infinity v4.0.2 will allow defining whether direction values are entered as Azimuths or as Bearings.

	 This improvement will allow users that are familiar with the Bearing format to enter these values directly, avoiding additional manual angle conversion.
EXPAND/COLLAPSE LIST OF TECHNICAL POINTS	When having a list of Points in the Inspector with expandable/collapsible content, the user would have to individually interact with each individual item in the list to have their content expanded/collapsed. The newest Leica Infinity will provide a shortcut in the Context menu so the user can select a list of points to be expanded/collapsed.  These shortcuts will allow the user to inspect and operate with their list of points quickly and more efficiently.
OPEN CONTAINING FOLDER	Paths to different data locations are displayed in several places of Leica Infinity user interface. To search for these locations, open them and access to their content, the user would typically have to manually copy the paths and browse for them. Infinity v4.0.2 provides a shortcut on the context menu that will allow the user to automatically open the containing folder path for data locations displayed in the Property Grid, Navigator and Backstage.

	 This new shortcut will allow Leica Infinity users to access to their data quickly and more efficiently.
LAYER MANAGER AREA FEATURES	The ID of Area Features is now on a Survey Layer and can be displayed as context information in the Graphic View. 
POINT AVERAGING	TPS observations that are part of a TPS reduced observation are not considered as contributors for the Average computation. In some cases, the user wants to include these individual TPS observations in the Averaging of the Point coordinates but deleting the TPS reduced observation would not include such individual observation in the Averaging process. This has been improved with the new version, and individual TPS observation that were measured as part of a reduced TPS observation will be automatically considered as contributors for the point Averaging re-computation.
EXPORT TO LGS	Exporting point clouds generated from images to the LGS format could fail on some cases. This problem has addressed with Infinity v4.0.2
WMTS BASE MAP	Fix for a specific WMTS in the area of New Zealand, where no image would be shown in the background after being configured and selected to be displayed as Base Map.

GNSS PROCESSING 	An updated version of the GNSS Post-processing Engine is now available with Leica Infinity v4.0.2. that optimizes the usage of the memory when processing large data sets. This update will address possible crashes in specific scenarios where users are processing many baselines, long observation times and data us including all constellations and frequencies.
GNSS IMPORT MDB FILE	Fixed an issue for importing GNSS MDB files created by RefWORX 4.6.

5 What is New in v4 and v4.0.1

Overview	▪ Point Cloud registration: import and register data from BLK360 and RTC360 laser scanners. ▪ AP20 AutoPole data support and management ▪ Point Clouds from Images: Enhanced Point Cloud Filter Strategies. ▪ Measure to Line data from Field application import and management. ▪ Coordinate Systems: support for Local Grid to Local Grid transformation. ▪ General GNSS enhancements. ▪ Services: connection to Cyclone Enterprise, ArcGIS Enterprise and Earth Data. ▪ Coordinate Systems: GRD geoid format file support ▪ Services: Connection to user-defined Bricsys 24/7 server ▪ Bug fixes and quality improvements

6 Point Clouds: New Point Cloud Registration Option

Register Tool 	Bring BLK360 and RTC360 laser scanner data to your surveying and geodetic workflows. A new option can be purchased with Leica Infinity that supports the importing and registering of scan setups. Use the *Register Tool* to easily integrate scanner data with data from Total Stations, GNSS devices or other instruments, and use imaging workflows to combine point clouds from scanners with your project work. The *Register Tool* provides an easy-to-use registration workflow with three steps to easily organize, align and add targets with scan setups to produce a unified point cloud.
Importing Scanner Data	With the new Point Clouds Registration option, import scan data from the BLK360 and RTC360 to your project work. Data import options support the scan registration workflow including extracting black & white targets and performing AutoCloud which automatically searches to align all scan setups. Note that with the Cyclone Field360 application, the pre-registering of scan setups during field collection, will be imported to Leica Infinity and will provide the most efficient workflow for completing scan setup registration.

7 Total Stations: AP20 AutoPole

AP20 Support	Leica Infinity 4.0 supports the Leica AP20 AutoPole, a productivity-boosting smart system for Leica robotic total stations. Import and easily identify all your tilt-compensated measurements that were used for Survey and Stakeout applications. Know which measurements used the *PoleHeight* functionality from the field or if the height of the pole was entered manually. In the office, Leica Infinity supports the reprocessing of AutoPole measurements.

8 IMAGING OPTION: ENHANCED POINT CLOUD FILTER STRATEGIES	
POINT CLOUDS FROM IMAGES 	New dense point cloud filter options allow the user to optimise the quality output of the point clouds generated from images. For details about how to use the filter settings, we refer to the *Help and Imaging Dense Point Cloud* settings. Remember that the image acquisition and image overlap are important to consider. It can improve or impact the quality of data output tremendously.

9 GENERAL APPLICATION IMPROVEMENTS AND FIXES	
IMPORT CAPTIVATE MEASURE TO LINE	Easily view Captivate and SmartWorx Measure to data in your Leica Infinity projects. The *Navigator and Inspector windows also* group the Measure to Reference data. This lets users quickly select data to view properties or generate reports for complete field measurement transparency.
COORDINATE SYSTEMS	Easily transform local grid coordinate data from system a to system b. Do this by choosing the *Transform Local Grid to Local Grid* tool from the Home tab. This allows you to compute a transformation between two sets of local coordinates. Use this as a method to move total station data measured in arbitrary local coordinates to grid coordinates. Czech negative projections added.
SERVICES	Customers who work with the Cyclone Enterprise services can define the server configuration settings in the backstage settings. This lets the users push point cloud data from Leica Infinity to Cyclone Enterprise to be used with Cloudworx products. Connect with ESRI ArcGIS Enterprise solutions for a complete feature mapping solution. Collect, combine, and process all features with attribute data and publish as ArcGIS Web Map. A new data service is available. The service is used for accessing precise ephemeris for GNSS post-processing and downloading height data used with *Terrain Mode* to drape base maps in the graphic view. Improved the viewing of attributes when using the Get Features for downloading data.
GNSS DATA	Support of GNSS data RINEX v3.05. Additional GNSS raw data support for Novatel *.JOB-files and ublox *.UBX-files. When importing GNSS data, users can choose to import the track as moving data. This helps in cases where users have collected data while moving but not configured the receiver to kinematic or moving mode. When importing data from Captivate, the properties of GNSS points measured with PPP will show the reference frame and epoch information. This information is also shown in GNSS point reports.

	For US customers, export GNSS observations to the NGS GVX format. This provides the users' ability to bring data to OPUS or related NGS online services to complete their GNSS-related project work. Improved the Merge Intervals functionality when importing many RINEX files at the same time. Added Quality and Position Count columns in the Inspector GNSS Observations view.
GRD GEOID FORMAT	Support for the Geoid files typically used on the iCON software. Leica Infinity v4.0.1 allows the user to import GRD files and manage the information contained within these file types in the same way as formerly supported Geoid files, meaning that orthometric heights will be available for the project coordinate system and that the Geoid model can be exported in the form of a Geoid Field file to be used on the iCON software.
BRICSYS 24/7	Support for a user-defined URL pointing Leica Infinity v4.0.1 to a specific Bricsys-hosted server address where the user can access for data uploading and downloading. In case no user-defined URL is entered, Leica Infinity v4.0.1 will use the default Bricsys server URL. This new feature will allow the user to define a different server for his data interchange, for instance, a Bricsys-hosted regional server.