

- when it has to be **right**



# Leica Geosystems Release Notes

**Product** Leica Infinity  
**Date** June 28<sup>h</sup> 2023  
**From** Kevin Hanson

## Leica Infinity v4.1



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## 1 WELCOME TO INFINITY

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### LEICA INFINITY V4.1

We are pleased to announce Leica Infinity 4.1.

Please read the following chapters carefully to learn more about what is new.

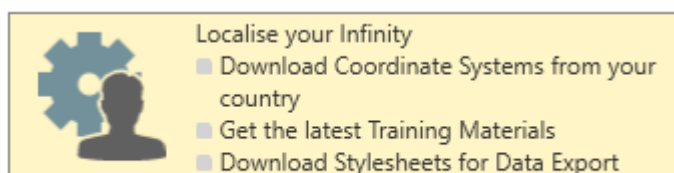
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### OVERVIEW

- New Infrastructure Tunneling Workflows: Combine tunnel design data with your Infinity project work for supporting Captivate with Stake and Check Tunnel applications
  - New Point Cloud Engine: work with billions of points
  - Point Clouds from Images processing improvements
  - Additional support for AP20 pole with TPS tilted measurements and auto height information
  - Host of improvements and fixes throughout the application
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### 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 has flexible ordering options. Users can purchase a one-time permanent perpetual license or can now also buy into a subscription plan.

On top of our existing Leica Infinity – Basic package, users can also purchase additional packages depending on their needs. One of them now covers the new Point Cloud Registration option. All packages and their features can be found on the [Leica Infinity data sheet](#).

[Contact](#) your local Leica representative to discuss what options are best for meeting your project and workflow needs.

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### YOUTUBE VIDEOS

Check the Leica Infinity [YouTube page](#) to see our playlist of videos about new features and how-to-videos.

## 2 INSTALLATION DETAILS

### INSTALLATION INFORMATION

<b>Leica Infinity v4.1</b>	Build	Release Date:
	45424	28 June 2023
<i>Leica Infinity is available as a Windows 64bit only application</i>		

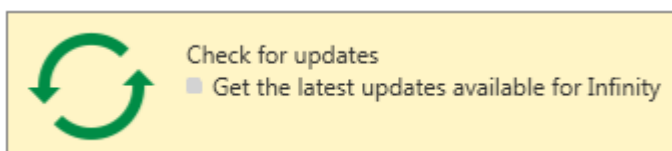


With an active CCP or Leica Infinity subscription license, users will be able to update to this new version. Confirm that your Maintenance End Date is on or after the date listed above before installation.

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 px
- 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 px
- Input: keyboard and mouse with wheel
- Processor: multi-core 3.5GHz or greater
- RAM: 32 GB or more
- Disk storage: SSD of 1 TB or more
- Graphics: DirectX11 compatible, 4 GB memory or more, CUDA capable

### RECOMMENDED HARDWARE FOR IMAGE PROCESSING, POINT CLOUD REGISTRATION

- Dual Display: 1920 \* 1280 px
- Input: keyboard and mouse with wheel
- Processor: 8 Core 3.5 GHz or more
- RAM: 64 GB or more, XMP enabled
- Disk storage: SSD of 2TB or more
- Graphics: DirectX11 compatible, 8 GB memory or more, CUDA capable

### 3 NEW: TUNNELLING WORKFLOWS IN INFRASTRUCTURE MODULE

**INFRASTRUCTURE:  
TUNNELING**

New with v4.1, Infinity can be used to manage tunneling project work supporting the Captivate Tunneling Application.

Import or input tunnel design data and define tunnel objects that are easy to work with, and easy to manage for the various project phases.

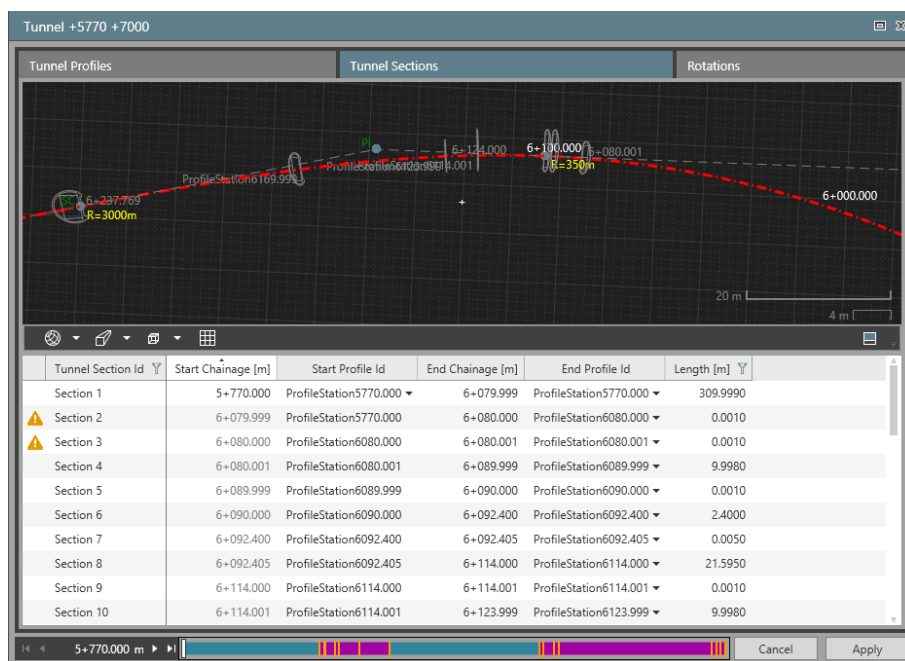


**TUNNEL FEATURE**



A tunnel feature groups all tunnel related components as a single object to easily work with and view in the 3D project view. Tunnel features can be imported to an Infinity project or using design data you can manually input each of the tunnel components. Tunnels are supported by XML import or from DXF, DWG a user can create a tunnel from the CAD entities including the profiles. And for existing Captivate users working with tunnels, they can import any of their DBX tunnel jobs.

The tunnel feature includes the tunnel alignment, tunnel layers, tunnel profiles and tunnel rotation tables. Tunnel sections are defined between two profiles assigned to the tunnel.

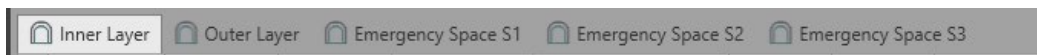


## TUNNEL LAYERS



A tunnel uses layers that refer to the many construction phases. When manually inputting the tunnel data, after creating the tunnel feature, easily add the layers that define the tunnel.

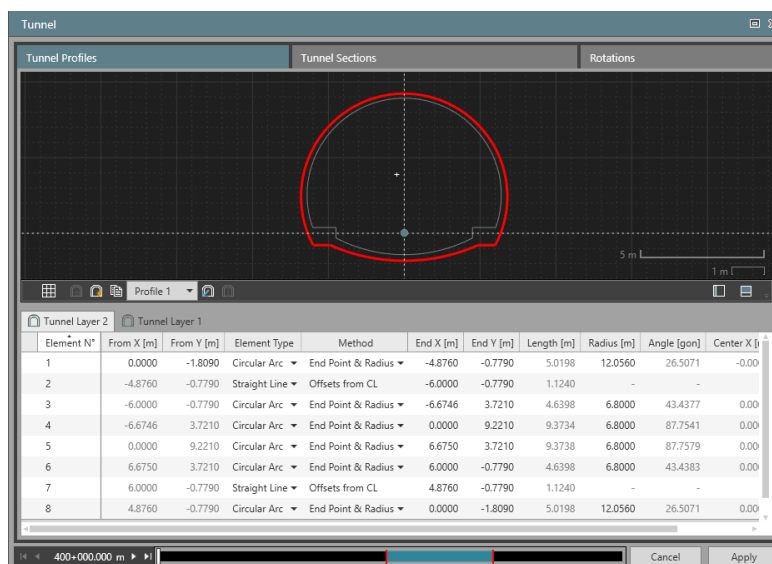
The tunnel feature can have an unlimited number of layers.



## TUNNEL PROFILES

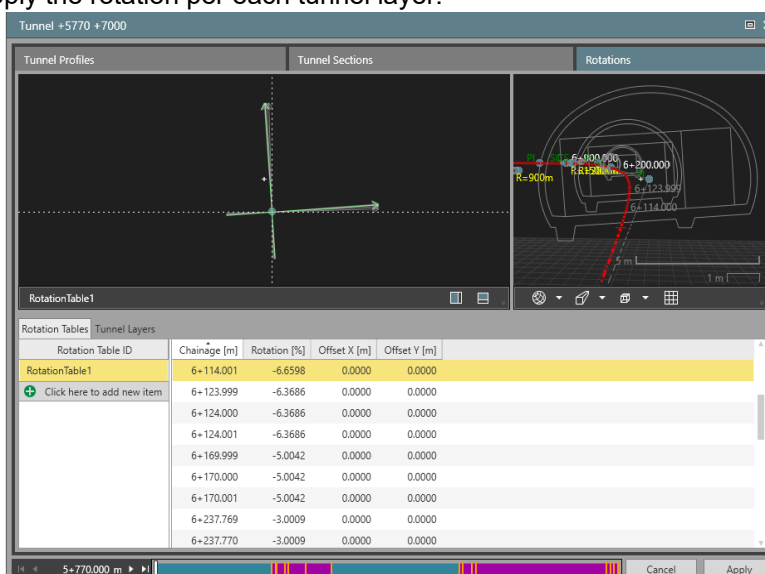
Import or input tunnel profiles to the tunnel feature. Profiles are assigned at a given station and will be used in the Captivate field software for staking or checking tasks. A tunnel profile includes the layers of the tunnel and when the profile is assigned to a tunnel it is defining the geometry of the tunnel.

Tunnel profiles are assigned to a station along the tunnel alignment and a tunnel can have many profiles assigned to it.

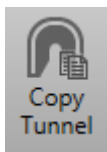


## TUNNEL ROTATIONS

Tunnel rotation tables are supported for a tunnel feature. Each rotation table includes ability to apply the rotation per each tunnel layer.

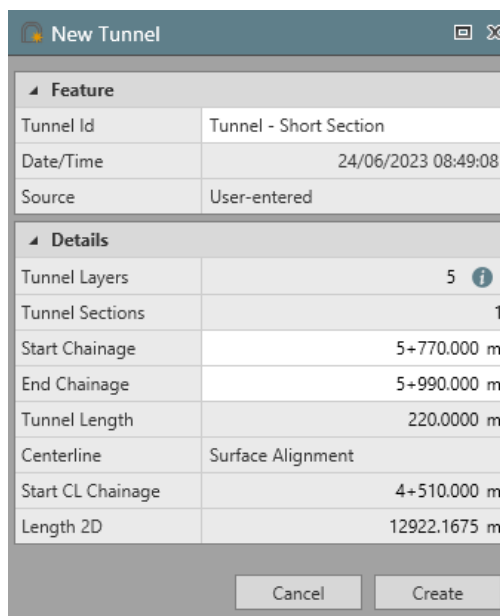


## COPY TUNNEL



Create shortened versions of a tunnel to share to Captivate. Choose a tunnel and with Copy Tunnel you can create a version of it to better manage field work. When using copy tunnel, the user enters a start and end station within the selected tunnel to create a shortened version.

This lets users manage long tunnel projects with smaller tunnel data sets, making it easier to work with on the instruments.



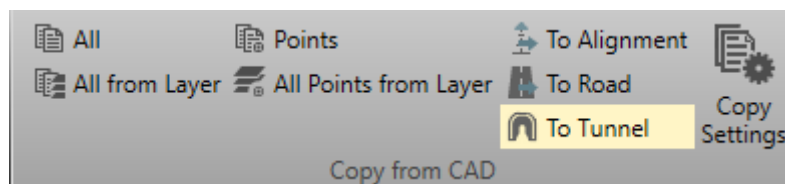
Feature	
Tunnel Id	Tunnel - Short Section
Date/Time	24/06/2023 08:49:08
Source	User-entered
Details	
Tunnel Layers	5 <span style="color: blue;">i</span>
Tunnel Sections	1
Start Chainage	5+770.000 m
End Chainage	5+990.000 m
Tunnel Length	220.0000 m
Centerline	Surface Alignment
Start CL Chainage	4+510.000 m
Length 2D	12922.1675 m

## 4 IMPORT TUNNELS FROM CAD FILES

### COPY TO CAD TO TUNNEL

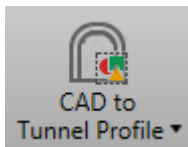
Many tunnel designs are provided in a CAD file format including the alignment and 2D profiles.

The easiest way to create a tunnel from a CAD file is by selecting the alignment from CAD and use the Copy to Tunnel function.



This creates a tunnel feature with the selected alignment. Add tunnel layers as required.

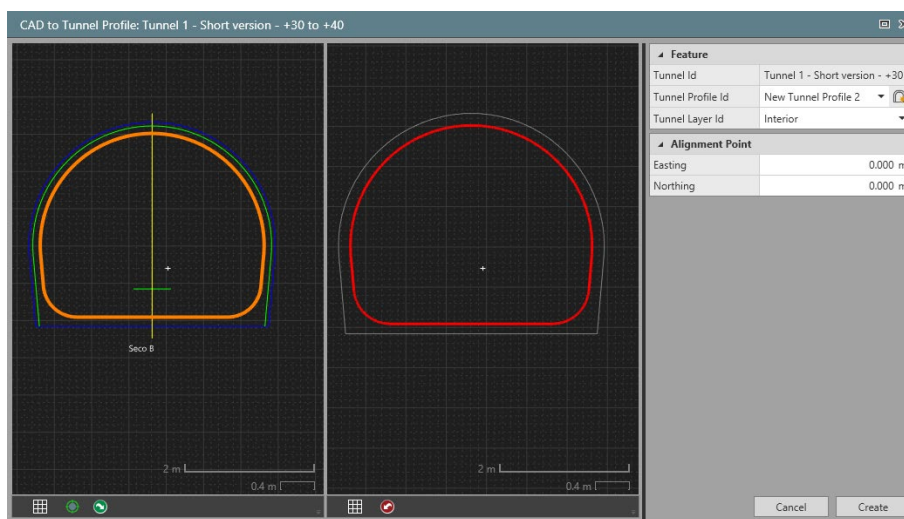
**PROFILES FROM CAD**



The CAD to Tunnel Profile is a quick way to define the profiles to build the tunnel you need to work.

Select the profile feature and open the CAD to Tunnel Profile tool.

From the working window you define the insertion point and then select the profile you want to assign to a layer. Repeat this for each of the layers of the tunnel feature.



**5 IMPORT TUNNELS FROM XML**

**DESIGN 2 FIELD XML**

Infinity v4.1 supports the import of tunnel features in XML format. The installed Design 2 Field tool saves infrastructure data in XML and supports the import of many legacy road and tunnel ascii data formats. Use the Design 2 Field tool to import from an ascii format and save as an XML that can be imported to your Infinity project.

**AMBREG XML**

Infinity v4.1 supports the import of tunnel design data from AMBERG Technologies. Use this to support project work where you want to combine tunnel tasks with other survey tasks.



## 6 POINT CLOUD ENGINE

### *SUPPORT FOR BILLIONS OF POINTS*

With Infinity v4.1 a new point cloud engine has been integrated. This means users can easily be working with Leica BLK360, Leica RTC360 and UAV drone data in a single project and get the most from combining point clouds for project deliverables. The general navigation of project data is vastly improved.



### *IMPROVED EDIT OF POINT CLOUDS*

With the new point cloud engine, the time needed for editing of point cloud is improved significantly. Quickly use Clean, Reduce, and Delete to arrive at your working point cloud.

### *POINT CLOUD PROPERTIES*

A new option in point cloud properties lets the user set the density of each individual point cloud. Use this when working with various sources of point clouds and needing to balance out the view depending on the density of the point cloud.

## 7 IMAGING: POINT CLOUDS FROM IMAGES

### *PERFORMANCE IMPROVEMENTS*

Leica Infinity v4.1 brings several improvements processing times and data outputs.

### *ORIENTATION: PRECISE MODE*

Precise Orientation mode processing times are significantly improved. Use this mode for the best results with GS18 I, handheld image data sets like BLK3D and in general for image groups of less than 1 Gigapixel.

### *ORIENTATION: FAST MODE*

Fast Orientation mode processing times have been improved. This mode is best used for the quickest way to arrive at point clouds and orthophotos. When working with large image groups over 1 Gigapixel, this mode should be used.

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**BLK3D IMAGES**      Generating point clouds from BLK3D images is improved with optimised 3D reconstruction and noise filtering that delivers cleaner point cloud results. Remember for any image group you want to generate point clouds from and combine in your project, after running the Orientation setup, add common control points and optimise the image group.

## 8 AP20 AUTOPOLE

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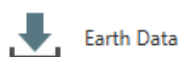
**AP20 SUPPORT ENHANCEMENTS**      Leica Infinity supports the Leica AP20 AutoPole, a productivity-boosting smart system for Leica robotic total stations. Import and easily identify all your tilt-compensated measurements that were used for Survey and Stakeout applications and now also for Setup applications. 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, now also for TPS Setup applications.

When AP20 is used in conjunction with a GNSS sensor, the auto height information is also now imported.

## 9 SERVICES: DOWNLOAD GNSS DATA SERVICES

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**EARTH SCOPE**



UNAVCO and IRIS earth data services have merged to the EarthScope Consortium. With this change there is an update for how users access free to use GNSS related data. Use the link under Services Earth Data to create an account on the EarthScope site, then provide your credentials to connect and access free to use GNSS data for downloading directly from the GNSS download manager in Infinity.

## 10 GENERAL APPLICATION IMPROVEMENTS AND FIXES

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**POINT AVERAGING**      Additional option to let users include points computed from applications such as from COGO or offset points in the point averaging computation.

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**IMAGING**      To better manage display of images in the graphic view, new Survey Layers are added for each of the image types that are supported in the project graphic view. Choose to turn on or off Aerial, Terrestrial and Panoramic image frustrums.

Added a setting to resize the image frustrum to help make viewing images with other project data easier.

Fix for pixel size holes in precise mode Orthophoto.

Fix for importing DJI Mavic M3 Enterprise images, no matter the suffix used with naming image files, all files are now imported correctly.

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**INFRASTRUCTURE**      Fix for exporting all layers to Road Job, in some cases layer names would be blank.

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SHORT ROTATE SCALE	Fix for cases when offsets used with linework, that the offset points are also updated.
SURFACES	Fix for live update of surfaces when measured points are added or removed, the surface is not updated automatically.
INSPECTOR COLUMN FILTERS	Fix for using filters in the Inspector columns, it could be that the filter only worked on first query but now works on any update to a query, not needing to reopen the filter box.
ADJUSTMENTS	Fix when applying and fixing control when two or more same point instances existed in the project, now the point held fixed is correctly shown in control points list.
ICON GPS 160 SMART ANTENNA	Added the LEICG160 calibration files to all antenna calibration sets.
IMPORT DXF, DWG	Importing of civil structures from Bricsys, Autodesk, features are extracted during import to make it easier to work within a project. This makes it easier to select and convert to project objects such as alignments, road and tunnel features.
EXPORT GVX	Added the target point code with export to GVX, the GNSS vector exchange format.