New functions and changes in Geo Professional

The list shows the most important updates in the program.

Version	Date	Part	Description
2023.1.4	2023-04-21		**Official version**
		Coordinate file	Area information is added to the tooltip for polygons.
		File handling	When using right click on the file tab in the graphics, the option "Save as" is added to the list.
		Cross section	In cross sections (SEC, TBS, MBS, UIM) hatches are only visualized for areas inside used calculation borders.
		Point cloud	When exporting points from a point cloud to "AutoCAD DWG", the points are now exported to a layer with the same name as the active GPC-file. If the GPC-file is unsaved, the points are exported to layer 0.
		Maintenance changes	- The image format, *.TIF(F), is back in the list of formats, which can be used as static background image. - Tunnel - The legend for cross sections listed wrong area, if calculation border was used. Fixed - Tunnel - The function to extract design file, *.TUN, from "AutoCAD DWG" was broken. Fixed - Tunnel - When changing the printout scale in the function Compare Survey to Design, the application crashed. Fixed - Point cloud - Not possible to generate a new preview surface after changing parameters. Fixed - Point cloud - Import of Leica point cloud format *.SDB did not work. Fixed - Point cloud - It took a long time to generate a point cloud file (GPC), if the transformation option was selected and then de-selected. Fixed - Trench - When creating archive from a trench model including a calculation border, the polygon file was missing. Fixed - ConX - KMZ files were not listed and available for download. Fixed - Insert point on line graphically, did not work if line had duplicated points. Fixed - A bug in the SOSI export is fixed.
2023.1.3	2023-02-22		**Latest Version**
		AutoCAD	- Quads (3D faces with 4 unique vertices) are supported when surfaces from DWG/DXF are extracted. - Updated ODA library (version 23.12)
		Point Cloud	- Create surface tool - Once the user has used "Preview Surface", the "Save Surface" option is automatically displayed. - Extract ground tool - Once the user has used "Preview Ground Surface", the "Save Ground Surface" option is automatically displayed.
		Maintenance changes	- Export to DWG - Cross sections with legends didn't work as expected. Fixed - Trench - Cross section contained data outside defined limits. Fixed - Tiling of GeoTIFF - File with unnamed coordinate system could cause a crash. Fixed - Import of DXF - Some triangles (3D faces) were not imported. Fixed - ConX - Not possible to select destination folder for download from ConX. Fixed - When cross section drawings were converted to DWG, grid lines got scaled 10 times. Fixed

			• An icon has been added to toggle Cross Section Preview window on/off. • Processes - Uploads and downloads of many files at the same time from an external service, caused that some were failing. Fixed. • Processes - The process window could flicker when multiple files were uploaded/downloaded. Fixed • Export image to GeoPad - The option to decrease the size didn't work as expected. Fixed
2022.1.8	2022-02-10		**Official version**
		Surveying	A station is automatically added when the user creates a new PLM-file.
		Maintenance changes	• Image and PDF reference handling in DWG/DXF was broken. Fixed • WMS/WMTS - Map service as background image didn't work if correction grid model was used in active coordinate system. Fixed • TBS (tunnel model) with border polygon didn't work as expected. Fixed • KML import - No polygons were imported. Fixed • The application cold crash when some KMZ files were imported. Fixed • SOSI import - Arcs were not imported correctly. Fixed • The application didn't start on Windows 8.1. Fixed • GDT files from Geotronics did not convert correctly. Fixed
2023.1.2	2023-01-17		**Latest Version**

		Coordinate file	• New function in the data menu, Clear Empty Attributes, to delete attributes without value in a coordinate file
			• All cleanup options are grouped:
			  ○ Clear Zero Heights
			  ○ Clear Empty or 1-point Lines
			  ○ Clear Empty Attributes

		Trench	Side limitations can be added for back fill surface to limit the cross section view.
		Documents in Graphics	The Esc key can be used to close the change color window in Document in Graphics window.
		Processes	In the window for processes, failed uploads/downloads to/from external services, the progress bar is colored red when a transfer has failed.
		License	Before a dongle license is loaded, a check with the license server is done to see if there are some changes.
		Maintenance changes	• Create terrain model - Crash if points in a line had the same coordinates. Fixed • Cross Section Preview - It only worked to create one preview. Fixed • Point cloud - 3D view shows only reference grid when a GPC was created from a geo-file, if zoom limits wasn't used. Fixed • Failed import of LandXML from iCON site failed, when CQ3D was set to "inf". Fixed. • MBS - If alternative distances are used as side lines and the user on clicked the top node for side lines, wrong distance was displayed in the grid view. Fixed.
2022.1.7	2023-01-17		**Official version**
		Trench	Side limitations can be added for back fill surface to limit the cross section view.
		Maintenance changes	• Cross Section Preview - It only worked to create one preview. Fixed. • The layer, Fill, is removed from the function Create Terrain Sections. This layer shouldn't be possible to use, and if used the layer was not visualized in the created sec-file.

			• Terrain models were not displayed correctly in the overview window in 3D. Fixed. • Archive of point cloud (*.gpc) didn't work if the GPC was created from geo-files. Fixed.
2023.1	2022-12-		**Latest Version**
		Orthomosaic (GeoTIFF)	Support for large orthophotos as background maps: • New function to create tiles of a georeferenced image (*.tiff) • The created tiles (orthomosaic) can be used as a local WMTS service
		3D Graphics	Dynamic WMTS/WMS as background map is supported in 3D window.
		Services	• New tab, Services, at the bottom of the project tree with login to Leica ConX and SkyMap. • The window, Remote Services, has got a new shape and is moved to the right side and as default it's auto hidden.

		SkyMap	SkyMap integration - Users can connect and get access to SkyMap projects. The same login as for SkyMap web-portal is used.
			
			• Possible to see the folder structure of SkyMap file manager:
			  o Upload files
			  o Download files
			• Access to and possible to download processed data from SkyMap:
			  o Point clouds (LAS)
			  o Orthophotos
			  o Ground models (AutoCAD DXF)

		ConX	Updated ConX integration and the different options are renamed to: • Field Units (available machines and other equipment are listed) • Upload • Download • As-built Points (logged points from machines can be filtered and downloaded) • Manage Files
		Point Database	Support for point database in 64-bit version • Microsoft SQL Server database • Mimer Provider Manager is re-implemented
		Net adjustment	• Option to show the highest standard residual when a net is calculated • Icon for simulated oriented direction is added to the toolbar for net adjustment
		Road	Cut road line based on user defined station limits.
		Coordinate file	Possible to add columns to the numerical view for lines, based on the attribute file (*.atr).
		License	• iCON office branded version has changed to FNO/CLM license. • If a valid CDB license is available, but no FNO, iCON office will start using the CDB license.
		Maintenance changes	• Point cloud - The reference grid behaved strange when zooming out to full extent. Fixed • Failed to import DBX panorama in some cases. Fixed

			• Crash when clicking on Area tab in document properties for trench (*.UIM)
2022.1.6	2022-12-		**Official version**
		Coordinate file	Function > Code Translation with a new option for line codes, so line codes can be changed.
		Terrain	Create terrain model - Option to deselect all coordinate files in the workflow view.
		Net adjustment	• Net adjustment reports are adapted to difference tolerance sets. • Selectable setting for TDOK when adding survey data to a net adjustment.
		Point cloud	Default file type when creating new point clouds is changed to *.las
		Leica ConX	Support for milling machine, so they are listed among the other field units.
		Maintenance changes	• 3D Graphics - Pan, zoom and rotate were slow for heavy files, if tooltip information was toggled on. Fixed • Point cloud - GPC file with its content files (*.hspc) can be archived properly • Terrain model in combination with WMS service as background map, was not visualized before using Zoom Limit. Fixed • Saving terrain models and coordinate files to AutoCAD DWG, the coordinate files were missing in some cases. Fixed • Create archive direct from project tree, of file types with associated files, didn't work. Fixed • Leica ConX - Zoom to selected field unit is fixed. • Showing cross section files with non-aligned stations did not work. Fixed • Showing multiple cross section files with different bounds didn't not work. Fixed • Error in earth curvature correction in height net adjustment. Fixed • Issues when trying save report to excel file. Fixed • Point cloud - In some cases the application could crash when using Extract Ground tool and snap to node active. Fixed • PLM-file with special code Z+ could calculate the added value twice. Fixed • SOSI format - Import and export was broken. Fixed
2022.1.5	2022-09-12		**Official version**
		AutoCAD DWG	• The tool to create angular dimensions in DWG is now using the selected angular unit in project settings. • The unit symbol for the angle is visualized.
		Maintenance changes	• Terrain - If special code R is used to define an arc in the input data to create a terrain model, but the radius is too small, the application did crash. Fixed. The application will draw a straight line between the points and continue with the triangulation, but a warning is displayed in the Input/Output Window. • Point cloud - Polygon selection with Snap to Node, didn't work as expected. Fixed. • Point Cloud - When exporting points to coordinate file, the point color could differ in different runs. Fixed. • In Point Cloud Information the min and max values were the same. Fixed. • 3D view of terrain model was disturbed when visualized together with DWG. Fixed • The option to create a text report in the wizard for coordinate system settings is now deselected as default. • Leveling - If a run was made of double measurements per setup (BFFB) and was reduced, it only had backwards and no forwards. Fixed.

			• DWG - Crash when Data>Dimensions>Dimension Precision was set to 9. Fixed.
2022.1.4	2022-07-01		**Latest version**
		Point cloud	The tool, Find Points by Grid, is re-implemented in the new point cloud framework.
		Import/Export	Support for Topcon format for road line (rd3), both import and export.
		Coordinate File	A code description column is added to the numerical view.
		Terrain	When creating terrain profiles, 0 is given as a default side offset value so the user doesn't have to type in a value.
		Maintenance changes	• Wrong radius in Remark field when copying a road line to a coordinate file. Fixed • The color attribute for lines was not handled when coordinate files was merged. Fixed • Trench - If height offset was used for the top surface the structures were not extended in profile view. Fixed • Open project dialog - Last opened and creation date did not work with special characters in project path. Fixed • Problems to open GGV-files in 2022 version, if created in 2021 and did include DWG-files. Fixed • The USB short cut in the import/export dialog didn't work. Fixed • Point database works again with 64-bit version. Fixed
2022.1.3	2022-05-13		**Latest version**

		Point cloud	A new point cloud module is implemented with a modern framework.
			
			• Larger point clouds can be imported.
			• Multiple point clouds (GPC-files) can be opened at the same time.
			• Point clouds can be transformed during import.
			• Zoom, rotate and pan are working faster.
			
			• Two new tools to generate surfaces from point cloud:
			  o Extract Ground Surface - A preview of the extracted ground surface is visualized and can be saved as a terrain model.
			  o Create Surface - A more general surface creation and a surface can be generated in one or two step. The first step requires only two settings and is fast. If the option, Refine Surface, is selected a more detailed surface can be created. The created surface can be saved as a terrain model.
			• New tool, Extract Edge Lines, to generate lines from a defined area of a point cloud.
			• Point clouds are now supported in the tool, Create Cross Section Preview, and can be used in combination with terrain models and DWG files.
			• New method to generate cross sections along a long a line from point cloud.
			
			• The point cloud property dialog is updated with more settings.
			• The option, Edit Point Cloud File, is moved to the workflow view, so the graphic is not blocked when scans are added or deleted from the point cloud file (GPC).
			• When a filter is applied to a point cloud, the Edit Point Cloud Filters is automatically opened in the workflow window to the right.

			• Point cloud information can be displayed in the input/output window. Select, Display Point Cloud Information, in the data menu. • New merge option in the dialog to create a GPC-file. If many scans are selected they can be merge into the same HSPC file or into separate HSPC files.
		3D Graphics	• The 3D graphic is improved and large files e.g. terrain models or point clouds are rendered considerable faster. • Terrain models can be drawn with transparency in 3D.
		Road	The user can defined the station interval for road lines, to be visualized in 2D window. The setting can be found in the document property dialog for road lines (L3D).
		Volume	More information is added to the volume report about: • Calculation border • Top soil cut • Vegetation cut
		Terrain	Create Terrain Model - Coordinate files that are open in graphics but turned off in Documents in Window, are not selected in the workflow view.
		Tunnel	• For tunnel model (tbs) with point cloud, a new method to generate cross sections from point cloud is implemented. • Compare Survey to Design - New setting called, Minimum Spacing, so the user can define the spacing to be used when a tunnel difference model is generated from a point cloud. • Point clouds (GPC) created in version 2021 or earlier, are not supported in Geo 2022. If the old point cloud engine is installed on the computer, the legacy GPC-files can be converted to the new GPC version.
		Surveying	• The total length of a leveling run is added to the report from a leveling net adjustment. • HeXML - When survey data with tilt information is imported, the tilt values are set as attribute in the PLM-file (Leica AP20 AutoPole). • When tilt attributes are present in a PLM-file, the distance, horizontal and vertical angle reflector height and prism constant columns are READ ONLY in the numerical view.
		Coordinate files	• If a point doesn't have a code i.e., the code field is empty, it's visualized as a non-matching code. The option is available in document properties for coordinate files (GEO) and can be switch on/off. • The "Always use" option, when moving selected objects and snap to target object height, will only be valid until another tool is selected. When select tool is re-selected, the dialog will be back.
		Maintenance changes	• Min and max side offsets didn't work for in MBS with DWG as soil model. Fixed • Lines didn't get names/ID after import from Trimble DC. Fixed • The help text is updated with chapter called, Shortcuts, with a list keyboard shortcuts. • Clear list in the dialog, Open Project, was broken. Fixed • Trench model - If multiple models with offsets were used, the height offsets were nor displayed correctly in the report. Fixed. • Faulty warnings when importing HeXML survey data is removed. • Net adjustments - The possibility to delete observations in graphics is removed. One data post corresponds to multiple observations, so this should not be possible.

			• Project tree settings - Not possible to set numbers of files when nodes should be minimized. Fixed
2021.3.6	2022-03-09		**Official Version**
		Export to SmartDirt	Support for export of SmartDirt ADF-files, running on Android devices.
		Maintenance changes	• When exporting pipe profiles from a trench model (UIM), the wells were lost when the PRW-file was saved and reopened. Fixed • Calculation borders in tunnel (TBS) were not always handled correct. Fixed • Line type was not included in print. Fixed • The attribute Z+ in PLM-files didn't work. Fixed • Information about used center line was not saved to SEC-files generated from the function, Coordinates to Section/Offset, from L3D-data menu. Fixed • Geo could crash when creating a parallel line from a L3D with clothoids. Fixed • Text import could crash if some rows in a text file were corrupt. Fixed
2021.3.5	2022-02-15		**Official Version**
		Maintenance changes	• Geo could crash if a mbs or tbs, in combination with an active map service (WMS/WMTS), were used. Fixed. • In some cases it was a shift in location of where wells were visualized in a trench model (uim) and pipe profile (prw). Fixed
2021.3.4	2022-01-24		**Official Version**
		Surveying	Identify backsights - Used backsights in a plm-file can be identified and renamed by comparing them with points in the defined control point file(s).
		Transformation	Global transformation, local to local - A control to easily switched the order of the From and To coordinate systems.
		Trench	Node names are kept when exporting pipe profiles from a trench model (uim).
		Maintenance changes	• Insert coordinate list in drawing was broken. Fixed • When creating a pipe profile (prw) from a trench model, Northing and Easting coordinates were switched. Fixed • Trench model - A pipe profile could be drawn incorrect if the pipe started before or ended after the main pipe. Fixed • Trench model - When exporting pipe profiles, the wells were not drawn in some special cases. Fixed • USB transfer to iCON field - The folder for coordinate systems was not created automatically if missing. Fixed • When saving numerical view as, View > Save View as > Field delimited text, the last column was not included. Fixed • Automated Line Measurement Rail - Measured track width from sensor was missing in the report when a corrected coordinate file was calculated. Fixed
2021.3.3	2021-12-21		**Latest version**
		Coordinate files	Direction symbol is implemented for coordinate lines and can be activated in the Document Property dialog.
		Trench	To improve trace-ability, the node names used in the trench model are exported to the pipe profile (Data >> Create Pipe Profiles).
		Maintenance changes	• Quantity list is not included and visualized in print, for example in print preview or PDF/paper. Fixed • If side pipes were longer than the main pipe, the profile view in trench model (uim) was not correct. Fixed • Dimensions/Diameter didn't follow when exporting pipe profiles from a trench model (uim). Fixed

			• Tunnel - Section couldn't be created from a dwg with two meshes even if used layer was specified. Fixed • Stability issue with Parallel line tool is fixed. • Wrong dialog, regarding how to handle the height, was displayed when using parallel line and snap to point. Fixed
		System	32-bit plugins are removed.
2021.3.2	2021-11-30		**Latest version**
		Trench	• Option to add another surface as top surface when calculating back fill volumes. • Possible to divide cut volumes by adding one more model, User 1, in addition to soil and rock. • A new option that additional pipes can be added by using side and height offsets from the main pipe. • Calculation borders can now be used if volumes of a trench have to be divided between e.g. different owners. • Side limitations for models can be added already in the wizard. • The function, Calculate Surfaces, is implemented for trench models and is available in the Data menu. Earlier it was only available if cross sections were exported.
		Terrain	• The function to create terrain profile has an updated UI and is moved to the workflow. It's possible to create multiple profiles at the same time and add your own description. • When a terrain model is cut based on a road line, a preview of the bounding box visualized. Start and end stations and side offsets are defining the bounding box.
		Pile intersection	Pile intersection is improved with a new option to use a terrain model as theoretical intersecting surface.
		Project	More information is added to the Open Project dialog and projects can now be sorted by: • Creation date • Last opened

		Coordinate files	• The help layer tool, Parallel Line, has three options how to handle sharp corners and they are available in a right click menu:
			
			    o Sharp corners, with inserted points
			    o Round corners, with inserted points
			    o Sharp corners, no inserted points
			
			• Possible to save filters in the function, Extract Coordinates.

		MBS	When a MBS is verified the user is warned if duplicated line codes are used.
		AutoCAD	• A new tool, Angular Dimension, is implemented so now it's possible to create dimensions for both distances and angles in DWG files. • Possible to select in which layer dimensions should be saved.
		IFC	When extracting data from IFC files the GUID is saved as an attribute in the coordinate file (*.geo).
		LandXML	Support for import of multiple road models (LMD) with different center lines.
		Surveying	• Backsight check - Angular and length differences, in addition to dN, dE, dH, are added to the report. • Leveling - New report when leveling data (*.lvt) is reduced.
		System	**No support for 32-bit version of Geo Professional**

		Maintenance changes	• Some strange behaviors regarding the manual input of parameters for the Draw Line tool has been fixed. • In DWG properties the option, Update changes instantly, didn't work in 3D. Fixed • The help text button didn't work in the workflow view for Create Terrain Sections. Fixed
2021.2.9	2021-11-30		**Official Version**
		Maintenance changes	• The Create Road Line tool searches for both points and lines, instead of only lines. Fixed • Using other angle system than gon, gives incorrect distance lines in the tunnel model (tbs). Fixed
2021.2.8	2021-11-26		**Official Version**
		Maintenance changes	• Free station calculation could crash in some cases. Fixed • Switch from ftp to https when downloading from within Geo. • The help layer tool, Intersection Point, gets broken if the user clicks at an empty space i.e. no objects found. Fixed • The tool, Insert points on line graphically, could only use points in the active file. Fixed • Rounds of measurements could show a difference between C1 and C2 even if it was OK. Fixed • Free station - The attribute "ROUNDS" should have priority over the setting in the dialog, but if the user clicked, Recalculate, the setting from the dialog was used. Fixed
2021.2.7	2021-11-04		**Official Version**
		LandXML	Data i.e. points and lines, alignments and surfaces from XML files with Inframodel schema version 404, can now be imported.
		File	The option, Save all Files in Current Window, in the Files menu is moved, so the user doesn't use this option by accident when, Save as, is supposed to be used.
		Maintenance changes	• Toggle background maps on/off in 3D window didn't work. Fixed • DWG properties in 3D window, the possibility to Update Instantly didn't work. Fixed
2021.2.6	2021-10-15		**Official Version**
		Coordinate files	Create line with snap, update height dialog was not working as intended. Fixed
2021.2.5	2021-10-08		**Official Version**
		Coordinate files	• Points with codes that don't match the active code list can be visualized and the information, Not in code list, is added to the tooltip. The option is available in document properties for coordinate files (geo) and can be switch on/off. • For the tool, Snap to Intersection, the drop list is now only shown, when the intersection heights are different so the user can select the correct height.
		AutoCAD	In the dialog, Extract Coordinates from AutoCAD Drawing, the list can be sorted according to layer name or description.
		Trench	More details about pipes are added when pipe profiles (prw) are generated from a trench model.
		Tunnel	Option to create lines in the function, Points in relation to Tunnel.
		Maintenance changes	• Updated Dongle Tool • Norwegian Geoid models are available for download. • The placement of quantity list in cross section files is improved • Network adjustment - Simulated leveling didn't give any distances. Fixed • It was possible to do projection correction twice. Fixed

			• Some issues with Find/Modify when editing points and lines are fixed. • Draw line tool with slope didn't reset properly. Fixed • Settings for height in profile drawings were not remembered when the file was closed and reopened. Fixed • Editing of DWG properties eg., change colors. didn't work as expected. Fixed • The slope for the last segment was not written to the profile drawing. Fixed • Area tool with snap didn't work properly in cross section view. Fixed • The option to manually enter an angle when rotating objects was missing. Fixed • Temporary objects were not visualized when rotating or moving help layer objects. Fixed • When moving a point in cross section view, it was moved to the wrong location. Fixed • Tunnel - Issues with inside/outside areas are fixed. • DWG - Line types and colors don't work with BH90 code list. Fixed • Trench model calculated volume of soil even in a fill situation. Fixed • Export of profile drawing to DWG was not complete. Fixed • Create new project from open project dialog in combination with template didn't create the folder structure on disc. Fixed • Issue when customizing the equidistance of contour lines for terrain models. Fixed • Geo could crash when the function Visualize for mbs was used. Fixed • Even deactivated rounds were added to the attribute, No of measured rounds, in station properties (*.plm) • Agtek export - Improved error message when trying to export multiple coordinate files as benchmark • Crash when using the tangent point tool. Fixed • Crash when calculation many stations to separate files. Fixed
		Hardlock Key	• 32-bit version does not support older hard lock key of the model "Hasp HL" (blue 26 mm long plastic shell). • 64-bit version have never supported these "Hasp HL". • "Hasp HL Pro" (blue 28 mm long plastic shell) still supports both versions.
2021.2.4	2021-06-15		**Official version**
		Terrain	New function, Validate Surface, for validation of terrain models. Available in the Functions menu. (SBG Note. The fix function is is not an all fix function. It is mostly used on AutoCad DWG 3Dfaces when the triangle surface is defined on 4 points, which one is clearly a double point)
		Graphics	Different cursors are used for a hit on a point or line, in combination with the green checkbox.
		WMS/WMTS	Support for Danish map services.
		Import	When importing kml/kmz information about point ID:s are now added to the coordinate file.
		Import Leica	When we import Leica DBX(xml)
		Maintenance changes	• Height offset for terrain models in trench models (UIM) didn't work. Fixed • Create Area Tool - Only possible to use the active file when defining area. Fixed • Snap to point for point clouds didn't work. Fixed • The option to select DWG/DXF as models in TBS was missing. Fixed • To change language in Geo didn't work properly. Fixed • Excavation layer was missing in the drop list in Visualization in mbs. Fixed

			• Rotate text in drawings was broken. Fixed • In the function to insert points on line segments using intersection options, the points were added in the wrong order. Fixed • Select object in LandXML viewer was broken. Fixed • Parallel line by point didn't work for road lines. Fixed • Copy and move selected object(s) - Move to position with relative coordinates was broken. Fixed • When importing LandXML from Captivate the line connections could be wrong. Fixed
2021.2.3	2021-05-20		**Latest Version**
		Terrain	Multiple terrain models can now be cut based on station input, start and end, for a center line.
		Coordinate files	In the function Insert Points on Line Segment, a new option to interpolate the height from the intersected line is added
		Graphics	• Double click on mouse wheel to **Zoom Extents** (same as the keyboard Home button). • Now, Zoom to selected object in 3D window keeps the camera orientation.
		Export	Terrain model export to Trimble ttm is re-implemented in 64-bit version.
		Maintenance changes	• Graphical DWG issue when a DWG and geo file are opened and the DWG is turned off. Fixed • Create terrain model was broken if Max element length was used. Fixed • Measure tool was not restarted with right click. Fixed • Update height has stopped working when a point in a line was moved to another point in a line with snap, in the Help Layer. Fixed • A new code list TrvJvg2019.cod is added. • Radius not shown in the status field for tangent point tool. Fixed • To use template when creating new project didn't work. Fixed • Distance and bearing was not displayed in 3D window when Set Base Line Tool was used. Fixed • Simulate leveling generates incorrect lengths between points. Fixed • If the user selects the option Height Difference, height values are not updated while using Parallel Line by Point or Parallel Line Element by Point. Fixed • Height distortion in 3D causes the tool mouse target position to be misplaced. Fixed.
2021.2.2	2021-05-05		**Latest Version**

		2D and 3D graphics	• Help layer is visualized and possible to toggle on/off in 3D window
			• All Help Layer tools are implemented in 3D window, with the same functionality as in 2D
			• The following tools are also available in 3D:
			   ○ 2D Area Tool
			   ○ Polygonal Selection
			   ○ Copy Point/Element and Line
			   ○ Object Information Tool
			• Most of the functions in the right click context menu are implemented in 3D, e.g. Move Point, Delete Point, Localize Numerically, Move Selected Object(s), Split Line at Node, Connect Line, Insert Points on Line, Properties etc
			• Search/Modify dialog is accessible for multiple objects selection in graphic view
			• Possibility to use point height of the object, the parallel line/element is snapped to
			• Cursor styles for tools are harmonized between 2D and 3D

			• When a tool finds an object, it's indicated with a green check mark.
			• New short cut keys for the following tools:
			  o Select Alt+S
			  o Select Lasso Ctrl+Alt+S
			  o Connect/Split Alt+X
			  o Set Point Info Alt+C
			• Connect/Split Line - both height and point codes are displayed, together with point ID, in a pop up list of points available for selection. Available in both 2D and 3D window.
			• Possibility to toggle background map on/off is implemented.

		AutoCAD	• The 2D rendering of DWG/DXF files is updated and the speed is improved
			• New options in the right click menu for selected DWG objects:
			  o Extract Selected Objects
			  o Extract Selected Layers
			  o Extract Non selected Layers
			  o Hide Selected Layers
			  o Hide Non selected Layers
			  o Delete Selected Layers (locked layers are not deleted)
			  o Delete Non selected Layers (locked layers are not deleted)
			• The description is now displayed in the dialogs, when coordinates and 3D faces are extracted from DWG/DXF files
			• When each DWG layer is extracted to a different file, a mapping is listed in the Input/Output window, with a count of features extracted from each layer.
			• The DWG export is extended to allow for multiple blocks (symbols) to be picked from the code list.

		Road	• New function to cut stringline models (lmd) based on station input, start and end, for a center line • The function to create cross sections from stringline models (lmd) is moved to workflow view • Material layers (buildup layers) are exported to sec-files generated from a stringline model • The vertical element slope (l3d) can now be displayed in both plan and in the 3D view • The drawing of lines with radius (l3d) is improved
		Terrain	New function to cut terrain models (trm) based on station input, start and end, for a center line.
		Volume	New function to cut volume description models (mbs) based on station input, start and end, for a center line.
		Trench	• Material layers can be visualized in cross section view for trench models (UIM). • Material layers and their properties are exported to sec-files generated from trench models. • The volume of pipes can be included or deducted from protection fill based on the diameter of the pipes and it's now also visualized in the cross section view of the model and exported to the sec-files.
		Tunnel	• Possible to select a DWG as tunnel design in the TBS wizard • Both volume calculation and cross section creation in TBS are moved to the workflow view, so the graphical window is active when you define your settings. • Material layers can be visualized in TBS cross section view. • Material layers and their properties are exported to sec-files generated from TBS. • The cross-section line is made thicker/more visible in TBS with point cloud.

			• The max/min distances between design and measured surfaces are now highlighted in tunnel sections, so they easily can be identified. • The theoretic cross sections (tun) is now drawn in 3D, at the start stations, defined in the usage list.
		Import/Export	• Support for Topcon format for points (pt3) and lines (ln3), both import and export. • Import of kml/kmz • Trimble import/export of Trimble DC, JobXML and leveling data are merged to the same import/export dialog (only import of JobXML and levelling files). • Export of coordinate system (*.lok) to Trimble DC. • A dedicated Leica MC1 USB drive export is now available. • Option to select USB drives as target on then right side in all import/export dialogues. • Export of adf-files to the SmartDirt app. Terrain models, road lines and point and lines are supported.
		SmartDirt	Export of adf-files to the SmartDirt app. Terrain models, road lines and coordinate data can be exported to be visualized in the app. Even a difference model can be exported if you would like to estimate volumes in the field.
		Cross section (sec)	• User defined placement and color of the quantity list for cross section files. • New option, Set Center Line, to define a center line for a sec-file.
		Net Adjustments	• Excluded observations are listed (with strike through) in the report. • Possibility to create a report for lengths that have been measured twice in net adjustment. • Updated settings dialog, A Priori Standard Deviations, in net adjustment with a new option for tolerance for multiple distances and more settings templates are added.
		Leveling	• BBFF pattern is now handled when reducing leveling. • SimBF method to split measurements for leveling data (*.lvt).
		Maintenance changes	• Side pipes were not visible in cross section view of trench models, if the line had opposite direction. Fixed • Clean for Field and Purge didn't work for DWG. Fixed • Not possible to use graphical selection for IFC files. Fixed • Problem to change text font in drawings. Fixed • The layer colors didn't always follow from sec-files to drawings. Fixed • Problem to calculate intersection line in some special cases. Fixed • Save Help Layer to coordinate file didn't work with line element. Fixed • Drawings with circle was drawn with bad precision in paper view. Fixed. • The search fields when inserting coordinate list in drawing didn't change name input names properly. Fixed. • The prism constant was not correct handled when saving plm as inm • The tooltip info for Help Layer objects did have the wrong labels in cross section view. Fixed • Graphical transformation of selected objects didn't work with auto snap. Fixed
2021.1.5	2021-04-09		**Official version**

		AutoCAD DWG	Upgraded to ODA/Teigha package v.2022.2
		Maintenance changes	• Loss of precision in heights when extracting blocks from DWG (the user decides how height attributes should be handled). Fixed • Some DWG files could cause Geo to hang/freeze. Fixed • In some cases, intersection line is created even if the option isn't selected. Fixed
2021.1.4	2021-03-26		**Official version**
		Maintenance changes	• Stop to Layer, in editing of design section (nsd) in MBS, didn't have a drop list with available options. Fixed • The quantity list for cross section files was not displayed if the fill patterns for the different layers were turned off. Fixed • Geo could crash in some cases when "Inserting points on line graphically" was used. Fixed • Layer colors from cross section files (sec) didn't follow when exported to a drawing. Fixed • The baseline tools, Foot Point 2D and Foot Point 3D, were missing in the Tools menu. Fixed • The 3D view of trench model (uim) could get slowly after several new inputs were made. Fixed • Updated Polish translation.
2021.1.3	2021-01-27		**Official version**
		Maintenance changes	• Updated Swedish translation • WMS/WMTS fixes
2021.1.2	2021-01-20		**Official version**
		Trench	The calculator icon in the toolbar is active and can trigger the volume calculation workflow view for trench model
		WMS / WMTS	Support for SWEREF99 and UTM zones 29-35N coordinate system on the server side
		Maintenance changes	• The rock clearing was not calculated for mbs. Fixed • The pipe area in cross section view was not displayed correctly in the quantity list, if inner and outer radius were used. Fixed • Zoom to extent didn't work with map service as background. Fixed • WMS: Localization with Geoid model caused blank web map service background. Fixed • WMTS: Some links from Pointscene didn't work. Fixed • Geo could crash after undo operations in Manager Area for sec-files. Fixed • Extract coordinates from DWG could create too short arcs. Fixed • The function, Cross Sections along Line, populated drop list every time the page loads. Fixed • Crash when calculation icon was triggered in TBS. Fixed
2020.2.8	2020-11-27		**Official version**
		Maintenance changes	• Geo failed to export vertical lines to DWG. Fixed • In Volume Calculation, Terrain Model, if grid spacing was the used method, offset didn't affect the calculation. Fixed • Cross section files exported from MBS with CFM didn't store the information about used center line. Fixed • Update and save existing data in a net adjustment and could cause a crash. Fixed • Pile intersection report saved as Excel file did loose decimal character for bearing. Fixed

2021.1.1	2020-11-26		Latest Version
		Support for WMS and WMTS	Support for web based map services as background in both 2D and 3D (WMS =Web Map Service, WMTS = Web Map Tile Service).
		Volume by section (mbs)	- A new improved wizard when creating a new mbs with predefined templates for typical cross sections, option to add side lines and calculation interval can be defined. - Tabs are added so it's easier to change the view orientation between cross section, plan, profile and 3D. - It is possible to show side line with side distance. - Possible to define material codes for the different layers and the codes are saved to both volume report and cross sections. - User defined templates for material codes can be saved. - The dialog to calculate a volume report is moved to the workflow view, so the graphic window isn't blocked when defining what to include in the report. - The different layers can be displayed as areas in the cross section view. Go to Document Properties and the tab Areas to be able to turn them on, change color or hatching. - If a vertical profile offset is used for the main line, the offset is displayed at the main line node in the mbs. - A warning is displayed if interpolation of standard sections (*.nsd) with different number of points is done.
		Terrain	- A new merge model function is implemented and it's moved from the Data menu to the Functions menu. Three methods, regarding the height calculation, are available when models are overlapping: - Lowest - Highest - Prioritized - Create Terrain Section is improved: - New UI in the the workflow view, so the graphic window isn't blocked. - Multiple surfaces are supported, i.e. a sec-file with many layers can be created - The layer description can be edited - If a reference line is available, the active terrain model can be drawn in cross section view - The tool, Rotate Triangles, is implemented in the 3D window
		Cross section (sec)	- The cross section format (sec) is updated and can contain more information. Geo is backward compatible and can open old cross section files, but old Geo versions (2020.2 and earlier) can not open the new extended cross section format: - Graphical properties are saved in the sec-file. - Different materials can be displayed as cross section areas with color, hatching and material code. - In the data menu a new option, Manage Areas, can be found and the user can defined areas between existing layers and set name, color, fill pattern and code. - Cross section files exported from mbs, already have available material areas defined. - In document properties for the sec-file, only available layer are displayed. - Option to turn layers and areas on/off - If sec-files are exported to DWG, a new option to create a legend is available. - The result of the tool Create Cross Section Preview can be saved to a sec-file.
		Coordinate files	- New function to insert points on a whole line based on distance, both horizontal and sloping, or number of points. - Insert points on line segment has a new option called, Apply for all line segments, which means the insertion will be applied for all segments of the line.

			• New function called, Insert points on line graphically. The user selects a line and then a single point with height, and this point is added to the line, at the shortest perpendicular distance from the point.
		Measurements	• If the option "Enter instrument constants" is used while correcting measurements, the used constants A and N are now added to the station header in the plm-file. • More information is added to the correction of measurement report, e.g. instrument, instrument N, instrument A, pressure and temperature.
		Road	• A new function to set height to points and lines in coordinate file from a road line (l3d) or cross fall model (cfm). • In stringline model (lmd) the steps are now synced between plan, cross section and 3D view. • If a another slope is added to the excavation layer in a stringline model, it can be done in percent. Now you add 2.5, if it should be a 2.5% slope and before you had to type in 0.025. They same change is done for deep cut. • If buildup layers are added to the stringline model, the user defined name are now used in both the document properties and tool-tip information.
		Tunnel module	• Tabs are added so it's easier to change the view orientation between cross section, plan and profile. • In the function, Points in Relation to the Tunnel, the input data now can be both in N, E, H and N=station along main line, E=length along *.tun line, H=distance to *.tun line.
		Point Cloud	Filtered point clouds can be exported as DWG.
		Net adjustment	• In rounds of measurements, possibility to select/deselect measurements and see the results directly. • When calculating a net adjustment in height, the standard error of unit weight is now displayed in the input/output window. • Selected or deselected observations are remembered when data is added/deleted, or control or approximately points are added/deleted. • A new setting for max difference between circles in rounds of measurements is added. • The movements of control points are added to the net adjustment report for height. • The movements of control points in height adjustment, are displayed graphically.
		Graphical tools	A new polygonal selection tool New shortcuts • Alt+S > Rektangular Selection • Ctrl+Alt+S > Polygon Sellection • Alt+X > Bind/Split • Alt+C > Set point information
		Graphical properties	The different model types, i.e. mbs, tbs, and lmd, can have its own default graphical properties.
		DWG/DXF	• The ODA library (former Teigha) is updated to latest version. • Possible to create a PDF of a DWG.
		ConX connection	• Display the device name MC1

			• Change default start date for the Get Measured Points query to today's date
		Maintenance changes	• Tool-tip information is now available for icons in the 3D window. • When saving circles from the help layer, the center points were not included. Fixed • Insert points at intersections was not working for line segments with arcs. Fixed • Crash if a length report was generated and the very first line segment had a radius. Fixed
2020.2.7	2020-11-03		**Official version**
		Maintenance changes	• Geo fail to export vertical lines to Autocad DWG • Model to model with grid spacing not affecting by height offset • Center line not stored in cross section when created with cfm in mbs • Pile intersection report saved as excel file loses decimal character for bearing
	2020-10-30		**Official version**
		Maintenance changes	• Split/Connect stopped working if the user failed to click on a point. Fixed • In Volume Calculation, Terrain Model, if grid spacing was the used method, offset didn't affect the calculation. Fixed • The dimension tool for dwg removes decimal zeroes regardless of decimal choice. Fixed • In HeXML import of measured data, no data was imported if the first survey block was empty. Fixed • The updated part of the length report was not translated. Fixed • DWG transformation using Functions > Transformation failed for some files. Fixed
2020.2.5	2020-09-28		**Official version**
		Trench module (UIM)	• Possible to save user defined default material codes (account codes) • Possible to save user defined default layer codes, which makes it easier to extract 3D lines from UIM cross sections (*.sec) • The height offset for models is now on model level for top surfaces and rock models. • Cross sections generated from UIM get the default name from the active trench model
		Coordinate files	Improved length report with a separate tab for each line with information about start and end points for each segment, point code, length, 3D length and slope.
		DWG/DXF	DWG files will always be opened in model layout.
		Maintenance changes	• The rotation offset in Pile Intersection, rotated the pile before calculating the intersection. Fixed • Registry setting are not read from communication, so devices are not listed. Fixed • Multiple side pipes are displayed in the tree view for UIM. Fixed • Set Point Info doesn't work properly for polygons. Fixed • Import of AutoKa PC/GTrans files is not working. Fixed • Trench bedding was missing in some special cases when the top surfaces intersected the bedding. Fixed • Crash in Modify Cross Sections and some filters were used. Fixed • In the import of UIM from LandXML the resulting files did open, even if the option was unchecked. Fixed

			• Pipe bedding was listed in the area/volume report even if it wasn't selected. • Updated Polish translation
2020.2.4	2020-06-16		**Official version**
		Save all option	A new, Save All, option is available in the File menu or by right click on window tab, and all changes made in all files in current window are saved.
		Maintenance changes	• The calculation interval was not used when the area of the pipe bedding was calculated in UIM. Fixed • Structures for side pipes were not included in the excavation model created from a UIM. Fixed • When changing start station in UIM all grid views were not updated correctly. Fixed • Draw point and writing point number in the Input/Output Window did not work. Fixed • When connection lines the color was lost. Fixed • MS60 - An already existing point cloud is overwritten if a new point cloud is imported from the same DBX Job. Fixed • When creating project template in the tab Shortcuts in the project tree panel, Geo could crash. Fixed
2020.2.2	2020-05-12		Test version
		Trench module (UIM)	• Option to limit the bedding at the bottom of the trench • More codes are saved to the excavation layer, which will improve the workflow if cross section files will be used for further processing, e.g. extracting 3D break lines • Name of used models and offset values are now displayed in the volume report • Break lines are added to the excavation model (trm)
		Maintenance changes	• 3D visualization in the trench model (uim) is not updated when new pipe is inserted. Fixed • Decimals are lost when importing a text file if comma sign is used in text file. Fixed • Geo fails to create terrain models from some coordinate files. Fixed • The conversion to BH90 is broken if the drawing is on top in the graphics. Fixed • Crash when trying to remove duplicate points. Fixed • Issue with model to model calculation for certain models including break lines. Fixed • Split poly line in 3D splits at the wrong place if height scale is distorted. Fixed • Selection disappears when a point or line is moved. Fixed • Geo fails to create terrain model if special code C is used. Fixed • Can not close or get file location when middle or right click on the tab for report files. Fixed • Problems to calculate intersection line in some cases. Fixed
2020.2.1	2020-04-17		Test Version
		Trench module (UIM)	• Protection fill and back fill layers are added • Save protection fill option • Support for rock model (trm, dwg/dxf) • Over excavation can be defined • Pipe bedding for individual pipes • Volume and area report is updated with protection and back fill, rock, rock clearing, high and low rock, over excavation • 3D visualization • Excavation model can be merged with defined top surface

			• Save excavation option by creating shelves in the trench

		3D graphics	• Tools are implemented in 3D:
			    o Split and connect lines
			    o Trim and extend lines
			    o Auto join lines
			    o Create road line
			    o Set point information
			• Break lines in terrain model are now visible in 3D.
			• The rotation point is made more visible.

		Graphics	Coordinates and height, stationing and offset information are moved up the to the status bar of the graphical window. Delta height (dH), in relation to a terrain model or cfm, can be displayed if e.g. the information (Info) or measure tool is activated in combination with snap functionality.
		Connect/Split poly lines	The tools connect and split poly line are merged into the same tool. Connect functionality, when clicking over a point and split, when clicking over a line.
		Project tree	A toolbar is added at the top of the project tree with two icons. One is an option to toggle between showing all or only existing categories and the second is to refresh the project tree.
		Road line	Longitudinal lines is added as output option from the function "Cross Sections along Line" for road lines and cross fall model (cfm) i.e. lines can be generated directly along the active center line.
		Coordinate files	• Coordinate files can be opened directly in numerical, 2D graphical or 3D graphical window from the project tree • Possible to change color of point or line in the property dialog of selected object • Set point information is rearranged and more logical, added line number and color • The function, Coordinate File Reports, is improved so it can include all attribute columns in the generated report
		DWG/DXF	Draw DWG content with 0 height on the reference grid in 3D
		Surveying	Possible to calculate free station with only one recorded distance
		Maintenance changes	• Default font for text in graphics is changed to Calibris • Updated help text • Finding objects in DWG in 3D doesn't work. Fixed • Bug when using the function Modify Cross Sections. Fixed • The buildup layers (bup) were lost when editing the nsd file in mbs. Fixed • The snap tool, Snap to Midpoint, could snap to single points in some cases. Fixed • LandXML import to MBS broken. Fixed Stability improvements, found thanks to those users who sent automatically created error reports, to the development team
2019.3.15	2020-04-17		**Official Version**
		Coordinate files	The function, Coordinate File Reports, is improved so it can include all attribute columns in the generated report
		Maintenance changes	• Auto join: Remark information disappear when joining the line. Fixed • Rock shelf code not visible or possible to use in MBS. Fixed • Not possible to un-tic box "Extrapolate" for rock shelf in MBS. Fixed • Unable to select a moved poly line. Fixed • Cross section along line stored value for cross fall incorrect. Fixed • Enable Update Tree for all project locations. Improved • When circles are saved from the help layer, the center point is not included. Fixed • Number of rounds was not used when setting a priori for free station. Fixed

			• Crash when the info tool in the free station dialog was used. Fixed
2020.1.1	2019-12-22		Test Version
		Trench Module (UIM)	• Support for multiple pipes • Excavation model from multiple pipes can be created • Add a surface (trm or dwg/dxf) as top surface • Volume and area report which includes total excavation volume, volume of bedding and extra bedding and surface area of bedding • Length report of pipes • The project code list (*.cod) can be used for defining codes to pipes • Improved merge function when the excavation model is created • Possible to create a stake out file (*.geo) from the UIM model
		New license	The license Trench is required to create a new, edit or generate output from a trench model (*.uim)
		Coordinate files	Coloring of points and lines. Mark object > Hover on object and right click > Choose properties
		Import/Export DWG/DXF	Color on coordinate object is set according to dwg at import, see setting. At export, colors on objects is set in the dwg if nothing else is set to control it
		LandXML	If a LandXML file contains PipeNetworks, the user can select to create a trench model (*.uim) directly in the import
		Maintenance changes	• Updated help text • Updated Polish translation
2019.3.14	2019-12-22		**Official Version**
		Maintenance changes	• If text is inserted in a drawing (*.dra) and the drawing is exported to dwg-format, the text is missing. Fixed • Updated help text • Updated Polish translation
2019.3.13	2019-12-12		Test Version
		Maintenance changes	• Problem with 3D graphics for Intel(R) UHD Graphics 620 and 630 card. Fixed • Not possible to create Cut and Fill Map without saving the DFM first. Fixed • Texts for Cut and Fill are missing in the volume report. Fixed • Excel saving is crashing if Excel isn't installed. Fixed • Not possible to edit in the numerical view for l3d. Fixed • Stability improvements, found thanks to those users who sent automatically created error reports to the development team
2019.3.12	2019-11-01		Test Version
		Volume calculation	Information about used auto slope in the volume calculation report is added
		Export	• The export to/save as Excel is implemented again • Updated shape export templates
		New attribute	"reference_model" is a new attribute used by GeoPad when in stake out mode
		Maintenance changes	• In some cases Geo could crash when connecting a Geo project to a ConX project. Fixed • The insert station equation option in the Data menu was disabled. Fixed • The preview cross section tool caused Geo to crash. Fixed

			• Not possible to set a user defined scale in drawings, only predefined. Fixed • The center line was missing in the LandXML import of DesignCrossSectSurf when a LMD was created. Fixed • 2D point cloud filter didn't work after a point cloud file was saved. Fixed • Compare files didn't work. Fixed • Geo fails to use border polygon correctly in MBS for some special cases. Fixat • Stability improvements, found thanks to those users who sent automatically created error reports to the development team
2019.3.11	2019-08-30		Test Version
		Leica ConX	Improved ConX integration with a function called "Get Measured Points". The user can filter logged/measured points based on date, time, unit and active reference model and download the points direct to active Geo project (*.geo, *.llc).
		Maintenance changes	Changes and fixes: • The new height option while moving and snapping to other object doesn't work. Fixed • Fill is not drawn in 2D if a custom color is used for terrain models. Fixed • Not possible to Save Graphic View if more than 6 terrain models are opened. Fixed • The 3D LandXML view doesn't show or recalculate the rotation center. Fixed • Snap to endpoint fetches incorrect height value. Fixed • Stability improvements, found thanks to those users who sent automatically created error reports to the development team
2019.3.10	19-06-27		Test version
		Underground	New model for underground infrastructure (*.UIM) to handle pipes and wells in a more streamlined way.
		Volumes model to model	Added new function for offset models when calculating. Now you can specify the offset directly in the calculation instead of modifying the model
		System	Geo is now UNICODE, which means that Geo has full support for international characters in both file names and file contents. For best compatibility with GeoPad upgrade this to version 2019.03.1610
		Export	In this version of Geo, export is not supported to / save as Excel. We expect it to be back in the next version of Geo.
		Maintenance changes	Changes and fixes: • Cross section view for CFM was wrong for crown sections. Fixed • Save road line (*l3d) as coordinate file (*.geo) tessellated the line into straight lines. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2019.1.14	19-04-24		Official version
		Pit calculation	New Feature: Volume calculation model to model with automatic calculation of the slopes.
		Leveling	New function to split leveling runs measured by the method BFFB.
		IFC	• Support for display of transparent surfaces • Settings to display surfaces or wireframe • Settings for colors for selected objects • Save DWG / DXF directly from the IFC model.
		3D Graphics	• Overview screen to facilitate navigation in zoom mode.

			• New tool for rotating camera view
		Coordinate files	New function to easily delete all zero heights (Z = 0> Z =)
		DWG/DXF	New function to easily delete all zero heights (Z = 0> Z =) when importing / extracting coordinates from DWG / DXF.
		Maintenance changes	Changes and fixes: • Improvements in volume calculations of terrain models.Import of Trimble jobxml (* .jxl) was broken, fixed • Export of trm to Trimble ttm format via Trimble DC was broken. The feature is only available in the 32-bit version. Fixed • Volume calculation MBS, when using CFM but same side offset for both sides gave the wrong profile height, Fixed • Importing Leica DBX from TPS did not create lines correctly, Fixed • Importing Leica DBX from TPS did not properly handle prism constant. Fixed • Archiving (zip) from MBS with LIN / PRF / skv was wrong, Fixed Road line, CFM could not read the path to l3d correctly if CFM was in a subdirectory. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2019.1.11	18-12-14		Test version
		IFC	New feature support for IFC 4 (alignments also supported) • Open and view file(s) in 3D, alone or together with other supported files in Geo • Filter object(s) in a filter view • Select object(s) in the filter view • Select objects(s) in the graphics • View properties for selected objects • Import selected object(s) into native formats (*geo, .l3d or *trm)
		3D Graphics	Experimental change in how to navigate and zoom in 3D, it is now possible to walk around the models and survey data in a whole new way. However, this feature is still at the expriment level, but please try and comment. The key assignments are set as follows: '+': Move forward 1 meter '-': Move backward 1 meter 'A': Turn left (left arrow) 'D': Turn right (right arrow) 'W': Turn up (up arrow) 'S': Turn down (down arrow) 'Shift': 5 time faster on moving 'Ctrl': 5 time slower on moving
		Tunnel	Changes in how tunnels are sectioned from design areas (dwg), extended use with settings also for dH. This facilitates especially when the tunnel crosses itself in different planes (slopes and ramp tunnels).
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.2.3	18-12-03		Official version
		Import / Export	Support for Topcon *.tn3 terrain models in import and export.
		3D Graphics	Automatically set 3D rotation center to the middle of visible objects.

		Maintenance changes	Changes and fixes: • Point database is missing in 2018.2.1.11 (32-bit, Fixed • Trim was broken, Fixed • Not possible to save tpf after entering parameters for Affine transformation, Fixed • Crash when selecting file under "External References" for *.dwg file on Win 10, Fixed • Trimble Link did not work in 64 bit, Fixed (you may need to install an updated version from Trimble) • Radius not handle correctly for source files in "Extract coordinates" with border polygon. Fixed • If Extract Points is used together with a border polygon the line code is lost. Fixed • Net adjustment reported to low relative redundancy for free net adjustments. Did not affect coordinates and separate observations, only relative redundancy for the entire net adjustment. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.2.2	18-09-17		Test version
		AutoCad	• Changed CAD-engine to Teigha 2019 • Hatched areas exported from TRM-files is exported as separate layer. • Export by using BH90 has several improvements for "status", line type and coding.
		Cut and fill map	Hatched areas are now reported as m2 from cut and fill maps.
		Maintenance changes	Changes and fixes: • Graphic tool trim line could create wrong heights sometimes. Fixed • Text export was broken in 2018.2.1. Fixed • Leica DBX (XML) import ignored gem-files when importing GNSS-data. Fixed • Pile intersection by eccentric surveying was broken. Fixed • Could not install 32-bit version after installed 64-bit. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.2.1	18-06-29		Test version
		System	Geo comes now as 64-bit version.
		Graphic tools	New function for interpolating heights on an entire polyline, the line must have heights at the ends as well as any points on the line. Node points on the line without height get new interpolated height based on surrounding points. The tool is located under the right-click menu in the 2d graphics when the polyline is selected.
		Import/export	Leica DBX import now uses HeXML as interface for import. That will improve the dataflow from Leica Captivate
		Point cloud	Import of LAS 1.3 and 1.4 is now supported
		AutoCad	• BH90: Change the description for status to the text instead of the character • If attribute "Status" is used and exported to BH90, set character to all layers connected
		Communication	Export of coordinate systems are improved for iCON field by USB. The correct folders are created automatically on USB-stick for easier import to iCON field.
		LandXML	• Import of parcel with curves are now supported • Surveying data as LandXML is now supported for import.

			• Import of cross sections from Civil 3D is improved.
		Maintenance changes	Changes and fixes: • Net adjustment: Redundancy (K) value not correctly calculated for free adjustments in net adjustment. Fixed • BH90: If separate files and same code, layer can not be created. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.1.982	18-04-30		**Official version**
		Road	• Added a cross section view for cross fall models (CFM), need to define road width to be used. • Cross sections along line, calculation improvements how to create new points.
		Tunnel Difference Model	The contour lines are divided into different layers when a DWG cut and fill map is generated.
		Difference Model	The contour lines are divided into different layers when a DWG cut and fill map is generated.
		Reports	• Added information regarding units in volume and area reports. • Tunnel volume report, only view the calculation limit if this is used in the calculation. • Transformation report for 2D helmert + height difference now displays the height diff as well
		Drawing	Profile drawing uses the settings for profile height from project settings.
		Graphic view	Improvements for opening a *.ggv that includes not existing files.
		Import / Export	• Added a general text export for *.geo and *.llc files • Improvement of DC Import for coordinate systems
		AutoCad	Added support to create dwg-file from l3d and terrain height profile (pro).
		Leica ConX	Added icons for truck, piler, roler and driller
		LandXML	Improvements for Cg Points
		Add on/ Plug in	New DBX-tool added under download, support for Leica GS18T
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.1.981	17-12-22		**Test version**
		Volume Calculation, Intersection Line	When calculating terrain model to reference height, you can now automatically create the intersection line in the same way as in model to model.
		Export	Export of LLC-files to LandXML is now supported.
		3D-graphics	The measurement tool in the 3D view is now extended with 2D length, sloping length and slope.
		Coordinate files	Split lines in closed polygon are now changed so that the line is only divided where you choose and no longer even on the last element of the polygon
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2018.1.980	17-11-06		**Test version**
		Graphics	New preview cross section tools which supports multiple surfaces. Terrain models (*.trm) and dwg files are supported. The cross section is defined by two clicks in the graphics or by one click and a cross section perpendicular to the active line reference is generated.
		Overlapped Measurements	New function, Overlapped Measurements, for railway surveying. The function is made to check that angular deviation does not occur between

			station set ups and it can be used both with or without road-/railway line.
		Point Cloud	Possible to select which scans to import from Leica MS50/MS60. Previously, you only could get all or no scans from each station set up. Now it's possible to select individual scans from each station set up.
		LandXML	Added import of cgpoints in lat/long
		Coordinate systems	Changed default settings for axis from xyz to NEH
		Volume Calculation, MBS	Support for DWG files with surfaces in MBS, so they can be used directly as models for existing layers.
		Volume Calculation, Intersection Line	New output in volume calculation, model to model. It's possible to get the intersection line with height, of the two input models in the calculation.
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2017.1.971	17-10-12		Test version
		Leica ConX	All ConX projects are now listed and possible to connect to, even if companies are using account types to set up hierarchies. Earlier only projects created on the root were listed.
		Tunnel	Possible to add a multiple number of tun-files to a TBS.
		File handling SharePoint	Improved support for subfolders on SharePoint server.
		Translate Codes	The function, Translation of codes, couldn't handle codes containing space. Fixed
		Import/Export	The REB import is reintroduced. No changes of the import have been made.
		LandXML	A new setting, **Ignore invisible faces**, is added to the LandXML import. Triangles in LandXML files can have an attribute that they are invisible, even they are a part of the triangulation. When this option is selected, these triangles are ignored.
		Remote support	A direct link to Screen Connect is now available in the Help menu.
		Maintenance changes	Changes and fixes: • Some users, especially with Windows 10, could only run version 2017.1.970 with hardware lock. But only if the certificate was already on the hardware lock. Fixed • The function, Cross sections along line, could in some special situations generate extra points when using the option intersection with side lines. Fixed • Project settings; files with space before file extension were ignored even if they were defined as control points or approximate points. Fixed • Area calculation of polygons for which the last element was a circle arc didn't work. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2017.1.970	17-05-04		Test version
		Leica ConX	New for Geo 2017 is integration of Leica ConX. Users can connect to the cloud based service and manage project data for machine control and field crew units. Note! Your subcription must always be valid to run this feature. In project settings in Geo it's now possible to use the Leica ConX credentials (must be on Company level) to login and link to a Leica ConX project.
		Alignment (*l3d)	Added height coordinate in 2d graphic for both plane and profile view.
		Pointcloud	For better visibility we added a function to change the linewidth for the point cloud tools.
		LandXML	Added support for stringlines from AutoCad Civil3D with Naviate.
		Maintenance changes	Changes and fixes:

			• 3D view for trm-files could be very slow in Geo version 960-962. Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.2.962	17-03-28		Officiell version
		Work flow pane	Right click to find the 10 latest opened files.
		AutoCad	• New function, support for CAD layers according to BH90 standard for export to DWG by saving view as AutoCAD file. This function requires the correct code list and the associated template file (* .dwt) to operate. We have created new code lists sbg2_BH90 and sbg2z_BH90 for Geographic Information. Call and talk with our support for a detailed review or read more in the news. • Dialog AutoCadlager is now larger than before.
		Coordinates	Modify points is extended with the ability to modify data for results in other fields.
		Alignment (*l3d)	Graphical copying of road alignment into geo file now supports parabolic profile.
		LandXML import	Support for LandXML files with HeXML 1.8 embedded.
		Maintenance changes	Changes and fixes: • Tunnel: Visualization of tunnel made errors in interpolation and often when tun file is closed. Fixed • Tunnel: Geo crashes when a new line is drawn after the existing lines of * .tun files deleted. Fixed • Tunnel: Only integer was permitted by section intervals when creating colorized difference models. Fixed • AutoCAD: Tooltip info is displayed in the wrong color. Fixed • AutoCAD display order of 2d graphics could mistakenly make files invisible. Fixed • AutoCAD: Export of geo file with spaces for line code could get incorrect DWG. Fixed • Volume calculation model, the model can be extremely slow on large models of Geo 2016. Fixed • 3D View: Failed to write minus the setup dialog workspace. Fixed • Excavation and fill levels, layers could be hidden behind the overlay. Fixed • Numeric view for geo files updated lines are not always correct. Fixed • Measurement data: x and y values are exchanged in dialogue "Resection with GNSS". Fixed Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.2.961	16-11-30		Test version
		Surveying	Station setup on known point with multiple back sights weights now the calculations with respect to the lengths.
		Import / export	• When importing LandXML it was only possible to save the imported files in the existing folder, now you can also create new folders when importing. • Enhanced support for SDR3 from eg Sokkia and Topcon.
		Pile intersection	The pile intersection calculation is now enhanced with the ability to other slope format as well as a rotation bearing of the coordinate system to get local deviation in the pile group.
		AutoCad	• Support for "MTEXT" from AutoCAD drawings • In view save as AutoCAD is now added description text AutoCad layer for export with code list. This description is from the description of the code list.

		Maintenance changes	Changes and fixes: • 3D length of polygons in the numeric view showed not always the right length, fixed • Volume calculation Model to model with multiple boundary polygons could sometimes give strange values, fixed • When changing the display order of the 2D graphics with AutoCAD files could sometimes stop plotting the DWG file, fixed. • Tunnel, with the use of DWG as a theoretical tunnel released not always Geo memory when the tunnel description was closed, fixed. • Copy the road alignment from the help layer to active L3D file did not work as expected, fixed. • The ability to draw on the help layer in cross section was broken, fixed. Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.2.960	16-10-07		Test version
		Graphics	• New function, save the help layer to a new geo file. Is in the Data menu when using the layer is active. • The status bar now holds ENH (xyz) also for terrain models when zoomed 150% on Windows. • New snapping tools, snap to vertex.
		Import / Export	• New format, import of TRM from STL (terrain model for ski slopes) • New format 12d, import and export of 12da (12D archive from Australia)
		3D Graphics	• Changing the center of rotation of the 3D model by right-clicking on the new center of rotation. Tip: Use snapping tools for greater accuracy • New snapping tools, snap to vertex.
		Maintenance changes	Changes and fixes: Graphics, now you can close multiple files simultaneously from the dialogue "Documents in the graphical view" Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.1.952	16-09-05		Officiell version
		Graphics	If multiple files are open it's possible to use "Bring Forward", "Bring to Front", "Send Backward" or "Send to Back" in Documents in Window.
		Licensing	Create Cut and Fill Map for difference model (*.dfm) is now available from the trm-module.
		Surveying, leveling	Adaptation for the Leica LS15
		Tunnel	Extracting tun files from design mesh files (dwg) Improvement for creating cross-sections from design mesh files
		Terrain model	Improvement for creating terrain models from closed polygons when using "check connection to same line"
		Import coordinate system	Bug when importing Trimble DC coordinate systems (RSO, Azimuth at equator/skew/grid)
		Roadline	Offset station stationing option added to the Data menu for road lines If element number contains a comma sign in *.l3d, change this to dot, when save as *.lin/prf
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.1.951	16-02-26		Test version
		GUI	Change appearance / size of various dialogs in polish

		Surveying	Added TS16, TS60 and MS60 to predefined list for atmospheric corrections
		Import / Export	Added support for Topcon leveling format *.cs1
		LandXML	Change serialization of LandXML from version 1.1 to 1.2 (Export)
		Maintenance changes	Changes and fixes: • Clean for field function broken in 2016 branch • Cross-sections are not correct if TDM is added under 'user2' layer in TBS • Export Points and Lines' doesn't export all the breaklines in TRM file • Crash with Volume calculation if Import / Export dialog has been open • Bugs in localization creation • Line color is not coming in TBS file even when configured for file type default in L3D file Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2016.1.950	15-12-03		Test version
		Volume calculation	• New user interface for volume calculation from terrain models. A workflow pane is used, so the graphical window can be used for viewing files. • Stockpile volume calculation is implemented. • MBS, Changed standard for side lines so that * L3D is the first choice and not * cfm as previous versions, it is still possible to select both * cfm and the old format * .lin
		Colored Difference Model	Colored cut and fill maps in dwg format, with user defined intervals and colors, can be created from difference models (*.dfm).
		Tunnel	Colored tunnel difference models in 2D and 3D in dwg format, with user defined intervals and colors, can be created from TBS models.
		Create Terrain Model	• Option to include/exclude points with a code that starts with a minus sign (-) while creating the terrain model. • Option to view the created terrain model in either active or new window.
		File Transfer	A file transfer dialog to transfer files to/from a user defined location e.g a removable device or network location. No file converting is done, but associated files are handled.
		Grid Model/Modify Model	• The option to convert grid models (*.gdm) is moved to the Functions menu. • The new user interface is in a workflow view. • Possible to convert a grid model into AutoCAD format dwg or dxf. The data can be exported as points, triangle surface or grid surface.
		Alignments / road lines	Graphics Settings, alignments has now been extended with the ability to set the line type and line width.
		LandXML	Validation of LandXML files at import. The option is available in the Data menu for LandXML as well.
		Point Cloud	Grid model (*.gdm) can be included in a point cloud (*.gpc).
		Drawing	Profile Drawings for road profiles allows you to draw the slope up to 7.5%
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.2.944	15-12-03		Officiell version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.2.943	15-09-04		Officiell version

		HeXML	Support for reading HeXML version 1.7 (Coordinate systems from Leica SmartWorx and Captivate)
		Multi/Single Network	Problem with connection to the license server solved.
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.2.942	15-06-11		Officiell version
		Point Clouds	Possible to use an existing polygon as 2D filter for point cloud (*.gpc)"
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.2.941	15-04-30		Test version
		Export	Export of road line with station equation is now supported for export to Leica SmartWorx and LandXML.
		Google Earth	Adjustment of the display button so the software is following Windows settings for which program to use to view Google Earth files. If e.g. Google Earth Pro or any other GIS software is preferred to be used, this software can be started automatically.
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.2.940	15-03-20		Test version
		Graphics	New graphical tool, Auto-Join Lines. This tool automatically joins connecting line segments into one polyline if you select one line segment. The tool only applies to geo-files. You will find this new tool under Tools | Split / Connect lines.
		Tunnel	• New method regarding design (theoretic) tunnel, a 3D design tunnel in the AutoCAD® file format DWG can now be used instead of, or in combination with theoretic tunnel section (.tun). • Point Cloud can now be used directly in tunnel, you don't need to create cross sections any more. • Design tunnel can be used to filter unwanted data from a point cloud. Design tunnel in the DWF format and also in tun file format can be used.
		Surface Statistics	New extended report displaying max / min deviation.
		Import DWG	Extended possibility to handle DWG-files with several surfaces in different layers. Geo can now extract terrain models to several trm-files directly.
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2014.1.906	15-03-20		Official version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2015.1.932	15-02-27		Test version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
		Help layer	It is now possible to clear (delete) the help layer even when it is not the active file.
		Terrainmodel	It was not possible to create a *.trm if the *.geo file was not saved at least once. Fixed
		Import DGN	Improved speed performance when importing
2014.1.905	15-02-27		Official version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
		Drawings	Black background in the graphic made black objects in drawing invisible. Fixed
2015.1.931	14-12-23		Test version

		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
		Transformation	If you added and removed points several times, wrong transformation points could be used. Fixed.
		Tunnel	Tun and tdm files were not visible in the graphic view of a TBS file. Fixed.
2014.1.904	14-12-23		Official version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
		Drawings	Section drawing was showing the same section for all printed sections. Fixed.
2015.1.930	14-11-07		Testversion
		Road / Rail	New Road Line Format (*.L3D) • Supporting Station Equation (Rail). • Horizontal and Vertical geometry is now saved in one single file, in which station equations also can be added. • Vertical geometry now supports parabola. • New Cross Fall Model replaces the older camber file / cross slope file, (*.skv). • Possible to convert between the new and the old road line format. • When converting rail geometry including station equations to lin/prf, the line will be divided into parts regarding kilometers. • Road line is now displayed in a new graphical display, both in 2D and in 3D. • Possible to reverse a road line, including the profile.
		CAD	Now possible to import Microstation (*.dgn) to *.dwg. Upgraded cad engine supporting new .dwg formats.
		Tunnel	It is now possible to calculate geological over profile.
2014.1.903	14-11-07		Official version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team. Geo could round/truncate decimals incorrectly in files, when iCloud was used with Swedish Windows, fixed. Improved import of DWG files including 3D faces.
2014.1.902	14-09-18		Official version
		Maintenance changes	Changes and fixes: Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team.
2014.1.901	14-07-04		Test version
		Maintenance changes	Changes and fixes: - Changing windows/tabs with the function keys F2, F3 and F4. Fixed. - In the numerical view the option "Localize Graphically", didn't change to the graphical view in v. 900. Fixed. Stability improvements, found thanks to those Geo Professional users who sent automatically created error reports to the development team. Examples: - Geo crashed if you tried to create a camber (.skv) file from coordinates using a line without an associated profile. Fixed. - If a camber file (.skv) was removed from a volume calculation (mbs), Geo crashed. Fixed. - If a terrain model (.trm) was closed while the tool "Draw Stop Line" was active, Geo could crash. Fixed. - A GDI resource leak could cause a crash. Fixed.
2014.1.900	14-06-18		Test version
		Point Clouds	New functions in the point cloud module: - Archiving of point clouds (zip). - Imports are extended with importing ASCII files, both with the order XYZ and also with YXZ, this feature also supports color and / or intensity

			values. - New 3D filter introduced where a box is drawn to filter the data. - Export of LAS files are now supported, color and / or classes included in the export. - When exporting, it is possible to sparse out the number of points, even if they are colored. Displaying Point Clouds: - Point cloud can now be colored based on the elevation - Point cloud can now display color based on source files (not supported for direct imports from Leica MS50)
		Import LandXML	- LandXML import from Thekla Civil with Infrastructure Model 3 has extended support
		Installation	- The installation package is updated with new point cloud engine, which means that "Poincloud Utility" must be reinstalled if the point cloud module is to be used.
		Surveying	New function: - Traceability of survey data, when coordinates are calculated, information about the origin and known points in the coordinate files header, are stored. A report of this information can be created from the file information dialog.
		Coordinate files	- New report to print a complete coordinate file with polylines and points, this report can also be saved as an Excel file, if desired. Found under the Data menu when a coordinate file is active.
		Coordinate systems	- New feature to download and install missing coordinate systems within the program. This feature is under "Edit Coordinate System" and the option "Select a pre-defined coordinate system."
		Documentation	- Help texts are up to date and in sync with the features of the software.
		User interface	Changes and new features: - Document Tabs have new icons for the display mode instead of file type. - Create terrain model is moved to the workflow view. The created terrain model is opened in the active window. - You can now create new projects directly from the dialog to change / open projects. - 3D graphics, the height scale is redesigned, and color is now shown only when it has a function. The color range is also changed for clarity. - Help button is inserted into the workflow pane. - The tool create lin / prf now adds a sequential number to the file name if the tool is used multiple times in the same session.
		System	- Geo has its own crash reporter that catches crashes of the program and sends it to the development department. - New feature where the program checks for new versions of Geo, this function is automatic but can also be started manually under the help menu.
		Maintenance changes	Changes and fixes: - Traverse files are now listed under the surveys in the file tree - The file tree is now updated in the background for quicker start of Geo - Transformation Reports do not rounds values anymore. - Display of the old file types for sections LSD and KSD did not work in v.861, fixed.
2013.01.861	13-11-29		Official version
		Point Clouds	New functions in the point cloud module: - Point cloud dialogs are updated with help buttons - Import of data from Leica MS50 and the E57 format are improved and does now support high ASCII coded characters (e.g. Ã¥, Ã¤, Ã¶) in the projct name, folders or file names.
		LandXML-import	Import of LandXML from Thekla Civil using inframodel schemas are now supported.
		Installation	The installation package are now updated with a new driver for hardlock, Windows 8.1 is now supported.
		Maintenance changes	Improvements and fixes: - The DWG function "clean for field" has been modified and is now a little less aggressive in erasing block references and layers. - DWG snapping on block did not work in Geo2013. Fixed - Improving the import of Leica MS50 data from scanning stations that are only defined but never scanned. Previously, these did not load. Fixed - Transformation of scan data from Leica MS50 was incorrect in the rotation earlier (only point clouds). Fixed. - Scans from MS50 where no pictures were included could sometimes fail imports. Fixed

			- Project tree can now be inactivated by a simple right click in the project tree.
2013.01.858	13-09-12		Test version
		Point Clouds	New functions in the point cloud module: - Extended filtering methods, it's possible to filter the point cloud based on classifications from LAS-files. - The point cloud can be colorized based on the classifications. - Extended support for ESRI-grid, now handles both variants of the file format when importing height points. - Improved preview when importing point clouds from Leica MS50. Panoramic images with the laser scanning regions are now visible when reading the data. - Point clouds from Leica MS50 can be reoriented when imported. Coordinates for new stations can be calculated in the Coordinate calculation or Net adjustment.
		Maintenance changes	Improvements and fixes: - Handle of cross section drawings with multiple sec files was broken in previous Geo 2013 versions. Fixed. - Vektorize from DWG to coordinates was broken in previous Geo 2013 versions. Fixed. - Printout of drawings with embedded DWG-files could render bad lines. Fixed
2013.01.854	13-07-08		Test version
		Maintenance changes	Improvements and fixes: - There was no warning given if a file was changed and saved to a new filename that already exists. - Improved reading of line data from MX-Genio.
2013.01.853	13-06-28		Test version
		Point Clouds	A new module for point clouds is available. Some functions: - Support for a range of point cloud file formats, LAS, PTS Leica PCI, Leica MS50, ESRI grid and more. - 2D boundary filter to exclude points from the cloud. - 3D surface filter to exclude points above or beneath. - Filter by intensity value is possible. - It's possible to snap to points in the cloud. This makes it possible to draw 3d-lines directly in the graphics. - Create cross sections directly from the point cloud without creating a surface. - An advanced simplificaction method can be used to create a point cloud with reduced density for export. - Export of point clouds to PTS, Geo or Leica PCI formats. - A tool that finds the lowest or highest points in a grid is available. - Save surface filters as terrain models which then can be further used for other operations. In order to visualize point clouds it is recommended to use a computer with a dedicated graphics card for accelerated 3D graphics and a separate memory plus support for OpenGL 2.1 or later.
		LandXML-view	A new graphical import of LandXML files makes it possible to review the data before it's imported. Parts of the content can be selected for import.
		User interface	- A new workflow panel is introduced. Makes it easier to work interactively with the graphics from various tools. The tool for creating a line and profile is an example where this is implemented. - A new 3D reference grid is linked to the tools in the 3D view. Makes it easier yet more powerful to work in 3D. - By pressing and holding the space bar, the rotation tool is activated in the 3D-view. This makes it possible to continue to work with the currently active tool while rotating the view. - A new button is added to delete the contents of the help layer. - The active line reference can be selected directly from the pane below the graphics window. - An input field for section/chainage was added to the pane below the graphics window.
		AutoCAD	Support for DWG 2013.
		Maintenance changes	Improvements and fixes: - A problem to open drawings (dra) from older program versions was fixed. - An automatic filtering of special characters in layer names and block names is done when exporting to DWG (this is an adaptation to recent versions of AutoCAD where these characters aren't allowed anymore).

			- Length report from PLM. The distance to the station was added to the report.
2012.02.808	13-07-04		Official version.
		Maintenance changes	Improvements and fixes: - Improved import of stringlines from LandXML and converters such as MxGenio. - A problem to create skapa LMD files was fixed. - The Russian translations were updated. - When selecting coordinate systems the currently active one will be highlighted.
2012.02.806	12-12-12		Official version.
		AutoCAD-files	New features and improvements: - Possibility to set a default base drawing to be used every time an export is made. - When exporting contour lines there will no longer be points created at each line node.
		Maintenance changes	Improvements and fixes: - LandXML, an error was fixed when importing profiles. - Adjustment to automatically detect and start the latest version of Google Earth. - Trimble-kommunikation, updated version of Trimble-link. - Updated coordinate systems for Poland, Denmark and New Zeeland.
2012.02.804	12-09-07		Test Version, unverified functions may be included.
		Coordinate calculation, free station	New station setup method, combined TPS/GNSS instead of known points, **RUFRIS**. The method is available in GeoPad from v.2012.01.805.
		AutoCAD-filer	New features and improvements: - New feature to easily clean up unwanted data from DWG / DXF files, "Clean for Field". In short, it deletes all that is not visible in the graphics. Can often reduce the file size to half or less. - Improved handling of AutoCAD layers in the dialog for document properties. Makes it easier to switch selected layers. - Updated support for dwg files. A number of reported files that could not be opened in previous versions are now good to display.
		Cross Sections	Editing of cross sections of the graphics has been improved to be able bind lines.
		Railroad, tamping	Now it is possible to limit the calculation of tamping with starting and ending section.
		Trimble	Support for import of Trimble *. JXL files, support also for points with linked images. Note that the JXL file and the images must be located in the same folder to make this work.
		Maintenance changes	Improvements and fixes: - Adaptations to handle LandXML files reported to contain errors. - Horizontal net adjustment appeared always in meters in the observation tab, even if another unit was used. Fixed.
2012.01.774	12-09-05		Official version
		Maintenance changes	Improvements and fixes: - Statistic acceptance control, Geo could crash during the randomization of the points. - Leica DBX Export displayed an error message when the center line was added afterwards. - Terrain sections failed and created a faulty result together with some alignments. - The area tool could make Geo to crash on Windows XP. - Railroad, tamping report can now save custom tolerances. - Adjustments to handle LandXML files reported to contain errors. - Adapt for new versions of Leica RR Plugins that creates HeXML output
2012.01.772	12-06-27		Official version
		Maintenance changes	Improvements and fixes: - Communication with iCON Site/Build is possible with Active Sync/Windows Mobile Device Center. - The file list in the TrimbleLink dialog could display all files. - The zoom limits were adjusted for files created from TBS/MBS visualization. - Adjustments have been made to be able to read some LandXML-files that has been reported to give error messages.
2012.01.770	12-04-19		Official version

		Import/export	Now it's possible to transfer files even if the import/export dialog is in the mode for showing the active file.
		Maintenance changes	Improvements and fixes: - 'Modify points' doesn't work in 2012.01.769. Resolved.
2012.01.769	12-04-05		Official version
		Import/export	Improved import/export of files using new shortcut functions. - The transfer dialog automatically shows the active document (and associated files) for export. - New buttons in the dialog makes it easy to shift from showing the active document and all files in the project.
		Coordinate systems	Support for import and export of coordinate systems in LandXML format. - This makes it easier to exchange coordinate system information with Leica Viva units.
		Communikation, Leica	Tailored data transfer with Leica iCON units (iCON Site/Build). A new menu alternative was added to the Communication menu.
		Communikation, Trimble	Import of attributes from Trimble (registered as Field Notes) is possible.
		Maintenance changes	Improvements and fixes: - Export of terrain profiles to DWG creates a 3D line instead of a 2D line. - Fix for export of selected objects to DWG. - Snap to intersection between a geo-line and a line file (lin) was fixed. - Fixed a problem when using higher priority for soil that rock in volume calculations (mbs). - Export to Google Earth, colors of point texts follows the display in Geo. - Tunnel, a problem to create tdm files in sub directories was fixed. - Added possibilty to the select size of point marks in 3D views.
2012.01.759	12-01-15		Test Version, unverified functions may be included.
		Railroads	A new function for calculation of tamping data was added.
		Graphical tools	New functions were added to the draw line tool. - The angle to the next line segment can be selected. - The slope of the line segment can be selected.
		Maintenance changes	Changes and fixes: - Export to Google Earth, a problem with names that contains language-specific characters was solved. - Lengths in lat-long files(llc) can be shown if a corresponding coordinate system is defined. - Problems with black lines on black backgrounds or white lines on white beckgrounds were solved. - Possibility to store special code and remark to ESRI Shape. - LandXML-import sets point numbers also for line points. - The area tool crashed in cross section views. - Japanese coordinate systems were added to the installation. - Transformation of terrain models didn't work.
2012.01.754	11-12-21		Test Version, unverified functions may be included.
		Projects	Possibility to turn off the automatic file watcher for the project tree.
		Communication	When exporting to Leica DBX it is possible to select either 1200 or VIVA, to handle the separate folders for jobs in VIVA.
		Communication	When exporting surveying data to Leica format it is possible to also include the coordinates of station points.
		Tunnel	Added possibility to select the number of elements when converting an ellipse to circle arcs in TUN files.
		Maintenance changes	Changes and fixes - The tool 'copy point/element' didn't increase point numbers. - Prevented crashes when switching between 2D- and 3D graphics. - Rendering of 3D surfaces could fail for some graphic cards.
2012.01.750	11-10-28		Test Version, unverified functions may be included.
		Reference calculation	A new function is available for calculating surface statistics. The report contains deviations of the height of measured points in relation to a design surface. The function works for terrrain models (TRM), string models (LMD), camber (LIN,PRF,SKV) and volume calculations (MBS).
		Transformation	Terrain models , TRM, can be transformed directly from the transformation dialog and by using global transformation (local to local).
		Surveying	Support for images linked to points. Images that were taken with Leica Viva or TS15 are handled when importing data.
		Surveying	Correction parameters are taken directly from the instrument.
		Surveying	A new gps localization method was added; control line.
		Attributed	The attribute window shows data and images linked to a point.
		Import/export	Support for import and export of ESRI Shape.

		Google Earth	A new function was added to export graphical views to GoogleEarth format (KML/KMZ). If Google Earth is installed on the computer it will be launched automatically.
		3D-graphics	Texts (e.g. point numbers or codes) can be viewed also in the 3D-graphics.
		Graphics	Additional data, such as chainage, codes, radii is shown for stringline models (lmd) in graphical windows.
		LandXML-import	LandXML, support for the element type 'parcel'.
2010.02.718	11-10-03		Official version
		Maintenance changes	Changes and improvements - Fixed sorting from the line list in coordinate files. - The tool 'move selected objects' didn't handle the height. - The tool 'copy point/element' didn't increase point numbers. - Fixed crashes when switching between 2D- and 3D graphics. - 3D-views of surfaces didn't work for some graphic cards.
2010.02.717	11-05-29		Official version
		Maintenance changes	Changes and improvements - In order to improve the transfer of road data (mbs) to Visual Machine (via LandXML) the center line code will be set automatically. - The slope value in the report created by rail surveying calculation wasn't correct. - When importing poly lines from AutoCAD dwg the line code is set according to the current layer.
2010.02.716	11-02-18		Test Version, unverified functions may be included.
		Surveying, free station	Improved the reporting in the calculation dialog to make it easier to diagnose erroneous surveying records.
		Surveying, free station	Fix to be able to handle calculations of free stations based on records earlier in the surveying sequence.
		Graphics, 3D	Fixed a 3D-graphics problem related to Intel graphics cards.
		Graphics	Fixed a graphical problem where lines in coordinate files can disappear when showed in the same window as dwg files.
		Grafik	Updated import of the file formats MxGenio, REB, Ispol and Clip.
2010.02.714	10-12-20		Test Version, unverified functions may be included.
		Graphics, AutoCAD	Objects of the type 'PolyFaceMesh' in dwg files can be visualized in 3d and be converted to coordinate files. The object type 'Solid' can also be imported.
		Graphics	New tool to fit a sloping plane to any number of points.
		Projects	The list with projects in the selection dialog wasn't updated as intended.
		Trimble	Improved handling of coordinate systems when reading data in Trimble DC format.
2010.02.712	10-11-19		Test Version, unverified functions may be included.
		Graphics	The tool 'Show object information' was only available for coordinate files (affects v709).
		Measurements, Free Station	Improvements in the handling of references in the Free Station dialog.
		Coordinate systems	Coordinate system updates for France (geoid models RAF09 and RAC09).
2010.02.709	10-10-26		Test Version, unverified functions may be included.
		AutoCAD import	Support for ellipses imported from dwg/dxf. Will be handled as lines in coordinate files.
		AutoCAD export	Fixed a problem with symbols with arcs. These were converted to straight lines when exported from sym-files. This does not affect symbols in templates (dwt).
		Graphics	The menu that shows which objects that are inside a selected area now also shows point code, remarks and attributes.
		3D-Graphics	Fixed problems to show 3D-graphics when using NVidia Quadro graphics cards.
2010.02.708	10-09-30		Test Version, unverified functions may be included.
		LandXML	Support for pipe structures in the form of Pipe Network which is imported in two separate coordinate files (geo), one with the pipes and one with the structs. Attributes such as dimensions, material and pipe types are also stored in the file. Usually will also elevations be present in the file with the structs.

		User interface	Dropdown menues are expanded quicker, i.e. the time that the mouse button must be held down has been shortened.
		Communication, ActiveSync/Mobile Device Center	Improved handling of the destination folder of the connected unit.
		Leica DBX export	Improved export of ROAD-projects to Leica DBX, more clear choices in the dialog. Problem solved when transferring lines without camber was resolved.
		Trimble Link	Incorrect calculation of cross section based on camber (skv) was resolved.
2010.02.704	10-08-27		Test Version, unverified functions may be included.
		Cross section graphics	Improved the editing of properties for cross sections in section files, volume calculations and tunnel calculations. The list with the layers is easier to view.
		Trimble DC	Support for dc-files with multiple coordinate systems.
		MultiHL Tool	MultiHL Tool (used for configuration of network dongles) can be used in 64 bit operating systems.
		LandXML	The objekttype ProfSurf can be imported to profiles (prf).
2010.02.703	10-07-13		Test Version, unverified functions may be included.
		LandXML	Improved LandXML export: - Multiple files can be selected and exported to a single xml file. - Separate transfer of stringlines makes it easier to control the transfer. The center line selection is made in a dialog
		Leica DBX	Improved export to Leica DBX - Multiple files can be selected and exported to dbx. - A new export dialog.
2010.02.701	10-06-14		Test Version, unverified functions may be included.
		Edit coordinate files	Line code can be edited in the point information dialog.
		Volyme calculation	Standard sections, fixed problem with the element type "To terrace".
2010.02.700	10-06-03		Test Version, unverified functions may be included.
		Units	It's possible to select the length unit to be used in a project, i.e. meter or foot (International/US Survey Foot).
		Setup	A number of options can be done separately for each project: - Units - Code list, symbol file and linetype file - Number of decimals - Coordinate axis and angle system For all options it's possible to select a default value.
		Number of decimals	It's possible to select the precision for values shown. These are the values that can be set: - coordinates - heights - lengths - angles - slopes - areas - volumes - sections/chainages - lat/long
		Background image	New function to save the image with adjustments for GeoPad.
		AutoCAD-support	Support for dwg- and dxf version 2010 and 2011. Both import and export.
		New functions associated to the document tabs	Right-click a tab in order to: - Save the file - Close the window and all files within it, - Open the folder containgen the file in the Windows Explorer. This can now also be done in the project tree. Click the mid button to close a window.
		Transformation	A new function with a simplified version of the global transformation. Transforms one or more files between two systems defined by lok-files. The old function is now called "Global transformation, avanced".
		Stringline model, LMD	Profile height and point numbers are now set in cross sections created from LMD.
		Project	Problem with write-protected project files solved.
2010.01.682	10-06-14		Official version

		Multi/Single Network	Problem with connection to the license server solved.
2010.01.681	10-05-17		Official version
		Communication, Trimble	Import of coordinate systems TrimbleDC; problem solved for files that contain a scale factor in the local project options, "Local site settings".
2010.01.680	10-04-23		Official version
		Surveying	Improved traceability for free stations between GeoPad och Geo.
		Communication, Trimble	Fix for lines with clothoids for transfers using Trimble Link.
2010.01.677	10-02-16		Test Version, unverified functions may be included.
		Leveling, Sokkia	New function for importing leveling from Sokkia (cs1-format).
2010.01.676	10-02-09		Test Version, unverified functions may be included.
		Tunnel	New function for mirroring a theoretic tunnel section (tun).
2010.01.675	10-01-25		Test Version, unverified functions may be included.
		Allmänt	Stabilitetsförbättringar samt felrättningar.
		Kodlistor	Kodlista för järnväg tillagd.
		Koordinatsystem	Norska UTM-zoner.
		Languages	Updates for norwegian, finnish, polish and french.
2010.01.673	09-11-11		Test Version, unverified functions may be included.
		Grafiska verktyg	Verktygen Trim och Extend fungerar nu även mot en tänkt förlängning av objekten (edge-mode).
		Import/Export	Förbättrad import av KOF-format. Stöd för lat/long samt import av linjer skapade med Sagmetoden och Bølgemetoden.
		Allmänt	Diverse rättningar (gäller endast version 2010): - Utskrift av ritning med flera blad. - Radera objekt i 3D-vyn. - Import av rådata, resultatfilen öppnades i ett gömt fönster. - Längdrapport skapad från koordinatfil skapades i ett gömt fönster. - Problem att spara hjälplagret åtgärdat. .
2010.01.670	09-10-06		Test Version, unverified functions may be included.
		User interface	New improved user interface (GUI) with an option to select a theme. - Tabs instead of separate windows for the files. The tab color indicates the content. - The project tree and output window can be automatically hidden in order to maximize the desktop work area. - A new system for snapping windows and toolbars - New toolbars with dropdon buttons. Click and hold to expose the buttons.
		Installation	The installation of Geo has been adapted for Windows Vista and Windows 7 with a new folder structure for projects, global files and system files.
		Graphical tools	New tools for Trim and Extend (Trimma/Förläng) . Used when editing coordinate files.
		AutoCAD-files	- Stöd för att visa objekttypen 3D-solid. - Support for dimension objects and solids
		Drwaings	Support for dimension objects
		Import/export	Improved dialog for import and export.
2008.03.651	09-12-11		Official version
		License handling, Single/Multi Network	If the contact to the license server is broken, and can't be establish again, backup-files will be created when Geo is closed down.
		Import	Added new version of external format converters.
2008.03.650	09-11-02		Official version
		Coordinate systems	Added Lambert 1-parallel projections. (Morocco, Jamaica..).
		Communication, Leica	Additional fixes for interpretation of the prism constant when reading rounds of measurement.
2008.03.648	09-09-15		Official version
		Profile check	Profile check, improved presentation of deviations and tolerances.
		Tunnel	Graphical presentation of the distance between theoretic and measured tunnel can be made in cross sections created without using a tunnel model.

		Communication, Leica	Fixed a problem to interpret the prism constant when reading rounds of measurement.
		Transformation, graphically	Fixed a problem when saving the transformed data in a new file.
		Graphics, 3D	The current setup for zoom and rotation is reset when a new file is opened.
		Imort/Export, LandXML	Improvements were made to the LandXML import, e.g. when interpolating string lines from cross sections.
2008.03.646	09-07-12		Test Version, unverified functions may be included.
		Grid models	Fixed problem with grid model to coordinate file conversion.
2008.03.645	09-07-08		Test Version, unverified functions may be included.
		Alignments	Changes in clothoid calculations. Traditionally SBG have used an approximation for calculating coordinates on a Clothoid. The approximation has been known to have a limited range of validity. However, the approximation has been well established in road/rail construction engineering so until now there have been little reason for changing it. Recently, it have been demonstrated that there are applications where the range of validity is exceeded, resulting in incorrect results. Therefore the calculation routines have been changed. The change only affects clothoids with a curvature that are close to (or longer) than a quarter of a circle, or such ones that are far away from the segment of infinite radius. As long as data is imported and used in applications where this change is present there is no problem. But if you send imported or edited data to other applications there might be a problem. Versions of Geo, GeoPad and GeoROG/UMC3D that are not adjusted for this will not calculate coordinates correctly. For this reason, always run a line check in the application where the line will be used, even if you don't intend to modify it. The line check in Geo has been extended to show an information message if the line consists of clothoids that can cause these kinds of problems in older versions of Geo, GeoPad and GeoROG/UMC3D. .
		Coordinate Calculation	Improved correction for earth curvature.
		Coordinate systems	Possibility to select the version of the localization file (lok) when saving it, in order to be used in products that can't handle the latest version.
		LandXML	Improved LandXML import, solves problem with cross section layers without any data.
		Grid models	Fixed problem with grid model creation (642).
		Language updates	Updates for finnish, dutch and norwegian.
2008.03.642	09-05-07		Test Version, unverified functions may be included.
		GeoPad Communication	When transferring background images to GeoPad it's possible to adjust the file size and image resolution.
		Volume Calculation	The report contains separated volumes for each part when using limitating lines (polygons) in the calculation.
		LandXML import	Automatic 3D curve interpolation to stringlines can be done directly when importing LandXML files that contains some form of standardized coding (Leica/Trimble/Bentley).
		LandXML export	Export of coordinates to LandXML, the order of the line codes was adjusted to work in Mikrofyn's Visual Machine.
		LandXML export	Export of coordinate files with lines to LandXML, the file is adjusted to be imported in Leica LGO/TMS Office and Trimble TGO. The element type "Line" is used instead of "IrregularLine" when possible.
2008.02.631	09-03-18		Test Version, unverified functions may be included.
		Coordinate systems	New coordinate systems added for the Netherlands.
		Export to KOF	Change for line code when exporting to KOF format.
2008.02.630	09-02-16		Test Version, unverified functions may be included.
		AutoCAD files	Improved display of dwg files.
		Koordinatsystem	Added new Swedish geoid model SWEN08.
		Trimble	Trimble Link, fixed problem with the dialog for road export.
		Trimble	Trimble DC, fixed problem when reading rounds of measurement.
		Trimble	Trimble DC, fixed problem to interpret line codes.
2008.02.629	09-02-04		Test Version, unverified functions may be included.

		Licenses	Improved handling of network dongles. A new tool, MultiHLTool, can be found in the start menu of Geo. It makes it easier to shift between network dongle acces (MultiHL) and the other license options.
		Coordinate systems	Extended correction of measurements. Now includes correction for geodetic datum, geoid model and local transformation.
		Coordinate systems	Added coordinate system files for Denmark and Great Brittain, can be selected in the installation phase.
		Lokalization	Fixed errors in the Trimble DC top lokalization import. The DC header was not read properly and the height transformation calculated the sloping plane erroneously.
		Graphical Tools	The function that lists the objects within a search area now shows the heights as well, if possible.
		Graphical Tools	Error fixes from 2008.02.626, regarding line+profile from dwg, copy from dwg and selection of triangles.
2008.02.626	08-12-19		Test Version, unverified functions may be included.
		LandXML	Reads LandXML version 1.1.
		LandXML	Import of files containg circle arc > 180 degress fixed.
		Graphical Tools	The tools for parallell lines have been extended with the option to handle slope or height difference to the new line.
		Graphical Tools	New functions in the graphics, it's possible to select objects from a list if there are multiple ones within the search area.
		3D graphics, tunnel	The 3D view can be rotated to show the underside of the model.
		Background pictures	Improved handling of large files.
		Background pictures	ESRI world files can be used for orientation.
		Project Tree	It's possible to control when file folders are expanded.
		Lokalization	A text report for the coordinate system can be created.
		Communication, Leica	Export of measurement data (plm) to GSI format. It's possible to adjust the file format to a another system.
		Communication, Trimble DC	Import of coordinate systems from Trimble DC, will be saved as .lok.
		Terrain Models , AutoCAD	Import of terrain models in dwg format (3D-faces) was improved for handling input data where the model points are very close.
		Volume Calculation	The dialog for volume calculation (mbs) keeps selected fields between the calculation runs.
2008.01.619	09-01-22		Official version
		Licenses	Improved handling of network dongles. A new tool, MultiHLTool, can be found in the start menu of Geo. It makes it easier to shift between network dongle acces (MultiHL) and the other license options.
2008.01.618	08-12-18		Official version
		Licenses	Improved connection to the license server and the backup (for Single/Multi Network).
		Windows Vista	A problem with file name selection in the Save dialog was solved.
		Languages	Updates in the languge files.
2008.01.617	08-10-21		Test Version, unverified functions may be included.
		Stringline models	Improved cross section calculation.
		Import NYL	NYL import adjusted to handle lines with only one segment.
		Rail measurement	The report from the calculation shows cross slope and rail height.
		Rail measurement	Support added for the .ver format when exporting to ALC.
2008.01.616	08-09-15		Official Version
		Installation	Installation of drivers for hardware locks were separated from the Geo installation.
		External formats	The installation of external format converters was separated in the installation process.
		GradeStar	The export to GradeStar (Carlson) now creates a project file and also suggests better output file names.
		Gyrotheodolite measurements	Implemented support for handling of gyrotheodolite-measured data.
		LandXML export	LandXML-export of lines with profile and camber was specialized for use in Visual Machine (Mikrofyn).
		Coordinate lines	Insertion of line points with a fixed distance was fixed.
		Dwg export	The height of point marks are no longer used when exporting as 2D.
2008.01.613	08-07-03		Test Version, unverified functions may be included.
		Length reports	The length report was adjusted to show line codes.

		Communication	Import of data from Leica RX (DBX) via Active Sync and USB fixed.
2008.01.612	08-05-16		Test Version, unverified functions may be included.
		File conversion	A new function was added for conversion between internal formats; geo to pxy and pxy to geo.
		Dwg-export of cross sections (sec)	The chainage is no longer used as the height reference for the lines exported from sec to dwg.
2008.01.611	08-04-09		Test Version, unverified functions may be included.
		Coordinate Calculation	The suggested name of the report conflicted with the name of the measuremnt file, with the risc of overwriting it. This is now fixed.
		The Project Tree	Improved updating.
		The Project Tree (shortcuts)	It's possible to add a complete folder with files (not recursive).
		Import/Export SOSI	Various improvements in the file conversion.
		Coordinate files/graphics	If the line code is set it will be used for control of the line type to use in the graphics. Otherwise the code of the first point in the line will be used. Also applies for AutoCAD export.
		Import/export	The instrument related formats were moved to the top of the menu.
		Licensing	User name and company can now be set even when using certificates.
2008.01.609	08-02-29		Test Version, unverified functions may be included.
		Communication GeoROG	Problem with file transfer from other directories than the project root fixed (only a problem in version 2008).
		Drawings	Improved display of symbols in coordinate lists in drawings.
2008.01.607	08-02-21		Test Version, unverified functions may be included.
		Licenses	A new technique for licenses based on certificates (replaces license codes).
		Projects	A new project view consisting of three tabs: 1. **Dynamic project tree.** Automatically displays all files in the current project directory and its sub-directories. Geo monitors changes in these directories which makes it easy to see whether files are being added or removed. The files are ordered by file type which makes it easier to open them without having to use the "Open file" dialog. Double-clicking a file opens it, while right-clicking allows you to perform other operations such as creating new files, renaming them, send by e-mail, archive, etc. 2. **Project Shortcuts**. Allows you to manually add shortcuts to files you want to access easily, even files not part of the current project you're viewing. This can be useful if you have a set of files you use for multiple projects. 3. **Project Settings**. A single view where you can manage all project-specific settings. It makes it easier to get a quick overview and make changes to the current project's settings.
		Installation	New installer, using **msi** files.
		Installation/Language	It's now possible to switch what language Geo uses without having to install a different version or having to reinstall the application. Language settings can be changed in the Help menu.
		Coordinate systems	Files for coordinate systems are now part of the Geo installation.
		Coordinate systems	A simplified wizard for localization. We use a new format called **.lok**, which is also used by GeoPad..
		Measurement	A new format for levelling has been introduced. The **.lvt** files work like **.lev** files but with greater precision.
		Roadlines	The function "Sections along line" contains a number new calculation alternatives on page 2. Still developed.
		Roadlines	Line files (lin) can be converted to coordinate lines (geo) directly in the graphics.
		Graphics	New dialog for files in graphical windows. It's now column-based, so it's easier to view files with long search paths. You can also turn off point numbers, height and codes for many files simultaneously.
		Graphics, AutoCAD	You can select which AutoCAD version you want to use by default when you save **.dwg** or **.dxf** files.
		Graphics, AutoCAD	Import of **xr-filer** (file with external references to AutoCAD). Activated when a dwg is open and there is an .xr file in the same directory.
		Graphics, AutoCAD	Frozen layers in dwg files were visible in 3D-views. Fixed.
		Export Bever	The file type for **Bever** export changed to **.tli**.
		Import LandXML	Fixed error when importing LandXML file with station equations.
2007.10.580	08-01-25		Official Version

		Import LandXML	Fixed error when importing LandXML file with station equations.
2007.10.579	07-10-15		Test Version, unverified functions may be included.
		Volume Calculation	Changed handling of rock unit height in mbs. It's controlled by a new check box in the mbs rock properties.
		Volume Calculation	A new check box for extrapolation of rock in mbs.
		Volume Calculation	Improved error checking when calculation cut and fill.
2007.09.577	07-09-13		Test Version, unverified functions may be included.
		Drawings	Solved a problem with multiple drawings referring to the same dwg file.
		Net adjustment	Free net adjustments with bearings fixed.
2007.08.576	07-08-13		Test Version, unverified functions may be included.
		Export to AutoCAD dwg/dxf	No extra POINT-object will be created for points that also generates a block insert. Messages shown during export more informative.
		Measure	Possibility to set a scale factor (ppm) when calculating a free station.
2007.06.572	07-06-18		Test Version, unverified functions may be included.
		Communication	Transfer of road line to Geodimeter/Trimble 600 didn't work in version 568-570
2007.06.570	07-06-07		Test Version, unverified functions may be included.
		Communication	File transfer from GeoPad didn't work in version 568. Fixed.
		Import REB	Extended support for import of REB-data.
2007.05.568	07-05-30		Test Version, unverified functions may be included.
		Graphics	New graphical tool for transforming objects. Select the objects to transform and point out the alignment points. Both coordinate files and AutoCAD-files can be transformed.
		Graphics	New graphical tools for zooming. It's possible to store 2 different zoom-positions and easily switch between them with toolbar buttons. Can be very useful for the new graphical transformation tool, when alignment points in two different systems are to be connected.
		Graphics	New zoom-option. Zoom to selected objects.
		Graphics	More options when inserting points in lines. It's possible to control distances and intersections with other lines.
		Graphics	The snap for perpendicular can use the intersection height.
		AutoCAD-support	Support for AutoCAD version 2007 and 2008. Both reading and writing.
		AutoCAD-support	When extracting data from AutoCAD files, objects with insert point 0,0 can be filtered.
		Remove duplicate points	Extra options for how to remove duplicates.
		Compare files	Added the text "Result: File 1 - File 2" to the file compare report.
		Tunnel	Tunnel contours can bew created directly from cross sections.
		Communication	When transferring to Trimble TSCE, a warning is given if duplicate point numbers exist.
		Import SOSI	Line codes are handled bewteen SOSI- and GEO-formats.
2007.04.557d	07-04-12		Official Version
		Export LandXML/Leica 1200	Now it is possible to export mbs to LandXML or Leica 1200. Contact support for details.
		Import KOF and SOSI	Improved conversion of point- and line codes.
		Line files	Simple clothoid to cubic parabola conversion. Will convert all clothoid transitions that are "tangent to curve" or "curve to tangent".
2007.03.557	07-03-16		Test Version, unverified functions may be included.
		Import KOF	Line codes are set when importing KOF-files. It's also possible to set the line codes according to Anpakke standard (-2.2, -1.2, 1.2, 2.2 ...).
		Import Trimble DC	Fix for import of geoid model.
		Graphics	Saved graphics views (.ggv) couldn't be opened in version 555. Fixed
2007.03.555	07-03-09		Test Version, unverified functions may be included.
		String model	A new stringline-based model format.
		Terrain models	A new graphical tool, create section. Point out a line in order to calculate and display long sections and/or cross sections.
		Coordinate files	A new numerical view makes it possible to view and edit the line properties in a coordinate file.
		Graphical tools	Extended output from the baseline tool.

		System	New hardlock drivers with support for Windows Vista
2006.12.532	06-12-11		Official Version
		General	General adjustments for **Windows Vista**.
		Graphical views	New function: Save Graphical views. The function makes it possible to save the current graphical view along with all the files and their settings (e.g. colors, point features and zoom level). This is very useful if you wish to reopen a set of files with their individual settings later on. The view file can then be added to the project tree for even easier accessability.
		Rail Surveying	The function has been changed to be able to save the data in ALC format (for further use in rail bound machines). It's also possible to exclude the slope correction if this already has been done in the GeoPad.
		CE-Communication	New template-based transfer to any CE-unit. Makes it possible to select startup directory and default data format for the unit.
		Communication Leica	Added support for geoid model and deformation model on DBX-import.
		Communication Trimble SCS900	Added import of control file (equivalent to pp-file).
		Import LandXML	Import of string model from LandXML. It's possible to select the layers to import.
		Export to AutoCAD	The color of layers is set according to the code list for coordinate files drawn using it.
		Tunnel	Visualization of the tunnel only used the first tunnel model. Fixed.
		Import TrimbleDC	Instrument accuracy was read wrong from DC file. resolved.
		Coordinate systems	No longer possible to select other than GRS80/WGS84 as global ellipsoid.
		Settings	No longer possible to select other unit than degrees for Lat/Long.
		Net adjustment	Hna-document couldn't be opened if the input order for X and Y had been switched. Fixed.
2006.10.519	06-10-10		Official Version
		Communication	An error when trying to read from some instruments fixed. Only applies to version 2006.06.504 / 510 / 515.
		Communication	Sokkia SD2/3, fixed error reading angles in gon.
		Export till AutoCAD	Lager för punktkoder kunde skapas även om man valde filnamn eller fast lager vid exporten. Fixat
		Export till AutoCAD	Om en koordinatfil ritas med symboler enligt kodlista sätts lagrens färger enligt denna om man väljer punktkod som lageröverföring.
2006.09.515	06-09-14		Test Version, unverified functions may be included.
		Surveying	The use of height correction (earth radius and refraction) in coordinate calculations is now done for each station, separated in the station headers in the plm-file, instead of the previous project setting. Note that if an older plm-file (where this information isn't present) is opened height correction will be turned on, even if the old project settings were off.
		Graphical editing	When a points is moved in the graphical window and the target point is snapped upon, it's now possible to select the height of the point.
		Graphical editing/AutoCAD	Improved snapping in dwg files. Quicker selection when in multi snap mode.
		Graphical editing/AutoCAD	A new snap tool uses the insertion point of blocks and text objects.
		Drawings	Improved support for relative paths for files in drawings (dra).
		Tunnel	The resulting file from the function "Adjust points to tunnel section" couldn't be viewed in 3D.
		Line Data (lin)	New function to insert cubic parabola in the form of circle arcs.
		Reports	Automatic name suggestion for created reports.
		Import AnPakke	Put labels on normal section elements when importing tvv-files.
		Export KOF	Writing KOF-files was corrected.
		LandXML/Leica 1200	Support for exporting linemodel in the form of coordinate file.
		LandXML/Leica 1200	Made the LandXML export dialog more descriptive + remember left/right codes from last time.
		LandXML/Leica 1200	Better lin+prf+skv export, now manages all changes in lin+prf+skv.
		Communication Trimble	Line file export was adjusted for Survey Controller 11.31 (Trimble DC Transfer).
		Communication Trimble	Code lists and .dxf can be exported directly to Survey Controller via Trimble Link.
		Communication	File transfer to USB was corrected.
		Coordinate systems	Ellipsoid "Australian National" added.

2006.08.510b	06-08-17		Official Version
		Communication	An error when trying to read from some instruments fixed. Only applies to version 2006.06.504 and 510.
		Communication	Sokkia SD2/3, fixed error reading angles in gon.
2006.08.510	06-08-17		Official Version
		Communication	Selection of com-ports fixed. Only applies to version 2006.06.504.
2006.06.504	06-06-21		Test Version, unverified functions may be included.
		Levelling Net	Graphical representation of levelling nets.
		Levelling Net	Possibility to create control loops for data to adjust.
		Communication	Transfer of files to USB device for further use in the GeoROG.
		AutoCAD files	Dwg files can be transformed.
		AutoCAD files	External references can be removed from a dwg file.
		AutoCAD files	External references can be bined to a dwg file.
		Coordinates	New cinditions for point filters; between, outside and modulus.
		Graphics	Point numbers can be set with the function "Set point informaation".
		Drawings	Alignment lines between drawing sheets can be shown.
2006.04.497	06-04-20		Official Version
		AutoCAD files	New graphical tool for exploding objects and blocks.
		AutoCAD files	Printouts of dwg- and dra-files in the same view could be misplaced on some printers.
		Graphics, Help Layer	The help layer is automatically activated as soon as a help layer tool is selected.
		Graphucs, Terrain Models	Triangles can be filled using a pattern and color.
		3D Graphics	When changing from 2D graphics to 3D, the same colors are used for the files.
2006.03.494	06-03-23		Test Version, unverified functions may be included.
		AutoCAD-files	Lineweights can be changed in dwg-files.
		AutoCAD-files	Linetypes for layers can changed in dwg-files.
		AutoCAD-files	Plotting fixed for dwg-files in combination with background images.
		Communication, Trimble	It's possible to generate lines based on codes for measurement files.
		Communication, Geodimeter	Improved precision when exporting to older Geodimeter-units.
		Import/Export, SOSI	File export now allows setting variables in .HODE.
2006.03.492	06-03-10		Official Version
		AutoCAD files	AutoCAD files placed in drawings of .dra format are shown in page views.
		AutoCAD files	Point texts in coordinate files can be written either as attributes to blocks or as text objects.
		AutoCAD files	Damaged or corrupt dwg files can be repaired.
		Import/export	Support for SOSI format.
		Import, Leica GSI	Chainage was calculated wrongly during import of HZALIGNM and VALIGNM..
		Terrain models	Better handling of corrupt models when creating terrain sections.
2006.02.488	06-02-21		Test Version, unverified functions may be included.
		Setting out	The report from the set out calculation adjusted for sloping distance and height difference.
		AutoCAD files	When extracting coordinates the point code is set to the AutoCAD layer.
2006.02.487	06-02-10		Test Version, unverified functions may be included.
		Line profiles (For pipes, wires, gas ...)	New file format for line profiles and related information about types, dimensions, chambers...
		AutoCAD-files	Support for dwg- and dxf-files created in AutoCAD 2004, 2005 och 2006.
			Support for binary dxf-files.
			All AutoCAD-objects in dwg- and dxf-files can be viewed, e.g. dimensions, text styles, splines and others.
			AutoCAD line stiles based on .shx-files can be shown.
			Support for AutoCAD text styles based on .shx-files.
			Support for AutoCAD-drawings with TrueType-fonts (ttf).

			Support for external references (XRef).
			Suppport for creation of external references (XRef).
			Extraction of nested blocks data to coordinate files.
			Extraction of selected object in the graphics as an alternative to layer-based selections.
			Support for Layouts in dwg-files.
			Support for Auditing dwg-files.
			Support for Purge-command in dwg-files.
			Dwg-files can be vektorisered to coordinate format.
			Objects in dwg-files can be removed.
			Improved editing of layer options.
			Improved export till dwg-format. Separate setup dialogs for each file type.
		Drawings	When exporting drawings to dwg each page will be represented by an AutoCAD Layout.
		Drawings	Profile drawings with line profiles (pipes, wires...) can be created.
		3D-Graphics	Circles and radii in coordinate files can be viewed in 3D.
		Import/Export of KOF-format	KOF - updated for version 2.
		Import/Export LandXML	LandXML - A line-based model can be created as an alternative to a mbs-file.
		Leica-DBX	DBX-databases are time-stamped.
		Leica-communication	When exporting road lines with profile and camber all gsi-files are written with the same decimal setup to make sure that the instrument uses the correct configuration.
		Trimble-communication	Fixed a problem with new-line-start when generating lines by point code.
2006.01.479	06-01-24		Test Version, unverified functions may be included.
2006.01.478	06-01-20		Test Version, unverified functions may be included.
		LandXML	Improved import of mass description. New options controlling output directory and limit to section interval.
		Files	No more limits on how many files can be selected/opened at the same time.
		Files	Faster file load when opening many lines.
		Tunnel	Fixed problem when opening tbs-files. Only an issue for version 2005.12.473.
2005.12.473	05-12-13		Test Version, unverified functions may be included.
		Communication via Trimble Link	Support for Trimble Link, for transfer between Geo and Trimble's instruments and units.
		Communication Leica	Improved error handling when using Leica Roadrunner and Printf-pc.
		AnPakke import	Improved reading of tvv files with many columns.
		Volume Calculation	Fixed a problem when calculation deep excavation in some sections.
		Volume Calculation	Reduced distance between the model layers when priority is used.
		Tunnel	A problem with tun-files having points on the same elevation as the profile was fixed.
		Models	Model to model calculation. The grid method used border incorrectly. Fixed.
		Models	Modified Cut Model dialog slightly.
2005.11.470	05-11-16		Official Version
		Volume Calculation	In cross sections where the excavation layer follows a model layer without cutting it, a false length can be reported for the layer. Fixed.
		Export to AutoCAD	When exporting contour lines to AutoCAD dwg the elevation of the lines will now be used even for rounded curves.
2005.11.469	05-11-08		Test Version, unverified functions may be included.
		Communication GeoROG	Limit for long file names increased when transfering to the GeoROG.
		CommuniCation Leica	The options for transfer as either DBX or GSI wasn't stored. Fixed.
		Communication Trimble	Several changes, e.g. regarding cdoes for line start and line end.
		Numerical Views	When saving a numerical view in Excel-format (xls) the sheet name is set in order to avoid a warning in Excel.
		Import LandXML	Changed name setting of files.

		Tunnel Calculation	Fixed a problem when using a calculation different interval than the one in the tbs-fil.
2005.10.467	05-10-19		Test Version, unverified functions may be included.
		Communication GeoROG	Several improvements, e.g. a warning is given if a file already exists when transferring to the GeoROG.
		Line calculations	Correction of points to sections/profiles. Point codes are transferred from input data.
		Communication with Leica System 1200	Improved functionality when importing data from Leica System 1200.
		Communication with Trimble	Simplified transfer to Trimble Survey Controller with Trimble Link. Contact SBG if you would like to test the function.
2005.09.464	05-09-12		Official Version
		Coordinate systems	Several stereographic projections included.
		Free station	Problem with measurements in face 2 resolved.
		Graphics, area tool	Current area shown in output pane, no need to create report.
		Communication, TrimbleDC	Line coding supported when transferring point data.
		Communication, Geodimeter 600	Problem with large coordinate files resolved. Problem with long job names resolved.
		Communication, GIF10	Problem to transfer coordinates to GIF10 resolved.
		Hardlock	Support for Aladdin HASP HL hardlock.
		Presentation	The sign for km-limits in chainage values can be changed.
		Point Database	Search for points, an error when combining the SELECT-statement fixed.
		Point Database	A table view can be used without an indexed column.
		Volume Calculation	Element with direction to line+profile can now be vertical.
2005.06.456	05-06-21		Test Version, unverified functions may be included.
		Levelling, from gsi	"Measure Only" will be interpreted as an intermediate point.
		Import/Export	File folders with names containing a point were not shown correctly.
		Communication GeoROG	It wasn't possible to step back from an empty directy. Fixed
		Coordinate calculation	Special code PP now asks where to save coded points.
		Numeric view	New option in numeric view to locate points and lines in the graphical view
		Terrain models (volume calc. model to model)	Grid method made safer. Now also possible to create output file from the calculation.
		Volume calculation	Fixed error in calculation of extra excavation.
		Tunnel	Visualizing. The complete rock model was always used despite of the calculation interval. Now only the part inside the interval is used.
2005.05.454	05-05-31		Official Version
		Graphics	Object selections can be transferred between 2d- and 3d-views.
		Coordinate files	Lines without points can be removed and single point lines can be converted to single points.
		Volume calculation	Fixed error in calculation of extra excavation.
2005.05.453	05-05-26		Test Version, unverified functions may be included.
		Terrain models	Connection of triangles between separated model parts can now be made.
		Import/Export, LandXML	Now handles station equation.
		Export Leica 1200 (LandXML,DB-X)	An error in chainage calculation for side lines was fixed.
		Export KOF-format	The file could be formatted incorrectly. Fixed.
		Files	Modified files are displayed in the document dialog.
2005.05.449	05-05-11		Official version
		Project settings	The illustrations in the documentation for the base line tools *ortho in 2d* and *foot point 2d* were incorrect in version 448. Resolved.
2005.05.448	05-05-06		Test Version, unverified functions may be included.
		Project settings	When creating a new project, the description is set from the project path.
		Graphics	Baseline ortho out 2D now gives height over baseline as well as height over base point. Documentation Updated.

		Graphics	Object information. 2D- and 3D-lengths of lines in coordinate files are reported.
		Communication, Zeiss	Problem solved when converting raw data from Zeiss level run.
2005.04.447	05-04-11		Test Version, unverified functions may be included.
		Terrain models	New function cuts terrain models.
		Terrain models	New function merges terrain models.
		Graphics, terrain models	It's possible to snap to triangle points.
		Coordinate systems and transformations	Changed setup to match those made in GeoPad and GeoROG.
		Coordinate systems and transformations	New functions for transformations between local coordinates and gps coordinates.
		Coordinate systems and transformations	Support for new projections. USA, Estonia and the Tjech Republic.
		Volume Calculation	New features for slope fill calculation, deep excavation and vegetation.
		Import/Export, LandXML	Improved calculation of edge lines.
		Communication, Leica 1200	Improved calculation of edge lines.
		Communication, Geodimeter	Horizontal distances (label 11) accepted in program 32.
2005.02.441	05-02-11		Official version
		Point Database	A new module for point databases makes it possible to connect Geo to any ODBC-compatible database.
		Layout	The layout was changed to the "Office XP/.NET"-look.
		GeoROG-communication	Data can be transferred between Geo and GeoROG by a network (TCP/IP).
		Coordinate files	Report of point codes. A new report in Geo shows all existing point codes in a certain coordinate file.
		Communication Trimble/Zeiss	When retrievning levelling data from DiNi where the "Intm"-function has been used, backsights could be missing in the lev-file.
2005.01.438	05-01-24		
		Coordinate files	New function to renumber a file along a road/rail line.
		Compare files	Points can be compared using a tolerance.
		3D-graphics	Options for terrain models can be saved.
		3D-graphics	Options for 3D viewing can be saved.
		Graphics	Some tools, e.g. Connect and split lines, could cause failure. Fixed.
		Road lines	Profile offset got wrong if both offsets were on the same side but not equal. Fixed.
		Graphics	Parallel lines failed if two following elements had the same direction.
		Levelling, from gsi	Start record was added after each detail point in some files. Applies to build 427-.
		Tunnel	A tunnel (tbs) with only theoretic data could produce extra points in the calculated cross sections.
2004.11.429	04-11-17		
		Communication, Windows CE device	**Transfer background image** to GeoPadCE. Requires GeoPadCE 2004.11.124 or later.
		Communication, Geodimeter CU	Data flow slowed down a bit when transferring road data to avoid issues with USB/serial adapters.
		Rounds of measurement	Problems with data measured with only one round. Fixed.
		Volume Calculation	Fixed a problem regarding calculation limits in an mbs.
2004.11.427	04-11-12		
		Import/Export, Trimble/Geodimeter	Instrument heights can be incorrect when reading gdt-files. Applies to Geo version 2004.10.424 och 426. Fixed.
		Import/Export, Leica	Level run, a detail measurement could not end a sequence. Fixed.
2004.11.426	04-11-04		
		Volume Calculation	Different setup can be used on the left and right sides of a standard section (nsd).
		Volume Calculation	A new function for renaming a standard section (nsd) was added.
		Import/Export, TrimbleDC	In some gps data files, geoid model was not loaded correctly. fixed.

		Import/Export, Leica	Export of .lin-, .geo- och .trm-data to **Leica DB-X (System 1200)**. Uses the Leica program **RoadRunnerAddOn** .
		Import/Export, LandXML	Mass descriptions (mbs) och standard sections (nsd) can be created when reading line structures from **LandXML**
		Drawing	Folding-marks weren't shown in the last version of Geo (2004.10.424). Resolved.
		Drawing	The function that inserts symbols into a drawing dind't works in last version (2004.10.424). Resolved.
2004.10.424	04-10-24		
		User interface	The Open Dialog now lists files in **detailed** mode.
		User interface	New shortcut for print preview.
		Communication, GeoPad/CE	Quicker viewing of files in the CE-device.
		Communication, GeoPad/CE	Geo reads the predefined root directory of the CE-unit.
		Communication, GeoROG	Remote connection for transfer of files between Geo and GeoROG.
		Communication, GeoROG	Setup files can be transferred to Geo.
		Communication, GeoPad/CE, GeoROG	New shortcuts for GeoROG and GeoPad (CE) transfer.
		Import/Export, LandXML	Coordinate files, terrain models, line files and profiler can be read and written to/from the LandXML format. Requires that Microsoft .NET Framework 1.1 is installed.
		Import/Export, Leica	Conversion of terrain models from the Leica GSI format to Geo .trm format.
		Import/Export, Kordab	Import of Kordab-files, .242- and .243-files can be merged to one coordinate file directly when importing.
		Import/Export, Kordab	Import av Kordab-files, type codes can be converted to Geo codes with the code list.
		Import/Export, AnPakke	Improved import of AnPakke data to mass descriptions, mbs.
		Graphics	Support for GIF format in background images. Also TIF format with LZW-compression.
		Graphics	Smarter usage of the snap functions when using graphical tools. Some tools don't use the snap, e.g. zoom window and select objects.
		Reports	The logotype in reports and lists can be in bitmapped format. Possible formats: bmp, jpg, pcx, tga, tif, gif, png.
		Road lines	New function, Modify sections (.sec). Can be used to channge codes or heights in a cross section file.
		Road lines	Editing of lines and profiles. The start point of the next element can be calculated if the length and direction is given.
		Drawings	It's possible to set the default drawing panel for new drawings.
		Drawings	Bitmapped formats can be used for logotypes in drawings. Possible formats: bmp, jpg, pcx, tga, tif, gif, png.
		Terrain Models	AutoCAD Dwg/Dxf, surfaces (3d-faces) can be extracted directly to terrain models (.trm).
2004.08.351	04-08-20		
		Communication, Leica	Line files that were exported to gsi-format and then back to .lin-format again had radiuses 10 times too small.
2004.08.350	04-08-04		
		Koordinatsystem	The positive direction of the coorinate axis can be changed. This only affects the presentation of coordinates.
2004.06.348	04-07-16		
		Communication, Geodimeter 600	New **UDS-files** in the global folder. 1.uds: Station setup for standard measurement. Links to 11.uds 2.uds: Prepares for rounds measurement with prog 32 by setting pressure, temp, PPM, operator etc. 11.uds: Standard measurement. Logging of measurement data.
		Communication, Leica	New files for **System 1200**, in the global folder. **Code lists:** SBGCTRL: Contains SBG´s free codes. (Control codes) SBG2CTRL: Contains SBG´s free codes, and the code list SBG2. **Export filters:** SBG_GSI_Coo_v1.FMT: Exports points and lines to GSI-format for Geo. SBG_GSI_Pol_v1.FMT: Exports measurement data to GSI-format for Geo.

			The Geo software has been updated to handle these exported files.
		Communication, Leica	New handling of Info-records (72-79) in GSI files. User selection of interpretation. Attribute, special code or remark.
2004.06.347	04-06-11		
		Communication, Leica	Export of terrain models to Leica GSI.
2004.04.345	04-04-23		
		Communication, TrimbleDC	Gps data could be transformed wrong. (from ver 341). fixed.
2004.04.344	04-04-21		
		Voume Calculation	Calculation of rock surface could in same cases include the area for rock uncovering.
		Voume Calculation	The area for **rock uncovering** is included in the volume reportalong with the area for rock cut.
		Graphics, help points	The Help Point file now has the same name as the project file.
		Tunnel	**Nya calculation fields available**. The surface area for rock under/over the theoretic tunnel can be calculated.
		Communication, TrimbleDC	Adjustment of exported profiles for safer input to the ACU.
		Communication, TrimbleDC	Deleted points in the dc-file reappeared in geo. fixed.
		Communication, TrimbleDC	Gps data. If the dc-file contained multiple coordinate systems, all were used, instead of just last. fixed.
		Communication, TrimbleDC	Gps data with 3 parameter fitting where transformed wrong. fixed.
2004.04.342	04-04-06		
2004.04.341	04-04-05		
		Communication, GeoROG	Transfer of geoid model fixed.
		Export to AutoCAD dwg	Texts with multiple rows are separated into single objects in AutoCAD.
		Cross section drawings	The texts for area and length in the cross section have been replaced to occupy a smaller area and be better aligned in AutoCAD dwg.
2004.03.340	04-03-18		
		Roadlines and volume descriptions	Intersection with sideline could fail if the intersection was directly on a break point in the sideline.
		Surveying	**New function**. Distance report from measurement file. Calculates all distances between surveyed points.
		Volume Calculation	The previous cross section line fix in build 339 caused problems in the volume calculation. Fixed.
		Communication, Trimble DC	A line where the vertical information starts ahead og the plane caused problems in the ACU. Fixed
2004.03.339	04-03-12		
		Volume Calculation	The pages in the volume report are given different names to avoid problems when importing the file to MS Excel.
		Cross Sections	It is now possible to handle gaps in the cross section lines. The gaps can be edited both numerically and graphically.
		Cross Sections	Adjustment of points to sections. The option to not sort the points by side offset didn't work.
		Graphics, Select/Merge polylines	Easier to select single points placed directly over points in a line.
		Graphics, Parallel lines	Better handling of closed polygons.
		Graphics, Parallel lines	Heights could be wrong. Fixed
		Graphics, Draw polyline	Line no as standard in input window.
		Communication, Trimble DC	Export of road lines to the Survey Controller. Adjusted end bearing of clothoids in the dc-file.
		Communication, Trimble DC	Export of profiles to the Survey Controller. If the line has deviations additional points will be added in the dc-file.
		Communication, Geodat 600	Program 32, administrative data (pressure, temp, operator etc) can be placed before the station point.
2004.02.338	04-02-10		

		Drawings	Fixed a problem with paper views in profile- and cross section drawings. Applies to build 337.
2004.02.337	04-02-06		
		Drawing	Implemented viewing and printing of drawing with background image.
2004.01.335	04-01-22		
		Installation	If the hardware lock drivers have been installed it's no longer necessary to have administrator rights to update Geo.
		Communication, TrimbleDC	Added support for old version 4 files, used by some Sokkia total stations.
		Communication, TrimbleDC	Coordinate systems with a latitude of origin not zero was not handled correctly.
		Rounds of measurements	Possibility to deselect reduction to 0 for first object.
2003.12.333	03-12-16		
		Tunnel	Error when calculating theoretic tunnel area corrected. Applies to build 329-332.
		Tunnel	Now it's possible to calculate a tbs with only theoretic input.
		Graphic tools	New tool for least squares fitting of arcs and lines.
2003.11.332	03-11-21		
		Levelling net adjustment	Report for multiple observations on the same objects.
		Levelling net adjustment	Clearer entry of a priori standard deviations.
		Graphics, copy to active document	Better handling of points/elements.
		3d-graphics	Selection of single points in the 3d-view didn't work properly.
		Communication, Trimble	Conversion of terrain models to Trimble's TTM-format.
		Communication, TrimbleDC	Some files could not be read. fixed.
		Communication, TrimbleDC	Error in base station height fixed.
		Tunnel	Improved in- and offlogging of the module when used in a network.
2003.11.330	03-11-05		
		Communication, Windows CE device	File dates are set to same as original when transferring files
		Profile documents	Possibility to manually edit connection between elements added.
		Profile documents	"Gaps" i pro- and tpd- documents were not correctly drawn in the graphics view. fixed.
		3d-Graphics	Precision loss when showing files with high coordinates solved.
		Volume Calculation	New standard sections could only be created in the project directory.
		Volume Calculation	Problem with creation of terrace fixed (only version 329).
2003.10.329	03-10-30		
		Archives	New functions to create and open archives in **zip-format** directly from Geo. Can also be sent as **e-mail** directly.
		Volume Calculation/Tunnel Calculation	New function, **Visualization**. Creates 3d-views with colored surfaces for different objects.
		Volume Calculation	New stop function for elements in standard sections. Stop **'to line and center profile'**. The element connects to an edge line for side offset and to the center line for elevation.
		Tunnel	Printout of theoretic tunnel from numerical views fixed.
		Cross Sections	Adjustment of points to section. Possibility to not sort points sidewise (i.e. to keep measurement order).
		Coordinates	New function creates chainage report with sloping distances between points in a coordinate file.
		Import/Export	Boreing. Export of line coordinates to Tamrock format.
		Surveying	**Sequnce Measurement.** The conversion takes place *after* coodinate calculation. Other instruments that Geodimater can now be used.
		Graphics, AutoCAD Dwg	When extracting data, the point code will be set according to the layer in the dwg-file.
		Lines	The function 'Section along line' didn't set the special code CF for camber correctly.

		Lines	New function to recalculate chainage in a line according to the element lengths.
		Lines	The line-reverse function added to the menu.
		Profiles	Graphical copy from terrain profile to theoretic profile didn't work.
2003.09.325	03-10-10		
		Coordinates. Orhtogonal transform 3D	Bug fixed.
		Volume Calculation	Interpolation of build-up will now be calculated for elements that attach to a side line.
		Graphics. Measuretool and baseline.	Line slope is shown in percent.
2003.09.324	03-09-30		
		Graphics, AutoCAD Dwg	Adjusted text heights for texts in dwg-files.
		Graphics	Adjusted text heights in graphics and drawings. I the two latest versions the heights were slightly bigger. Fixed
2003.09.323	03-09-29		
		Linecoding for Leica instruments	Changes made to linecoding type 1. (line no from code 7, point no same as entered in the instrument).
		Volume Calculation, model to modell	Build 322 contained an error in the calculation. Fixed.
		Export to AutoCAD Dwg	Improved display of information about the transfer result.
		Communication, GeoPadCE/GeoROG	Associated files when transferring tbs- mbs- and lin-files had a bug. fixed.
		Communication, TrimbleDC	Support for attributes when reading coordinates and surveys.
2003.09.322	03-09-23		
		Communication, TrimbleDC	Error in atmospheric correction in DC version 10.7. Fixed.
		Import of AutoKa-PC	Improved reading of file headers.
		Terrain Models	Problem when creating terrain models based on multiple coordinate files fixed.
		Graphics	Update of graphics improved when editing profile element data.
2003.09.320	03-09-17		
		Volume Calculation/Tunnel	Files that are part of a mbs or tbs can be put in any file directory.
		Tunnel	New function, 'Correction of Points into Tunnel Sections' (comp. Tunnel Tacheometry).
		Communication, Gdm 600	Delay added after each sent point, to prevent time out in serial communication.
		Communication, GeoPadCE/GeoROG	When transferring tbs- mbs- and lin-files, associated files can be included automatically.
		Import Anpakke	More options when interpreting camber file.
2003.07.318	03-07-29		
		Communication, TrimbleDC	Adjustments made for new data types in version 10.7.
		Levelling net adjustment	Possible to sum measurements over move points.
		Survey, runds of measurement	Did not work when data was stored as height diffs instead of vertical angles.
2003.07.317	03-07-07		
		Communication, GeoPad/GeoROG	New tool outputs Gps-coordinates on the port. Useful when testing mbs-files in the GeoROG och GeoPad before real usage.
		Graphics	The tool for connecting points to lines could loose it's lock or lock on unwanted objects.
2003.06.315	03-06-23		
		Survey, calculation of coordinates	Bugg in special code R3 fixed.
		Survey, correction of measurements	Height reduction and arc correction added to Estonian projection correction.

		Graphics, profile	Improved editing for terrain profiles (pro/tpd). Both graphical and numerical. Numerical printout fixed.
		Graphics, profile	Terrain profiles can be color-coded using both the side offset or layers. Applies also for symbols and line types.
		Graphics, profile	Terrain profiles can be copied graphically to theoretic profiles (prf).
		Graphics, profile	Terrain profiles can be created from cross sections (sec), all cross section layers (soil, rock, excavation and others) can be transferred to the profile.
		Graphics, cross sections	Punkter i tvärsektionen kan flyttas grafiskt.
		AutoCAD Dwg	Extracted data can be transformed directly.
		Volume Calculation	Element with the combination 'to terrace' and buildup type 'unknown' fixed.
		Volume Calculation	Elements with 'cut at' weren't marked in the graphics.
		Communication, TrimbleDC	Transfer of road line data (line, profile, camber, cross sections) to/from **Trimble DC**.
		Communication, Leica	Cross sections (sec) can be exported to the gsi-format.
		Extract with polygon	Files containing radiuses could cause failure.
2003.05.313	03-05-26		
		Survey, free station	Backsights no longer need to be collected at the top of the document.
		Graphics	New snap-tools. 'Perpendicular', 'Near' och 'Tangent point'.
		Communication, Leica	Camber >= 10% handled in sta- and crs-files when writing gsi-files.
		Communication, TrimbleDC	Transfer of GPS-data from **Trimble DC**. Contact SBG for instructions.
		Communication, TrimbleDC	Adjustments to Roadline transfer.
		Communication, TrimbleDC	Adjustment for Trimble Survey Controller v7.50 or later.
		Cross Sections	Possibility to view the profile elevation and the difference from it for points in a cross section.
		Volume Calculation	Calculation of top soil outside polygon fixed..
2003.05.311	03-05-14		
		Communication, TrimbleDC	Adjustments to Roadline transfer.
		Communication, GeoDos	Roadlines did not transfer correctly. (All version 2003).
2003.05.310	03-05-12		
		Graphics	Curve alignment lines can be drawn for theoretic profiles/vertical lines (prf).
		Graphics	Some line types weren't drawn correctly in the graphics.
		Cross Sections	In the function 'sections along line', codes for the points to be calculated can be entered.
		Cross Sections	The function 'sections along line' is modified so that 'profile offsets' will be included in the calculation.
		Cross Section Stake Out	It's now possible to enter a negative point-offset when createing a 'orthogonal point report'.
		Communication	Transfer of cross sections to **Trimble DC**. Contact SBG for instructions.
2003.05.309	03-05-02		
		Communication	Transfer of line, profile and cross fall data to and from **Trimble DC**. Contact SBG for instructions.
		Net adjustment	Elastic adjustment did not work. Appeared in 2003.03.06.
		Communication, Geodimeter	Transfer adjusted for Program 32.
		Rounds of measurement	Better handling of stations without rounds.
		AutoCAD Dwg	MTEXT-objects supported (text objects with multiple rows of text).
		Volume Calculation	The calculation of top soil reported the complete soil area instead. (Version 306-308).
		Graphics	Possibility to create cloes polygones with the tool 'connect lines'.
		Graphics	Lines that were connected to an entry in the code list, without the line type given, were invisible in the graphics.
2003.04.308	03-04-24		
		Volume Calculation	Volume calculation in combination with 'unit height'. Error in the calculation fixed (only applies for version 306-307).

		Graphics	Input of coordinates for tools in profile views didn't work. Solved.
2003.04.307	03-04-22		
		Volume Calculation	General top soil in combination with rock cut above soil didn't work.
		Levelling net adjustment	Problem with toggling on/off of observations solved.
		Graphics	Quicker drawing of line types from the code list.
2003.03.306	03-04-10		
		Volume Calculation	A new function added, 'create report with orthogonal points'.
		Volume Calculation	Improved handling of buildup layers. The layer widths are stored in a file parallel to the mbs-file.
		Volume Calculation	Border polygon calculation added. Both .geo- and .pxy-format.
		Volume Calculation	Top soil calculation, any number of border polygon can be used within a single cross section.
		Volume Calculation	General top soil area is now better adjusted to the theoretic surface width.
		Plane net adjustment	Better handling of large coordinates.
		Rounds of measurement	Prism constant was lost. Solved.
		Survey	New setting for generation of lines from point numbers when communicating, opening old inm-files and calculating.
		Survey	Station data impossible to edit for some free stations. Solved.
		Survey	Modify surveys not working with remark field. Solved.
2003.03.304	03-03-13		
		Projektioncorrection of measurements	Added support for Estonian projection.
		Communication, Leica	Prismconstant for each measurement is written to the plm-file.
		Graphics	Coordinate crosses were drawn with the same pen width as the last coordinate file in a drawing.
2003.03.303	03-03-03		
		Communication	Transfer of measure data from and coordinates to/from **Trimble DC**. More formats will be added later.
		Transformation	New option to store parameter files in the project directory.
		Surveying, coordinate calculation	It's now possible to deselect the report creation.
		Communikation, Geodimeter	The use of a comma to separate points from lines didn't work. Solved.
		Modify survey	Numerical operations didn't work. Solved.
		Volume Calculation	It's possible to step through the calculation without having existing terrain models. The design values can be used instead.
		Volume Calculation	New function, 'Insert standard section'.
		Volume Calculation	The position of a side line is shown in the cross section graphis.
		Volume Calculation	Improved edit-mode for theoretic/design standard section ('preview standard section'). The side offsets for side lines can be edited.
		Volume Calculation	Copying standard section resulted in duplicate elements. Solved
		Graphics	Printout and print preview now works for cross sections and profile/longitudinal sections as well.
2003.02.300	03-02-10		
		Tunnel	**The new tunnel module is availbale.**
		Surveying	**New measurement file format, plm.**