



**Release Notes**  
**MAGNET Field**  
**June 21, 2023**

**MAGNET Field V8.0 Release Notes - Introduction**

Please take time to read these Release Notes. They contain information about the following:

- New Features
- Improvements
- Bug fixes

**NOTE:**

It is always recommended, before upgrading your field software, user's backup their original job; and following any update to your field software, users perform in-the-field checks to ensure data integrity

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# MAGNET Field V8 Release Notes

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The following new additions/revisions have been made to Magnet Field V8.0.

Please take time to read the release notes. They contain information about the following:

- New Features
- Feature Enhancements
- Issue Resolutions

## Key Features

### Shared Data File

MAGNET Field now supports the use of a Shared Data File. The shared data file is stored on the users Field Controller and can be used on any job. Data that can be included in the shared data file includes:

- Control Points
- Code Library
- Localization
- Layers
- Custom Symbols

All the supported data types can be updated to include new shared data and users can choose what data they want to use in a job. The Shared data file can be used in all Setup and Calculate routines in MAGNET Field.

The shared data XML file is stored in a default location on the Field Controller, the user has the option to store the shared file in any location on the Field Controller.

### Improved Filters

MAGNET Field now has improved filter options. There is a new 'Filter' icon added to Edit Points that allows users to filter by: Type, Time, Layer, Name, Radius, Range, Code, Code String. You can apply more than one filter to the list to filter the data exactly as you need. When the filter is applied, only points that apply will show. Clear the filter to reset the point list.

### Point Cloud Support

MAGNET Field now supports the direct transfer of point clouds from the GTL series instruments. Users now have more options for viewing the point clouds in their jobs.

- GTL-1200 – wifi transfer of scan from the GTL-1200

- Multiple options for working with the data, including creating a point cloud in Site Scan.
- Multiple Import formats supported including LAS, PLY, E57, CLR, PTS, XYZ, Esri ASCII, DEM, Autodesk RCP formats.
- View the point cloud in 2D and 3D map view
- Overlay the point cloud on job data for visual as-built checking of installed components

## Revit File Support (\*.rvt) and Drawing (\*.dwg) improvements

Improved support for 3D models includes native support of Revit (\*.rvt) files. Users can now directly import Revit files to MAGNET Field jobs.

Automatic point creation on import is now supported for drawing (\*.dwg, \*.dxf) files. When importing a drawing (\*.dwg, \*.dxf) to MAGNET Field, the user now has the option to automatically create points at the start and end points of lines as well as line intersections.

MAGNET Field now allows users to import mesh as linework or surface from \*.DXF/DWG formats.

## Codes and Linework

Support gaps in Linework. Improved Line coding support to allow users to create gaps in linework. A new 'end' code has been added to the control code option list to allow users to stop a line during Topo and then restart the same line after a 'gap'.

- String start/stop in topo
- Continue line and allow gaps (driveways, intersections, etc)

In the Map view, added the option to show the string number.

When measuring lines, selecting a line to change the line number will now highlight the selected line. This adds a visual clue to the user, confirming the line selected.

## Point Lists

Display of the active Point List is now supported on the Map. Users can now see a running list of points for Stakeout. As points are staked, they are removed from the list. This provides a quick visual update of work to be points left for stakeout. The list can be updated at any time to add/remove points. Users can also select any point from the list to stake or stake points in the order shown in the list.

In the main map, context menu, users can now select points and have the option to create a point list. Other options available include Create Best Fit plane or Create Surface from the selected points.

An improvement has been made to importing points. Users can now select an existing point list or create a new point list and import the points directly to the point list. Saving the extra step of adding the points to the Point list after importing points to the job.

An additional option for creating Point lists by Date and Time has also been added.

## GNSS

### Correct Base Improvement/Remote Benchmark

Added “Height Only” as an option to Correct Base. Users can now select a point or manually enter a height for a point when using Correct Base. This option allows a Benchmark to be used to adjust the height of a GNSS setup.

### PPP Improvement

Improved PPP convergence by supporting coordinate seeding. PPP coordinate seeding significantly reduces time spent in PPP convergence stage to obtain PPPN or PPPF solutions. The seeding point just needs to be determined once and can be used at any time to start a new PPP survey on the site.

MAGNET Field now supports receiving PPP corrections from NTRIP mountpoint in RTK mode along with Radio for RTK corrections

### Base Movement Alarm

Topcon GNSS Firmware V5.5 added alarms when detecting base movement. An alert will now be shown in MAGNET Field if unusual movement of the base antenna is detected.

### Other

Supported HiPer VR with Satel TR4+ modem

MAGNET Field now supports connection to NTRIP caster over TLS (SSL) certificate to secure internet connections and transactions through data encryption.

Added manual selection of the active base station on the Multi Base Page

## Optical

Updated support in MAGNET Field to include the following instruments

- GTL-1200 without WLAN
- GTS-6000
- MS/NET1005

Edit Prism dialog Improvements:

- Center Offset now in mm and does not depend on distance units set in the job.
- In Edit Prism, Sheet prism type is now supported so users can use the aperture setting.

Added an ability to set a negative prism vertical offset.

## Setup

Setup by Gridlines workflow change to simplify setup and match the workflow of the Resection setup. In the updated wizard, after specifying the first reference line, the user is taken directly to the measure points on selected reference line screen the wizard then repeats for the second reference line.

Improved Correct Base. A new 'Height Only' option has been added to Correct Base. This allows users to quickly add a Local Height to their GNSS survey.

Custom/User defined non-prism is now supported in MAGNET Field. Users can set a 'non-prism' target type and define the offset required. This custom target type can be used in Topo, Stakeout, Resection, etc. The user defined Offset is then applied to measurements.

Improved Resection in MAGNET Field. Users now have the option to add additional resection points following the addition of a benchmark. In previous versions, MAGNET Field did not allow users to add additional resection points following the Benchmark Routine.

Improved Set collection. MAGNET Field now allows users to change the order of predefined points a In Set Collection.

Added the option 'Select Azimuth' where azimuth input is needed in setup and other routines.

In Job History, Added target type and prism constant to the report.

## Level Support

In the Digital Level feature, users can now directly create a report that matches the in-product digital level screen. Users can also add a header with Job Info, Company Names, Logo, etc.

Improved Level run support to allow users the option to add Point Codes on all measured points.

## Map

Improved the Join snap command. Added the option to specify a distance to join lines. Users can enter a join distance and then create a selection set of lines to join.

Improved switching from 2D to 3D display. When switching modes, the zoom and centering are now consistent between modes, making navigation between modes consistent.

Added the option to configure the default layer. Users can now select any layer as the default layer as well as change the default layer when needed.

## Default Layer

Improved layer controls now allow the user to set any layer as the default layer in MAGNET Field. The Context menu in Layers allow the user to select any layer and set as default. Users also have the option in the Layer dialog to double-click on a layer to set as default.

Default Layer has also been added as an option to Data Labels.

## Default Symbols

Users can now choose a default symbol instead of the standard symbol used. In the select symbol option, users can select and choose any desired symbol to be used as the default.

## Custom Symbols

Custom stake point icons are now supported. Users can choose the icon they want for staked point(s) as well as set in and out of tolerance colors for the icon. This allows for a quick visual check of points set out that are in or out of tolerance and need further checks. Additional options now include filled "flags" to the list of symbols.

MAGNET Field now has the option in Map Settings to show the String number

## Improvements to WMS Support

- WMS loading speed is much improved and now allows zoom up to 0.01m. Previous versions only supported zoom to 10m.
- New WMS regions (Australia, etc.) supported

MAGNET Field improved background image support to allow PNG images to be used as background images.

Added the option in the map display to show curve dimensions.

Improved linework display to Show the direction of linework as well as allow users to select linework and change the direction of the line.

Added an option to show Point Info dialog when adding from the map with Snap

Added the option in MAGNET Field to allow users to create point list/linework/area/surface from multiple selected points on the main map.

## Topo

Added the Reference Surface option to Topo. In Topo Surface, users can now see Cut/Fill values to the reference surface.

Auto-Topo function is now included in Surface routines. MAGNET Field now includes the auto topo function in Stake Surface and Topo Surface topo routines. This automates the storing of points to simplify creating stake reports for surfaces as the cut/fill values are automatically created.



When measuring lines, the user can now see the direction of the selected line and have the option to reverse the direction of the line.

Magnet Field now displays on the Map View the Cut/fill to a surface.

In Surface Topo, MAGNET Field now has Reference Surface as an option.

In Topo, MAGNET Field now displays Running length/area calculations while measuring lines and areas.

Improved support for Quick Codes. In MAGNET Field, users can now define a quick code to have multiple codes instead of a single code per quick code button. User can select multiple combinations code + string per quick code button. Different code types can also be combined.

Improved options for Quick Codes. Users can now configure Quick Codes as 3x3, 4x4 or 5x5 buttons.

Added support in the Code Library to include a localized Chinese code library file.

## Stake

Improved support for Stake>Surface to allow the user the option to enter a slope (% or grade) to extend the surface to a user's current position.

Improved Stake > Surface to add 'Auto Stake' as an option. This allows the user to automatically store points to calculate cut/fill values.

Improved Stake Road to display Thickness. When staking a Road, users now have the option to display 'Thickness' and added the option in Stake Reports to export Thickness as well as the Reference Surface used to calculate the thickness of the road.

Improved Stake Line to show both the Start and End point of the Line in the Info popup menu.

Improved Stake Tolerance Settings to allow more options. In the Stake > Tolerance settings, users can now customize the In Tolerance and Out of Tolerance Flag icon and colors to their company standards, making it easier for users to quickly spot potential issues with staked points.

Improved Stake Linework to add 'Elevate from surface' as an option when staking linework.

In MAGNET Field, the Stake Road feature has been updated to add support for Reference Surfaces with vertical triangles.

Added support in MAGNET Field Stake Line the option to change the default Ht Comp method to Interpolate Ht. The current release defaults to first point.

Improved Drape Point in MAGNET Field. Implemented a new Drape Point dialog for finding existing surface. Users also have the option to drape a vertical line to a surface.

## Raw Data

Edit Raw Data now allows multiple edits. When editing raw data, users can now edit Reflector Height, Prism Type, Antenna Type, Antenna Height and, Hybrid Antenna adapter height on multiple records.

Improved Total Station Measurement display in Edit.

The Average TS measurements are now shown in the Raw Data for Direct/Reverse measurements.

## Coordinate Systems

Added the option in Configure > Coordinate System to download and install Projections. Previous versions did not support downloading projections from Topcon's web-based library.

Added the option to temporarily disable a localization in a job. This is useful to control GRID coordinates of the points and allows the user to choose grid coordinates even if a localization exists for the project.

Added a Legacy folder to Projections for storing historical projections.

Added the option to create user-defined table (NTv2) datums.

Added support for Molendensky datum when defining customer datums. This option allows users to define 'local' low distortion mapping projections for jobs.

Ohio LPD transformation parameters have been updated

Added support for the El Salvador national projection

Added support for CRS- UA\_UCS-2000

## Import/Export

Option to Allow importing points to a points list, improving the workflow for creating and editing point lists. Users no longer have to import the points and then create a points list from the imported points.

MAGNET Field now has the option to skip Importing points with the same points/coordinates. When importing a point file, if the point already exists in the job, MAGNET Field will check the coordinates of the duplicate points and if the coordinates are different, will prompt the user to update the current point with the new position.

Improved support for Leica GSI16 format to include support for Codes with the points.

Added the Raw Data export format \*.plm which is used by the Swedish software SBG Geo.

Improved exporting 'lines' from MAGNET Field. Users now have the option to filter the export by 'date/time'. Previously this option was only available for Point export.

Improved X-Section survey export. When exporting at a Points Survey in the Road Survey Topcon Custom format, station and offset are available as an option to select and export with the points.

Added the ability to export custom attributes in SHP format. The Custom Attributes checkbox is now available for all ERSI Shape and ESRI Shape Zipped exports. Custom Fields available include Name, N(Lat), E(Lon), Elev, Ell ht, Note, Code Attributes, Code Description.

Added support to export a 12D (\*.fld) format file.

Added support in export localization in \*.prj format.

Added the option to Import CodeLibrary in GeoDB format

Users can now Export Photo Notes to JPEG, PNG

N2 format (observation file for adjustment) supported for export

Update the MAGNET MaXML exchange format to V1.6. New Import/Export data types supported include:

- Point Clouds
- DL Equipment
- PPP-based solution types
- Weighted Average (WA) data
- Scale Factor (SF) in Resection
- Multiple Quick Codes
- Updated Prism support to include 'sheet' and 'reflectorless' predefined prisms

Updated GeoDB format to support the Import of CodeLibrary in the GeoDB format.

Added an option to import that allows users to filter points to import by point range.

Added Weighted Average and Checkpoints Report export options.

Improved Autodesk Civil3D format to include support for importing Pipes from Civil3D drawings.

MAGNET Field now supports import of strings from the MX Genio format.

## Reporting

Improved the Stake Report configuration feature. The report editor has been reworked and improved to provide an easier to use interface. The previous report editor did not provide a simple user interface that allows users to quickly add the columns they require for reports. Additional improvements include adding the Hz and Vt tolerance settings are now stored to stake reports.

Improved the options in Custom reports to support the export of station and offset to a user defined custom report.

## General

### Languages

Added Slovenian language

### Region Support

Added Region support to MAGNET Field. The Regions dialog allows users to Add/Remove/Edit/Create region plus turn on/off region visibility.

### Backup and Restore Improvements

Improved connection to MAGNET Enterprise for data management. Improved the backup process in MAGNET Field so the user can backup ALL jobs, settings and, license. This single backup file will allow users to securely store a file to MAGNET Enterprise before updating Field Controller Operating System or other actions and then restore all jobs, settings, and license to the controller.

### Surfaces

Improved the display of surfaces in MAGNET Field. Contours lines can now be displayed independent from the Surface. Users can turn on/off the contours for a surface where in previous versions, contours were controlled by the display of the surface. Users can also display the contour line elevations on the Map.

In Stake Surfaces, users can now select and stake individual contour lines.

Stake Surfaces now allow the user to extend the surface beyond the edge allowing users the option to

### COGO

Improved the options in Calculate to allow slopes to be defined by ratio (1:x) and degree (eg. 60° slope). This improvement allows users to enter: "Grade(%)", "Grade(1:X)", "Grade(X:1)", "Grade(Angle)"

### Plane Support

Improved support of planes in MAGNET Field to add the option to stake a plane. Planes can be staked using Reference CL and Reference Alignments.

Planes can now be referenced in Calculate (COGO) routines.

Planes are now used to 'clip' models and show only a portion of the model above/below the clipping plane. The plan can be defined by selecting points or entering an elevation for the plane. Two separate planes can also be defined to only show data between the two selected planes.

### Edit

Updated Edit Points. In Edit Points, an extra tab has been added that shows additional point information. Extra Info includes Used in Localization information and Stored Coordinate values. The Extra Info page can also be stored as a text (\*.txt) file for future reference.

Extended Camera Support: MAGNET Field now supports additional functions for the Field Controller built in Camera. Brightness, contrast, exposure as well as the FC-5000/6000 flash is now supported.

Improved the new Job Wizard. Added Global Settings to the new job wizard to allow users the option to update the MAGNET Field Global Settings when creating new jobs.

Added support for QWERTZ-Keyboard layout.

## Resolved Issues

Addressed an issue when changing job profiles. If the job profiles have different prisms, the prism set in the initial profile would be applied to the current job profile.

Addressed an issue with the Backsight station height determined when a geoid is applied to a job. When observing a backsight point using the bearing only option, at times the point height would change.

Addressed an issue in MF 7.3.1 GNSS update rate. When connected to a HiperVR, the position update rate would reset to 5Hz even if the update rate was set to 10Hz.

Addressed an issue with the StarNet export format. When exporting Angle sets, the full data set was not exported to the StarNet (\*.dat) file.

Addressed an issue when exporting to the Topcon Custom Report Text Export format. The 'Note' field would not export to the file.

Addressed an issue when importing Topcon \*.tp3 format files. If there were multiple alignments in the file, at times only the first alignment was imported to the job.

Addressed an issue when staking a road created in Pocket3D/3D Office. When staked using the Real-Time Roads function, the current station/chainage shown was incorrect.

Addressed an issue with the Topcon Text Custom QA export format. The string and control Codes were missing from the exported file.

Addressed an issue when staking roundabouts with MAGNET Field. When staking the axis in Real-Time, if the alignment was a closed circle, MAGNET Field would not calculate the horizontal projection of the current position.

Addressed an issue with User Defined Classes in Optical survey. When creating a new job, the user defined classes were not copied to the new job.

Addressed an issue in Resection. When using the measurement method 'Direct/Reverse' at times, the residuals were not correct.

Addressed an issue when staking contours created in MAGNET Field. Selecting the option 'show Cut/Fill contours' would not display the contour lines during stake. The contours display in the Map view but would not show in the Stake Map.

Addressed an issue when importing Drawing (\*.dwg) files with custom symbols. The Import blocks as points option has been improved to import the block definitions as custom point symbols.

Addressed an issue with NTRIP connections. If connected via the GNSS receiver and the receiver was turned off, a second connection was possible from the field controller as the receiver modem connection was not turned off when the receiver was powered down.

Addressed an issue when MAGNET Field is connected to a TruPulse 200x laser. Even though the Laser was connected to MAGNET Field, the offset data was not sent to MAGNET Field.

Addressed an issue when export to the NZ Survey Report format. IF the job has a custom projection, the job data would not write to the report.

Addressed an issue when exporting GTS-7 format files. When exporting Horz/Vert Angle Offset observations the values written to the file were not correct.

Addressed an issue in the Job History report. The reported Resection Calculated Scale and Used Scale were not correct in the report.

Addressed an issue in SureTopo. IF the option 'Restart Epoch Counter if Solution Changes' is enabled, it was not possible to measure more than one group.

Addressed an issue with Field Reports. If there were notes written to the Notes Section, the field report would truncate the notes and only report the first line.