

Geometrics G-864 Release Notes

Version 4.2.2739

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Summary

This version of G-864 includes internal improvements in reliability and performance, without significant changes in functionality. Refer to the release notes for MagNav for information about changes in the Android app that may affect the user experience with G-864.

Version 3.2.2068

Summary of Improvements

This release includes these improvements:

- Improved performance and reliability during surveys – The most important is a fix for an issue in which the instrument stops acquisition mid-survey, sometimes requiring an instrument reboot.
- Improved data validation of GNSS data – A data-correctness issue was discovered in GNSS data recorded in a different instrument; the issue has not been observed by Geometrics in any G-864 instrument, but it could theoretically occur in a G-864.
- Incremental improvements to survey and data admin user interfaces, in Survey Manager and in MagNav
- Support for over-the-air updates of instrument software

Components

- Geometrics G-864 Embedded version 3.2.2068 – The installer is Setup-G864-Embedded-3.2.2068.exe
- Geometrics Survey Manager version 3.1.1385 – The installer is SurveyManagerInstaller-3.1.1385.0.exe
- MagNav version 3.0.4188 – The installation file is MagNav-release-3.0.4188.apk

Installation

Please follow the [Magnetometer Installation Instructions](#) on the Geometrics Forum.

Version 3.1.1946-940

Summary of Improvements

This version includes these improvements:

- Expanded video library with tutorials and help for the latest features and versions
- Reorganization of project and survey data to match standard industry practices
- Improved editing screens in Survey Manager.

- Ability to create projects and surveys in MagNav
- Improved Survey Manager workflow and user interface

Components

- Geometrics G-864 Embedded version 3.1.1946-940
- Geometrics Survey Manager version 3.0.1314
- MagNav version 3.0.4098

Release details

Video Library

Visit our YouTube channel with instructions and explanations from the Geometrics engineering team: <https://youtube.com/@GeometricsDev>. The videos are short and focus on the important workflows and most efficient uses of Geometrics' magnetometers and software. These videos often include more up-to-date information than the user manual.

Survey Manager Improvements

The user interface in Survey Manager is reorganized to make it easier to find and use the functions you need:

- Main menus are based on product lines, including the G-864.
- Project/survey naming convention now agrees with industry practice.
- Some survey parameters can be edited even after data has been collected.
- Export functions can filter invalid records and records without GPS locations.

Bundle 3.1.1812-750

Included software

- *Geometrics Survey Manager*, version 2.3.1164.5 (no changes in this bundle)
- *Geometrics G-864 Embedded* version 3.1.1812-750
- *Geometrics MagNav*, version 2.3.2160

Changes

This release provides support for a new version of the Getac tablet.

Priority

All 3 softwares should be installed on new production systems and the lease pool systems. It is not required for existing systems because those systems don't have the new Getac tablet.

Release notes for earlier versions:

Bundle 3.1.1751-697

GPS and PPS changes

Supports complying customer-supplied GPS receivers and other location systems. Customers who would like to use a GPS or location system other than the Tallysman GPS provided in the standard instrument should contact Geometrics for further information.

Logging

Adds additional information to the log file – `geometrics.log` – on the instrument's USB drive. This file is used to troubleshoot unexpected behaviors in the instrument.

Other improvements

This version includes internal changes to improve the reliability of the instrument during acquisition, particularly in noisy WiFi environments.

Priority

This release is mandatory for all new production and is optional for existing customers, particularly for the improved WiFi connection management. Another release is planned within the next few months, and customers who are in the middle of field work, and who are not experiencing any issues with their current system, and who do not want to introduce any risk into their field work, may choose to defer installation of this release until their current field work is complete. Any customer reporting issues or calling for support should be asked to upgrade to this current version before any support action is taken.

Bundle 3.1.1717-651

Performance and usability

This version improves the responsiveness of the tablet UI during acquisition, particular during longer acquisitions.

Export Column Removed

Some recent versions included an extra column in CSV exports, that displayed an internal counter for testing purposes. Customers who have included that extra column into their data processing scripts may need to remove the column.

Other improvements

This version includes internal changes to improve the reliability of the instrument during acquisition.

Priority

This release is mandatory for all new releases and is recommended for existing customers. Although this release is a significant improvement over the prior version, some customers who are in the middle of field work, and who are not experiencing any issues with their current system, and who do not want to introduce any risk into their field work, may choose to defer installation of this release until their current field work is complete. Any customer reporting issues or calling for support should be asked to upgrade to this current version, before any support action is taken.

Bundle 3.1.1650-582

Export anomaly

This bundle includes a new version of Survey Manager, which fixes an anomaly in exports from G-864 surveys: Exports from GPS-based G-864 surveys conducted in the Southern Hemisphere, with non-zero sensor offsets from the GPS, will have incorrect latitude values. The error should be obvious to G-864 users; in the survey in which this anomaly was first noticed, the latitude was off by >1km.

The code problem existed only in the export from Survey Manager; data collected by the G-864 instrument does not need to be re-surveyed. This error exists only in G-864 exports, it does not affect MagArrow surveys. Users can re-export any survey data from the new Survey Manager, using existing G-864 .DBT files.

Tablet timestamps for marked acquisitions

Marked acquisitions may now include timestamps based on the time in the Android tablet that's running the MagNav app. These timestamps are saved automatically; during export to CSV or GDB formats from Survey Manager, the user chooses from among 3 timestamp options : "No date and time"; or "GPS date and time"; or "Tablet date and time (UTM)". These timestamps appear in each line of the output data, in the standard date and time columns.

Note that as in Geometrics' other magnetometer products, marked measurement locations are interpolated between marks using the measurement counter; acquisition timestamps are not used to calculate measurement locations. Acquisition timestamps may be used for general accounting (to confirm the date and time of acquisition) or for the purpose of synchronizing data to base station data.

The timestamps are reported as UTM time (or GMT), based on the time saved in the tablet's Android clock; there is no special G-864 clock application or adjustment for this feature. It is the user's responsibility to set the time on the tablet correctly. UTM is also the convention for GPS-based data. To confirm the date and time of acquisition, add or subtract the time zones offset to retrieve the local time from the UTM timestamp.

After a sequence of measurements arriving at a certain millisecond sequence – for example .001, .101, .201, etc. - some later measurements will arrive at e.g. .002, .102, .202, etc. This clock drift, due to normal differences between machine clock rates, can usually be measured as a few parts/million and should not affect the expected uses of the tablet timestamp.

Magnetometer Mini-monitor

In all of the windows of MagNav, the toolbar at the top of the screen now displays the magnetometer data feed for sensor 1.

Mark display in CSV files

In exported CSV files that display the location of a mark, the column headers are now "y/lat" and "x/lon" to acknowledge that marks and routes may be in either latitude/longitude format or arbitrary Cartesian coordinates. The route designer or analyst will know which format was chosen for the particular route.

Backup data policy

Please review the section on the new backup data policy in the release notes below for Bundle 3.0.1628-559. Although this change occurred in a prior release, some customers may not have upgraded to that release, and should understand the change.

Import from USB subdirectories

This version fixes issue G8-5, which required a survey being imported into MagNav to be in the root directory of the USB drive. Surveys may now be organized by directory in the USB drive; they will be imported properly into MagNav from those locations.

Survey Deletion

A user can delete a survey plus all of its acquisitions in the Android app. Press and hold the survey name in the opening screen. Select “Delete”, and then confirm. This removes the survey, all of its acquisitions, and all data collected into those applications. Users should be very certain that they want to do this; it is good practice to make a backup copy of the survey database onto external storage before deleting a survey.

Other improvements

This version may also include changes to improve the consistency and usability of the user interface; various internal changes have also improved the reliability of the instrument during acquisition.

Known Issues

- Issue G8-3: Survey Manager allows definition of some surveys that won't work. In particular, the user can define a 50Hz, 2-mag survey. The user may select the survey in MagNav, and the system will acquire data, but the system will not collect at 50Hz. The work-around is that the user should not define or use a 50Hz gradiometer survey for the G864.
- Issue G8-4: Although Survey Manager allows creation of 4-sensor surveys, Geometrics does not currently ship a 4-magnetometer G-864..
- Issue G8-6: User can run a gradiometer survey with one mag, or a single-mag survey with gradiometer. The system does not warn about the inconsistency.
- Issue G8-7: MagNav and G-864 Embedded should detect and warn about incompatible software versions, but they don't. This will not lead to bad acquisitions; if the systems are not compatible they will not acquire data and will not appear to be collecting data.
- Issue G8-2: In some circumstances the heat map appears to be incomplete. In lengthy acquisitions, the heap map algorithms down-sample the data, using only a fraction of the measurements. If one section of the survey is very heavily measured, and another section has been lightly surveyed, it may seem that data is missing from the lightly-surveyed areas. Addressing this is not a high-priority fix, because most marked surveys are acquired evenly enough that this behavior does not appear.

Priority

This update is a mandatory update for all G-864 customers, for new systems and existing systems.

Bundle 3.0.1628-559

(*Geometrics Survey Manager*, version 2.1.1150, *Geometrics G-864 Embedded*, version 3.1.1628-559, *Geometrics MagNav*, version 2.3.2072.0)

New Features and Improvements

- New backup data policy. This change is described separately below.
- Uniform tab names – Tab names have been regularized across the separate acquisition types.
- The Terminal tab now appears in all views.
- Marked survey UI is improved: confirmed data appears as heavy green bars; the currently-surveyed segment is a heavy black bar
- The acquisition coverage screens update every 1 or 2 seconds. In prior releases the update occurred about every 20 seconds.
- Mark de-bouncing. It is no longer possible to press the Mark key and have several actions result. Mark presses are accepted no more often than every 2 seconds.
- Support for Bluetooth mark clickers. Please contact Geometrics if you do not already have a clicker.
- Significant reliability and performance improvements – Some causes of lost button presses, slow button presses, and other UI glitches have been found and fixed. These changes along with quicker responses from the UI should result in an improved user experience.

Change to the Backup Data Policy

Original Policy

In G-864 releases prior to this one, acquisition data was stored in both the backpack and the tablet, for 2 reasons:

- If the transfer of data to the tablet failed, but the tablet did not provide an indication to the user, the user might continue to acquire data for some period (hours or days) and discover only during post-processing that the acquisition had failed. In this situation the customer would need to re-acquire the magnetometer data.
- If the tablet was lost or destroyed, the backpack would contain the day's data.

New Policy

In G-864 releases including and following this one, acquisition data will be stored in the tablet, but not in the backpack.

Benefits of this Change

Free of the engineering cost and performance limitations imposed by the backup feature, Geometrics will be able to develop additional features for the product; some proposed features include improved workflows, better heat maps, background maps, line displays, improved mark and annotation features, additional filters, etc. Customers have asked us about these features and many others.

Cost of this Change

The backup data in the backpack will no longer be available.

Discussion

The requirement that led to implementation of the backup feature – to prevent continuing and expensive field work when the system has failed – is in fact not being served by the backup feature. G-864 functions so that indications of correct system function – coverage maps, heat maps, mark segments, etc. – can only occur when the tablet actually has received good data from the backpack. For example, the tablet cannot plot a coverage map unless it has received the data from the backpack; if an anomaly occurs in the backpack or in the communication between the backpack and the tablet, the anomaly will be evident in the tablet. The removal of the backup implementation will not compromise the system's data integrity. This is a significant benefit of having a modern, interactive UI.

The loss or destruction of a tablet will result in the loss of any data that had not yet been transferred to another system. This change will remove protection against that event. The experience of Geometrics and G-864 customers has been that the Getac tablet is robust, and the database in the app is quite reliable.

Some customers may still require the backup feature

Some customers may still think that the backup feature is important. We encourage you to contact Geometrics to discuss this, but if you are certain that you need the backup feature, we will release a version of G-864 with the current feature set and with backup. We will fix anomalies in this version – which has numerous feature enhancements compared to prior versions – but the feature set for this special version will be frozen: new features and enhancements will not be added to it. Please contact Geometrics if you think you need this special release.