

Makin' 3D Release Notes

v2.22

2023-06-22

Improvements

- New UI
- LandXML: Read CircCurve for single alignment
- Support for editing line points on lines located in 'user model'.
- Allow adding points/layers/lines without a valid GNSS-position.
- Added busy indicator when loading large project lists.
- Update machine calibration when updated from the server.
- Support for Xbox controller
- 2D: RMS threshold warning no longer shown
- Initial support for Trimble CAL-files

Bug fixes

- DXF: Split surfaces when layers change

You can find the Makin' User Tip videos by clicking here:

Video about **Edit line points** on this link: [Link for youtube video](#)

Video about Stakeout to side references on this link: [Link for youtube video](#)

v2.21

2023-04-18

Improvements

- Show auto calibration menu.
- LandXML: Avoid identical points in planFeature polyline.
- LandXML: Fix wrong closed line.
- Load OGL.xml automatically.
- Disable full sync.
- Stake out using side reference
- Updated Norwegian translation
- Updated Swedish translation
- Support for Engcon built in tilt sensor

You can find the Makin' User Tip videos by clicking here:

Video about **Makin' Surfaces in Makin' Cloud** on this link: [Link for youtube video](#)

Video about **Work with Makin' Surfaces on the panel** on this link: [Link for youtube video](#)

v2.20.6

2023-02-17

Makin would like to inform you about the new release version 2.20.6. The new version will be available for group-a during Friday the 3rd of February. The remaining Makin' users will receive the new version on Friday the 17th of February. The new version includes functions for stakeout points, copy line and points, preliminary sensor test screen, geometry info on long-hold in the reference dialog, and other minor improvements.

Improvements

- New: Stakeout point for the Makin' 3D excavator solution
- New: Copy line and copy point
- New: Preliminary sensor test screen
- New: Geometry info on long-hold in the reference dialog
- Cloud: Hide sync error when synchronization succeeds
- Auto-start Makin on Android devices with 7" screens or higher
- IB-1: firmware to v0.8.5 - fixes rare packet loss
- Improved splash screen

Bug fixes

- GNSS: Fixed startup issues on the AsteRx-U3
- Fixed maps colliding and fighting with horizontal surfaces.

You can find the Makin' User Tip videos by clicking here:

Video about **Copy Point** can be found on this link: [Link for youtube video](#)

Video about **Stakeout Point** can be found on this link: [Link for youtube video](#)

v2.19.0

2022-10-07

Makin would like to inform you about the new release version 2.19.

The new version will be available for group-a during Friday the 23th of September. The remaining Makin' users will receive the new version Friday the 7th of October.

The new version includes toggle between 2D/3D visualization in top view by just pressing the button on the screen, new screen selector that makes switching between views simpler. Read arc in LandXML PlanFeature, read PXY files, Improved DXF text orientation and color, battery indicator for tablet is visible when the tablet is not in the docking station.

Makin' Stakeout will be renamed to Makin' Survey.

The technical password for Makin' 3D will be changed to: tabasco in version 2.19.2

The software 2.19 will include the following updates:

- RMS values for all applications
- Improved handling of DXF files containing paper space
- Toggle between 2D/3D visualization in top view
- Read arc in LandXML PlanFeature
- Read PXY files
- Improved DXF text orientation and color
- Simplified Change application
- Coordinate Systems for Iceland
- New screen selector
- Screen cleanup
- Identify empty files
- Icon for Open project in References
- Show system info (system no, system name, customer name and licenses) in status menu
- Battery indicator for Survey and PerFormans (for tablet)
- Stakeout dialog: More/Less info
- Stakeout lock: Visible lock icon when locked
- Relative unit at 0 deg corrected
- Makin' Stakeout renamed to Makin' Survey
- New Technical password for Makin' 3D will be change in version 2.19.2 to: tabasco

New Makin' 3D User Tips will be available on Youtube at the time of release:

Video about **Easy System Information** can be found on this link: [Link for youtube video](#)

Video about **Improved User Interface** can be found on this link: [Link for youtube video](#)

Subtitles can be sent to dealers for translation upon request. Please contact Karina Lumholt, karina.lumholt@makin3d.com for more information.

v2.18.0

2022-05-06

Improvements

- Allow machine to be transparent or semi transparent

- Better stakeout line visibility
- Boom0 is now called "City Boom"
- Show northing-easting on screen again
- Added coordinate systems for Belgium
- GNSS calibration improvements
- Stake Out line function added for excavators and Performans

Bugfixes

- Fixed minor SNIP issues
- Improve NTRIP client stability
- Store last logline point if new line is selected

New Makin' 3D User Tips will be available on Youtube at the time of release:

Stakeout line: [Link for youtube video](#)

Visibility of machine: [Link for youtube video](#)

v2.17.2

2022-04-12

Improvements

- VR1000: Setup Base ID.

Bugfixes

- Refine ARM/x86 platform detection.
- Do not crash if Android fine position is not allowed.

v2.17.1

2022-04-06

Improvements

- Reset log offset to 0.0 when changing code.

Bugfixes

- General startup stability improvements.
- Fix VR1000 radio setup to setup UHF correctly.

v2.17.0

2022-03-24

Improvements

- Sorting/grouping of as-built.
- Improve support for SNIP NTRIP caster.
- Improve DXF text handling.

Bugfixes

- Allow access VR1000 to web ui from cloud and Makin3D.
- Fix missing project offset on restart.

v2.16.0

2022-02-15

Improvements

- GNSS: New trace heading function.
- Age of correction error after 10 sek without corrections.
- Added use of RMS-values instead of DOP and CQ.
- Added extra attributes to as-built.

v2.15.6

2022-01-17

Bugfixes

- Fix application freeze when dealing with huge circle diameters.

v2.15.5

2022-01-7

Bugfixes

- Fixed project not being saved correctly.

v2.15.4

2022-01-03

Bugfixes

- Deleted local projects now stay deleted after restart.

v2.15.3

2021-12-21

Improvements

- Support listing of mountpoints for all receivers.
- The SNIP NTRIP caster now works.
- Increase project offset limit to +-1 meter.
- Fix audio output using a lot of CPU time.

Bugfixes

- Fix problem with AsteRx-U update from v4.2.2
- Fix potential crash when listen available projects to load.

v2.15.1

2021-12-02

New features

- Users can now lock the current side and height reference using the small padlock.
- GNSS firmware can now be updated by users.
- Zero height files (files with every geometry in H=0.0) now follow map.

Improvements

- Issue an error if corrections are missing more than 10 seconds.
- Avoid VR1000 coasting too long giving a false good quality indication.
- Removed northing and easting from most screens.

Bugfixes

- Improved UTS and single GNSS precision.

v2.14.6

2021-11-18

Bugfixes

- Fix complete lockup of the software when logging points back-to-back.

v2.14.5

2021-11-11

Bugfixes

- Fix logpoints not being shown at all for some users.
- Improve MakinWin on system with AMD graphics chips.
- LandXML: Do not default to black for non-existing color.
- Limit number of decimals for geometry info.

v2.14.4

2021-10-28

Improvements

- Multiple asbuilt improvements.

Bugfixes

- Fix downloading background maps.
- Fix logpoint numbering when logging back-to-back.
- Fix problem when creating profile with identical points.

v2.14.0

2021-10-13

Improvements

- Allow setting bluetooth by the operator.
- GNSS: Seperate default IP-address for each application.
- Septentrio: Support update of both failsafe and main firmware.

Bugfixes

- Bluetooth stability improvmenets.

v2.13.18

2021-10-07

Improvements

- More TPS improvements
- Support sensor firmware recovery in case of failures.

v2.13.17

2021-09-29

Bugfixes

- TPS improvements

v2.13.16

2021-09-27

Bugfixes

- Removed debug menu from technicians

v2.13.15

2021-09-13

Bugfixes

- Fixes that dual boom machines do not load single boom machines.
- Bullseye landscape view now with top view.

v2.13.11

2021-08-16

Bugfixes

- Avoid auto selecting GNSS simulator if license is missing.

v2.13.10

2021-08-11

Improvements

- Pole height max changed from 15m to 500m.
- Make profile be across tool direction in 1D.
- Added new fw for sensors.

Bugfixes

- Small stability fixes.

v2.13.7

2021-07-08

Improvements

- Improve memory profile.

Bugfixes

- Improve handling of malformed KOF-files
- Avoid rare crash during change of screen.
- Avoid crash when exiting GNSS configuration website.
- Fix wrong number of decimals when entering UHF frequency and calibration lengths.

v2.13.6

2021-07-02

Bugfixes

- Minor bugfixes.

v2.13.4

2021-07-01

Improvements

- Disallow float RTK for calculations.

v2.13.3

2021-07-01

Bugfixes

- Minor bugfixes.

v2.13.2

2021-06-22

Improvements

- Automatically load a licensed app.
- Improve sensor performance slightly.

Bugfixes

- Fix GNSS-receiver IP-address input sometimes cutting off part of the text.
- Make +- work when setting vertical offset.
- Fixed a number of stability issues.

v2.13.1

2021-06-14

Improvements

- Updated Norwegian and Dutch translations.

Bugfixes

- Fixed a crash related to rotating the tablet screen.

v2.13.0

2021-06-11

New features

- New project offset function.
- New Lock reference function.
- Free navigation of camera. Inspect anywhere in the terrain.
- Allow user projects to be deleted in the "open project" list.

Improvements

- Added CQ in asbuilt data.
- Always use NEH display format in 3D.
- Do not translate "Language" in the menu.
- Editing points now show correct NEH/XYZ field labels.
- Fixed crazy plane visualization when changing heading +/-180 degrees.

Bugfixes

- Interface box firmware updated with CAN-bus handling improvements.
- Fixed crash after Android permission checks.
- Fixed a number of startup stability issues.
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v2.12.12

2021-06-16

Improvements

- - Sensor calibration improvements.
 - Updated sensor firmware.
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v2.12.11

2021-06-02

Bugfixes

- - Fix CQ sometimes being just 0.0.
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v2.12.10

2021-05-31

Bugfixes

- Fix pointcode history not containing local pointcodes after restart.

v2.12.9

2021-05-20

Bugfixes

- Fix list of coordinatsystems for local projects.
- Fix Trimble UTS support.
- Fix pointcode history not containing local pointcodes after restart.
- Improve handling of userdata sync.
- Improve "Force RTK".
- Avoid constant display of "Loading project...".
- Avoid unintended shutdown during first Makin3D startup.
- Set sound to be off by default.

Improvements

- Display bucket corner heights in current unit.

v2.12.8

2021-04-28

Bugfixes

- Fix error in bullseye visualization.

v2.12.7

2021-04-23

Bugfixes

- Avoid erratic behavior when sensors have very old firmware.

v2.12.6

2021-04-19

Bugfixes

- Multiple stability fixes.
- Make direction indicator follow plane

v2.12.5

2021-04-15

Improvements

- Added disclaimer.
- Added bucket corner visualization.

Bugfixes

- Fixed wrong positioning of maps in some cases.
- DXF: Improve handling of invalid files.

v2.12.0

2021-03-24

Improvements

- Added compass visualization
- Added firmware update AsteRx-U and NR3 from Makin3D.
- Added new calibration for sensors supporting it.
- Added lock reference function.
- Added automatic numbering of logpoints.

v2.11.13

2021-03-17

Bugfixes

- Improve GNSS fix stability.
- Position maps at correct height at startup.
- Restore temporary profile parameters at startup.

v2.11.12

2021-03-03

Bugfixes

- Fix text outlines looking horrible.
- Do additional pointcode charset UTF-8 fixup.

v2.11.11

2021-02-22

Improvements

- Added support for new sensor.
- Technical password has been changed

v2.11.10

2021-01-21

Bugfixes

- Remote support now connects at first connect.
- Avoid crash when rotating tablet during remote support.
- Fixed potential sync up problem.

Improvements

- Monitor GNSS-receiver CPU usage.
- Updated NO and SE translations.

v2.11.9

2021-01-07

Bugfixes

- Added cutting edge visualization on maps.
- Avoid possible crash after editing point.

Improvements

- Display cutting edge on maps.
- Display error if periodic sensors data stalls.

- Use NEH for Sweden.
- Sensor stability improvements.
- Only enable GNSS improvements for AsteRx-U >= 4.6.0.

v2.11.8

2020-12-14

Bugfixes

- Added bugfixes from 2.11.3b.

v2.11.7

2020-12-11

Bugfixes

- Avoid possible slow heading.

v2.11.6

2020-12-10

Bugfixes

- Improve GNSS responsiveness.

v2.11.3b

2020-12-14

Bugfixes

- Bring back beep on yellow and red band.
- Avoid alignment lines being placed in height 0.0
- Do not use height offset for logpoint references.

v2.11.3a

2020-12-09

Bugfixes

- Ensure correct sensors readings during calibration.

v2.11.3

2020-12-07

Bugfixes

- Fixed cutting edge indication in topview.
- Added support for additional sensor version.

Improvements

- Added left- and rear-view to topview screen.

v2.11.2

2020-11-27

Bugfixes

- Fixed GNSS heading issue
- Fixed wrongly sensor initialization notification

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v2.11.1

2020-11-24

Bugfixes

- Added missing "point from tool" button when creating own line.
- Fixed error in display of sensor orientation.

• Improvements

- Improve stability of GNSS remote support - hopefully solving occasional http glitches.

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v2.11.0

2020-11-12

Improvements

- Show basic information when longholding logpoints.
- Store 20 minutes of detailed systemlog.
- Added better support for large file transfers from GNSS receiver
- Support CAT-branded Rototilt
- Report more detailed errors after file sync.
- Check for and enforce logpoint name uniqueness.

• **Bugfixes**

- Avoid crashes during unstable or very slow internet connections.
- Avoid disabling height calculation during project reload if nothing has changed.
- Fix heavy pixelation of map in topview.
- Use TP for line creation as well as points.
- Issue error if a sensor has an unknown orientation.

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v2.10.14

2020-11-05

Improvements

- Support GH88 geoid.

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v2.10.11

2020-11-04

Improvements

- J1939: Added support for CAT branded rototilt.
- Support zeroing plane using external button.

• **Bugfixes**

- Fix problems with minimized reference dialog.

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v2.10.10

2020-10-15

Bugfixes

- J1939: Transmit correct rototil address claim.

v2.10.9

2020-10-1

Bugfixes

- Multiple stability fixes.

v2.10.8

2020-09-29

Bugfixes

- Multiple stability fixes.

v2.10.7

2020-09-24

Bugfixes

- Use plane button as 0.0 again.
- Fixed crash during load of Stavsberg Skole.
- Multiple stability fixes.

v2.10.6

2020-09-23

Bugfixes

- Avoid crash when geometry names are empty.
- Hide menu when zeroing plane.
- Fix camera zoom during antenna calibration.
- Fix polyline sidedistance visualization.

v2.10.5

2020-09-21

Improvements

- J1939: transmit address claim at startup.
- Monitor ethernet communication details.

v2.10.4

2020-09-07

Improvements

- Improve text outline appearance.
- Detect ethernet tx/rx errors.

v2.10.3

2020-08-31

Improvements

- Reference dialog improvements
- Topview added for bullseye screen
- Enhanced Stakeout application loading
- Better cutting edge visibility for top view
- Translations added
- Improved GNSS auto calibration presentation
- **Bugfixes**
 - Fix Trimble UTS
 - Fix freeze when loading models in non-UTF8 format
 - Fix freeze when working in high altitudes

v2.10.1

2020-08-24

Bugfixes

- Fixed lockup-issue with terrain at high altitudes.

v2.10.0

2020-08-21

Improvements

- Added new 1D/2D profile.
- Show tool cuts on maps.
- Allow toggling "dark mode" off.
- Added bullseye for rover.
- LandXML: Alignment colors for Gemini and Trimble added.
- Added transparent surfaces option.
- Improve label display performance.v
- Improve magnetic compass calibration.
- Hide machine in topview.
- Make pointcode history be the last 10 selected codes.
- Display bucket width as a thick line in topview.
- Open project selection during startup if no project has been selected.
- Added SWEREF99 TM coordinate system + geoids SWEN08_RH2000, SWEN08_RH70, SWEN17_RH2000, SWEN17_RH70.
- Added Swedish RT90 coordinate systems.
- We now show pole/bucket size with 2 decimals on the main icon.
- Always show cutlines at the mapheight for better positioning outside model.
- Added "Transparent surfaces" menu./li>
- **Bugfixes**
 - Fixed graphical issues on Mesa2 rover tablet.
 - Fix tool calibration dialog zoom.
 - Bring back display of points on Windows.
 - Bring back maps on Windows.
 - Removed vertical offset when drawing horizontal part of height line.
 - Fix the funny behaving ± button in the point edit dialog.
 - Fix selection being difficult in top-view.

v2.9.9

2020-08-13

Bugfix

- Fix cases of files from the server not being downloaded./li>

v2.9.8

2020-07-06

Bugfix

- Ensure no GNSS is selected for 1D and 2D systems.
- Fixed a number of potential crashes.

v2.9.7

2020-05-25

Bugfix

- Fixed synchronization problems.
- Show coordinates as NEH for Norwegian languages.

v2.9.6

2020-05-11

Bugfix

- Correct S34 coordinate system.

v2.9.5

2020-05-07

Bugfix

- Avoid constant transform errors in some cases after startup.
- Remove track debug output in the logs.

v2.9.4

2020-05-04

Bugfix

- Fixed rendering of points on Windows.

v2.9.3

2020-04-29

Improvements

- Select Meters as default length unit when starting up application for the first time.
- Improved topview.
- Improve error reporting when GNSS position is missing.

Bugfix

- Fix heading of tracks not following machine driving direction.
- Do not report of coordinate system transform problem when disconnecting aux antenna.
- Removed System34 coordinate system height error.

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v2.9.2

2020-04-20

Bugfix

- Fix septentrio GNSS not getting fix after reboot.

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v2.9.1

2020-04-19

Improvements

- Disable SBAS and Standalone GNSS PVT-mode.

- **Bugfix**

- Avoid self-rotation issue with certain sensor firmware versions.
- Disable GNSS height responsiveness improvements because of rare GNSS quality sideeffects.
- Avoid no GNSS position after first startup after v2.9.x update

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v2.9.0

2020-04-16

Improvements

- Support saving and editing own profiles.
- Improve GNSS height responsiveness.
- Improve sensor firmware update procedure.
- Updated sensor firmware for improved performance and stability.
- Store Septentrio IP address per application.
- Dim menu items during GNSS/NTRIP setup.
- Show the age of RTK corrections on the GNSS screen.
- Show bucket width and pole length on tool-icon.

- **Bugfix**

- Filter project not on server more correctly.
- Avoid losing your points and lines because of file synchronization.

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v2.8.11

2020-03-28

Bugfix

- Fixed minor issue with load/store height.
- Fixed minor bug during project load.

- **Improvements**

- Improve firmware loading on some newer Android phones.
- When creating own profile do not ask for line of already selected.

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v2.8.10

2020-03-19

Bugfix

- Improve GNSS initialization stability.

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v2.8.5

2020-03-10

Improvements

- Improved handling of heading from GNSS.

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v2.8.4

2020-03-10

Improvements

- Improved handling of danish national letters.

• Bugfix

- Position maps correctly when offset is not 0.0.
- Make storing own points work for projects containing danish national letters.

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v2.8.3

2020-03-2

Improvements

- New application: Makin Stakeout.
- Improve loading of large projects.
- Improve performance of offset adjustments.
- Support sensor firmware update.
- New bucket geometry.
- Improve sensor connectivity at startup.
- Parameter sequence in tool menu changed.
- Improve GNSS handling when no project is loaded.
- Improved the appearance of the profile dialog.
- Graphical improvements to the reference dialog.
- Show warning to the operator if the system crashes running a large project.
- LandXML: Ignore invisible faces.
- DXF: Ignore AcDbFaceRecord vertex.

• Bugfix

- Make switching between NTRIP and UHF more reliable.
- Fixed error during line creation.
- Fixed the system unable to reload projects ending in ")".
- Fixed a number of potential crashes.
- Fixed a very rare triangle miscalculation.
- Improve sensor readings.
- Fixed rare file sync bug for files of x*1600 bytes
- Fixed screen lockup during sensor attachment.
- Avoid possible crash when adding own pointcodes.

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v2.7.6

2019-11-29

Improvements

- Stakeout application.
- Added 2D top views.
- Allow using built-in GNSS receiver.
- Support some gamepads on Android.
- Only allow minimize of notifications for technicians.
- Added a warning if the project exceeds a certain size.

- Added CQ display for receivers that supports it.
- Send attached sensors and hardware to the server.
- Store plane settings for each project.
- Select all geometry when clicking the column icons in the reference dialog.
- **Bugfix**
 - Improved sensor communication stability.
 - Avoid hiding notifications under menu in horizontal mode.
 - Laser sensor stability improvements.
 - Fix Trimble UTS coordinate ordering.
 - Fix Trimble UTS initial connection not working.
 - Fix reference selection not working.
 - Make MakinWin run on more systems.
 - Improve CANOpen node initialization robustness.
 - Hide NTRIP settings when GNSS disconnected.
 - Keep showing logpoints on windows even though they are not saved.
 - Fix rare case of wrongly calculated sidereference after offset change.

v2.6.2

2019-10-17

Improvements

- Update tolerance translation when changing language.
- Update Norwegian translations.
- DXF: Skip \0 control sequence in texts.

● Bugfixes

- LandXML: Ignore unhandled elements in PlanFeature.
- Avoid bug during parsing of unexpected NMEA messages.
- Reconnect to GNSS after disconnect or connection failure.

v2.6.1

2019-09-19

Improvements

- Support using F1 to F4 as external key.

v2.6.0

2019-08-28

Improvements

- Update text in 3D when editing line name.
- Scroll to point, line and profile after creation.
- Skip showing quickkeys and statusbar when pressing external keyboard.
- Added "time left" indication on notifications.
- Show project logpoints in the reference dialog.
- Improved geometry selection mechanism.cir
- Decreased the text label bounce amount.
- Added +- calculator functionality when editing own points.
- Open new project automatically after creation.
- Added logpoint edit - delta height and name.
- Allow creation of points and lines when things are selected - ask for points if needed.
- Avoid duplicate name when creating line.
- Support coordinate system definition on server.
- Moved laser sensor zero be at the connector end of the sensor.

- Initial support for Hemisphere V102.
- Increase font size of cut slope indications.
- Do a faster recovery of network failures and cable disconnects.
- Improve logpoint auto numbering to include a project machine number.
- Notify the user if the system is in airplane mode.
- **Performance**
 - Sidedistance calculation improvement on long lines.
 - Improve performance of thousands of logpoints.
 - Improve graphics support for certain drivers on Windows.
 - Avoid slow graphics after showing thousands of text labels.
- **Bugfixes**
 - Handle Engcon tilt rotator errors again.
 - Remove weird log point name when no project is selected.
 - myproject: Only test lines for duplicate line name.
 - Remove the stray blue top-left text cursor.
 - Fix bucket name shown as "nan" when no bucket is selected.
 - Fix a bunch of point code related bugs.
 - Make sure that we can delete created profiles.
 - Fix some weird behavior whene deleting own geometry.
 - Fixed a bug where the system would lockup during network disconnect.

v2.5.6

2019-07-11

Bugfixes

- Fallback to dual antenna, if no capability is received
- Avoid eternal timeout when loosing connection to the GNSS receiver.

v2.5.5

2019-07-8

Bugfixes

- Improve laser sensor initialization stability.

v2.5.4

2019-07-5

Bugfixes

- Further fix IB-1 lockup when there is traffic on the either CAN-bus during startup.

v2.5.3

2019-07-4

Bugfixes

- Fix IB-1 lockup when there is traffic on the either CAN-bus during startup.

v2.5.2

2019-07-3

Improvements

- Do not add artificial noise when using the GNSS simulator.
- **Bugfixes**
 - Avoid losing selection when fx. selecting project to open.
 - Fix the light slowdown of the system appearing since 2.4.5.

v2.5.1

2019-07-2

Improvements

- Increase tilt sensor warning delay to 10 seconds.
- Improved circle calculation for tracker.

- **Bugfixes**
 - Don't report "rotate machine" when having a dual antenna GNSS receiver.
 - Fix point logging for experimental application.

v2.5.0

2019-06-24

Improvements

- Disable edit functionality on profiles in the reference dialog.
- Make logpoint notifying remove "unable to log point2 notification.
- Store maps cachefiles in multiple directory levels.
- Update GNSS menu when configuration changes.
- Added coordinate system for Gardermosen.
- Added coordinate system for Lithuania LKS94.
- Show coupler type under coupler name.
- Added bounds for Danish local system so they can not be seen outside DK.
- Show memory usage in technical mode.
- Make point logging in local projects work.
- Added grouping of pointcodes.
- Hide gnss specific menu items if GNSS is not enabled.
- Hide GNSS menu items when not having 3D License.
- Read trimbleCADProperties color.
- Added GNSS Simulator Jog function.
- Add jump to side reference button in GNSS Simulator.
- Added 1mm default noise on the simulator.
- Handle long menu titles and values overlapping.
- Accept 5 satellites as being and ok position.
- Use the overall worst satcount and DOP when assessing GNSS quality.
- Added setting to always show quickkeys.
- Show tilt out-of-range after 3 seconds.

- **Bugfixes**
 - Avoid losing logpoint during offline periods.
 - Make MakinWin work when username contain national characters.
 - Make maps follow to height of the plane.
 - Ensure that profile along line also works when offset != 0.0.
 - Collate the two GNSS positions correctly to avoid antenna differences during rotation.
 - Avoid colored "ghost" profiles laing around after creating profile.
 - Always set Septentrio DifCorrUsage - this makes UHF->NTRIP work again.
 - Fix bucket-select and calibration screen looking weird in landscape.
 - Avoid "Loading project" not going away even if the project has finished loading.
 - Do not allow minimizing line creating notification.
 - Avoid crash when changing screen using VNC.
 - Fix height error when editing points while offset != 0.0.
 - Avoid flickering logpoints at every project reload.

- Fix unknown coordinate system error during startup.

v2.4.5

2019-05-22

Improvements

- Handling of very curved roads.
- Improved handling of LandXML exported from Gemini.
- General stability improvements.

Bugfixes

- Improved clothoid calculation.
- Fix crash when displaying logged points on ARM phones.

v2.4.4

2019-03-29

Improvements

- Centerline color added.
- Warning if centerline tangent cannot be calculated.

Bugfixes

- Improved clothoid calculation.
- Fix handling of multiple centerlines.

v2.4.3

2019-03-25

Bugfixes

- Fix missing file sync if no project is loaded.
- Fix GNSS antenna calibration bug.
- Avoid crashing when selecting files/folders containing errors.

v2.4.2

2019-03-18

Bugfixes

- Fix application freeze during remote support.
- Fix deletion of pointcodes.

v2.4.1

2019-03-11

Improvements

- Norwegian and Danish translation.

Bugfixes

- Fixed filter in single project download.

v2.4.0

2019-02-25

Improvements

- Support for single project download.

- **Bugfixes**

- Fixed some crashes in the map handling.
- Fixed some memory leaks/errors.

-

v2.3.5

2019-02-22

Improvements

- Further improve communication stability.
- Allow calculations without GNSS.

-

v2.3.4

2019-02-19

Improvements

- Improve communication stability.

-

v2.3.3

2019-02-14

Bugfixes

- Fix some memory leaks.

-

v2.3.2

2019-01-28

Bugfixes

- Fix crash related to empty geometries.

-

v2.3.1

2019-01-24

Bugfixes

- Avoid collapsing reference tree when project changes.

-

v2.3.0

2019-01-14

New features

- Labels in 3D.

- **Improvements**

- LandXML handling improvements.
- Show file issues in the reference dialog.
- Faster DXF loading.
- Make geometry semi-transparent when the 3D-view comes close.

- **Bugfixes**
 - Fixed issue where height/side/warning is not loaded correctly.
 - Fixed wrong calculation of total points/lines/surfaces in some projects.
 - Fix dimming of label when selecting geometry.
 - Fixed crash after many screen changes.

v2.2.3

2018-12-11

Improvements

- Always accept coordinatesystems without predefined bounds.
- Avoid "calculation unavailable" popping up sometimes.

- **Bugfixes**
 - Fixed "profile from line" not removing geometry correctly.
 - Fix error and warning not being sent when reconnecting to server.
 - Make licensing work on some ARM-devices.

v2.2.2

2018-11-29

Improvements

- Shrink 3D text a bit.
- Show which files is currently being processed.
- Added hiding 3D texts in references.

- **Bugfixes**
 - Fix handling of DXF arcs and circles.
 - Strip DXF text control characters.
 - Fix issues where 3D selection could differ from reference dialog selection.

v2.2.1

2018-11-22

Bugfixes

- Fix crash when creating line.

v2.2.0

2018-11-20

Improvements

- Improve performance of selection of terrain.
- Handle LandXML with newlines in coordinates.
- Allow users to switch between NTRIP and UHF.
- Progressbar when loading projects.
- Avoid regular jumps in the graphics for large projects.
- Improved point visualization.
- Support setting UHF-settings.
- Reference selection improvements.
- Show same sign for roadslope on both side of the road.

- **Bugfixes**
 - Fix some plane related crashes
 - Do not disable calculations if tilt rotator is disconnected and unused.

