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# MicroSurvey CAD 2021

## Release Notes

*MicroSurvey CAD 2021 Service Pack 2 (v21.2.9) – July 7, 2021*

*MicroSurvey CAD 2021 Service Pack 1 (v21.1.1) – February 17, 2021*

*MicroSurvey CAD 2021 Hotfix (v21.0.13) – December 22, 2020*

*MicroSurvey CAD 2021 (v21.0.9) – November 10, 2020*

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# MicroSurvey CAD 2021

MicroSurvey brings intuitive calculation tools for land surveyors to popular drafting platforms, including IntelliCAD and AutoCAD. MicroSurvey CAD 2021 runs on the all-new IntelliCAD 10.0 engine, which provides impressive improvements to graphics, adds dynamic input, and improves selection cycling.

## What's New in Version 21.2.9

### What's New

- We added floating licenses so you can run the program without a USB key.
- A new start page brings a fresh new vibe to the program. Try using it instead of the project manager!
- Attribute filtering has been added directly to the drawing window. Now you can control the visibility of GIS features based on their attributes.
- Set up an all new attribute label set to add custom labels to smart points with GIS attributes.
- We've optimized existing GIS functions so they run faster!

### Bug Fixes

- AUTOMAP\_EDITOR – Previews of AutoMap entries were not shown when clicked.
- ACTIVE COORDINATE EDITOR – Deleting points, then closing the ACE while point protection was active would crash the program.
- SVOL – Surface volumes were reported incorrectly at high coordinate values.
- ISLOPE – Intersecting a slope from an object to a surface at high coordinate values would not work properly.
- ARC LABELS – Arc labels were incorrect when the arc was trimmed by an AutoMap symbol.
- AUTOMAP – Polyline width was not retained properly.

## What's New in Version 21.1.1

### What's New

- We updated to IntelliCAD 10.0a to take care of some issues found in the 10.0 release. See the [IntelliCAD 10.0a](#) section for full details.
- You can now use Ctrl+Shift+H to toggle your tool palettes and ribbon on/off.
- Ctrl+Pg Up/Pg Dn will now switch between layout tabs. This is great if you have many layouts.
- Strikethrough, superscript, and subscript formatting has been added.
- You can now set tabs, indents, and paragraph and line spacing.
- Dynamic spell checking is now available. It fixes your spelling.
- A new licensing dialog has been added. It looks great, you should check it out.
- On-curve labels are now drawn right-side-up (plan readable).
- On-curve labels now use the distance offset value for their own offset placement.
- On-curve labels now use the single-line text editor when grips are off.
- We have added new coordinate systems, including SAPOS-DHDN zones, Netherlands RDNAP 2018, and zones in Beijing, Austria, and Cyprus.

### Bug Fixes

- GISEXPORT - A handled exception would be thrown if you tried to export a selection containing a block.
- LEAST\_SQUARE - Would not apply adjustment results to all files if using multiple traverse files.
- BIMATTACH - Importing a BIM file would cause a crash.
- COLLADA\_IN - Attempting to import a collada file would fail.
- AUTOADD DATABASE - With AutoAdd Database OFF, labeling a polyline containing an arc would add an label to the nonexistent chord of the arc.
- 2D\_3D - Using this function with a 2D polyline and 3D points could move the points rather than the polyline.
- ASCII\_IN - Importing a file with a BOM encoding would store the first point ID as the BOM characters.
- LABELING - Using labels on lines and polylines at the same time would appear to remove newly created points from the database.
- MAKEALIGN - Adding curves over 180 degrees would add the wrong side of the curve to the alignment.
- 3DPOLY\_TO\_3DCURVE - The red guidance line wouldn't disappear when the command was complete.
- REMOVE\_LINE\_CURVE\_FROM\_DBASE - Bearing and distance labels would also be removed.
- COGO - Using a point.point distance when there is a "g" at the end of the point number could cause the wrong point to be used.

## What's New in Version 21.0.13

### Bug Fixes

- INSTALLER – Sometimes we would ask you for admin privileges on your computer, even though you already had them, and then we wouldn't allow you to install our program.
- GISEXPORT – Coordinate systems were always exported as metric, regardless of project settings
- CIRCLE – Using an "s" suffix to scale circle dimensions didn't work
- EDITALIGN – Editing an alignment curve caused a crash. Now it doesn't.
- LOT CLOSURE – Closures with multiples of 13 sides had weird characters showing up on the dialog and weren't editable.
- PROCESS FIGURE – Wasn't working at all. Now it does.
- ATTACH\_IMAGERY – If you entered an address or latitude/longitude to download an image, we placed it at 0,0 instead of the correct location. Now it's put in the right spot.
- SHIFTP – If you tried to shift points connected to a database-linked arc, we would duplicate the arc.
- LOT CLOSURE – Curve radius and chord length were not selectable from distance labels.
- CAD POLYLINES – Misclosure details weren't computed for non-database polylines. Now your polylines can just be polylines.
- CAD POLYLINES – Vertex information was incorrect for splined polylines.
- AUTOP – Adding points to a 3D line would set the resulting line as 2D in the database
- MAPPING\_GRID – Picking a very large area to draw a grid can cause a crash or lockup. You can still pick it, we just warn you first now.
- LL\_TRANSFORM\_COORDINATES – Wrong error message if you were missing a grid shift file
- DO\_PROPORTION – If you tried to proportion with no points selected, the program would crash
- GOOGLE EARTH – Couldn't export a Google Earth file when using point blocks
- EDITPG – Editing a locked point's coordinates was still possible using EDITPG to change the latitude or longitude
- ACTIVE COORDINATE EDITOR – If you had points named using dashes, commas, or double-dots, shifting points would treat point numbers as ranges, leading to some strange results.
- SYSTEM TOGGLES – Clearing the log file would do nothing. Now it clears the log file.
- RENUMP – Pressing Esc during the renumbering would cancel the process, leaving partial results
- FIELDGENIUS ATTRIBUTES – Viewing other attributes in the attribute viewer would clear the stored attributes
- FASTAREA – Using FASTAREA would change the current text style
- GISEXPORT – Point blocks were not included in export
- RE-COORDINATE TRAVERSE – Pressing Esc during re-coordination cancels the process midway, leaving partial results. Same as RENUMP bug above; *much* worse effects.
- CAD POLYLINES – Misclosure details were not shown for splined polylines
- FILEDIA – System variable was turned off after using the project manager to create a new project from within a drawing.
- ARC LABEL – On-curve labels were placed in wrong location when the Autoadd Database checkbox was off
- TOOL PALETTES – An incorrect path in support files was causing tool palettes to be duplicated
- START PAGE – We were switching to the legacy workspace on the start page
- COORDINATE SYSTEMS – Netherlands RDNAP2008 coordinate system caused database issues
- XYZ CODING – Breaking a Z-Coded 2D line caused a handled exception
- JOB DEFAULTS – Changing options after opening a drawing wouldn't prompt for save on exit
- ASCII IMPORT – The 2D point node system toggle was not honored from ASCII import
- CALC\_CLOSURE – A bunch of Z letters were displayed in IPNs when computing closures
- HELP – IntelliCAD help was not working
- MSRENDER – The MSRENDER command would write an X99.dat settings file in the wrong location
- GISEXPORT – We would display messages about a failure to write a projection file when no coordinate system was set, even though the checkbox was disabled
- CWELEVATIONVIEW and CWPLANVIEW – Picking a new point cloud view would not change the view, only the UCS

## What's New in Version 21.0.9

### What's New

- We updated to IntelliCAD 10.0 to add great new functionality and performance enhancements. See the [IntelliCAD 10.0](#) section for full details.
- A new "Advanced" graphics mode (OPENGL ES 2) has been added to IntelliCAD 10.0. This provides better support for graphics cards, visual styles, transparencies, and more.
- New visual styles have been added, including Shaded, Sketchy, X-ray, and more.
- New materials and a materials explorer have been added, and compatibilities with object types have been improved.
- New pasting options are available, and you can keep or remove formatting when pasting.
- Bring your customizations forward into new versions of the program with the all-new MIGRATE function.
- Roof and Beam objects have been added, and you can now use BIM Explode to retain attributes when exploding BIM objects.
- New options for section lines and elevation lines are available.
- Export CAD, GIS, DBX, and FieldGenius objects and their attributes to shapefile format using the new GISEXPORT command.
- Quickly export points and any associated GIS, DBX, or FieldGenius attributes to a .csv file for easy sorting and review with the new ATTR\_TABLE command.
- Import a .las, .ptx, or .e57 format file with a single click using two new simple point cloud import functions; CWIMPORTPC\_LGS and CWIMPORTPC\_JS. A valid license of Leica Cyclone Publisher or Publisher Pro is required. Files will be converted to .lgs format when imported.
- Import Civil 3D COGO points as MicroSurvey points using the AUTOP command.

### Bug Fixes

- SCALEVAL – The custom scale factor was ignoring decimal values and rounding the scale to the nearest whole number.
- COGO – Computing a curve using a point number with 10 or more digits would cause a crash.
- FG\_MAKE\_PROJ – If a selection to export to FieldGenius contained an arc text label, the DXF export would fail.
- FIELDGENIUS – The icon for FieldGenius attributes was not being displayed in the Active Coordinate Editor, so you didn't know if points had attributes.
- MSCOPY – The block inserted into the second drawing was not being automatically exploded on insertion. If you tried this twice in a row, the first dataset was deleted.
- MSALIGN – The block inserted into the second drawing was not being automatically exploded on insertion. Same thing as the MSCOPY issue above.
- LICENSING DIALOG – The Activate License button has been de-emphasized and a request trial button has been added. It was way too tempting to click on the activate button again, and we needed a way to let you request a demo.
- NEWS FEED – The default IntelliCAD news feed has been removed from the Start Page.
- ATTRIBUTES VIEWER – The attributes viewer window is now resizable and contains scroll bars. In the past, if your attributes were too long, or if you had too many, you couldn't read them.
- SOUTH AZIMUTH – South Azimuth entry in the lot closure function would treat entries as North Azimuth.

## Important Notes

### Activating or Updating your USB License Key

- Software licenses are stored on the USB key. These must be activated after a new purchase, and usually require manual updates when new versions of MicroSurvey CAD are released.
- The process is the same for both; [click here](#) for detailed instructions.
- The USB License Manager program is automatically installed with MicroSurvey CAD; it can be found in the MicroSurvey CAD folder in your start menu. Open it with your USB key inserted and click the “Update Key with New Information” button.
- You must have an internet connection to use the USB License Manager. You may [download](#) the program and install it on another computer to update keys when corporate policy and firewalls prevent access from your work network.

### Annual Maintenance Subscription (AMS) Program

- If your AMS has expired, you may not be able to update your key to the current version of MicroSurvey CAD.
- For a detailed explanation of the AMS program and how we use product numbers and USB keys to license our software, please review the following [article](#).
- Each key has a different AMS plan, so multiple keys may not have the same expiry date.
- You can confirm your AMS expiry date by reviewing the About screen found in the Help menu.

**If your AMS has expired, you can phone us at 1-800-668-3312 or 1-250-707-0000 to renew it. Without a current maintenance subscription plan, you may not be able to update your key to work with the new version.**

### MicroSurvey Transfer Program for FieldGenius Users

- MicroSurvey Transfer can be [downloaded](#) to simplify the transfer of FieldGenius projects from your data collector to MicroSurvey CAD.
- This program has not changed since 2013; previous versions must be updated for newer versions of MicroSurvey CAD.
- Microsoft Windows Mobile Device Center is required to install MicroSurvey Transfer. It may be downloaded [here](#).

### MicroSurvey License Server for Network License Users

- If you have purchased a network license, you must [download](#) and install a copy of the MicroSurvey Network License software on your intended license server computer.
- A password is required to install the License Server.

### System Requirements

- MicroSurvey CAD 2021 is compatible with 64-bit versions of Windows 8.1 and Windows 10. It is not compatible with any 32-bit operating system. [Additional details](#).
- A free USB port is required for the USB License Key (local workstation or network server)
- Full administrator rights are required to install MicroSurvey CAD 2021, but it can be run by limited user accounts
- For detailed system requirements and recommendations, please review [this online article](#).

## Software Requirements

- MicroSurvey CAD Ultimate and Studio require Leica Cyclone Viewer ([free download](#)) at a minimum to work with point clouds. MicroSurvey CAD will be fully functional with an unlicensed version.
- Licenses of Leica Cyclone Publisher, Publisher Pro, or Leica Jetstream may be used to access additional functionality.
- Leica CLM (client license manager) is required to license Leica Cyclone or Jetstream.
- Please visit [leica-geosystems.com](http://leica-geosystems.com) to download any additional Leica products listed above. A registered account is required.

## Run as Administrator

- You **must** run the program at least once elevated with "Run as administrator" access
- Clicking "Run" from the installation package does this automatically
- If this step is skipped, you may run as administrator by doing the following:
  1. Right click on the MicroSurvey CAD 2021 icon.
  2. Choose "Run as administrator".
  3. Select "Yes" on the "User Account Control" dialog when prompted to allow the program to make changes to your computer.
- After this step is complete, you may run the program from any user account on the computer, even if they do not have administrative privileges.

## Online Resources

- [Online release notes](#)
- [Known issues](#)
- [Tutorials](#)
- [Online training courses](#)
- [Technical support](#) (1-800-668-3312; free with valid [AMS](#))
- [Helpdesk website](#)
- [Feature request forum](#)
- [Online store](#)



## What's New in IntelliCAD 10.0a

### What's New

#### User Interface

- Use the SHOWPALETTES command to display all hidden palettes, the ribbon, the quick access toolbar, and drawing tabs. Use the HIDEPALETTES command to hide all visible palettes, the ribbon, the quick access toolbar, and drawing tabs. Press Ctrl+Shift+H to toggle between these commands.
- Switch between model and layout tabs using the CTABNEXT and CTABPREV commands or by pressing Ctrl+Page Up and Ctrl+Page Down.
- Tooltips in the status bar now display the names of related system variables.

#### Editing and selecting entities

- Moving entities by dragging the mouse can be turned off using the DRAGMOVE system variable.

#### Multiline text

- Format text with strikethrough, superscript, and subscript.
- Multiline text is automatically checked for spelling while typing.
- Set paragraph formatting, including tabs, indents, paragraph spacing, and line spacing.

#### Printing

- Choose the color of print stamps.
- Determine whether print stamps print upside down.

## Bug Fixes

### Performance

- Improved performance when regenerating multilines and splines.
- Increased performance when creating lines.
- Increased performance when creating text.

### Working with files

- Importing .obj files fixed to include materials.
- Fixed scaling issue when drawing railings after changing drawing units.

### Editing and selecting entities

- Fixed issue when trimming infinite lines.
- Fixed several issues with grip editing.
- Fixed several issues with offsetting and filleting entities.
- Fixed several issues with dynamic input.
- Fixed issue when changing the draw order and using selection cycling.

### Text

- Fixed issue when creating single-line text vertically using fonts with a name beginning with @.
- Fixed recalculation when changing multiline text height.

### Blocks

- Fixed issue with grips of dynamic blocks.
- Fixed scaling issue of specific blocks with attributes.

### More fixes

- Fixed issue when un-closing a filled spline.
- Fixed closest point when a curve intersects a circle curve or another curve is inside of a circle.
- The Elevation property for splines now correctly displays the elevation of the first fit point.
- Fixed issue when the -PUBLISH command was not using the PDF or DWF mode specified in .dsd file.
- The output file is improved that results when exporting system variables from the System Variables Manager.
- Fixed the value of the LastSavedBy field.

## What's New in IntelliCAD 10.0

### What's New

#### Performance

- Switch easily between graphics devices, including OpenGL ES, to improve quality and display performance. Click Switch Graphics Device on the status bar, or right-click and choose Settings for more options.
- A new high-performance progress indicator displays for complex tasks that may take extra time to complete.

#### Working with files

- Import Wavefront Technologies Object (.obj) files and Stereolithography (.stl) files.
- Export Stereolithography (.stl) files.
- Exporting to PDF now uses the PDFium library.

#### BIM Files

- Draw roofs and beams.
- Create mitered joints for beams.
- Use the BIM Explode command to explode attached BIM underlays into polyface meshes and polylines that can be edited.
- New options for section lines and elevation lines.

#### User interface

- Migrate user interface customizations from previous versions of IntelliCAD to the current version using the MIGRATE command.
- Import and export .cui files directly using the new CUIIMPORT and CUIEXPORT commands.
- Open a tool palette directly using the TPNAVIGATE command.
- Determine whether the mouse wheel can be used to scroll ribbon tabs.
- Use the CLEANSCREENOPTIONS command to determine which user interface items are hidden when using CLEANSCREENON.
- Clickable keywords are now available for all command prompts. They allow you to quickly select options when you run a command.
- Status bar icons are redesigned, including a 50% increase in size.
- Enhancements for Section 508 usability and also 4K and larger displays.

### Drawing, Selecting, and Modifying Entities

- Dynamic input includes command prompts and measurement guides that display on the screen as you draw and edit drawings. Dynamic input is turned on by default.
- To change the settings, use Toggle Dynamic Input On/Off in the status bar.
- The Properties pane supports display and selection for many new properties of various entity types. You can also view properties of custom objects.

### Multiline text

- Combine multiple paragraphs of multiline text into a single paragraph.
- Clear formatting from characters and paragraphs.
- Paste text without formatting.

### Viewing drawings

- The redesigned View Manager has many more options, including the ability to dynamically set a view's background, perspective, lens length, clipping, and more.
- View drawings using additional visual styles, including Shaded, Sketchy, X-ray, and more.
- Include background images.
- Display materials and lights.
- Improved transparency quality.

### Explorer

- Use the new Explore Materials command to import materials that can be assigned to entities and layers and viewed in the drawing with the Realistic visual style.
- Re-order layer filters by dragging and dropping them in the list, or sort them alphabetically.
- Assign materials by layer in Explore Layers.

### Printing and publishing

- Customize .pc3 files with many more options, including margins and .pmp files. Click Properties for a .pc3 file in the Print dialog box.
- Select a layer state for each sheet when publishing drawings.

### APIs

- ODA SDKs version 2020 Update 2.
- .NET PaletteSet API.
- IRX API: AcUI\* controls.

### More features

- More colors are available in the color book sample.
- Export a layout to model space of a new drawing using the Export Layout command.
- Import and export system variable settings using the new SVIMPORT and SVEXPORT commands.
- The Purge command supports materials.
- The eTransmit command can include background images and material bitmaps.

### New and changed system variables

- New system variables: BIMUNITS, BLOCKEDITNAME, DEFAULTLIGHTINGINTENSITY, DGNWORKSPACE, DWGWORKSPACE, DYNDIGRIP, DYNDIVIS, DYNMODE, DYNPICOORDS, DYNPIDISPMODEBOX, DYNPIFORMAT, DYNPIVIS, DYNPROMPT, DYNSHOWDEFAULT, DYNTOOLTIPCOLORLAYOUTBKG, DYNTOOLTIPCOLORLAYOUTTEXT, DYNTOOLTIPCOLORMODEL BKG, DYNTOOLTIPCOLORMODELTEXT, DYNUSEANGBASE, EMPTYWORKSPACE, EXPLSTMAT, GRDRAWPACKAGESIZE, GSMSAA, GSUSEDDEVICEMODE, LENGTHENOLDCOMPAT, LINESMOOTHING, MATERIALLIBPATH, PRESERVEDOCUMENTWORKSPACE, PSPACEBKGCOLOR, RIBBONMOUSEWHEEL, SELECTIONCYCLING, SELECTIONCYCLINGMODE, VSBACKGROUNDS, VSEGEJITTER, VSEGES, VSEGESMOOTH, VSFACEDHIGHLIGHT, VSFACEDOPACITY, VSFACEDSTYLE, VSHALOGAP, VSISOONTOP, VSMATERIALMODE, VSSILHEDGES, VSSILHWIDTH.
- SHOWTABS renamed to LAYOUTAB.
- WNDLSTAT renamed to STATUSBAR.

### Bug Fixes

#### Performance

- Array command is two times faster.
- Freezing and thawing layers in viewports is 15 times faster.
- Using the layers list in Layer Explorer is 8 times faster for drawings with long lists of layers.
- GRDRAW display performance is 2 times faster.
- Additional improved performance for selection preview, explore blocks, offset, overkill, snapping in large drawings, boundary hatches with island detection.

#### Working with files

- Fixed issues with automatic saving of drawings.
- Fixed issue with specific drawings exporting to 3D PDF.
- Fixed display of .rcp files for point cloud underlays.
- Fixed specific issues with the content of exported .dwf files.
- Improved error prompts when a BIM file cannot be attached or imported.
- Fixed imported geometry for IFC format files converted from Autodesk® Revit® 2019.
- Several fixes for using the BIM Properties pane.
- Fixed snapping to large underlays.
- Fixed DIMDIAMETER and DIMRADIUS for wall arc segments.
- Fixed display of AEC entities in certain scenarios.

#### Editing and selecting entities

- Many improvements to editing with grips.
- Several fixes for selection cycling and entity snapping.
- Several improvements for the Selection Filter pane.
- Fixed several issues for the OFFSET, EXTEND, FILLET, CHAMFER, and TRIM commands.
- Fixed issue when scaling by point.
- Fixed error when working with a specific sequence of copying and then zooming in and out.
- Many improvements to the Properties pane.

### Text

- Several fixes for multiline text formatting.
- Fixed issue with the multiline text window display.
- Fixed bold and italic text pasted from .rtf files.
- Several fixes for the ruler in the multiline text editor.
- Fixed formatting of SHX text in non-English languages.
- Fixed error when handling text assigned a font that isn't found.
- Several fixes for stacked text.

### Blocks and external references

- Fixed issue with PASTEBLOCK after hatching.
- Fixed reloading external reference when saving and printing.
- Fixed ability to edit blocks created from 3D solids.
- Fixed block position when it is created at an offset distance of the UCS origin.

### Printing

- Fixed issue when printing did not use the correct paper size.
- Fixed specific issue for printing with transparency.
- Fixed drawing orientation when using XGA size type with .pc3 files.
- Fixed printing of entities that are assigned different linetypes.

### APIs

- SDS: Fixes for sds\_cbentdel, sds\_cbentmake, sds\_cbentmod, and sds\_ssgetwithprompt.
- LISP: Fixed error in the lsp\_ssname() function, (getpoint), (gread), and (vl-registry-write).
- VBA: Fixed issue with AddEllipse method.

### More fixes

- Fixed several issues with the block editor.
- Several improvements made to working with fields.
- Many improvements and fixes for the Customize User Interface dialog box.
- Several user interface improvements for IntelliCAD Converter.
- Fixed display and creation of hatches and hatch boundaries in specific scenarios.
- Several fixes for publishing drawings.
- Several fixes for dimensions.
- Several fixes for multileaders.
- Fixed issues with the HPTRANSPARENCY and CETRANSPARENCY system variables.
- Fixed specific issues for working with facet meshes.
- Fixed panning inside a locked viewport.
- Several fixes for working with raster images.
- Fixed camera height issue for cameras.
- Many fixes for command prompts of various commands.
- Several fixes for the OVERKILL command.