

Improvements for Carlson Office 2014

Highlights

- **New Modules** – New GeoTech, CAD Net and Trenching modules separated out from Takeoff.
- **Geodetic Mapping** – Support for geodetic angles, distances and areas in core survey commands.
- **Annotative Text** – Added support for creating annotative text.
- **Road Network** – Support for rounded template polylines and medians that cross centerline.
- **Surface 3D Flyover** – Runs separately from CAD for dual CAD/3D Viewer display and integrated functions.
- **Progress Cross Sections** – Report quantities at different stages in road project.
- **Split Seam Reporting** – Automatically combines quantities to parent seam in areas children seams are missing.
- **Underground Solids** – New set of commands for underground cavities to model, draw, label and get quantities.
- **Point Clouds** – New best-fit plane and trace polyline by color/intensity commands.
- **IntelliCAD 7.2** – Improved performance and stability.

General

- **AutoCAD 2014** – Added support for this new version.
- **IntelliCAD 7.2** – Improved performance and stability.
- **Symbol Library** – Added 18 new 3D symbols, 130 new points symbols and 5 new north arrows.
- **Toolbars** – Added 38 new toolbar icons.
- **Linetypes** – Added 16 new linetypes.
- **Hatches** – Added 7 new hatches.
- **Unlock Attributes** – New command to unlock block attributes.
- **Drawing Cleanup** – Added method to set negative thickness for polylines to zero.
- **Median Offset** – New command to create median polyline between two existing polylines.
- **Merge Closed Polyines** – New command to select closed polylines and enter a min area and then automatically merge too small polylines.
- **Join Nearest** – Added option to elevate zero linework to matching linework at elevation.
- **Annotative Text** – Added support for creating annotative text.
- **Text Styles** – In Drawing Setup , added method to create text styles for various sizes for current drawing scale.
- **Convert Text To MText** – New command to create MText from selected Text entities.
- **Text Capitalization** – New command to set capitalization of selected text.
- **Text On Polyline** – New command to create text that follows a polyline.
- **Text Unmask** – New command to remove text masks from selected text entities.
- **Curve - Arrow** – Added option for draw text and put all options into a dialog.
- **Leader with Text** – Added option to store and recall text for the labels.
- **Layer Turn Off By Pick** – New command to turn layer off by picking an entity on that layer.
- **Layer Turn Off By Selection** – New command to turn layers off by selecting entities on the layers.
- **Turn On Layers** – New command to turn on layers that were turned off by the layer off commands.
- **Freeze Layer By Name** – New command to enter layer name to freeze.
- **Thaw Layer By Name** – New command to enter layer name to thaw.
- **Isolate Layer By Name** – New command to enter layer names to isolate.
- **3D Viewer Window** – Created faster dynamic zoom, pan and rotate for large models. View rotation works from current view center instead of overall model center. Added functions to save and load the model to a .3dx file. Added model view tree for setting properties of objects and turning layers on/off. Added transparent shading mode for surfaces.
- **Twist Screen Restore Due North** – Added option to choose between geodetic or grid north.
- **Align Paper Space with Model Space** – New command to pan the view to match a pair of points between paper and model space.
- **Section Line** – New command to draw section line with labels in plan view.
- **Arc By Tangent/PC/PT** – New command to draw an arc defined by tangent-in, PC point and PT point.
- **Curve Info** – Added tangent-in and tangent-out to the report.
- **Export Google Earth** – Added option to easily create URL to KML results for sharing results with others. When exporting linework, special data attached to linework such as volumes attached to perimeter polylines become tags for display in Google Earth. Added support for text, image and solid entities. Added settings for transparency of data when shown in Google Earth.

Survey Commands

- **Data Collection SurvCE** – Added method to transfer using external drive and method to transfer by copying files to a folder. Added support for .STK files.
- **Draw Locate Points** – Added Match Properties function to pick existing point to set current point style.
- **Edit Process Raw Data** – Added support for entering and reporting angles with decimal seconds. Added option for reporting raw data to use the report formatter.
- **Edit Process Level Data** – Added option to use the report formatter for reports. Added imports for Topcon and old Carlson LEV formats.
- **Field-To-Finish** – Added new pipe special coding to create pipe polylines with assigned width with option to draw 3D pipes. Added height parameter and option to use point number for tree id for the tree special coding. Added method to make two and three point curves tangent by adjusted the PC/PT points as needed within a given tolerance. New special code ZO for points to be used for elevation only when creating linework. New special code PHOTO for specifying image to attach to the point symbol. Added method to automatically stop linework when there is a gap in the point numbers for the linework code.
- **Cut Sheet** – Added method to filter the spreadsheet by point# or description. Added function to label in drawing with full control of fields (cut/fill, station/offset, point#, elevations and description). Added report style with design and survey data on separate lines and added option for summary statistics in the report. Added method to pair survey and design point numbers manually.
- **Lock Points** – New set of commands to lock selected points in the coordinate database to prevent modifications.
- **Coordinate Transformation** – Added method to grid to grid transformations between user-defined projections.
- **Freeze/Thaw Point Attributes** – New commands to freeze or thaw all the point attributes in the drawing.
- **Create Points From Entities** – Added method to number points from left to right or top to bottom.
- **Building Offset Extensions** – Added options for perpendicular and for second offsets.
- **Point Group Manager** – Points specified by number now retain user-specified order. New editor with method to flag radius points. Added import groups from another coordinate file or C&G points list PTS file.
- **Compare Points** – Added method to create point groups for point matching status.
- **Twist Point Attributes** – Added option to twist specific attributes instead of whole point. Added option to set perpendicular when using line for angle reference.
- **Mask Point Attributes** – New command create wipeout behind selected point attributes to hide other entities.
- **Edit Multiple Point Attributes** – Added save/load settings to file for managing different point styles.
- **Calculate Offsets** – Added prefix/suffix label settings.
- **Legal Description** – Added method to use point group for input
- **Enter Deed Description** – Added option to apply a rotation to the entered angles. Added option to use curve calculator to enter curves.
- **Irregular Boundary Adjustment** – New command to adjust angle/distance courses between two control points.
- **Polyline Compass Adjustment** – New command to adjust misclosure at end of polyline by compass rule.
- **Bearing-Distance Intersect** – Added support for geodetic angles and distances.
- **Distance-Distance Intersect** – Added support for geodetic distances.
- **Perpendicular Intersect** – New command to find intersection perpendicular from a point to another point and angle.
- **Tangent Intersect** - New command to find tangential intersection from a point to another point and distance.
- **Best Fit Line** – Added method to process points for two parallel lines and create two parallel lines.
- **Best Fit Centerline** – Added option to create only tangents to PIs.
- **Inverse** – Added option to report geodetic distances.
- **Geodetic Traverse** – New command to traverse by entering geodetic bearings and distances.
- **Double Proportion** – New command for geodetic double proportion computation.
- **Area Labels** – Added fields for geodetic areas and area centroid northing and easting.
- **Inverse With Area** – Added methods to use linework or point group for input. New option to report closure by angle/distance precision. Added option to adjust perimeter by compass rule with option to draw adjusted polyline.
- **Polyline To Special Line** – Added controls for spacing gaps and sizing labels.
- **Annotate Distances** – Added option to label distances in chains and option to label geodetic distances.
- **Auto Annotate** – Added method to use point group for input.
- **Create Point Table** – Added settings for the header and footer for the table. Added setting for the max number of rows before splitting to a new table. Added option to create table with coordinates in degrees, minutes, seconds format.
- **Label Lat/Lon** – Added option to label using an attribute block and added option for elevation.

Civil Commands

- **Draw Profile** – Added a method to draw sheets in model space and create layouts in paperspace with viewports for the profiles in model space. For redrawing updated profiles, program now only redraws the updated profile instead of the entire profile sheet. Added new controls for text layers and styles for many types of labels such as pipe labels. Horizontal Label Box now shifts labels or skip within a tolerance to avoid overlaps, has new fields for combined cut/fill, descriptions and MXS stations, new options to use road high/low stations or centerline special stations for labels, and new controls for which profiles to use for break point stations and which fields to have vertical lines. For road labels, added option to label PVI next to the PVI and option for slope arrow along the profile line. Added option to prefix all layers with name of first profile. Added option to draw matchline elevation. For PVI labels on reverse vertical curves, added label controls for combined PVC/PVT station. For break point leaders, added option to label centerline special stations and added method to position labels on row offset from grid bottom. Added option for station grid added to start and end of profile. For sewer profiles, added option to draw short pipes at the start and end. For sewer labels, added method for vertical line with fixed height and added option to label invert-in separately at bottom of manhole. Added option to hatch cut/fill areas between two profiles.
- **Design Template** – Added setting for vertical offset of profile to handle elevated center of profile for medians. Added method to create template by selecting a polyline.
- **Template Grade Table** – Added support for controlling cut/fill slopes.
- **Road Network** – New user-interface with tree view of road elements for compact project view and right-click functions. Added support for following template point centerlines with arcs including handling cases that cross the centerline. Added method to draw 2D linework. Added support for intersections with a zero radius.
- **Locate Template Points** – Added option for creating points at special stations.
- **Vehicle Path Tracking** – Added method to place vehicle along path at picked station with real-time preview.
- **Draw Single Manhole** – Upgraded to support all the manhole dimensions and label settings
- **Input Edit Sewer Profile** – New command for editing sewer structures and pipes in a spreadsheet.
- **Draw Spot Elevations** – Added options to prompt for description and to apply a text mask.
- **Input Edit Section File** – Added method to graphically edit offset points.
- **Extend Progress Sections** – New command to extend sections that partially cover design sections to reach the full extent of the design.
- **Section Area Report** – New command to report surface area from the cross sections.
- **Calculate Section Volumes** – Added support for using a third cross section representing a stage of progress for reporting progress quantities. Added option for inclusion perimeter to limit area for volume calculations.
- **Draw Section File** – Added option to label elevations at an offset interval.
- **Slope/Length/Elev Calculator** – New command to calculate slope length from elevation difference and slopes.
- **Cut/Fill Width Analysis** – Added support for report formatter and option for multiple offsets.
- **Surface 3D Flyover** – Runs separately from CAD for dual CAD/3D Viewer display. New function to pick in 3D viewer and zoom in CAD or place marker. New option to draw icon for current vehicle position. Added transparent shading mode for surfaces.
- **Triangulate and Contour** – Improved memory usage to increase capacity of data model by 50% which also improved speed.
- **Triangulation File Utilities** – Added functions to transform TIN by translate, rotate and scale.
- **Surface Inspector** – Added option to report elevation difference between two surfaces.
- **Cut/Fill Labels** – Added setting for deep cut/fill tolerance with settings for layer and color for cut/fill/daylight.
- **Slope Zone Analysis** – Added median slope value for each zone to the report
- **Slope At Points** – Added option for report output.
- **Design Bench Pond** – Added support for using surface file for bottom of the pond.
- **Footprint Creator** – New command for placing blocks into drawing for different building footprints with various building options and ability to draw labels.
- **Set Linework Angles To Nearest Second** – New command adjusts linework to set angles to the nearest second.
- **Set Linework Intersections To Perpendicular** – New command to adjust linework with a tolerance at T-intersections to be perpendicular.
- **Cleanup Lot Linework** – New command that finds any overshoots or undershoots in the lot linework with the options to highlight or fix the errors.
- **Lot Network Subdivide Area** – Added method to size lots by frontage.
- **Lot Network Report** – Added option to use the report formatter and added reporting of the frontage.
- **Lot File By Closed Linework** – New command to create lots for each closed area from the selected linework.

- **Lot File Manager** – Added method to draw lots as non-overlapping lines and arcs in addition to closed polylines. Added function to set clockwise point order for selected lots. Added function to create point groups. Added option for station/offset from reference CL for report function.

Hydrology Commands

- **Rainfall Events** – For rational method, added 1 year event and user-defined year event.
- **Network Plan View Labels** – Added options to draw pipe labels as mtext and to draw funnel flared end at end of pipe.
- **Lateral Design** – Added riser height and slope parameters. Added option for lateral extension for cleanout to building. Added method to update laterals when mainline changed. Added many new settings for the plan view labeling.
- **Sewer Network** – Added pipe connection wizard to visualize adding new pipe connection to existing pipe line.
- **Create/Edit/Remove Lateral Structure** – New set of commands for updating the lateral network model.
- **Collision Conflict Check** – Added option to draw symbols at collisions.
- **HydroNet Explorer** – Added method to add a single link for culverts.

GIS Commands

- **Define GIS Features**: Added import from Trimble FXL files.
- **Attach Image To Entity** – Added support for attaching files besides images to entities such as PDFs.

Field Commands

- **Drivers**: Upgraded many drivers from the SurvCE updates.
- **Track Position** – Added method to track position within the 3D Viewer window.

Geology Commands

- **Geologic Column** – Added option for all attributes on single line to help avoid overlaps. Added option to append bed name to strata name. Added option to use MLeader for label leaders.
- **Graphic Drillhole Report** – New command to create formatted report with geologic column plus data columns.
- **Parent/Child Strata Splits** – Improved reporting in Surface Mine Reserves to automatically report quantities as parent strata for areas without children strata.
- **Calculate Variogram** – Created new interface and closer linkage with StrataCalc.
- **Compare Strata To Model** – New command compares strata elevation/thickness/attribute data to strata models.

Surface/Underground Mining Commands

- **Surface Mine Reserves** – Improved speed to run more than 3 times faster. Added an option to process with low precision on grid cell subdivision for running another 2 times faster for quick, rough calculations.
- **Design Bench Pit** – Added method to suspend bench as road crosses and added option to create a berm in the road.
- **Design Fill Surface** – Added method to suspend bench as road crosses and added option to create a berm in the road.
- **Range Diagram** – Added extended bench, dozer bench and spoil bench methods. Added option for pre-stripping. Added method to position dragline on strata.
- **Blast Pattern Layout** – Added option to draw 3D lines.
- **Check Pit Polyline Overlaps** – New command to report any pit polylines with overlapping areas.
- **Check Property Polyline Overlaps** – New command to report any property polylines with overlapping areas.
- **Merge Pits** – Added method to select all pits and enter min pit area and then automatically merge the small pits.
- **Make Solid From Surfaces** – New command to build solid from roof/floor surfaces plus rib 3D polylines.
- **Make Solid From Sections** – New command to build solid from tunnel cross sections along an alignment.
- **Draw Solid** – New command to draw a solid model into the drawing as 3D faces.
- **Label Solid** – New command to draw labels at selected points for the roof, floor or height of the solid.
- **Section Solid** – New command to create a cross section of the solid along a specified line.
- **Calculate Solid Volumes** – New command to calculate overall solid volume along with strata quantities.

TakeOff Commands

- **Digitize Profile** – New command to create a profile by digitizing.
- **Digitize Cross Sections** – Added method for subgrades by specified depth.

- **Raster To Text** – New command to use character recognition to convert label images into text entities.
- **Vector To Text** – New command to convert labels made of linework into text entities.
- **Raster Snaps** – Added preview of snap location to see current snap position.
- **Trench Network Quantities** - Added option to draw trench in 3D.
- **Model 3D Viewer** – New command to view BIM model with textures.
- **Import Architecture IFC File to Drawing** – New command to import BIM model from IFC to 3D Faces.
- **Import Architecture IFC File to Model** – New command to import BIM model from IFC to OBJ format.
- **Export Architecture IFC File** - New command to output a surface model to IFC format.

Point Cloud Commands

- **Create Profile** – Added method to create profiles directly from the cloud in addition to mesh.
- **Create Sections** – Added method to create sections directly from the cloud in addition to mesh.
- **Create Contours** – Added method to create contours directly from the cloud in addition to mesh.
- **Extract Plane** – New function to create a best-fit plane from a selected spot in the cloud. Includes method to create breakline at intersection of two planes.
- **Clean Cloud** – Added new redundant point method that quickly and effectively reduces cloud data.
- **Trace Polyline** – New function to create polylines by following a selected color or intensity spot on cloud data.
- **LAS Format** – Added support for color and intensity properties on import and export.
- **Pointcloud Engine** – Added option to use Carlson engine in addition to Pointools.

Data Conversions

- **Geoids** – Added support for USA Geoid2012A, New Caledonia 2008, Singapore 2009, and Mexico 97.
- **Projections** – Added WI County projections for WisCRS.
- **12D Export** – New command to export drawing linework, centerlines, profiles, sections and surfaces.
- **12D Import** – Added support for Unicode file format. Added support for centerlines, profiles, sections and surfaces.
- **ADAC** – Added import/export to ADAC sewer network data.
- **Civil 3D** – Updated support for newer Civil 3D versions for points and surfaces. Convert surface now works on the current drawing and has option to output surface to Carlson TIN format.
- **dgDialog** – Added export from Carlson RW5 to DGD format.
- **ePlan** – New commands to import/export ePlan parcel data.
- **Leica** – For DBX importing, added new point data import to get Leica attributes and added new GPS points import.
- **MassDOT** – Added symbol and layer libraries for MassDOT standards.
- **Netherlands** – Added export from Carlson RW5 to SFN.
- **Sokkia SRX** – Added support in Field.
- **Trimble DC** – Added support for importing centerlines, profiles and sections.
- **WinCMM** – Added export from Carlson RW5 to LSA.