[DRAFT] Improvements for Carlson Office 2015

Highlights

- **Toolbar Manager** – New command to save status of toolbars and allow migrating toolbar settings between versions.
- **Carlson Cloud** – New command for communicating with SurvCE for sending messages, data files and crew locations.
- **3D Viewer –** Add/Edit models in scene, apply textures, record movies, animation, surface updates, SketchUp import.
- **PDF –** New engine to import PDF with layers. New commands to create 3D PDFs.
- **Field To Finish –** Special coding to create pipe networks and templates with variable offsets.
- **Design Detention Pond** – New command with all steps for detention pond design plus support for multiple rain events.
- **Surface Mine Reserves** – Real-time quantities while pit perimeter adjusted.
- **Surface Equipment Timing –** Method to use production targets with variable equipment usage to adjust to meet the targets.
- **Make Solid From Points –** New command to create a solid model from a cloud of points.
- **IntelliCAD 8.0** – Direct support for 2013 DWG file format. Added 64-bit version. Added support for dynamic reactors.

General

- **AutoCAD 2015** – Added support for this new version.
- **IntelliCAD 8.0** – Direct support for 2013 DWG file format. Added 64-bit version. Added support for dynamic reactors.
- **Google Earth** – Added support for exporting 3D Faces.
- **Import 3D View Model File** – New command to create drawing entities from a 3D model file.
- **Export 3D View Model File** – New command to create a 3D model file from selected drawing entities.
- **3D Model Library** – New command to prepare the 3D models to use in the 3D Viewer commands.
- **Toolbar Manager** – New command to save status of toolbars and allow migrating toolbar settings between versions.
- **File Selection** – Added option for warning when selecting a data file that is not within the current project folders.
- **Textures** – Added 40 new textures for 3D viewing.
- **Settings File Manager** – Added function to compare two settings files and report differences.
- **Leader With Text** – Added option for horizontal tick and option to create with Mtext.
- **Join Nearest –** Added filters for common colors and linetypes.
- **Join Polyline By Trace** – New command to join linework into a polyline with prompts at intersections.

Survey Commands

- **Field To Finish** – Added special pipe feature coding with ability to create pipe network (.sew) file. For tree feature coding, added option for drip as diameter instead of radius, added option for solid circle for trunk and option for relative tree size for the symbols. Added control for separate layers for the point attribute block and point node. Added new AFIT special code for making a curve tangent through a series of three curve points. Added method for dynamic templates with variable horizontal and vertical offsets by using the OH and OV special codes. Added settings file default distinct point layer prefix/suffix. Added separate text size settings for attribute text labels and point block attributes.
- **SurvNET** – Added error report for individiaul observations to track down blunders. Added import for TDS GPS vectors.
- **Edit Process Level Data** – Added support for processing with zero horizontal distances.
- **Carlson Cloud** – New command for communicating with SurvCE for sending messages, data files and crew locations.
- **Report Distance Scale** – Added methods for grid/ground factors on-the-fly in addition to a fixed factor.
- **3D Transformations** – Added 3D coordinate transformations.
- **Point Group Manager** – Added method to create point group by offset distance from alignment polyline.
- **Move Point Attributes With Leader** – Added controls for attribute order and ability for curved leaders.
- **Import Text/ASCII File** – Added method import from text with fixed widths and method to use inclusion/exclusion perimeters.
- **Legal Description** – Added method to report station/offset using a reference centerline. Added method for reporting with geodetic mean angle and geodetic distances.
- **Cut Sheet** – Added method to get station/offset from the point description coding.
- **Offset Points By Interval** – New command to create offset points along an alignment.
- **Label Coordinates** – Added options to include a description, to use Mtext, to draw the labels at an angle and option for mleader.
- **Draw Legend** – Added method to put each symbol or a specific layer.

Civil Commands

- **Draw Profile** – For paper space profiles, added method to use an existing layout as a reference template for the new layout. For the horizontal label box, added option for horizontal text in addition to vertical. For pipe profiles, added settings to label inverts by left/right order, added option to draw cutoff style pipe extensions, added option to create labels as MText, added

option for flow arrow in middle of pipe, new option for labels above the pipes, added justification settings per label and option to connect rims with a polyline for a simple surface profile. For Label Line/Point crossings, added option to label elevations at crossings, added method for labeling GIS attributes, added method to label points of selected descriptions within offset tolerance, added option to label CL deflections and added option to avoid label overlaps. Added special CL stations for break point station/elevation labels plus new prefix/suffix settings. For EOP profiles, added new break point and EOP leader style to the start of the labels, added option to label ground profile on road EOP profiles and added controls to select which profiles are EOP, road and ground. For the manhole name within circle option, added setting to put the name and number on separate lines and added the option to auto shift the labels to avoid overlaps.

- **Draw Sections** – Added option to label cut/fill volumes per station. Added separate settings for pipe crossing layers for decimals on pipe size, offset and elevation.
- **Draw Plan View Sheets** – Added option to set station range to draw.
- **Input-Edit Centerline** – Added Fit Curve method to apply speed table to all PIs in centerline.
- **Input-Edit Profile** – Added method to apply speed table for vertical curve lengths to all PIs in profile.
- **Label Station/Offset** – Added method to use a TIN or grid surface for the elevation reference.
- **Draw Lot Setback** – Added method for separate corner side setback amount.
- **Move Spot Elevations** – New command to move spot labels and update elevation to new position on reference surface.
- **Line Of Sight Viewshed** – New command to calculate line-of-sight from a point and eye height on a surface.
- **Draw Spot Elevations** – Added option for label only and option to pick an entity instead of a point.
- **Cut/Fill Labels** – For points method, added more options like separate layers for existing and design. For the TIN method, added options for deep cut/fill labels and option for marker symbol.
- **Smooth Polylines** – Added method to smooth polyline between selected points.
- **Triangulation File Utilities** – Added function to color TIN within inclusion perimeter.
- **Road Stripe Library** – New command to setup named sets of road stripes with offsets, colors and styles.
- **Draw Road Stripes** – New command to draw linework for road stripes.
- **Linear 3D Object Polylines** – New set of commands to manage alignment polylines for 3D Viewer commands for linear 3D features such as fences or guard rails.
- **Label Profile On Centerline** – Added label position by left/right in addition to above/below. Added prefix/suffix settings.
- **Offset 3D Polyline By Grade Table** – New command to offset a 3D polyline using the distances and slopes from a template grade table.
- **Road Network** – Added settings for station range to process for each road.
- **Mass Haul Analysis** – For borrow pits, added offset from road to account for offset travel time.
- **Sections From 3D Polylines** – New command to create cross sections from 3D polylines.
- **Surface 3D Viewer** – Added option to show contours. Added functions to edit triangulation by swapping edges, adding breaklines, removing points, removing triangles or editing point elevations.
- **Surface 3D Flyover** – Surface model is kept in sync with any edits in CAD so that the 3D view is automatically updated. Added method to add models to the scene by screen picking plus the ability to pick models in the scene to edit properties (location, rotation, scale). Added function to record a movie. Added method to map textures by color and method to scale textures. Added run view mode for detached from moving vehicle. Added option to show contours. In pick mode, display real-time coordinate and elevation for mouse position on surface.
- **Motion 3D Viewer** – New command to assign path polylines with speeds to 3D models and the camera.

Hydrology Commands

- **Design Detention Pond** – New command with all steps for detention pond design plus support for multiple rain events.
- **Pipe Culvert Design** – Added method for tailwater by channel or discharge rating and added overtopping analysis.
- **SCS Rainfall Library** – New command to define an SCS data reference library for rain events.
- **Rational Rainfall Library** – Added import of IDF tables from comma separated text files.
- **Collision Conflict Check** – Added support for checking unlimited pipe networks and using the report formatter.
- **Pipe Network** – Added option for junction loss for pipe connections including laterals.
- **Identify Pipe Polylines** – New command to ID or list pipe data assigned to 3D polylines.
- **Import Network From 3D Polylines** – Added method to control order of names by design order, elevation or polyline direction. Added method to set rim elevation by depth.

GIS Commands

- **Label GIS Point Data** – New command to create text labels or block with attributes for selected GIS attributes.

Field Commands

- **Drivers** - Upgraded many drivers from the SurvCE updates.

Geology Commands

- **Mine Model** – Added Mine Model collection of surfaces for modeling only mineable strata already adjusted for recovery, roof/floor gain/loss and minimum parting. Renamed "Pre-Calc Model" to "Geologic Model".
- **DHDB** – Added drillhole database import/export to DHDB format.
- **Import From Coal Section** – New command to create pit/channel samples from coal sections.
- **Configure Section Info** – Added method to set folder for section drawing to allow storing the section info on a server.
- **Import/Export Coal Sections From Text File** – New commands to import/export coal sections from/to text files.
- **Grid Files** – Added option to store .grd files as binary to improve read/write speed.
- **Grid File Utilities** – Added method to call other GFU macros and pass parameters from another macro. Added sin() and cos() functions for grid math. New dialog interface including dialog for creating IF statements.
- **Draw Geologic Column** – Added method to draw in 3D with strata sections sized based on grade parameters. Also added 3D draw method as 3D lines. Added method to label grade names and added separate layer settings for attribute labels. For labels in 3D, added options for rotate labels vertical and draw label leaders. 3D Viewer Window now shows 3D text generated by Geologic Column.
- **Drillhole Core Images** – Added method to draw the report to the drawing and added option for labeling depth or elevation.
- **Draw eLog** - New command to draw graph of selected attributes from an eLog LAS file.
- **Create Drillhole from eLog** – New command to create drillholes with strata classification using the eLog paramters.
- **Trim Isopach Within Fault Zone** – New command to isopach elevations and break contours at fault zones.
- **Draw Fault Labels** – New command to label fault deltas.
- **Draw Fault Symbols** – New command to draw +/- symbols for faults.
- **Apply Faults To Grid** – Added method to handle thrust faults. Added method for processing multiple grids at a time.
- **Surface Mine Reserves** – Added Adjust Pits Manager for adjusting pit perimeters with real-time quantity updates.
- **Draw Grade Boundary** – New command to draw boundary polylines around area with specified grade.
- **Block Model Statistics** – Added min/max/average elevation and depth to the report. Added level # to report name.

Surface/Underground Mining Commands

- **Ribbon** – Added a mining ribbon for running with AutoCAD 2012 and higher.
- **Smooth Polylines** – Added method to smooth polyline between selected points.
- **Import Pit Points** – Added method for user-defined input file formats.
- **Import Polyline File** – Added method to draw 3D polylines from sequence of top/bottom points for blast holes.
- **Label Property Lines** – Added option to label owner or id labels and added setting for label layer.
- **Surface Equipment Timing** – Improved calculation speed by 25%. Added method to use table of production targets with variable equipment usage to adjust to meet the targets.
- **Underground Timing** – Added option for transparent hatching and for buffer hatching.
- **Dozer Push** – Added support for push cut area by closed polyline. Added method for reporting single, average push. Added option to keep existing polylines, to draw centroid symbol and to label total push distance. Added settings for label text size, layer, style, decimals and prefixes.
- **Regrade Backfill** – Added bench option to cross section regrade design.
- **Range Diagram** – Added dimensions for all angles and distances. Added options to output final profile and to output parameters to sequence file.
- **Design Ramp Profile** – New command to create a ramp profile between two surfaces.
- **Ramp Bench Polyline Generator** – New command to design bench pits using polylines.
- **Edit Dragline Sequence** – New command to edit the steps for pit cuts.
- **Make Solid From Points** – New command to create a solid model from a cloud of points.
- **View Solid** – New command to view a solid model in the 3D viewer.
- **Draw 3D Mine Model** – Added method to make model from coal sections and pillar/perimeter polylines.
- **View 3D Surface History** – Added support for displaying TINs.

Construction Commands

- **Define Layer Target/Material/Subgrade** – Added support for up to 7 subgrades.
- **Color TIN By Layer** – New command to color the surface TIN using the color assignments in Define Layer Target.
- **3D Drive Simulation** – Added method to apply textures to design layers in addition to colors for viewing in 3D.
- **Tag Segments To Skip Linear** – New command to tag polyline segments to skip for material linear quantities.

CADnet Commands

- **Merge Raster Files** – Added method to automatically select control points.
- **Import SketchUp File To Drawing** – New command to create drawing entities from a SketchUp file.

- **Import PDF File** – New import engine with ability to use layers for PDFs with layers.
- **Drawing to 3D PDF** – New command to create a 3D PDF from selected drawing entities.
- **3D Viewer to 3D PDF** – New command to create a 3D PDF from a 3DX file from the 3D Viewers.

Point Cloud Commands
- **Faro** – Added direct import method uses Faro toolkit.
- **E57** – Added support for importing industry standard e57 format.
- **PLY** – Added import for PLY format.
- **LAS** – Added method to use LAS classification for coloring and selection.

Data Conversions
- **12D –** Added import for pipe networks.
- **Canada –** Added support for NTv2-NAD27-83
- **Geoids** – Added support for Canada CGG2010 and CGG2013n83, Sweden 08_rh2000, Sweden 08_rh70, Poland 2011 and Georgia 2012
- **Iowa** – Added projections for Iowa Regional Coordinate System
- **Ireland** – Added national grid projection.
- **KOF** – Added function to draw linework from KOF files.
- **MDL** – Added support for binary data within FSC file.
- **Norway** – Added support for N2000 format.
- **SketchUp** – Added import for SketchUp models in Surface 3D FlyOver
- **SurvCE** – Added import for points with photos in Google KML format as created by SurvCE..