

2015 PLS-CADD Advanced Training and User Group meeting
June 2-4, 2015
Monona Terrace Convention Center, Madison, WI

What's New in PLS-CADD
(July 2013-June 2015)

Reliability, Usability & Performance:

1. More meaningful and less frequent error messages.
2. 100s of changes to speed up draw, make program quicker to respond to mouse movement and shorten calculation times.
3. Many changes to eliminate crashes and hangs.

Sections:

1. "Sections/Add Graphical" and "Sections/Swap Attachments" provide more intuitive stringing and editing of wire w/o station constraints.
2. "Sections/Table" now has a section note column. Column is 256 characters long and is included in XML exports. Column optionally included in "Section Sagging Data", "Section Geometry Data", "Section Stringing Data" sections of "Lines/Reports/Summary".
3. "Sections/Cable and Concentrated Load Files/Generate Cable Data Report" that lists properties for all cables used and a "Cable Data Report" button in the "Sections/Cable and Concentrated Load Files/Edit Existing Cable" dialog to report on a single cable.
4. Sag-tension refinements enabling calculations for scenarios and lower tensions that weren't possible in earlier versions.

Structures:

1. New "XY Based Structure" feature for locating structures using X Y coordinates instead of station:
 - Context menus "Add XY Structure...", "Add XY Structure along Line", "Move XY Structure along Line" (available when snapping to any entity for which we can determine XY coordinates).
 - Context menu "Convert to XY Structure" to convert range of structures from station based to XY based (available when snapping to a structure).
 - "Lines/Reports/Staking Table" allows addition of XY structures by typing or pasting in coordinates at end of table.

- "File/preferences/Station and offset for spans attached to XY structures" lets you determine if XY structures reported "stations" are computed via projection onto an alignment or are relative to start of span.
- Documentation at http://www.powline.com/technotes/XYZ_Based_Structures_User_Guide.pdf

Terrain & Alignment:

1. "Terrain/Alignment/Add PI", "Move PI", "Delete PI" can now "lock" adjacent tangent structure positions by pressing "L" key so that they do not move in line with PI being edited. Can also access this setting through radio button "Terrain/Alignment/Survey Point Snap" dialog box.
2. "Terrain/Edit/LiDAR Tools" menu with new "Ground Point Classification", "Find Wire Points", "Find Structure Points", "Find Centroids of Structure Points" and "Find Attachment Points..." commands.
3. "Structures/Customize Structure/Move Attachment Point/Snap to Surveyed Attachment Points (multiple structures)" rewritten to find more optimum fit and now supports multi-select of feature codes and sets.
4. "Terrain/Edit/Merge Points from External File/Merge Points From LAS File" improvements:
 - Settings can be stored in ".IMP" files for easy management of multiple sets of settings.
 - LAS Import now automatically detects if RGB color values in a LAS version 1.2 or newer files are 8 bit per pixel or 16 bits per pixel (done to accommodate customer files that use 8bpp color despite LAS spec calling for 16bpp)
5. "Terrain/Edit/Merge Points from External File/Merge Points From KML/KMZ Files..." creates points for all <coordinate> tags found in any entity and there is an option to create alignments for each <LineString> entity.
6. Upgraded to "proj 4.8.0" coordinate projection library to fix bugs and add new EPSG categories.
7. Added annotation "%coordsys" key word which prints current coordinate system or "COORDINATE SYSTEM UNDEFINED" if there isn't one.

Material:

1. "Structures/Material/Parts and Assemblies File" "Edit Parts" and "Edit Assemblies" dialogs now have "Hilite Material in Line" button to make it easier to see which items are used in current line.
2. Maximum length for user defined column increased from 100 to 256 characters to accommodate long file names.
3. Concentrated load file stock numbers can now be assemblies (earlier versions only accepted part stock numbers).

Codes & Structure loading:

1. New wind, gust response factor and/or asynchronous wind adjustments for "AS/NZS 7000:2010" (Australia & New Zealand), "ISEC-NCR-83 (Israel)..." and "Russia 7th Edition".
2. Concentrated load files (marker balls...) now have a drag coefficient input. Defaults to 1.0.
3. "Criteria/Galloping" enhancements:
 - AESO calculation method option (Alberta Electric Systems Operator/Havard).
 - Option to automatically switch from single loop to double loop at a specified span length.
 - Input for required ellipse separation (violations indicated with markers)
 - FE wire conditions now allowed
4. "Structures/Loads Report" section showing "Extended diagnostic information on span GRF, wind and ice adjustments" now has additional columns displaying input and adjusted wind pressure.
5. Structure group membership defined in "Criteria/Structure Loads.../Structure Groups" can now be a function of being a member or not being a member of multiple groups (rules like "Is GRADE-B if not Grade C or Grade C Crossing" now possible).

Drafting:

1. Many tweaks to resolve glitches and drawing artifacts too numerous to list here. Includes failure to draw some structure labels in DXF export, clipped duplicate or overlapping structure and/or height/elevation labels, missing structure symbols, long axis plot with misaligned plan & prof...
2. "Drafting/Plan & Profile Sheet Configuration/Pages & Station Range" allows insertion of title pages, notes pages and appendix pages:
 - Annotation and attachment commands now have additional options to control what pages they draw on: "Single Sheet", "All Sheets", "Title Sheets", "Notes Sheets", "Drawing Sheets" or "Appendix Sheets".
 - Annotation keywords %partitionpage %partitionpagetotal allowing work with partition relative page numbers (Title Sheets, Notes Sheets, Drawing Sheets and Appendix Sheets are each partitions)
3. "Drafting/Inset Plan Detail/Add Sheet Index Map" adds a sheet index map on Title, Notes or a drawing sheet. "Drafting/Text Size, Line Width, Style, Color and Layer" now has a "Sheet Index Map" row to provide control over size of text for page numbers shown in sheet index map and the style of line used to draw border around it.

4. "Add As Annotation to Inset View..." item in report right click menu copies report to a sheet. Function is also available in spreadsheet tables via popup menu that appears when drag over multiple cells. "Drafting/Inset Views/Table Edit Inset Report Views" lets you view the attributes.
5. "View/Entity Info" now has an "Inset View" snap option with a context menu of inset view related functions: "Edit", "Resize", "Move", "Bring to front", "Send to back", "Autoscale", and "Edit annotation".
6. "Drafting/Text Position, Orientation and Background..." now has "Minimum angle for labeling PIs"
7. "Drafting/Structure & Section Labeling" "Structure Labels" tab now has a "Suppress structure program file extensions" to remove ".pol" or ".tow" from structure file names displayed on drawings.
8. "View/Pan, Zoom & Rotate/Virtual Profile" opens a new 3D view oriented to look like a profile view along a line connecting structure centers, a specified alignment segment, or any two specified XYZ coordinates. Lets you see a profile without having an alignment.
9. "View/Entity Info" and "View/Measure Distance/ Between Entities" context menus feature "Show Virtual Profile for Selected Span", "Show Virtual Profile for Selected Alignment Segment" and "Show Virtual Profile Along Selected Line Segment" providing more convenient way of accessing "View/Pan, Zoom & Rotate/Virtual Profile" functionality.

Drafting Attachments (DXF,SHP,BMP,DIB,TIF,ECW,JP2,JPG):

1. "Drafting/Attachments/Attachment Manager" enhancements:
 - "WMS" button for download of plan view imagery from servers providing Web Map Service (WMS) or Web Map Tile Service (WMTS). This includes free Internet imagery sources such as "USGS EROS 1ft imagery", "ESRI World Imagery", "Geobase Canada" and any other Internet or intranet server you have access to.
 - "Refresh" button that reimports WMS images in case more recent imagery available
 - Attachments color coded based on attachment status (loaded, scheduled for download, unable to load) with tool tips providing information about file name, image dimensions, attach time/date, WMS Server name and any error messages opening or importing the image.
 - "Report" button to generate report listing listing raster and vector attachments"
 - "Select" combobox providing options to select "all", "raster", "vector" or images downloaded from a particular WMS/WMTS download session.
 - "Open" button that opens selected attachment(s) using Windows explorer
 - Right click drag-n-drop to change attachment order
 - Raster attachments now have translucency input between 0 and 255 (0=transparent, 255=fully opaque) allowing images below them to show through.

- DXF files attached in plan view coordinate system now have check boxes to control display in "Plan View", "Plan Sheets and Inset Views" and "Sheet Index Map" separately. Allows use of a different base maps with differing amounts of detail or text sizes for Sheet Index Map and sheet plan views.
2. Upgraded to newer versions of libraries used for jpeg, tiff and file compression (libjpeg, libtiff, zlib) to improve reliability and performance.
 3. Upgraded to newer more robust version of ECW/JP2 SDK. Improves JPG2000 support and speed while adding support for 16 bit/channel images (48bpp) and eliminates need for external DLL files.
 4. Modified libtiff code used to read TIFF files to enable reading of files over 2GB in size.
 5. Modified TFW (tiff world file) read routine to shift image by one half pixel width and height (earlier versions put top left edge of pixel where center of pixel should be).
 6. JP2 georeferencing now assumes unit system for file is that set in File/Preferences rather than using a tag from the JP2 file (tag in JP2 file often found to be in error).
 7. Rendering of attached DXF files improved:
 - Increased precision used in drawing of ARC entities to avoid defects sometimes visible in large radius arcs.
 - Improved positioning of non-top justified multi-line MTEXT entities that were drawn too low before.
 - Now support DXF MTEXT "line spacing factor" which adjusts spacing between lines, "entity visibility" flag that can make items invisible.
 - Now purge unsupported MTEXT "\pXXX####;" paragraph formatting codes and strip trailing spaces from line type names that would otherwise cause rejection by AutoCAD.
 - Added support for DXF files with lines in excess of 1kB.
 - Now support extrusion (thickness) for DXF line, polyline, lwpolyline entities.

Interface & Other:

1. Table pop up menu now has a "Copy & Fill Column" menu item providing quicker method of filling entire column with single value.
2. "Drafting/Attachments/Attachment Manager" and "Lines/Edit" now support right click Drag-n-drop to change order of items in list box.
3. Combo boxes now support Ctrl-C, Ctrl-V and Shift-Ins, Ctrl-Ins to copy or paste an item.
4. "File/Preferences/Font size for status bar text" lets you adjust default status bar text size. Status

bar automatically grows to multiple lines if needed to fit displayed text.

5. "View/Calculate Area" has been renamed "View/Calculate Area or Angle" and made to display the angle defined by last 3 vertices.
6. Added "Weather case wind pressures in kg/m² instead of Pa" option to "File/Preferences".
7. Backup/Restore:
 - Improved "Transmit to PLS for technical support" File/Backup option so that it can transparently navigate proxy servers and upload files of unlimited size.
 - Replaced the HTTP option used when uploading .bak files for technical support with HTTPS so that the project is encrypted while in transit.
 - "File/Backup" now has an option to include files referenced in part or assembly user defined columns (these could include DXF, DWG or PDF drawings of images).
8. Improved multiple monitor support via "Detach Window" menu in graphics window middle click menus and report window right click menus that send window to another monitor. "File/Preferences/Open reports in separate free-floating windows" lets you specify if you want new reports created so attached as in the past or detached so can be dragged to other monitors.
9. "F1/Debugging Stuff/Reset dialog box positions and sizes..." added to resolve potential problem with dialog boxes appearing off screen where can't see or get to them. While PLS-CADD attempts to adjust dialog positions to keep them on screen there are scenarios where it can't tell monitors previously available were removed (typically involves docking stations).

Reports:

1. Reports now support keystrokes Ctrl + and Ctrl - to jump to the next and previous schemas in a report. Also available via "Edit/Next Result" and "Edit/Previous Result" menus.
2. Right click "Compare report" command now bolds alternate rows in difference schema making it easier to see which row came from which report.
3. Hovering mouse over tables in reports now shows information about customizing table format and hidden columns in the status bar.
4. Additional or optional columns added to reports:
 - "Lines/Reports/Summary/Structure Attachment Coordinates" has section number and counter weight.
 - "Lines/Reports/Summary/Section Sagging Data" has display weather case and condition.
 - "Lines/Reports/Summary/Concentrated Loads Locations" has optional columns for marker ball X, Y, Z, longitude (decimal), latitude (decimal), longitude (DMS), latitude (DMS).

- "Lines/Reports/Structure Loads Report/Detailed Manufacturer Loading" has section number, voltage and cable file diameter (requested to assist in damper selection).
5. "Lines/Reports/Survey Point Clearances" now has a "Show separate results for each weather case..." option available when generating reports with worst violation in each span or worst violation in each span by feature code.

XML/KML:

1. New "File/Export/XML Settings" provides an alternate interface to "View/Edit Customizations/Tables" for including/excluding schemas from XML Export.
2. Now remove newline characters from XML rowtext tags.
3. "File/Export/XML" expanded to include following items: "Raster Attachments", "Vector Attachments", "Criteria/Report" (includes multiple tables), "Terrain/Feature Code Data/Report", "Sheet Extents Report", "Plan Rectangle Report" and "Profile Rectangle Report". Also added "Preferences" section listing INI file, structure directory, cable directory, part file, schema file and unit system.
4. "File/Export/XML" "complete" option now includes "Structure Usage Report" and its associated tables.
5. "File/Preferences/XML Export includes" feature providing the option to choose if exported XML includes "Active Line Only" or "All Lines". Earlier versions exported "Active line Only". Using "All Lines" results in a reorganized XML file that groups criteria related items inside a <criteria> tag and line specific items in a <lines> tag with one <line name="my line name"> tag per line.
6. "F1/Custom/Under Development/Multiple Project XML Export" now provides option to do complete or condensed export and to suppress common terrain width and sheet generation errors while iterating over the projects for export.
7. "F1/Custom/Under Development/Multiple Project KML Export of Alignment" now suppresses export of projects producing nonsensical longitude and latitude and generates a report listing names of such projects. This prevents projects with bad coordinates from generating a mess when viewed in Google Earth.
8. "File/Preferences/Export KML during each save" option enables automatic KML export every time project saved like corresponding XML option added earlier.
9. KML export of plan view now uses true marker ball size rather than larger of marker ball size and sheet scale size as done in earlier versions.
10. "File/Export/KMZ (Google Earth)" option to color structures by usage restored (had been removed earlier)

Web & Examples

1. New manual available for download via "Help/Check For Updated Manual".
2. 29 new cable models supplied by Suzhou Furukawa Power Optic Cable Co., Ltd.
3. Fixed error in heat capacity for some 54/19 ACSR cables available on our Web site. Falcon, finch, pheasant, martin, parrot, plover and grackle had heat capacity double what it should be.
4. Updated "Loading Method" tech notes
5. XY based structure tech note.
6. New videos:
 - PLS-CADD/LITE for creating Sag-Tension reports
 - Web Mapping Services (WMS/WMTS) in version 13.20
 - Title, Notes, Appendix Pages and Index Maps added to P&P sheets in version 13.20
 - Introduction to the Family Manager for Body and Leg Extensions in TOWER version 13
 - 3D Graphical Stringing in version 13
 - LiDAR Tools in version 13
7. PLS-CADD now ships with revised "wpl_demo.xyz" example that demonstrates use of DXF sheet border, DXF planimetric drawing, WMS plan view imagery downloaded from Internet and Plan & Profile sheets with title page and page index map.