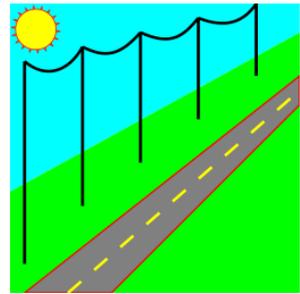# 2017 PLS-CADD Advanced Training and User Group Meeting
What's New in PLS-CADD™

Summary of changes since June 2015 User Group, covers versions 14.00-14.53

Reliability, Usability & Performance

1) Improved stability and/or performance through upgrade to new Microsoft compiler, LAS library, proj-4.9.3 projection library and ECW libraries.

2) Windows XP support discontinued due to it no longer being supported by the new Microsoft developer tools we rely on to build our programs.

3) Move to new compression library that improves performance and enables compression of BAK files in excess of 2 GB.

4) Numerous performance tweaks providing faster drawing, faster **Lines/Reports/Danger Tree Locator**, and faster writing of LIC/LCA files that are now around half their earlier size.

5) Internet proxy settings now in **File/Preferences**.

6) The Setup program now has command line arguments that allow for a silent install to enable scripting of installs. Contact support@powline.com for more information.

7) Made structure file selection dialogs that have a graphical preview of the structure resizable.

8) Improved user interface scaling on high DPI displays like Surface Pro and Surface Book. Includes toolbars that dynamically adapt to the resolution of your monitor.

9) Now support Acrobat Reader and Writer 2017 for display of the online help.

10) Sped up generation of long reports with many page breaks or inset structure graphics by ~20%.

Structures

1) **Structures/Customize Structure/Move Attachment Point**, **Move Guy Anchor**, **Move Arm**, and **Change Insulator** are now framing aware (moves entire framing up/down or between poles).

2) **Structures/Customize Structure/Move Attachment Point/** now allows snap to attachment points without wires attached provided **Drafting/Show Cable Attachment Points** is enabled.

3) **Structures/Customize Structure/Move Attachment Point/Snap to Surveyed Attachment Points (multiple structures)** now has options letting you specify if want to snap wire attachment point or insulator attachment point.

4) New **Rotate XY Structure to Angle Bisector** structure context menu that makes structure transverse axis bisect line angle defined by attached wires.

5) Added **Structures/Customize Structure/Insulators/Move Guy Strain Insulator** command.

6) **Structures/Available Structure List/Update Structure File Version** now updates customized structure's custom comment so that customized structures that are moved have comments reflecting their current stations.

Terrain & Alignment

1) Adopted LASlib library to support LAS 1.3 files and enable reading LAZ compressed files.

2) Several refinements of terrain label and structure label drawing code to address problems with labels that didn't display on screen or in DXF exports.

3) Added **Terrain/Edit/Merge Points from External File/Merge Points from Raster Attachment** which enables terrain data import from GeoTIFF images.

4) **F1/Survey/Terrain Features/Shift/Scale/Rotate XYZ coordinate system (XYZ files only)** made to work with XY structures.

Sections and Cables

1) **Sections Add**, **Add Graphical**, **Modify** and **Automatic Stringing** now automatically set color to that specified in cable file.

2) Cable file format modernized including addition of a notes tab and additional inputs required for Line Constants and CIGRE thermal rating.

3) **Sections/Cable & Concentrated Load Files/Edit Existing Cable File, Criteria/Load CRI file** and **Terrain/Coordinate System/Define/Select Grid Shift File** dialogs now provide option to download files from our Web site.

4) **Section/Modify** now provides access to "Sec Notes" input previously available only in **Sections/Table**. Also added "Sec Notes" and "Voltage" to the "Stringing Chart Summary".

5) Added a context menu using Entity Info for **Reverse Stringing Direction**.

6) **Added Sections/Cable and Concentrated Loads Files/Create Bundled Cable File** command that creates a bundled cable based on an existing cable. It supports twisted pair, lashed, and spaced bundles.

7) Added a **Sections/Electric** menu to house **EMF Calculator**, **Line Constants Calculator** and **Lightning Protection Calculator** features formerly available elsewhere.

8) Thermal rating calculations now provide "CIGRE Brochure 601 December 2014" calculation method. Use requires a new cable file radial thermal conductivity property.

9) Jumper modeling feature is now available. Enable via new **Criteria/SAPS Finite Element Sag-Tension** setting "Include jumpers in FE sag-tension model". Jumpers, like marker balls, may only be modeled when use FE conditions (requires the SAPS FE option). Cable element and rigid style of jumpers are available. Cable element jumpers are defined by either sag or length. Rigid style jumpers are defined by user input coordinates. **Lines/ Reports/ Summary** includes a Jumper Report. **Lines/ Reports/ Structure Clearances**

checks for clearances to jumpers as well as the normal sections.

Material

1.) **Lines/Reports/Bill of Material by Structure Location** now allows multi-select of discontinuous ranges of structures.
2.) Bill of material reports "Material Subtotal", "Labor Subtotal", and "Total" text can now be customized and translated into other languages.
3.) Right clicking in part & assembly tables and in material reports provides options to view any files listed in user columns.

Codes & Structure Loading

1) LCA files written by PLS-CADD **Structures/Loads/Write LCA File**, **Structures/Check/Edit**, and **Structures/Modify/Edit** now include wire geometry information for each load case. Newer versions of PLS-POLE and TOWER can display this geometry making it easier to visualize where the loads came from.
2) **Criteria/Code Specific Wind & Terrain Parameters/** has updates for EN50341-1:2012 CENELEC, EN50341-3-9:2001, EN50341-2-9:2015, IS 802 (India). See the summary section in the dialog for the code related adjustments and assumptions.
3) Added support for EN50341-3-2:2012 Belgium NNA wire gust response factor and EN50341-2-22:2016 Poland NNA. See the summary section in the **Criteria/ Code Specific Wind & Terrain Parameters/** dialog for adjustments and assumptions.
4) **Criteria/SAPS Finite Element Sag-Tension** now has a Limit L3 and L4 structure modeling to structures within specified number of spans of structure having load computed. Remaining structures will be modeled L2. Can significantly speed up load calculations in very long sections.
5) Modified the way wind applied on XY based structures for Normal All and Normal Left, Normal Right and Bisector cases. Program used to make wind relative to structure transverse axis but now uses wires connected to define a virtual alignment which it uses to define the line angle and bisector direction producing results more in line with station based structures on a similar alignment.
6) "NESC 2017" is now a supported weather case "Wire Wind Height Adjust Model" and "Wire Gust Response Factor" option under **Criteria/Weather** (no different than picking "NESC 2012").
7) Structure groups can now be contingent on "PLS-POLE and TOWER Structure Components" with settings for "No requirement", "Has wood pole", "Has steel pole", "Has concrete pole", "Has laminated wood pole", "Has FRP pole", "Has mast", "Has guy". Note that this feature only works with PLS-POLE/TOWER files saved in 12.18 or later.

Drafting

1) Font rendering functions now adjust spacing between individual characters for text widths that are more consistent across zoom levels. Width of text in earlier versions varied between zoom levels such that text that appeared to fit in a title block cell at one zoom level might not at a different one. This makes views more WYSIWYG.

2) **Drafting/Plan & Profile Sheet Configuration/Pages and Station Range** dialog box now allows input of multiple station ranges. These station ranges may overlap or occur out of order. One can specify the start and stop stations via reference to structure numbers by selecting "Get Station From Structure" from the menu that appears when right clicking in the "start station" or "stop station" controls. Video showing feature can be found at https://www.youtube.com/watch?v=QmSK2WvJ8QM.

3) Sheets view left click context menu has **Add Sheet Page** and **Insert Page Before** items providing a quicker alternative for adding title, notes or appendix pages than visiting **Drafting/Plan & Profile Sheet Configuration/Pages and Station Range**.

4) **Drafting/Move Annotation Point or Text** in profile and plan views now preserves current profile offset and plan elevation if tab key held down while annotation moved. If do not hold down tab key operations in profile view reset offset to 0 and in plan view reset elevation to that of closest entity as was done in earlier versions.

5) **Structures/Automatic Spotting/Spotting Constraints/Display** now lets you control if constraints are displayed on plan and profile sheets.

6) Report view right click menu **Add as Annotation to Inset View** dialog enhanced. Now have a "Preview page sel" check box for graphical preview of size and position of inset view being created, spin button controls to adjust size & position, ability to edit footer text and buttons to add additional title/notes/appendix pages.

7) **Drafting/Inset Views/Add Inset Plan View** now works from within 3D and Plan views (easier to pick plan extents desired than in earlier versions where this was done in plan part of P&P sheet).

8) Entity info left click context menu now offers **Add Inset View for Structure** option when snapping to a PLS-POLE or TOWER structure. Video showing feature can be found at https://www.youtube.com/watch?v=BfjE5ea7hv8&feature=youtu.be.

9) Inset plan views now have an option to disable display of plan annotation (text size for annotation sometimes doesn't display well and is best hidden).

10) Inset view properties dialogs accessed via entity info left click **Edit Inset View** now features a "transpose" button in its title bar that lets you toggle display between a 34 column table showing attributes for all inset views and a one column table displaying attributes for a single selected inset view. **File/Preferences/Disable auto-transposing of tables when entered via entity info** determines which form you start with.

11) Inset Structure View Z Rotation (Longitude) made consistent with the definition used in the 3D Controls dialog.

12) **View/Entity Info Snap Settings** now has "Snap to Grid Settings" enabling display of a grid over sheets. **Entity Info** and **Drafting/Lines & Annotation/Snap Mode** can snap to this grid.

13) Inset Plan Views now have "Automatic Longitude Rotation" option that aligns the views north axis with that for

the page it is on.

14) Inset structure views now have an option to display a compass rose and finer control over what members are displayed.

15) Added a **Delete this Page** sheet view context menu for getting rid of unwanted title, index and appendix pages.

16) Improved structure drawing including refinements that eliminate the gaps that sometimes were visible between members making up arms and new "Remove hidden lines" and "Dot hidden lines" "Structure Draw Style" options in structure views and inset structure views.

17) **Drafting/Lines & Annotation/Add/Text** now gives a live preview of text as you move mouse around (previously text wouldn't appear until after clicked on desired position).

18) **Sections/Display Options/Structure/Structure Symbols** table now has additional row for symbols to use for M1 and M2 structures enabling differentiation of these from Method 4 PLS-POLE and TOWER structures.

19) Added "Report Name" and "Last Generated" columns to **Drafting/Inset Views/Table Edit Inset Report Views**.

20) **Drafting/Plan & Profile Sheet Configuration/Scales** dialog now has new "Default location for structure text" option of "in profile at set distance above structure base".

21) Added **Drafting/Inset Views/Build Inset View** command for creation of an inset report view from a blank table that you can paste into from another program.

22) Left click context menu now has **Copy Annotation** and **Paste Annotation** functions.

23) Can now label attachment heights or elevations of XY based structures (previously only station based structures were labeled).

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

1) Images and DXFs can now be attached to an inset view. Images are positioned within the inset view the same as they are positioned for sheets (x,y position and size specified in inches/centimeters). DXFs are automatically centered and scaled to fill the inset view while preserving aspect ratio.

2) Changed DXF interpretation of lineweight of "0" which is a default value. Previously interpreted as "bylayer" but now treat as minimum possible line width since this is more consistent with AutoCAD.

3) Updated libraries used to support TIFF and JPG image file formats (LibTIFF 4.06, JPEG library 9a)

4) **Drafting/Attachments/Attachment Manager** "Bitmap Options" dialog now has an "Optimize image draw for text or line work rather than aerial photography" check box that improves fidelity of text. Appropriate setting is automatically selected for images from built in WMS servers. Use of this option slows image drawing so it isn't recommended for images that do not contain low resolution line drawings or text. Very useful for street map images or topo images where there is a great deal of text in the image.

5) **Drafting/Attachments/Image Info** now supports pressing of "P" key to open selected attachment using Windows Explorer (P stands for Preview).

6) Added "Toporama Canada (NRCan)" to built in WMS server list.

7) WMS now supports 1.1.1 servers for image import (the current WMS version is 1.3).

8) WMS Import dialog now remembers last 10 custom server settings (name, URL and type) and allows you to select them by picking from the server name combobox.

9) The **Drafting/ Attachment/ Attachment Manager's** "Raster Attachments Report" and "Vector Attachments Report" now include the attachment's Coordinate System.

Interface & Other

1) PLS-CADD/Lite now has left click "Entity Info" context menu similar to PLS-CADD standard edition. Clicking on a wire and selecting **Line Setup** will take you directly to the corresponding row in the **Model Setup** dialog box.

2) PLS-CADD/Lite **Line/Setup** dialog now has a "Groups" button so can manually assign groups in Lite the same way as in the Standard edition.

3) **File/Restore Backup** now allows selection of multiple ".bak" files to restore at once and has a "Change Common Directory Path" button for faster search and replace of directory paths used by a project.

4) **File/Backup "**Transmit to PLS for technical support" now sends using secure HTTPS. It is also able to transparently navigate proxy servers

5) PLS-CADD/Lite's **Line/Setup**, **Edit Structure** and other PLS-CADD commands that open a structure in PLS-POLE or TOWER now check if structure is already open to avoid having multiple instances of same structure open at once.

6) **File/Preferences** now has a "Table header font" input to change font used for column headings in spreadsheet tables. Bold version of this font will be used.

7) **PLS-CADD Project Wizard** dialog box presented on startup with options for creating a new project, opening an existing project, restoring a project backup and installing upgrades (a "Switch to 'Classic' interface" option is provided for those who would prefer to bypass the new dialog).

8) PLS-CADD/Ultralite mode provides greatly simplified interface for single wire sag-tension (dialog box interface w/o menus and windows, simplified criteria...). Ultralite projects are created using the **Create New Project PLS-CADD/Ultralite** in the new **PLS-CADD Project Wizard** dialog or **File/New/PLS-CADD/Ultralite**. PLS-CADD/Ultralite is a streamlined version of PLS-CADD for quick modeling of a single span of conductor or wire. It develops a Sag-Tension report as well as Stringing Charts for a user definable range of span lengths and stringing temperatures. For more information on PLS-CADD/Ultralite see our website at http://www.powline.com/products/pls-cadd_ultralite.html as well as a video demonstration at https://www.youtube.com/watch?v=ygRBYHG-cVs&feature=youtu.be.

9) Quicksearch Toolbar now searches **File/Preferences Settings** and allows changing of these settings.

10) Modified window user interface so views appear as tabs rather than icons. Tab location can be customized through **File/Preferences/Tab location for open windows** with options for "top", "bottom" or "off" if prefer the old icons over tabs.

11) **File/Preferences/Disable auto-populating the cable display color, as read from the cable file, when making a cable file selection** for customers who don't want color from cable file.

12) **File/Preferences** dialog box now has a search filter to make it easier to find items in the ever growing "Settings".

13) Added **F1/Custom/Under Development/Ruling Span Calculator**.

14) **Criteria/SAPS Finite Element Sag-Tension** dialog no longer displays attachment stiffness options unless project uses non-default values or feature is enabled through a new **File/Preferences** option.

15) Web download dialogs now have a search feature (supports comma separated search terms to search for multiple non-contiguous terms).

16) Added tab context menu command to close all graph, deformed geometry, and report tabs at once (right click on tab title to access).

17) Now associate PLS-CADD ancillary project files with the PLS-CADD program in Windows Explorer so can start the program by clicking on .BRK/.CON/.CRI/.DON/.FEA/.NUM/.PPS/.STR/.TIN in addition to .XYZ or .PFL. These files also have a meaningful description in the Windows Explorer "Type" column as well as a separate icon from the .XYZ PLS-CADD project file.

18) Otto Pilot now has Pause and Resume capability.

Reports

1) **Criteria/Galloping** now allows Amplitude Safety Factor as low as 0.3 (previously limited to 0.5).

2) Galloping calculation refinements including a **Criteria/Galloping** input for acceptable overlap percentage and a "Galloping Ellipses Summary" section that can be exported to XML, viewed in a table, customized, etc. Galloping calculation also made up to 28x faster.

3) **File/Export/XML** "Complete" XML option now includes a "Galloping Ellipses Summary".

4) **Lines/Reports/Danger Tree Locator** now has an "Enable work site..." feature that can group closely spaced vegetation violations into "work sites". A report is provided that indicates the number of violations at each work site as well as the area it covers. Work site information can be exported to XML/KML/KMZ/SHP/DXF files. This feature is shown in the video located at https://www.youtube.com/watch?v=bH1X7xhEMYs&feature=youtu.be.

5) **Criteria/Insulator Swing** menu changed to **Criteria Insulator Swing & Uplift** to reflect that insulator swing and uplift cases are now defined independently. Legacy projects will automatically copy the Insulator Swing cases to the Uplift cases table in order to maintain results of older projects.

6) "ESAA C(b)1-2003", "AS/NZS 7000-2010" and "ISEC-NCR-83" options for **Lines/Reports/Wire Clearances** "Increase in required separation due to asynchronous winds" now include length of strain in calculation of horizontal projection from which sag fed into separation formulas derived.

7) Reports now highlight URLs in blue and clicking upon them opens them in system default Web browser. Adding a URL like http://www.powline.com to **Criteria/Notes** provides a clickable hyperlink to our Web site from all your reports.

8) **Lines/ Reports/ Construction Staking Report** now includes pole property, weight and length for mast elements.

9) **Lines/ Reports/ Summary** includes a Jumper Report.

10) **Lines/ Reports/ Structure Clearances** checks for clearances to jumpers as well as the normal sections.

XML/KML

1) **File/ Export/ KMZ** now groups all lines/polygons for a structure in a folder named after the structure, likewise for sections.

2) XML output now respects any filtering that may have been done in a table. It also sets the 'nrows' attribute to the actual number of rows output rather than the original number (the two can differ when have filtered output).

3) **F1/Custom.../Multiple Project KML** now has option to read DON files and generate a "Multi Project Structure Report".

4) **F1/Custom/Under Development/Multiple Project KML Export of Alignment** now reads custom structure number information from PPS file so can export structure comment designated at user structure number instead of PLS-CADD's internal "True Structure Number".

Web & Examples

1) New manual version 14.40 available for download via **Help/ Check For Updated Manual**.

2) Over 4300 new cable models courtesy of General Cable are now available for download via **Sections/Cable & Concentrated Load Files/Edit Existing Cable File**.

3) 2017 NESC criteria files available for download via **Criteria/ Load CRI File**.

4) New videos available at http://www.powline.com/news.html#video.
   a. PLS-CADD Vegetation Work Sites
   b. Guy Strain Insulator Modeling in PLS-POLE and TOWER
   c. Push Brace Modeling in PLS-POLE
   d. Online Library Integration
   e. P&P Sheets with Multiple Station Ranges
   f. Inset Structure Views in PLS-CADD
   g. Structure Drafting
   h. PLS-CADD/Ultralite introduction