

Osmose O-Calc® Pro

Plugins and Standalone

Applications

User's Guide

Osmose O-Calc® Pro
Plugins and Standalone Applications 1.0
User's Guide
10 November 2017

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Osmose O-Calc® Pro Plugins and Standalone Applications Overview

About Osmose O-Calc® Pro Plugins and Standalone Applications

Osmose O-Calc® Pro is a powerful pole loading calculation platform, but at the same time is an intuitive and easy to user application. While the calculations within O-Calc® Pro are complex and extensive, the user interface is designed for simplicity and ease of use. The O-Calc® Pro platform extends this structural load analysis in a simple, straightforward manner with the use of O-Calc® Pro Plugins and Standalone applications. These are extensions and additions tools of the O-Calc® Pro platform that further increase the completion of complex tasks using tools that are designed to be used by non-structural engineering personnel at utilities.

O-Calc® Pro plugins are typically extensions that either integrate data from front end field data collected information, integrate pole loading calculations into back end operational support systems, or manipulate the O-Calc® Pro models in particular ways. The O-Calc® Pro plugin architecture is so powerful, that particularly any conceivable feature or function can be added.

O-Calc® Pro standalone applications are known, existing features that have been separated from the O-Calc® Pro software and packaged as standalone applications. This helps the user perform tasks, such as determining tensions and sags on a particular conductor, without having to fully model a pole within O-Calc® Pro.

This O-Calc® Pro Plugin and Standalone Application User's Guide gives a brief working description of a number of plugins and applications that have been developed by Osmose and are shipped with the O-Calc® Pro application. This document does not describe how to create your own O-Calc® Pro plugin or application.

Working With the O-Calc® Pro Plugins

Understanding Plugins

Plugin Overview

O-Calc® Pro plugins are add-ins to the O-Calc® Pro platform that extends the functionality of O-Calc® Pro. How the O-Calc® Pro functionality is enhanced or changed is a function of the plugin has been created. The list below gives a quick description of the intent of the plugin, while later sections of this document give detailed step-by-step instructions on how each particular plug-in works.

Available Plugins

The following plugins are available:

Plugin Name	Description
Add Pole as New Version	Add Pole as New Version allows you to import an existing .pplx file into your current O-Calc session as a new version of your current model.
Analysis Export Plugin	Analysis Export Plugin allows you to export analysis data in .CSV format to be imported in another application.
Clipboard Capture Plugin	Clipboard Capture Plugin provides an integrated method to capture span lengths and angles from Google Earth.
Collada Export Plugin	Collada Export Plugin allows you to export 3D View as a mesh file for import into CAD or another application.
ET Truss Selector Plugin	ET Truss Selector Plugin is an automated tool that enables the user to select the proper ET Truss for either poles that are overloaded or need to have an effective pole class upgrade.
External Tools Plugin	External Tools Plugin allows you to run other programs from within O-Calc Pro.
FEM Export Plugin	FEM Export Plugin allows you to export the dimensions and loads of Finite Element Model (FEM) into a text file for review or to be used in another application.

<u>GPS Plugin</u>	GPS Plugin allows you to capture GPS coordinates for machines that have a GPS receiver and can then be used to populate the poles coordinates.
<u>Inventory Edit Plugin</u>	Inventory Edit Plugin allows you to edit numerous object(s) attributes within one window.
<u>JSON Import Export Plugin</u>	JSON Import Export Plugin allows you to import a JSON file (instead of a .pplx file) or export a .pplx file to JSON file format.
<u>Load Explore Plugin</u>	Load Explore Plugin allows you to create an HTML report for the various loads and moments for each component attached to the pole.
<u>Location Service Plugin</u>	Location Services Plugin allows you to populate a structure's latitude and longitude coordinates using location services.
<u>O-Calc LE Plugins</u>	<p>O-Calc LE plugins include the Configuration, Import, Management, and Wizard plugins. These allow you to utilize the O-Calc LE mobile device web application.</p> <p>For more information, please review separate O-Calc LE Documentation found in the Help user root folder.</p>
<u>Open from QR Code Plugin</u>	The Open from QR Code Plugin allows you to generate a unique QR code for the pole model and open it from an image of the QR code.
<u>Photo Edit Plugin</u>	Photo Edit Plugin allows you to use a 3D party application to edit photos that are attached to a structure.
<u>Pole Browser Plugin</u>	Pole Browser Plugin creates a new tab with a list of PPLX files which has a summary of pole information, and a thumb nail list of associated images. PPLX files can be selected from this window and automatically be opened in the Inventory Window.
<u>Scripting Plugin</u>	Scripting Plugin allows you to run scripts that allow you to manipulate pole data for simplicity.

Shape File Plugin	Shape File Plugin Creates a new tab in which the user can include shape files and a number of PPLX files to give a geospatial view of the pole models.
Show Pole On Google Earth Plugin	Show Pole on Google Earth Plugin Using Google Earth allows you to view a large number of poles on a map. As well as opening poles from the map. (enables the display of PPLX models on Google Earth as individual poles or series of pole model locations)
Slack Integration Plugin	Slack Integration Plugin Integrates O-Calc Pro process into the Slack messaging application.
STL Generator Plugin	STL Generator Plugin Export 3D View as a STL file for import into another application.
Voice Control Plugin	Voice Control Plugin allows you to use the built in Microsoft Windows Speech Recognition engine to control specific actions within O-Calc Pro with your voice.

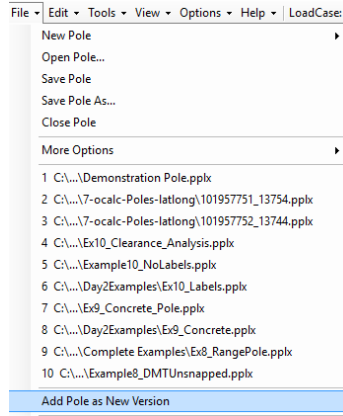
Step-by-Step Plugin Descriptions

Add Pole as New Version

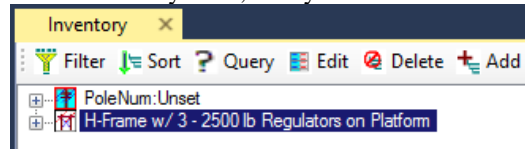
The Add Pole as New Version Plugin allows you to import a previously created .pplx file as a new version of the current .pplx file that you are working with. To enable and use the Add Pole as New Version Plugin, complete the following steps:

Note: A pole needs to be loaded in order to use this plugin.

1. Select the **Add Pole as New Version Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>Add Pole as New Version**.



4. In the windows explorer window that opens, navigate to the .pplx file you would like to bring in as a version.
5. Select the .pplx file, and click **Open**.
6. In the Inventory Pane, verify that a version has been added.

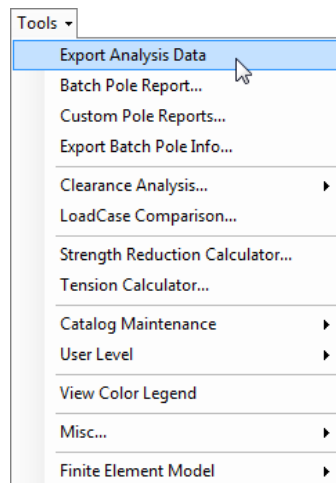


Analysis Export Plugin

The Analysis Export Plugin allows you to export analysis data into CSV format so the data can be imported into another application. To enable and use the Analysis Export Plugin, complete the following steps:

***Note:** A pole needs to be loaded in order to use this plugin.*

1. Select the **Analysis Export Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **Tools>Export Analysis Data**.



***Note:** A structure needs to be loaded in order to export analysis data.*

Select the export you would like to complete:

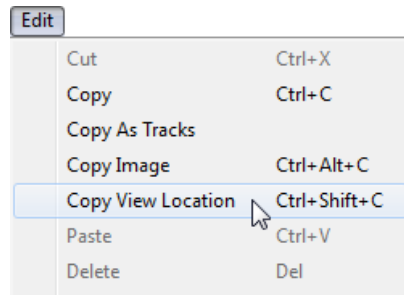
- A. Basic Analysis Data – Will export standard Analysis Report information into a CSV file. It will list the name of each parameter associated with the pole model and the corresponding value for that parameter.
 - B. Sweep Analysis Data – Will export information into CSV format about the capacity utilization of the pole as a function of the height above groundline (by default in 36 inch increments) and as a function of wind angle in 10 degree increments.
 - C. Guy Tension Data – Will export information about the tension of each guy on the modeled pole as a function of wind angle in 10 degree increments into CSV format.
4. **Browse** to the location you would like to save the CSV file, enter the **File Name** and select **Save**.

Clipboard Capture Plugin

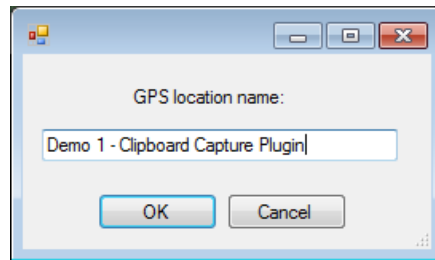
The Clipboard Capture Plugin allows you to populate latitude and longitude coordinates from other data sources (e.g. Google Earth) via the clipboard. To enable and use the Clipboard Capture Plugin, complete the following steps:

***Note:** The example below uses the Google Earth application; you may use other data sources as well.*

1. Select the **Clipboard Capture GPS Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Open the **structure** that you would like to copy coordinates to.
4. Establish the **location** within *Google Earth*.
5. Select **Edit< Copy View Location** in *Google Earth*.



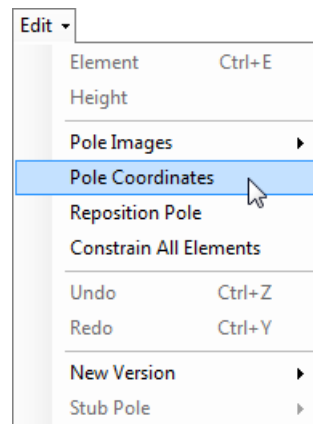
6. Enter the **GPS Location Name** in *Google Earth*.



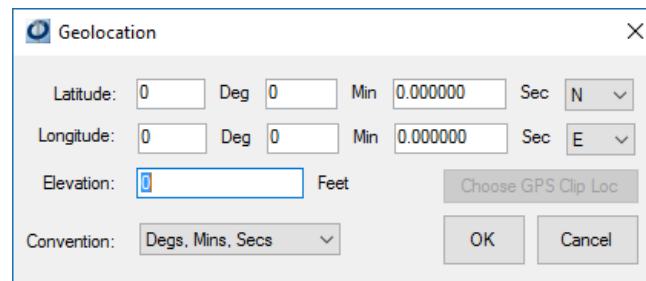
7. Select **OK**.

Note: Multiple GPS location names can be stored by O-Calc Pro. To add another GPS Location repeat steps 4 – 7.

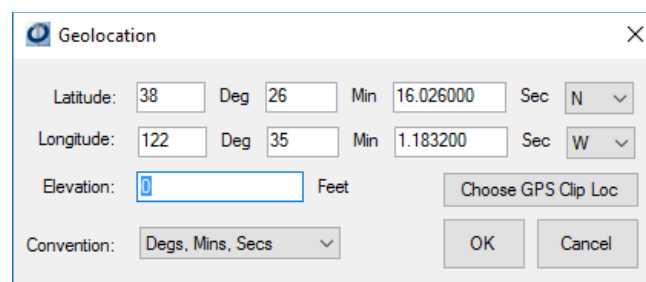
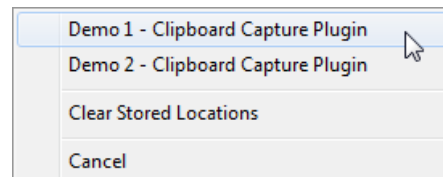
8. In O-Calc Pro select **Edit>Pole Coordinates**.



9. Select the **Choose GPS Clip Loc** button.




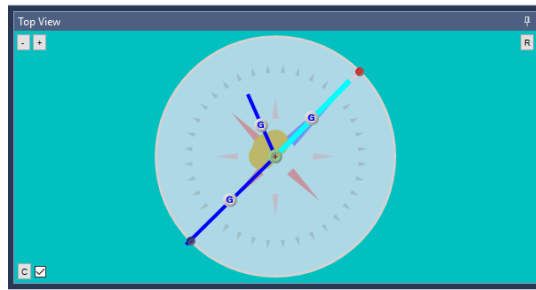
10. Select the **GPS Location Name** that has the coordinates you would like copied into the Geo Location Latitude and Longitude fields.



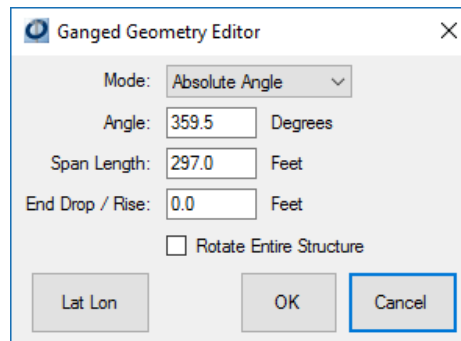
11. Select **OK**.

Note: Select **Clear Stored Location** to clear the stored coordinates from the clipboard. Closing the application will also clear the stored coordinates.

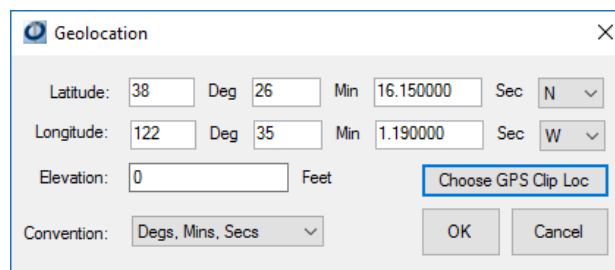
12. To auto-calculate the location end of span using a GPS Clip Location, select the **Ganged Geometry object** .



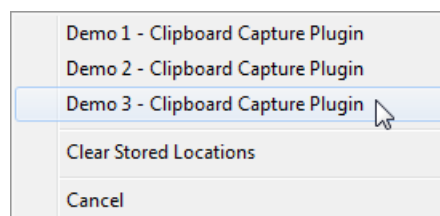
Note: Selecting a span(s) in the Inventory Window will highlight the span(s) in the Top View Window.



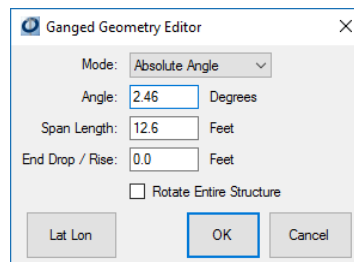
13. Select the **Lat Lon** button.



14. Select the **GPS Clip Location** for the end of span.



The Ganged Geometry Editor **Angle** and **Span Length** are **automatically updated** using the selected **GPS Clip Location**.

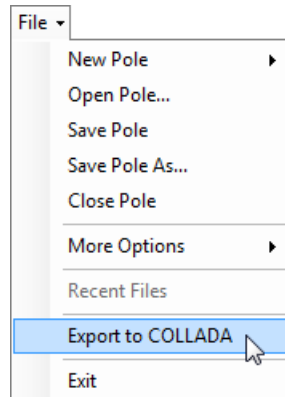


15. Select **OK**.

Collada Export Plugin

The Collada Export Plugin allows you to export the 3D View as a MESH file. This provides you with the ability to import the 3D View into another application such as a 3D Graphic CAD program. To enable and use the Collada Export Plugin, complete the following steps:

1. Select the **Collar Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>Export to COLLADA**.



***Note:** A structure needs to be loaded in order to enable the Export to COLLADA option.*

4. **Browse** to the location you would like to save the MESH file, enter the **File Name** and select **Save**.

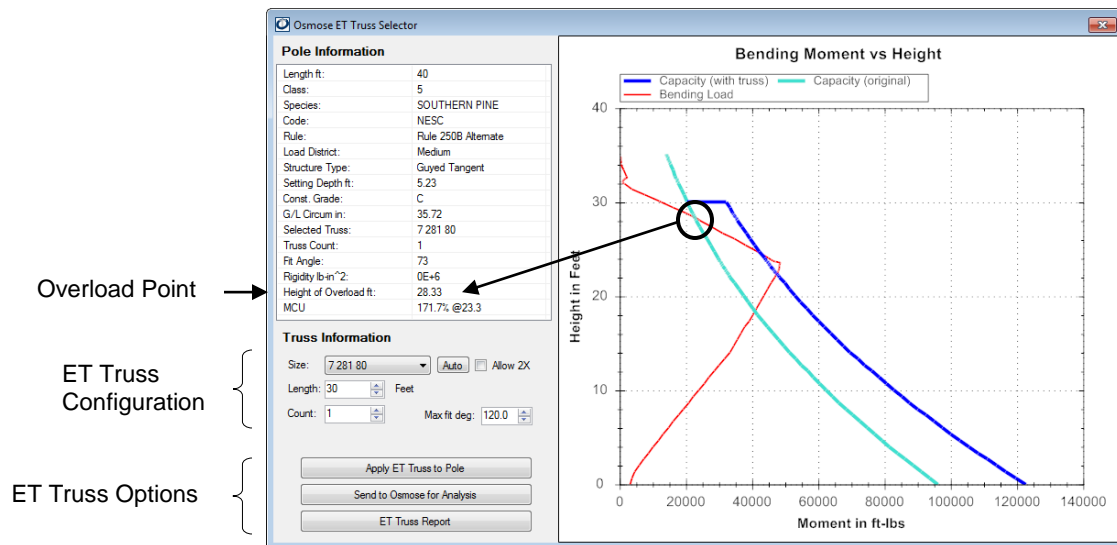
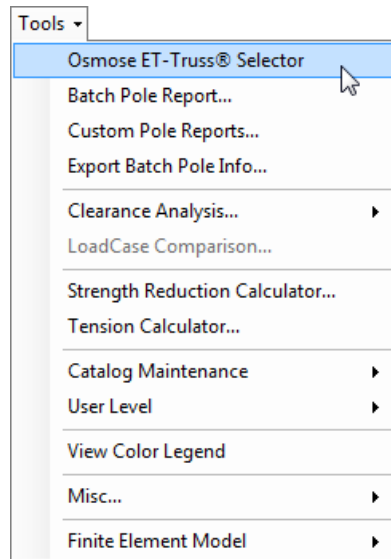
ET Truss Selector Plugin

The Osmose ET-Truss Selector Plugin automatically selects the proper ET-Truss (extended and tapered truss) based on either the overloaded model or the user-defined increase in effective pole class. This is an incredible useful tool for pole owners who are performing system hardening projects. To enable and use the Osmose ET-Truss Selector Plugin, complete the following steps:

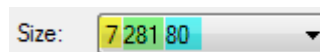
Additional information can be obtained from the following location:

<http://www.osmose.com/content/pages/et-truss>

1. Select the **ET Truss Selector Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Open the **structure** that you would like to use the ET Truss Selector with.
4. Select **Tools>Osmose ET-Truss ® Selector**.



5. Select the ET Truss **Size** from the drop down list.



Size Display	Description
7	Width in inches
281	Thickness
80	Kips

Note: Select the **Auto** button to have the ET Truss Solution automatically populate the minimal value.

***Note:** Select the **Allow 2X** option to enable the selector to try using 2 ET Trusses if a single ET Truss solution is not found.*

6. Select the **Length** of the ET Truss.

***Note:** The Length should be at least one foot about the Height of Overload.*

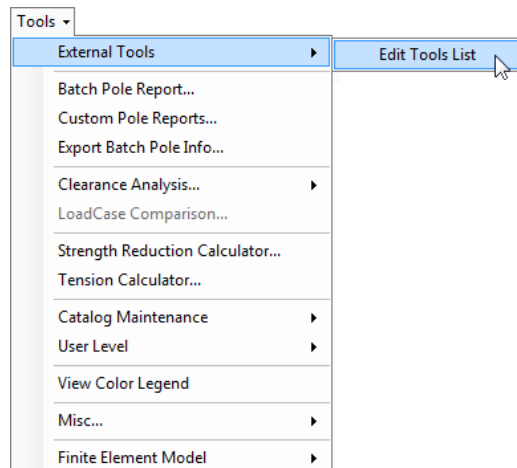
7. Select the **Count** of the ET Trusses
8. Adjust the **Max fit deg** if needed.

ET Truss Options	Description
<div>Apply ET Truss to Pole</div>	The Apply ET Truss to Pole option will apply the solution to the currently loaded structure.
<div>Send to Osmose for Analysis</div>	The Send to Osmose for Analysis option will send the solution to Osmose for analysis.
<div>ET Truss Report</div>	The ET Truss Report option will display the current solution in report format.

External Tools Plugin

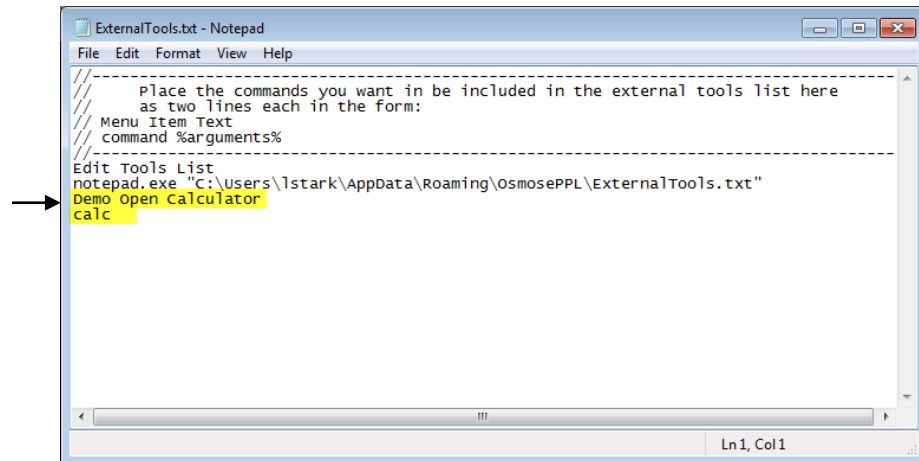
The External Tool plugin allows you to run additional programs from within O-Calc Pro. It also permits you to pass parameters from one application to another. To enable and use the External Tools Plugin, complete the following steps:

1. Select the **External Tools Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **Tools>External Tools>Edit Tools List**.

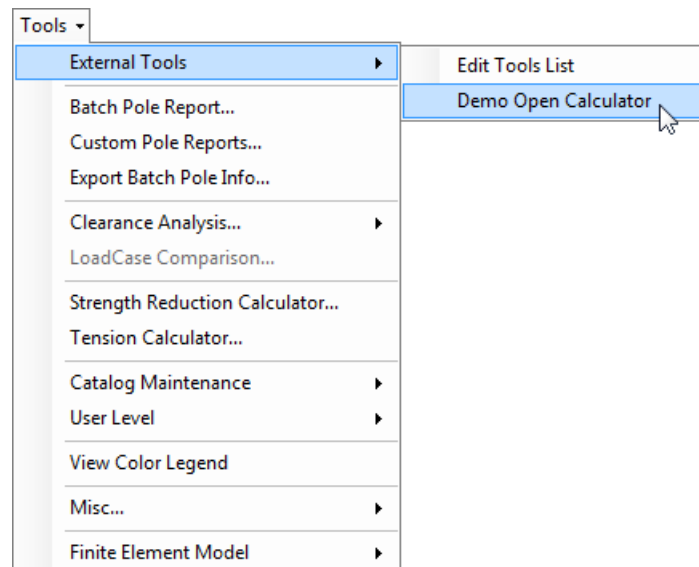


4. **Add the application** that you would like to run within O-Calc Pro to the Edit Tools List.

Menu title and application to be opened when selected



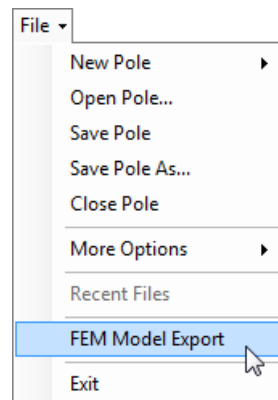
5. Select **File>Save** to save your modifications.
6. **Close** and **reopen** the O-Calc Pro application.
7. Select **Tools>External Tools>(menu title you entered in the configuration file)** to open the application.



FEM Export Plugin

The Finite Element Model (FEM) plugin allows you to create a text file of the dimensions and loads for each finite element within the model. To enable and use the FEM Plugin, complete the following steps:

1. Select **FEM Export** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>FEM Model Export**.



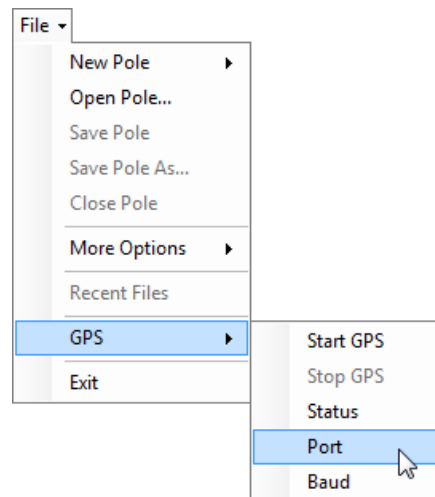
***Note:** A structure needs to be loaded in order to enable the FEM Model Export option.*

4. **Browse** to the location you would like to save the file, enter the **File Name** and select **Save**.

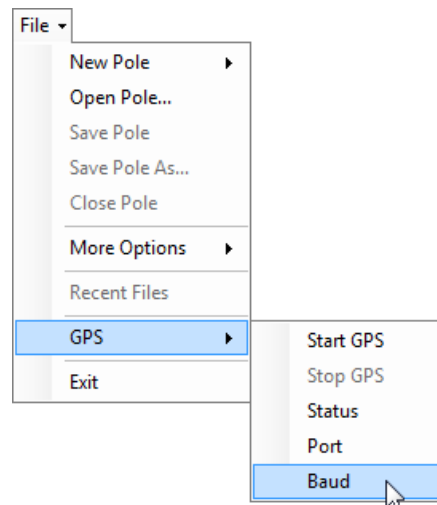
GPS Plugin

The GPS Plugin allows you to populate a structure's latitude and longitude coordinates from a device. To enable and use the GPS Plugin, complete the following steps:

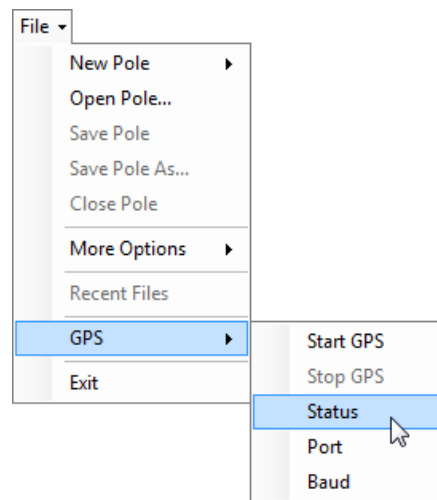
1. Select the **GPS Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>GPS>Port** to configure the GPS device port.



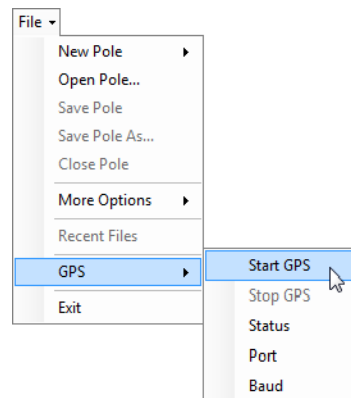
4. Select **File>GPS>Baud** to configure the GPS device baud.



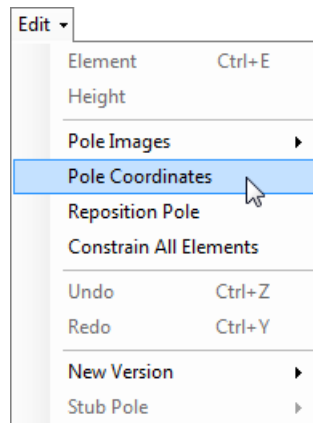
5. To verify the GPS connection select **File>GPS>Status**.



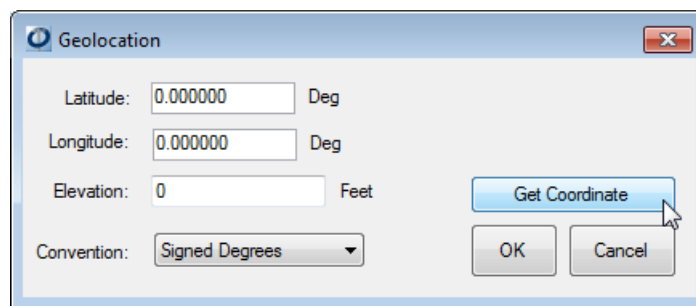
6. Open the **structure** that you would like to capture the GPS coordinates for.
7. To start the GPS device select **File>GPS>Start GPS**.



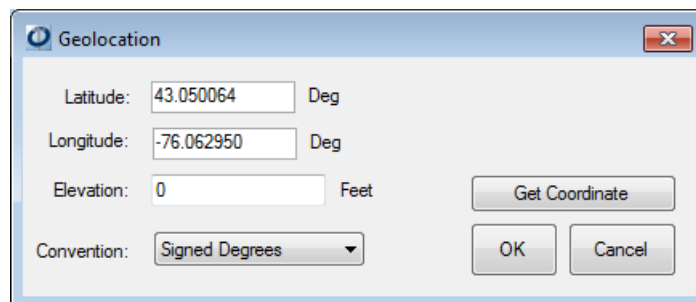
8. Select **Edit>Pole Coordinates**.



9. Select the **Get Coordinate** button.



The GPS coordinates are **automatically populated** with the latitude and longitude obtained by the GPD device.

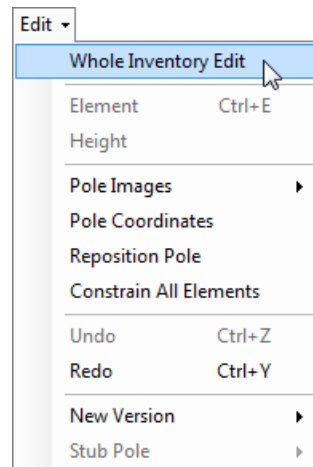


10. Select **OK**.
11. To stop the GPS device select **File>GPS>Stop GPS**.

Inventory Edit Plugin

The Inventory Edit Plugin is used to rapidly edit numerous object(s) attributes within one window. The plugin will open a full screen window that displays all the objects and their attributes in edit mode making it very efficient to edit numerous attributes quickly. To enable and use the Inventory Edit Plugin, complete the following steps:

1. Select the **Inventory Edit Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **Edit>Whole Inventory Edit**.



Note: A structure needs to be loaded in order to enable the Whole Inventory Edit option.

The screenshot shows the 'Inventory Edit Form' window with three panels. The 'Wood Pole' panel on the left contains fields for Pole Number, Owner, Structure Type, Pole Class, Pole Length, Species, Code, Setting Depth, Line of Lead, Lean Direction, Lean Amount, Tip Circum, GL Circum Method, GL Circum, Apply Eff. GL Reduction, Eff. GL Circ, GL Remaining Strength, Soil Class, Overturn Moment, Modulus of Rupture, Modulus of Elasticity, Poisson's Ratio, Wind Drag Coef, Thermal Coef, Density, Char Shear Str, Char Compression Str, Effective Length, Material Constant, Pole Mfg Length, Table No, Aux Data 1-8, Buckling Constant, Override Moment Cap, and Moment Cap. The 'Insulator' panel in the middle contains fields for Description, Owner, Type, Install Height, Rotation, Side, Horizontal Offset, Unit Length, Davit Angle, Tilt, Crab Angle, Unit Width, Unit Weight, Shed Count, Wind Drag Coef, Line End Fitting, and Stalk Material. The 'Span' panel on the right contains fields for SpanType, Owner, Description, Rotation, Span Length, End Drop/Rise, Span Sag, Tension Type, Tension, Tension Table, Slack Tension, Rated Strength, Span Diameter, Override Temp, Temp Nom, Temp Min, Temp Max, Span Weight, Modulus of Elasticity, Percent Solid, Thermal Coef, Creep Coef, Ice Accum Factor, Wind Tension Factor, Wind Drag Coef, Vertical Offset, Horizontal Offset, Stop at Tap, Inline Junction, Junc Box Offset, Junc Box Len, Junc Box Diam, Junc Box Weight, Drip Loop, Drip Loop Offset, Drip Loop Len, Drip Loop Height, and Modifier.

4. Complete any **modification** to the attributes.

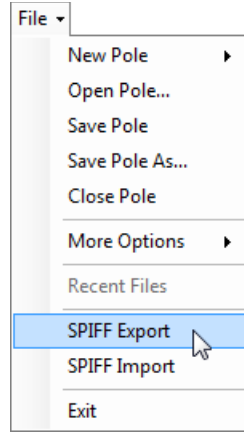
Note: Attributes that are not editable in the Data Entry Panel or that need administrative privileges will not be editable in the Inventory Edit Form.

5. Select the **X** in the upper right hand corner to **save and close** the Inventory Edit Form window.

JSON Import Export Plugin

The JSON plugin allows you to import a JSON file (instead of a .pplx file) or export a .pplx file to JSON file format. To enable and use the JSON Import/Export Plugin, complete the following steps:

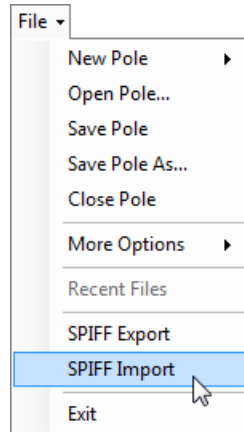
1. Select the **JSON Import Export Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. To export the current .pplx file to a .spiff file, select **File>SPIFF Export**.



***Note:** A structure needs to be loaded in order to enable the SPIFF Export option.*

***Note:** Images attached, or embedded, to the .pplx file are not exported.*

4. **Browse** to the location you would like to save the SPIFF file, enter the **File Name** and select **Save**.
5. To import a SPIFF file, select **File>SPIFF Import**.



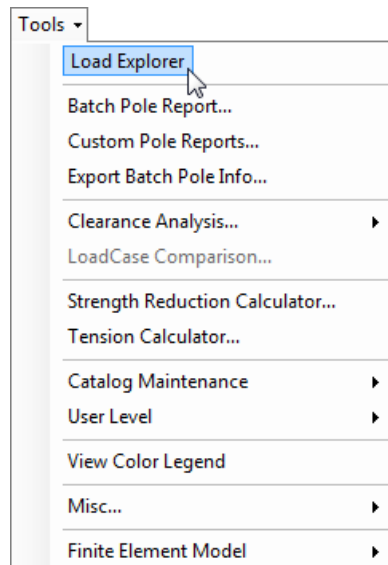
6. **Browse** to the SPIFF file you would like to import, select **Open**.
The file is automatically opened in O-Calc Pro.

Load Explore Plugin

The Load Explorer Plugin creates a report that contains reference information on every applied load on the currently loaded structure. To enable and use the Load Explore Plugin, complete the following steps:

1. Select the **Load Explorer Plugin** from the **Options>Manage Plugins** menu and select **Apply**.

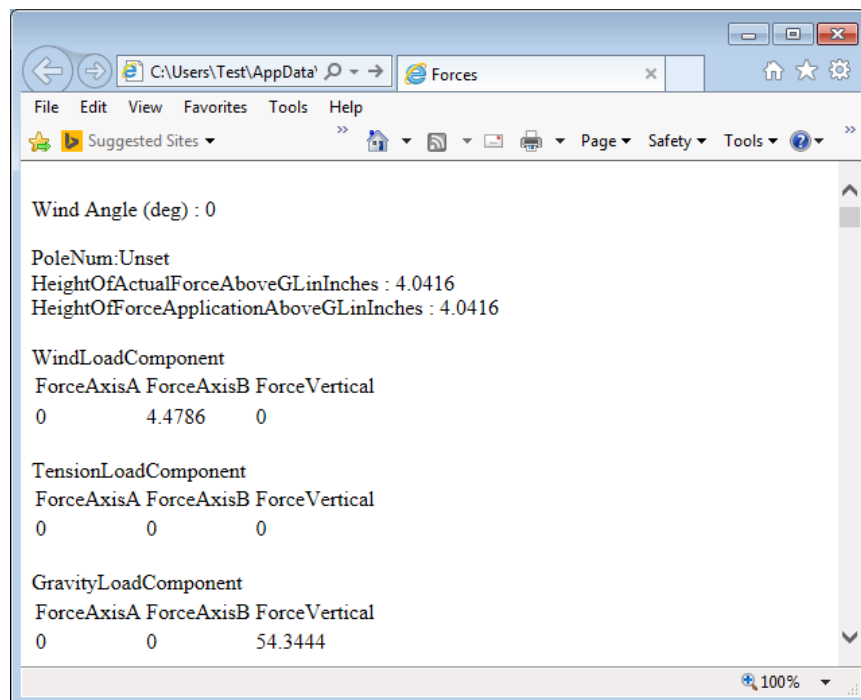
2. Select **Yes** to restart the application and apply you're changes.
3. Select **Tools> Load Explorer**.



Note: A structure needs to be loaded in order to enable the Load Explorer option.

Note: The report may take a moment to load.

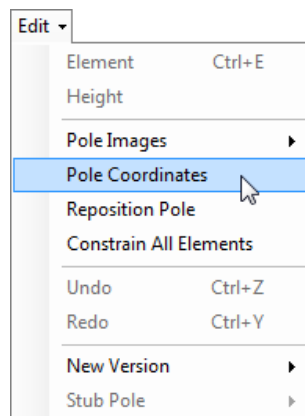
Once the Load Explorer option has been selected the report will automatically be loaded. The report will also be saved to your temp folder as Loads.html.



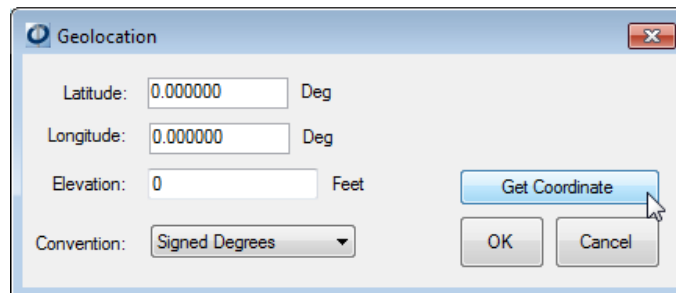
Location Service Plugin

The Location Services Plugin allows you to populate a structure's latitude and longitude coordinates using location services. To enable and use the Location Service Plugin, complete the following steps:

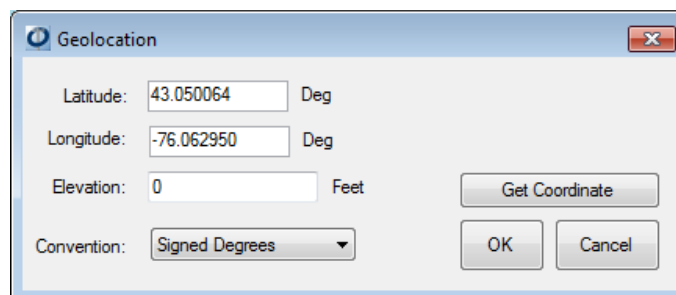
1. Select the **Location Services Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
Note: You will be prompted to setup a default location if one is not already setup.
3. Open the **structure** that you would like to capture the GPS coordinates for.
4. Select **Edit>Pole Coordinates**.



5. Select the **Get Coordinate** button.



The GPS coordinates are **automatically populated** with the latitude and longitude obtained by the GPD device.



6. Select **OK**.

Open from QR Code Plugin

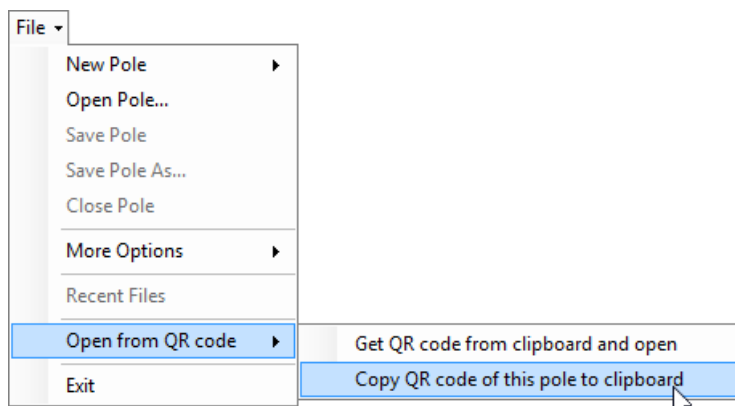
The Open from QR Code Plugin allows you to open a .pplx file based on the structure's unique QR Code.

Example: If your .pplx files are on a shared network you can send someone the QR Code of a structure you would like them to review. The QR Code can be emailed, screen captured, captured with a digital photo or captured via webcam, etc...

To enable and use the Open from QR Code Plugin, complete the following steps:

1. Select the **Open From QR Code Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. **Yes** to restart the application and apply your changes.
3. To copy the QR Code of the currently loaded structure, select **File>Open from QR Code>Copy QR Code of this pole to clipboard**.

Note: The structure needs to be saved in order to have a QR Code.



The QR Code is copied to the Office Clipboard and can be pasted into other applications such as email, Microsoft Word or Excel for future use.

Note: The QR Code can also be viewed in the QR Code Report.



4. To automatically get the QR code from the Office Clipboard and open the .pplx file, select **File>Open from QR Code>Get QR Code from clipboard and open**.

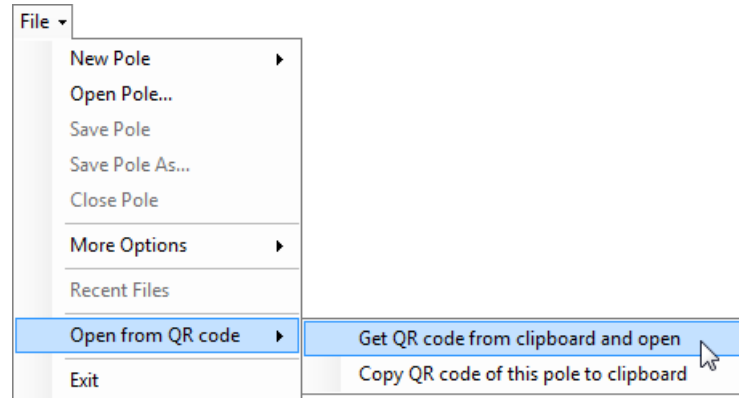


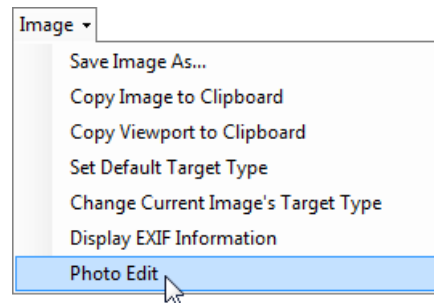
Photo Edit Plugin

The Photo Edit Plugin allows you to modify photos that are attached to a currently loaded structure using your built in photo editing application. To enable and use the Photo Edit Plugin, complete the following steps:

1. Select the **Photo Edit Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Open the **structure** that has images you would like to modify.
4. Select the **Measure Tab**.

***Note:** If multiple images are attached to the strucutre **select the image** you would like to modify.*

5. Select **Image>Photo Edit**.



The image is automatically opened in your default image editing application.

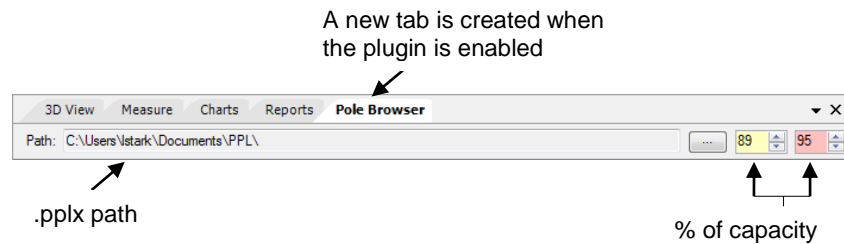
6. Complete any **modifications** to the selected image.
7. Save the modification and close the image editing application.


The image is automatically updated in the Measure Tab in O-Calc Pro.

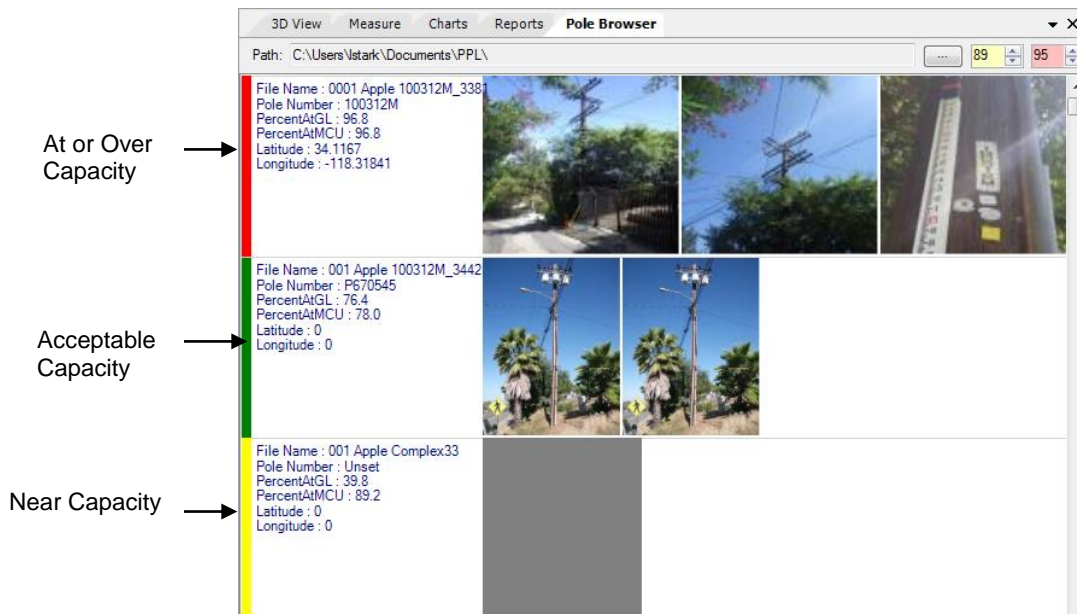
Pole Browser Plugin

The Pole Browser Plugin allows you to easily browse through all your .pplx files. The Pole Browser Plugin displays the structures capacity level, basic structure information and displays all images attached to the structure. To enable and use the Pole Browser Plugin, complete the following steps:

1. Select the **Pole Browser Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select the **Pole Browser** tab.



4. Select the **Browse** button  and browse to the location of the .pplx files you would like to browse.
5. Use the up/down arrows to set the threshold for the **% of Capacity**.



The following table describes the default color representation for the Pole Capacity.

Display Color	Description
Green	Acceptable Capacity
Yellow	Near Capacity
Red	At or Over Capacity

6. Double click on the structure you would like loaded in the Inventory Window.

Scripting Plugin

The scripting plugin allows you to run scripts that allow you to manipulate pole data for simplicity. The scripting plugin is the same scripting that is in Microsoft Excel.

An instructional video and additional information can be obtained from the following locations:

<https://www.youtube.com/watch?v=mJASmApV9qM>

<http://o-calcpro.com/wiki/category/scripting/>

To enable and use the Scripting Plugin, complete the following steps

1. Select the **Scripting Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.

Shape File Plugin

The Shape File Plugin Creates a new tab in which the user can include shape files and a number of PPLX files to give a geospatial view of the pole models.

Additional instructions can be obtained from the following instructional video:

<https://www.youtube.com/watch?v=Pn5cmVS8KwE>

To enable and use the Shape File Plugin, complete the following steps:

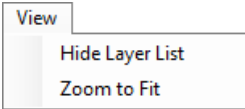
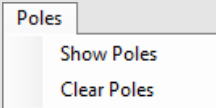
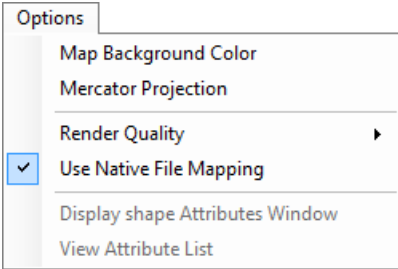
1. Select the **Shape File Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.



Toolbar Menu Options

The toolbar menu provides you with a variety of operations and options.

File View Poles Options Help	
<p>File</p> <ul style="list-style-type: none"> New Project Open Project Save Project Save Project As Add Shape File Save Map Image Print Map 	<p>File. The following options are available from the File menu:</p> <p>New Project. Select the New Project option to start a new project.</p> <p>Open Project. Select the Open Project option to open Easy GIS Project File.</p> <p>Save Project. Select the Save Project option to save the current project.</p> <p>Save Project As. Select the Select Project As to save the current project under a different name.</p> <p>Add Shape File. Select the Add Shape File option to open a shape file.</p>

	<p>Save Map Image. Select the Save Map Image to save the currently displayed map image.</p> <p>Print Map. Select the Print Map option to print the currently displayed map image.</p>
	<p>View. The following options are available from the View menu:</p> <p>Hide Layer List. Select the Hide Layer List option to hide the landbase layer list and the landbase layer description. The map will resize to cover the whole area.</p> <p><i>Note: The Hide Layer List option will change to Show Layer List when selected.</i></p> <p>Zoom to Fit. Select the Zoom to Fit option to revert the map display back to default setting zoom level.</p>
	<p>Poles. The following options are available from the Poles menu:</p> <p>Show Poles. Select the Show Poles option to load the poles in the map.</p> <p>Clear Poles. Select the Clear Poles option to remove the poles from the map.</p>
	<p>Options. The following options are available from the Option menu:</p> <p>Map Background Color. Select the Map Background Color option to change the map background color.</p>

	<p><i>Mercator Projection.</i> Select the Mercator Projection option to change the projection of the map.</p> <p><i>Render Quality.</i> Select the Render Quality option to set the rendering quality of the map.</p> <p><i>Use Native File Mapping.</i> Select this option so that the shape file is displayed based in its native coordinate system, otherwise it will be translated based on a corresponding projection file.</p> <p><i>Display Shape Attributes Window.</i> Select the Display Shape Attributes Window option to display the share attributes window.</p> <p><i>View Attribute List.</i> Select the View Attribute List option to view the attribute list.</p>
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3. Select **File>New Project**.
4. Select **File>Add Shape File**, browse to the location of your shape file(s) and select the shape file you would like loaded.
5. Select **Poles>Show Poles**, browse to the location of the .PPLX files you would like displayed on the map.

Show Pole On Google Earth Plugin

To enable and use the Show Pole on Google Earth Plugin, complete the following steps:

1. Select the **Show Pole on Google Earth Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>Show on Google Earth**.

Options	Description
Show Marker	The currently loaded .structure is displayed as a marker in Google Earth.

Render Structure	Renders the currently loaded structure in Google Earth.
Batch Create Index	Creates a batch index (.kml) file containing a group of structures from a specific location.
Help	Provides set-up and basic information.

Show Marker

To have the currently loaded structure represented as a marker in Google Earth, complete the following steps:

1. Open the **structure** that you would like to show in Google Earth.

*Note: The structure's Geo Coordinates need to set-up before the structure can be shown in Google Earth, **Edit>Pole Coordinates**.*

2. Select **File>Show on Google Earth>Show Marker**.

Google Earth will automatically open and the currently loaded structure will be represented as a marker in Google Earth.

Note: Left clicking on the marker will provide a link to open the structure in O-Calc Pro.

Render Structure

To render the currently loaded structure in Google Earth, complete the following steps:

1. Open the **structure** that you would like to show in Google Earth.

*Note: The structure's Geo Coordinates need to set-up before the structure can be rendered in Google Earth, **Edit>Pole Coordinates**.*

2. Select **File>Show on Google Earth>Render Structure**.

Google Earth will automatically open and the currently loaded structure will be rendered in Google Earth.

Batch Create Index

To create a batch index file that contains a group of structures and to have their markers displayed in Google Earth, complete the following steps:

1. Select **File>Show on Google Earth>Batch Create Index**.
2. Browse to the location of the structures you would like to create a batch index (.kml) file of, and select the **Select Folder** button.
3. Select **Yes** or **No** to include the sub-directories.
4. **Browse** to the location you would like the file saved to, enter a **name** for **the file** and select **Save**.

Google Earth will automatically open and the currently loaded structure will be represented as a marker in Google Earth.

***Note:** Left clicking on a specific marker will provide a link to open the structure in O-Calc Pro.*

Help

To find general set-up information, complete the following steps:

1. Select **File>Show on Google Earth>Help**.

Slack Integration Plugin

The Slack Integration Plugin Integrates O-Calc Pro processes into the Slack messaging application.

An O-Calc Pro instructional video can be obtained from the following location:

<https://www.youtube.com/watch?v=BjphJ3oupgA>

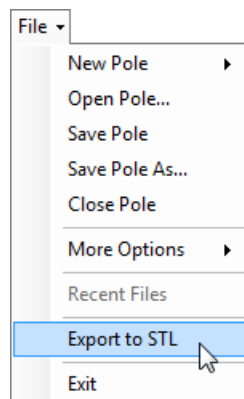
To enable and use the Slack Integration Plugin, complete the following steps:

1. Select the **Slack Integration Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.

STL Generator Plugin

The STL Generator Plugin allows you to export the 3D View as an STL file. This provides you with the ability to import the 3D View into another application. To enable and use the STL Generator Plugin, complete the following steps:

1. Select the **STL Generator Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.
3. Select **File>Export to STL**.



***Note:** A structure needs to be loaded in order to enable the Export to STL option.*

4. **Browse** to the location you would like to save the MESH file, enter the **File Name** and select **Save**.

Voice Control Plugin

The Voice Control Plugin allows you to use the built in Microsoft Windows Speech Recognition engine to control O-Calc Pro with your voice. When this plugin is enabled you can interact with menu items and enter numbers using your voice.

***Note:** The Microsoft Windows Speech Recognition engine needs to be configured properly in order for the Voice Control Plugin to work.*

To enable and use the Voice Control Plugin, complete the following steps:

1. Select the **Voice Control Plugin** from the **Options>Manage Plugins** menu and select **Apply**.
2. Select **Yes** to restart the application and apply you're changes.

Standalone O-Calc® Pro Applications

Understanding Standalone Applications

Standalone Applicatin Overview

O-Calc® Pro system has a number of features either directly built into the software or has extended features based on the O-Calc® Pro plugins architecture. Some of these features have been created developed into applications that are separate from the O-Calc® Pro platform. These standalone applications, as is a common theme within the O-Calc® Pro system, enable the user to be efficient in performing the pole loading analysis. While these are separate, standalone applications, they are still part of the overall platform. For example, using the Pole Browser application gives the user a thumb nail view of a list of PPLX files, but double clicking on any pole within the Pole Browser will launch the O-Calc® Pro application for this pole. The list below gives a quick description of the intent of each O-Calc® Pro Standalone Application, while later sections of this document give detailed step-by-step instructions on how each particular plug-in works.

Available Standalone Applications

The following standalone applications are available:

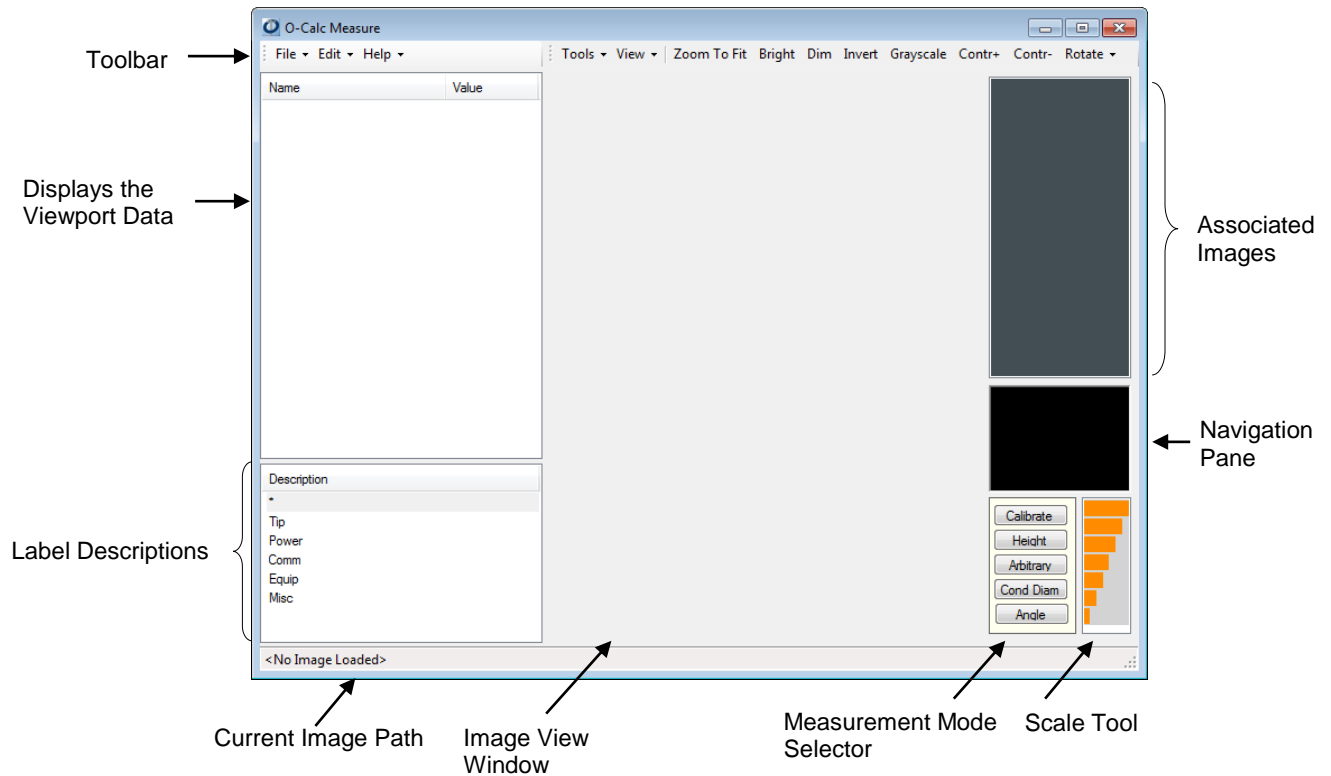
Application	Description
Digital Measurement Technology (DMT)	The Digital Measurement Technology (DMT) allows the measurement of pole features from image data.
Image Split Merge	The Image Split Merge application allows you to embed and un-embed images within PPLX files.
Pole Browser	The Pole Browser standalone application creates another O-Calc Pro window with a list of PPLX files, summary of pole information, and a thumb nail list of associated images. PPLX files can be selected from this window and automatically be opened in O-Calc Pro.
Sag Tension Calculator	The Sag Tension Calculator allows you calculate and apply a Sag Tension to a span whose Tension Type is set to Static. The Sag Tension Calculator can also be used for reference purposes without applying a sag tension calculation.
Shape File Viewer	The Shape File Viewer allows you to work with shape files and a number of PPLX files to give a geospatial view of the pole model.

Step-by-Step Standalone Application Descriptions

Digital Measurement Technology (DMT)

The DMT tool provides a variety of tools designed to allow the user to complete image measurements, review and enhance image data.

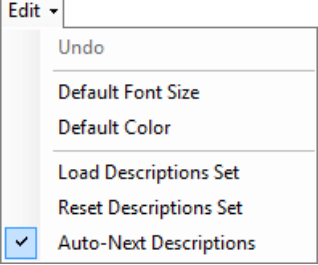
1. Open the O-Calc Pro Bin directory and double click the **DMTTool.exe**.



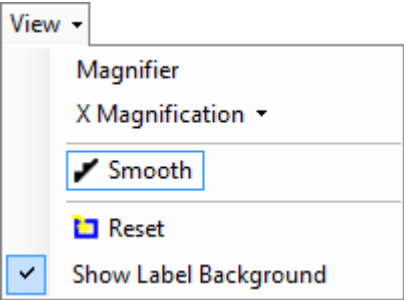
Toolbar Menu Options



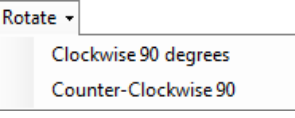
The toolbar menu provides you with a variety of operations and options.

<p>File Edit Help</p>	<p>File. The following options are available from the File menu:</p>
<p>File</p> <ul style="list-style-type: none"> New Load Save Select Images Select PPLX file View / Print Report Copy Data Copy Image Copy Viewport 	<p>New. Select the New option to clear the viewport label information from the Data panel.</p> <p>Load. Select the Load option to load an .ODMT file.</p> <p>Save. Select the Save option to save the current measurements.</p> <p>Select Image. Select the Select Image option to select images to be opened in the DMT tool.</p> <p>Select PPLX File. Select the Select PPLX File option to open an existing PPLX file.</p> <p>View / Print Report. Select the View / Print Report option to view or print the DMT report.</p> <p>Copy Data. Select the Copy Data option to copy the data to clipboard so that the data can be pasted directly into another application such as Microsoft Word, E-mail, etc.</p> <p>Copy Image. Select the Copy Image option to copy the currently selected image to clipboard so that the image can be pasted directly into another application such as Microsoft Word, E-mail, etc.</p>


	<p>Copy Viewport. Select the Copy Viewport option to copy the selected image as it is currently displayed to the clipboard. The copied image can then be pasted directly into another application such as Microsoft Word, E-mail, etc.</p>
	<p>Edit. The following options are available from the Edit menu:</p> <p>Undo. Select the Undo option to undo the last measurement from the Data panel.</p> <p>Default Font Size. Select the Default Font Size option to change the default viewport label font.</p> <p>Default Color. Select the Default Color option to change the default viewport label font color.</p> <p>Load Description Set. Select the load Description Set option to load a custom description set.</p> <p>Reset Description Set. Select the Reset Description Set option to reset the description set.</p> <p>Auto-Next Description. Select the Auto-Next Description option to automatically advance to the next description once a measurement has been completed.</p>

Tools ▾ View ▾ Zoom To Fit Bright Dim Invert Grayscale Contr+ Contr- Rotate ▾	
<div> <div>Tools ▾</div> <div> Save Image As... Copy Image to Clipboard Copy Viewport to Clipboard Set Default Target Type Change Current Image's Target Type Display EXIF Information </div> </div>	<p>Tools. The following options are available from the Tools menu:</p> <p><i>Save Image As.</i> Select the Save Image As option to save the current image as a variety of file types (JPEG, BMP, GIF or PNG).</p> <p><i>Copy Image to Clipboard.</i> Select the Copy Image to Clipboard option to copy the current selected image to the clipboard so that the image can be pasted directly to other applications such as MS Word, E-mail, etc.</p> <p><i>Copy Viewport to Clipboard.</i> Select the Copy Viewport to Clipboard option to copy the selected image as it is currently displayed to the clipboard. The copied image can then be pasted directly to other applications such as MS Word, E-mail, etc.</p> <p><i>Set Default Target Type.</i> Select the Set Default Target Type option to select the Calibrated Visual Target (CVT) that was used in order to get accurate measurements.</p> <p><i>Change Current Image's Target Type.</i> Select the Change Current Image's Target Type option to change the currently selected (displayed) images target type.</p> <p><i>Display EXIF Information.</i> Select the Display EXIF Information option to display the metadata in the image.</p>

	<p>View. The following options are available from the View menu:</p> <p>Magnifier. Click the Mag option to show or hide the magnification window. With the magnification window displayed, move the mouse anywhere in the image to view that area in the magnification window.</p> <p>X Magnification. Select the magnification level to use with the Magnification Window.</p> <p>Smooth. Click the Smooth option to smooth hard edges of the image.</p> <p>Reset. Click the Reset option to undo any display/enhancement options that were selected.</p> <p>Show Label Background. Select the Show Label Background option to outline and enhance the label backgrounds.</p>
<p>Zoom To Fit</p>	<p>Zoom to Fit. Click the Zoom to Fit option to reset the image to its original size.</p>
<p>Bright</p>	<p>Bright. Click the Bright option to brighten the image.</p>
<p>Dim</p>	<p>Dim. Click the Dim option to darken the image.</p>
<p>Invert</p>	<p>Invert. Click the Invert option to invert the colors of the image.</p>
<p>Grayscale</p>	<p>Grayscale. Click the Grayscale option to set the image to black and white.</p>

	<p>Contr + Click the Contr + option to set the contrast higher.</p> <p>Increasing the contrast will make dark tones darker and the light tones brighter. Using the Contrast option also affects the sharpness of the image.</p>
	<p>Contr - Click the Contr – option to set the contrast lower.</p>
	<p>Rotate. Select the Rotate option to rotate the image 90 degrees to the right or left.</p>



The DMT tool also provides several ways to navigate within the image by providing the following tools:

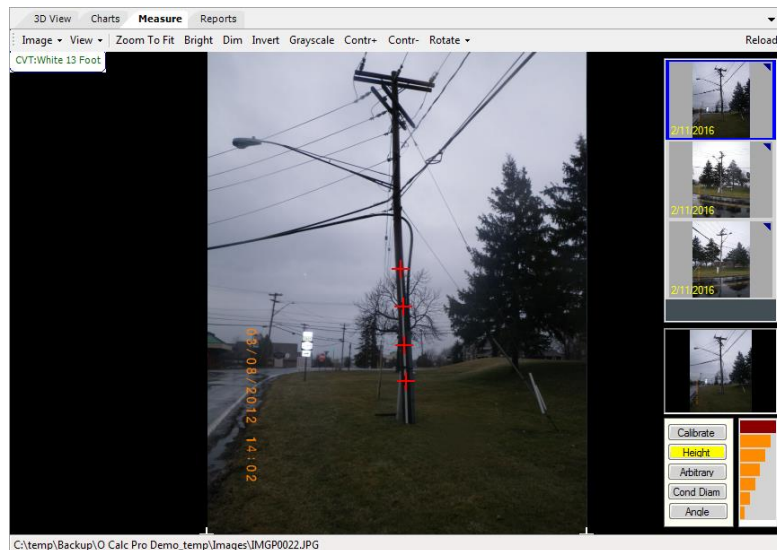
<p>Mouse Wheel</p>	<p>You can use the mouse wheel to interact with the image. To zoom in or out scroll the mouse wheel forwards or backwards. To pan, click the mouse wheel down and drag the image to shift the location of the image.</p>
<p>Associated Images</p>	<p>All images that are associated or related to the selected feature are displayed as thumbnails on the upper right side of the Image View window. Select a thumbnail to change which images measurements are going to be completed on.</p>
<p>Navigation Pane</p>	<p>Clicking a point in the Navigation Pane will center the image on that point in the Image View Window.</p>
<p>Scale Tool</p> 	<p>Click different levels on the scale to zoom-in or zoom-out to see more details in an image.</p>

<p>Measure Mode Selector</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Calibrate</p> <p>Height</p> <p>Arbitrary</p> <p>Cond Dia</p> <p>Angle</p> </div>	<p>Click a Measure Mode to activate the measurement tool for the selected mode. Only task of the selected type will be available to measure. Note the Image must be Calibrated before the Measure Mode tools are available.</p>
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Setting the Calibration

When an image, .odmt file or a .pplx file is initially opened the Calibration Mode is selected by default. The Calibration measurement needs to be completed once on each image before any other measurements are taken on that image. To complete the Calibration measurement, complete the following steps:

1. Select the **image** you will use to set the Calibration.
Note: When setting the calibration the cursor will change to a measurement sight  enabling you to get a precise measurement.
2. The **Calibration Mode** requires 3 – 4 measurements, based on the target type. Place the measurement sight where the first calibration point is and click the left mouse button. A red plus sign  marks your first calibration measurement.
3. Using the **measurement sight** set the remaining calibration point locations.







Once all the Calibration measurements are completed the next mode will automatically be selected. At this point you can select any of the available modes to complete measurements on.

Note: If you need to redo the calibration measurements after they have been set, select the Calibration Mode and complete steps 2 and 3 as directed above. At this time there is no cancel or undo options for the Calibration Mode.

Note: If you change the Calibration measurement any measurements you have completed need to be redone.

Overview of the Measurements Mode Selector

To complete measurements you will need to select the corresponding Mode. Each Mode uses a different visual tool to help you complete the measurements.

<i>Mode Selected</i>	<i>Visual Tool</i>
Calibrate	Calibrate. Click the Calibrate Mode and the cursor will change to a measurement sight  for an accurate measurement.
Height Mode	Height Mode. Click the Height Mode and the cursor will change to crosshairs  for an accurate measurement of height relative to groundline.
Arbitrary (Arbitrary Length) Mode	Arbitrary Mode. Click the Arbitrary Mode and the cursor will change to crosshairs  for an accurate measurement between two points in the plane of the target.
Cond Dia (Conductor Diameter) Mode	Cond Dia Mode. Click the Cond Dia Mode and draw a line to accurately determine the conductor size.
Angle Mode	Angle Mode. Click the Angle Mode and the cursor will change to crosshairs  to accurately calculate angles.

Height Mode Measurements

The height is relative to the groundline of the pole. To complete a Height measurement, complete the following steps:

1. Select the **Height Mode**.



2. From the Label Description list select the Height Task you would like the measurement associated with.

3. Place the **crosshairs** at the point you want the Height measurement to be taken at.
4. The Height measurement is automatically displayed.

Note: If you need to retake the measurement after it has been set, completed steps 1 thru 3 as directed above.

Arbitrary Mode Measurements

To complete an Arbitrary measurement between two points in the plane of the target, complete the following steps:

1. Select the **Arbitrary Mode**.



2. From the Label Description list select the Arbitrary Task you would like the measurement associated with.
3. Place the **crosshairs** at the point you want the Arbitrary measurement to start.
4. Hold down the left mouse button and draw a line to where the Arbitrary measurement ends.
5. The Arbitrary measurement is automatically displayed.

Note: If you need to retake the measurement after it has been set, completed steps 1 thru 4 as directed above.

Cond Dia Mode Measurements

The Cond Dia (Conductor Diameter) is used to collect wire sizes. To complete a Conductor Diameter measurement, complete the following steps:

1. Select the **equipment** in the Inventory Window that you want to measure the diameter of.
2. Select the **Cond Dia Mode**.



3. From the Label Description list select the Conductor Diameter Task you would like the measurement associated with.
4. Place the cursor on the middle of the Conductor whose diameter you want to measure.

5. Hold down the left mouse button and drag along the conductor until the yellow line is the same width as the conductor then release the mouse button.
6. The Conductor Diameter measurement is automatically displayed.

***Note:** If you need to retake the measurement after it has been set, completed steps 1 thru 5 as directed above.*

Angle Mode Measurements

To assist you in measuring an Angle, complete the following steps:

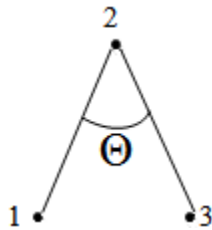
1. Select the **Angle Mode**.



2. From the Label Description list select the Angle Task you would like the measurement associated with.
3. Place the **crosshairs** at the point you want the Angle measurement to start.

***Note:** The Angle measurement is a three point process. After the Angle measurement is complete the Angle measurement is displayed for reference purposes only.*

4. Click the left mouse button and draw your first line, click the left mouse button again and draw your second line.



5. The Angle measurement is automatically displayed.

***Note:** If you need to retake the measurement, completed steps 1 thru 5 as directed above*

Working with the Image Split Merge

To use the Split Image Merge application, complete the following steps:

1. Open the O-Calc Pro Bin directory and double click the **ImageSplitMergePPLX.exe**.

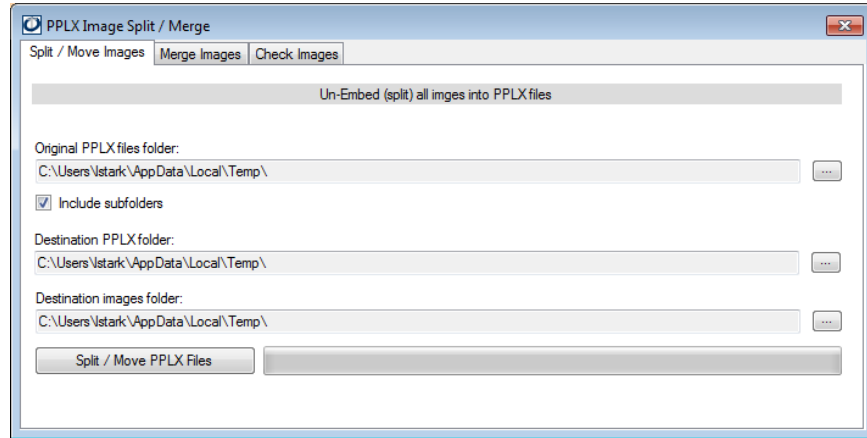


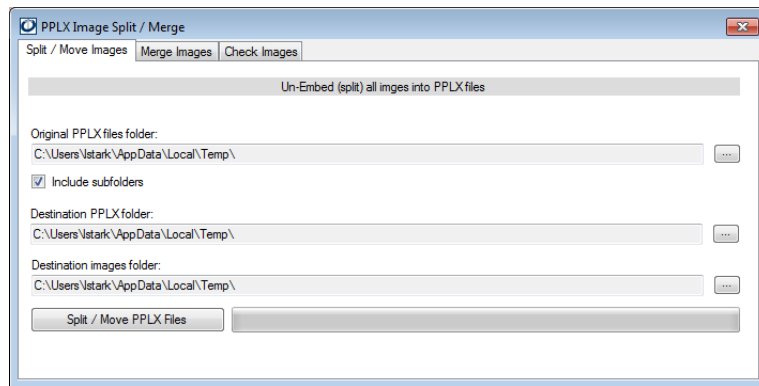
Image Split Merge Tab	Description
Split / Move Images tab	The Split / Move Images option will un-embed all images in .pplx files.
Merge Images tab	The Merge Images option will embed images into .pplx files.
Check Images tab	The Check Images option will check all .pplx files in a specified location to verify image links are adequate.

Split / Move Images

To embed remove images from all PPLX files within a certain location, complete the following steps:

Note: This option would be used to limit the size of the PPLX files. If PPLX files are delivered with embedded images this tool will allow you to un-embed those images (images will still be displayed in the PPLX file but will no longer be embedded).

1. Select the **Split / Move Images** tab.

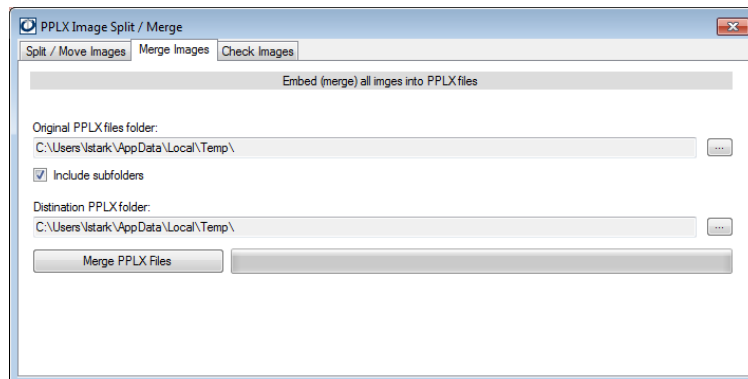


2. Select the browse button (...) and **browse to the location** of the original PPLX files.
3. Check if you would like **subfolders** included.
4. Select the browse button (...) and **browse to the location** of the destination PPLX folder.
5. Select the browse button (...) and **browse to the location** of the destination image folder.
6. Select the **Split / Move PPLX Files** button.
7. Select **OK** to the confirmation message.

Merge Images

To embed images into PPLX files, complete the following steps:

1. Select the **Merge Images** tab.



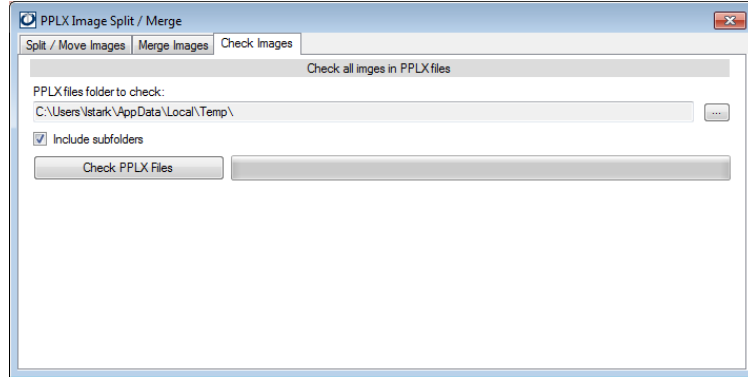
1. Select the browse button (...) and **browse to the location** of the original PPLX files.
2. Check if you would like **subfolders** included.
3. Select the browse button (...) and **browse to the location** of the original PPLX files.
4. Select the **Merge PPLX Files** button.


A confirmation message will display if all the image links are good, select **OK** to the confirmation message.

Check Images

To verify the image links for a group of PPLX files, complete the following steps:

1. Select the **Check Images** tab.



2. Select the browse button  and **browse to the location** of the PPLX file to be verified.
3. Check if you would like **subfolders** included in the verification.
4. Select the **Check PPLX Files** button.

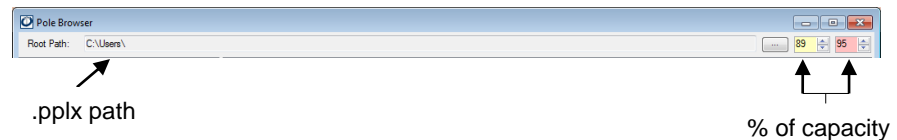
A confirmation message will display if all the image links are good, select **OK** to the confirmation message.


If there are any **missing PPLX links**, **Notepad** will automatically open with a list of all the missing PPLX links.

Working with the Pole Browser

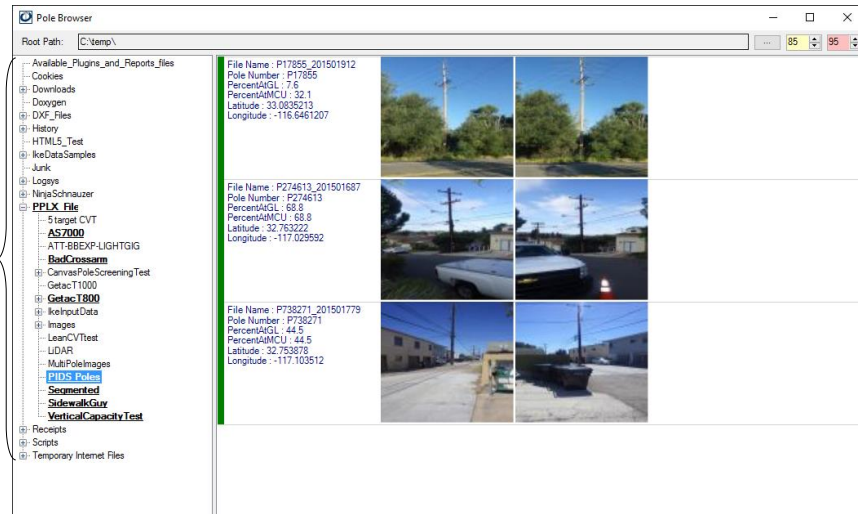
To Pole Browser application allows you to easily browse through all your .pplx files. It will display each structures capacity level, basic structure information and displays all images attached to the structure.

1. Open the O-Calc Pro Bin directory and double click the **OCalcPoleBrowser.exe**.



2. Select the **Browse** button  and browse to the location of the .pplx files you would like to browse.
3. Use the up/down arrows to set the threshold for the **% of Capacity**.

Bolded directories have image files in the.



The following table describes the default color representation for the Pole Capacity.

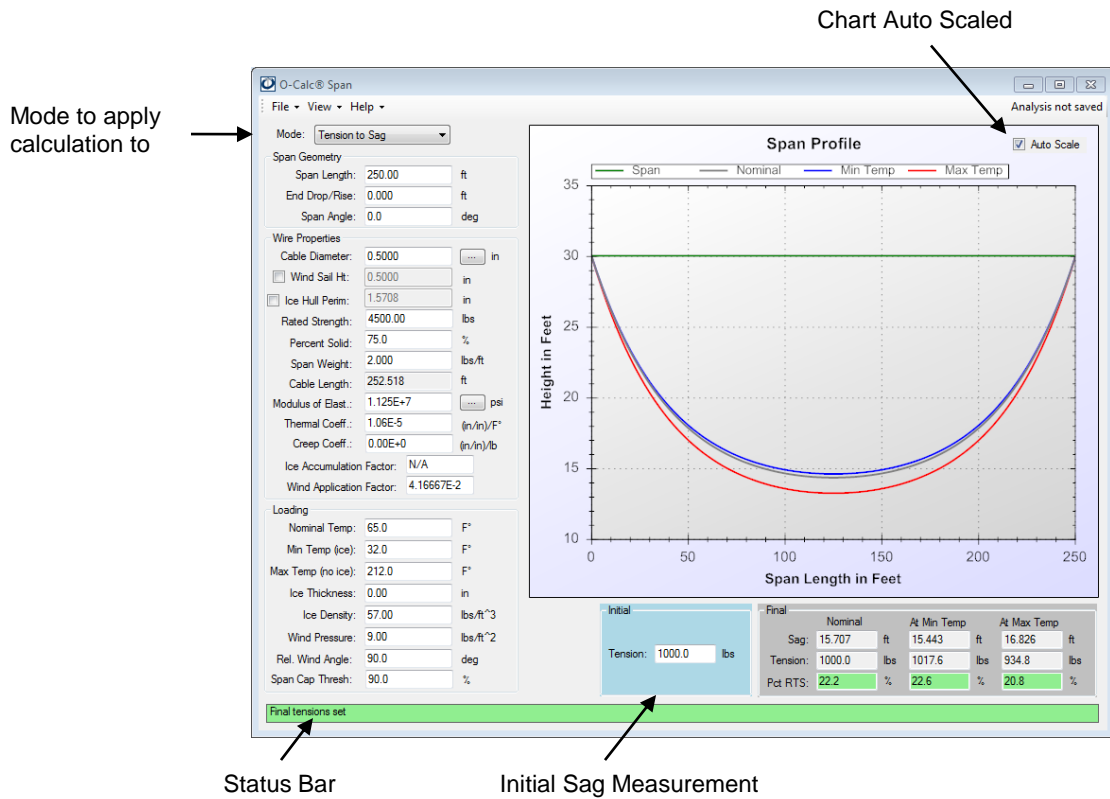
Display Color	Description
Green	Acceptable Capacity
Yellow	Near Capacity
Red	At or Over Capacity

4. Double click on the structure you would like loaded in the Inventory Window.

Working With the Sag Tension Calculator

The Sag Tension Calculator is a visual tool used to alter the sag tension calculations for references purposes only. Complete the following steps to use the Sag Tension Calculator:

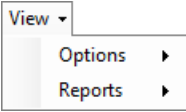
1. Open the O-Calc Pro Bin directory and double click the **SpanTensionSagCalculator.exe**.
2. The Span Tension Sag Calculator opens with default settings automatically loaded.



Sag Tension Calculator Options

The Sag Tension Calculator provides you with a variety of operations and options.

<p>File</p> <ul style="list-style-type: none"> New Open Save Save as Exit 	<p>File. The following options are available from the File menu:</p> <p>New. Select New to create a new span tension sag calculation.</p> <p>Open. Select Open to open and existing span tension sag calculation file.</p> <p>Save. Select the Save option to save any changes or additions.</p> <p>Save As. Select Save As to save the current calculations under a different name, format or location.</p> <p>Exit. Select the Exit option to close the Sag Tension Calculator</p>
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	<p>View. The following options are available from the View menu:</p> <p>Options.</p> <p><i>English Units.</i> Select the English Units option to change the unit convention to English.</p> <p><i>Metric Units.</i> Select the Metric Units option to change the unit convention to Metric.</p> <p><i>Flat Visual Style.</i> Select the Flat Visual Style to display the interface in a flat visual style.</p> <p>Reports. Select Open to open and existing span tension sag calculation file.</p> <p><i>Report.</i> Select the Report option to display the Span Tension Sag Calculation in report format.</p> <p><i>Export to CSV.</i> Select the Export to CSV option to export the Span Tension Sag Calculations to a .CSV file.</p>
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3. Complete your **attribute modifications**.
4. Enter the **Initial Sag** measurement.

Working With the Shape File Viewer

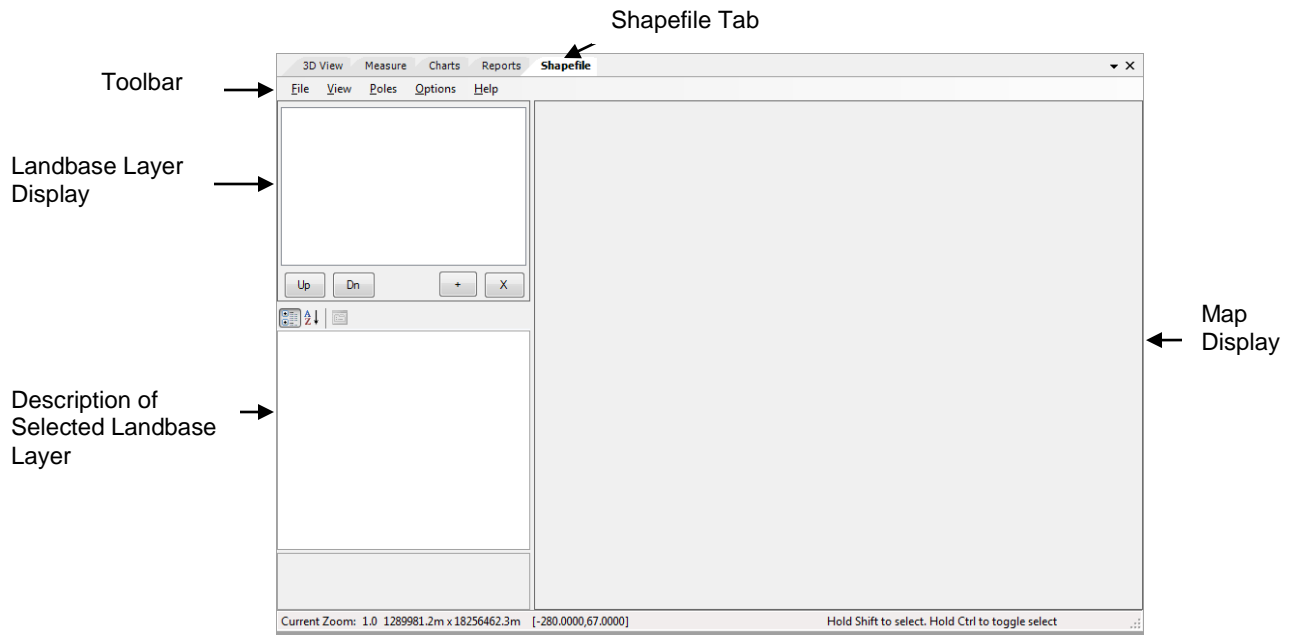
The Shape File Viewer allows you to work with shape files and a number of PPLX files to give a geospatial view of the pole models.

Additional instructions can be obtained from the following instructional video:

<https://www.youtube.com/watch?v=Pn5cmVS8KwE>

To open the Shape File Viewer application, complete the following steps:

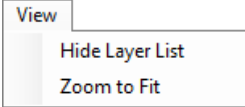
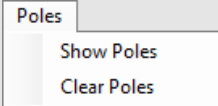
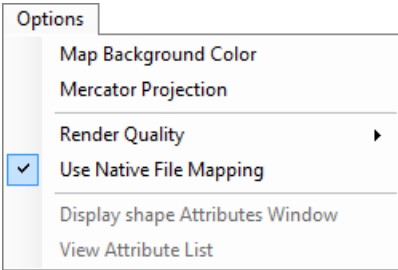
1. Open the O-Calc Pro Bin directory and double click the **ShapeFileViewer.exe**.



Toolbar Menu Options

The toolbar menu provides you with a variety of operations and options.

File View Poles Options Help	
<div> <div>File</div> <div> New Project Open Project Save Project Save Project As Add Shape File Save Map Image Print Map </div> </div>	<p>File. The following options are available from the File menu:</p> <p>New Project. Select the New Project option to start a new project.</p> <p>Open Project. Select the Open Project option to open Easy GIS Project File.</p> <p>Save Project. Select the Save Project option to save the current project.</p> <p>Save Project As. Select the Select Project As to save the current project under a different name.</p> <p>Add Shape File. Select the Add Shape File option to open a shape file.</p> <p>Save Map Image. Select the Save Map Image to save the currently displayed map image.</p>

	<p>Print Map. Select the Print Map option to print the currently displayed map image.</p>
	<p>View. The following options are available from the View menu:</p> <p>Hide Layer List. Select the Hide Layer List option to hide the landbase layer list and the landbase layer description. The map will automatically resize.</p> <p><i>Note: The Hide Layer List option will change to Show Layer List when selected.</i></p> <p>Zoom to Fit. Select the Zoom to Fit option to revert the map display back to default setting zoom level.</p>
	<p>Poles. The following options are available from the Poles menu:</p> <p>Show Poles. Select the Show Poles option to load the poles in the map.</p> <p>Clear Poles. Select the Clear Poles option to remove the poles from the map.</p>
	<p>Options. The following options are available from the Option menu:</p> <p>Map Background Color. Select the Map Background Color option to change the map background color.</p> <p>Mercator Projection. Select the Mercator Projection option to change the projection of the map.</p> <p>Render Quality. Select the Render Quality option to set the rendering quality of the map.</p>

	<p><i>Use Native File Mapping.</i> Select this option so that the shape file is displayed based in its native coordinate system, otherwise it will be translated based on a corresponding projection file.</p> <p><i>Display Shape Attributes Window.</i> Select the Display Shape Attributes Window option to display the share attributes window.</p> <p><i>View Attribute List.</i> Select the View Attribute List option to view the attribute list.</p>
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2. Select **File>New Project**.
3. Select **File>Add Shape File**, browse to the location of your shape file(s) and select the shape file you would like loaded.
4. Select **Poles>Show Poles**, browse to the location of the .PPLX files you would like displayed on the map.