

**Osmose**



**Field Data Collection Quick Start Guide**

**Osmose O-Calc® LE**  
**Field Data Collection Quick Start Guide**  
**24 October 2016**

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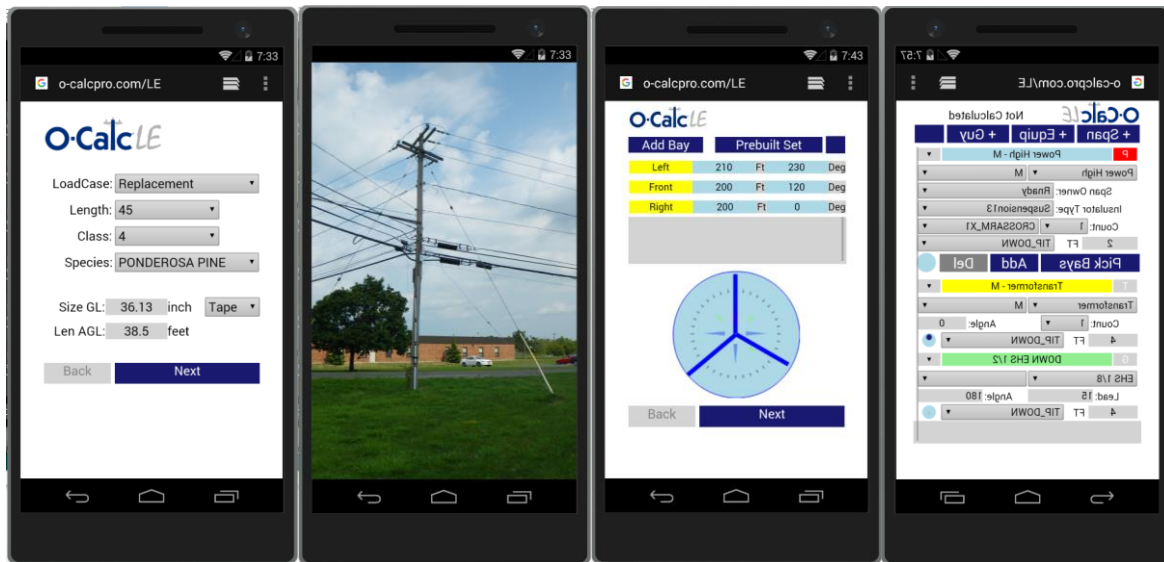
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## O-Calc LE Field Data Collection Quick Start Guide

### Introduction

This document is a high level overview of the O-Calc LE process and how to quickly configure it for use. The O-Calc LE process is a field data collection process, which is closely linked to the O-Calc Pro pole loading software. O-Calc LE (Load Estimation) is a process for performing highly accurate modeling and preliminary load estimation of distribution poles using any internet connected device. Once a utility pole that has been collected using the O-Calc LE process it can then later be easily and accurately accessed through the O-Calc Pro application for use in a more detailed pole loading analysis, pole restoration planning, joint use make-ready planning, and a full spectrum of activities supported by the O-Calc Pro family of productivity tools.



The O-Calc LE process consists of four major parts; Configuration, Management, Collection, and Processing. Once the O-Calc LE process has been configured, an O-Calc LE administrative user can manage the various projects, configuration files, and field data collection personnel. The field data collection personnel can log into O-Calc LE to start the data collection part of the process based on the projects/configuration files they have been assigned to. Once the field data collection have completed the data collection step on a particular pole, this pole will instantaneously be available to the O-Calc LE administrative user for processing within the O-Calc Pro software.

This document concentrates on the steps needed to configure the O-Calc LE field data collection component. For information on how to manage the version configurations, users, and collected pole information, see the document “O-Calc LE – Management Quick Start Guide”. For information on the set-up of a configuration file, see the document “O-Calc LE – Configuration Quick Start Guide”.

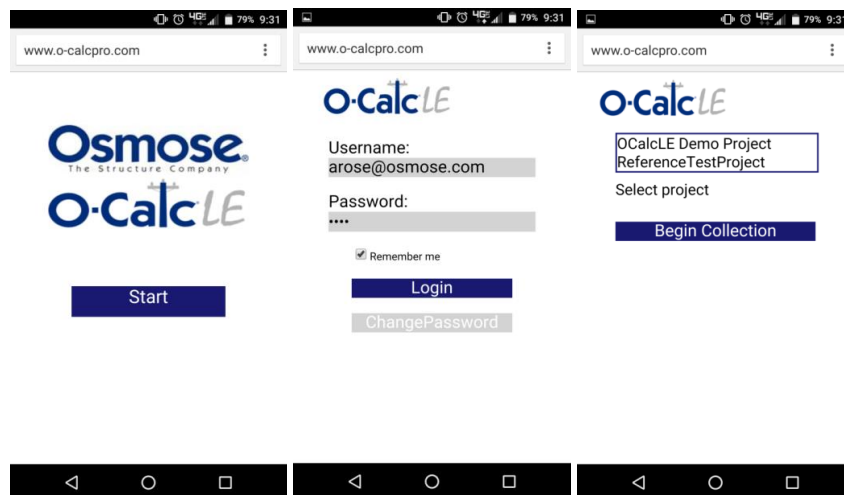
### Field Data Collection – Main Components

In the collection phase, any number of assigned collectors log on to the cloud based O-Calc® LE server using any device with a web browser (a smart phone, tablet, laptop, even an e-reader) and collect the desired pole(s). The collected poles are transitioned through the secure cloud based server back to O-Calc® Pro for additional analysis and utilization.



With the Configuration File in place, a project created, and collectors assigned, it is possible to start collecting data in the field using a laptop, tablet, or cell phone. Navigate to <http://www.o-calcpro.com/LE>

Begin by clicking “Start”, and then enter the username and password you have used to log in to the desktop O-CalcLE Management tab. Once you’ve logged in, there is a list of projects shown. Not all of an organization’s projects are visible – only those projects where a user has been assigned as a collector are displayed. Therefore, if no projects are shown or a project is missing from this list, this means that a username has not been assigned as a collector for a given project. This can be addressed in the O-Calc LE Management tab in O-Calc Pro. Select the project you are collecting for from the list, and click “Begin Collection”.



## Field Data Collection – Finer Details

### *Pole Attributes*

The next screen will allow the Collector to enter some attributes of the pole related to the branding information provided as well as the LoadCase to apply to the pole.

The “LoadCase” drop-down menu will show whichever loadcase was selected during the set-up of the O-Calc Configuration File; if multiple loadcases were put into the file, then the drop down will show those options, and one could be selected depending on the pole being collected.

The pole height and class, which should be included in the branding, can also be entered.

Additionally the species of the tree can be selected, with all of the options available in the desktop version of O-Calc included in the list .

Additionally, some measurable attributes of the pole can be entered. The size of the pole at ground line can be entered, and can be entered based on a value measured with tape or callipers.

The length of the pole at ground line is a default value that is calculated based on the length of the pole that is selected; O-CalcLE modifies the height at ground line to reflect the different setting depths that may be applied to a pole, which is dependent on the pole’s total length. Again, this is a default value that can later be modified when the pole is brought into O-Calc during the processing stage.

### *Pole Image*

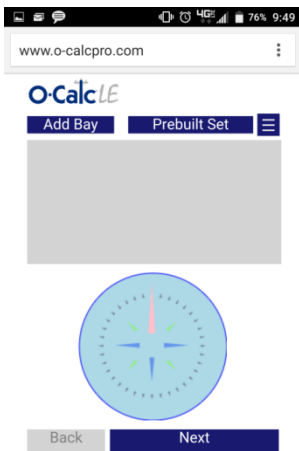
Upon clicking “next”, there is an option to add an image of the pole.

Here you can add any images that have been taken, particularly those that have been taken for the purposes of pole calibration with a CVT. Multiple images can be associated with a pole.

You can also chose not to associate any imaes with a pole.

Either way, click “Next”.

## Adding Bays



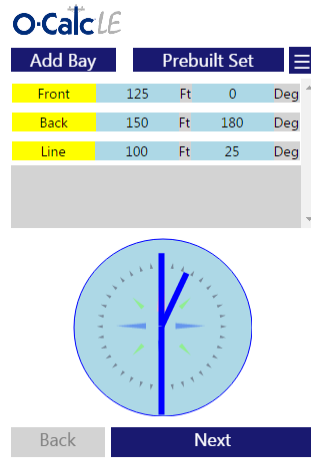
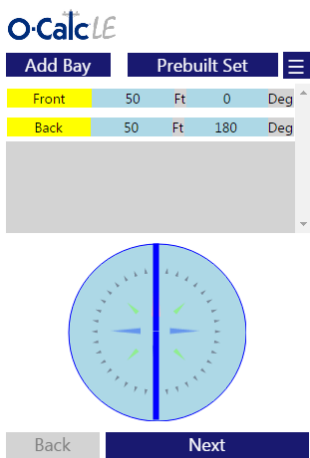
When adding spans to our newly created pole, we want the process to be as simple as possible. For that reason, we must first create the bays for our spans to go in.

The best way to think of a bay is an area going off at a specific angle. A bay would then contain all of the spans at that angle on the pole. Setting up the bays beforehand will save time; a Collector can simply select a bay and add spans to it, rather than reentering the angle for each span added.

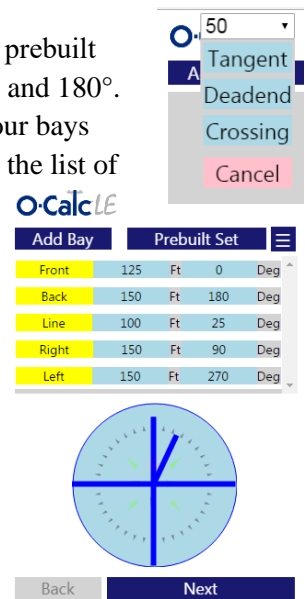
In this screen you can see the familiar “Top View” Display, which will show the spans once they are added, displayed as blue lines. These can be added by using a prebuilt set, or by adding any number of custom bays. This will depend on the arrangement of spans on the pole that is being collected.

The prebuilt set list includes “Tangent”, “Deadend” or “Crossing” arrangements. Additionally, you have the option to select how long each bay is; increments of fifty are shown in a list ranging from 50 to 350 ft. It is also possible to use multiple prebuilt sets together; they will all display with the corresponding angles and number of feet.

## Prebuilt Sets



This left image shows the “Tangent” prebuilt set, with 50 foot spans going off at 0° and 180°. It is possible to select the length of your bays using the dropdown that appears over the list of available prebuilt sets. The next image shows an additional “Deadend” prebuilt set, which has been modified to be at 25° and 100 ft. The tangent spans have also been modified to different lengths as well, which are reflected in the top view display.

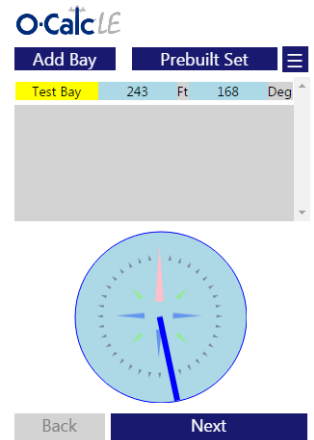


The bottom right image shows the addition of a “Crossing” prebuilt set to the arrangement. The corresponding angles are 90° and 270°, with span lengths of 150 ft. You can also start with a prebuilt set, and then add additional bays using the “Add Bay” option.

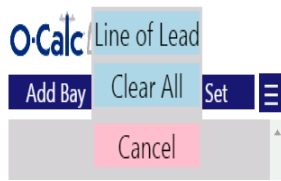
### Adding Bays

Rather than using the prebuilt sets, it is also possible to just add bays individually. When you select the “Add Bay”, this display appears. Here you can enter a custom angle and distance for a bay, as well as assign it a name. When using the prebuilt set options, a name is automatically assigned (i.e. front, back, line, etc.).

When custom values are entered, the bay will display in the top view panel along with the name, distance, and angle entered by the collector.



### Clearing Bays and Line of Lead



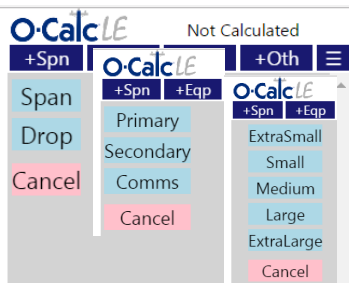
All the bay's that have been created can be removed with the “Clear All” option. There will be a prompt to confirm that you wish to delete all the bays.

It is also possible to set a line of lead once the Bays have been set – this is found in the dropdown menu, and opens to a screen resemble that used to add Bays.

### Adding Elements

Once all the way's that will be needed have been added to the model, proceed to the next screen. Initially, you will see a blank area with options to add Spans, Equipment, and Guy's. These features can be used to add items that were configured in your O-Calc Configuration file (See the first section of this guide). A series of examples will be used to demonstrate the key features from this data input screen.

### Adding Spans



Upon clicking the “+ Span” option, the dropdown shows that we can add either a span, or a drop. When “Span” is selected, there is the additional prompt to add either a Primary, Secondary, or Communication span. Similarly, when “Drop” is selected from the list, there is a prompt to add either a Secondary or a Communication Drop.

When one of these options is selected, the next prompt displays the list of alias's for each of the Span or Drop types that was included in the configuration file. By default, if none of the alias's had been changed, the list will show the abbreviations for values between extra small (XS) and extra large (XL). Again, this can be modified in the configuration file prior

to data collection, but not in the field. More descriptive alias's could be used to indicate diameter or material.

Additionally, if one or more of these default placeholders was removed from the configuration file, the list of available options will reflect that.



### Span Attributes

O-Calc LE Not Calculated

+Spn +Eqp +Guy +Oth

P Primary - Small

Primary Small

Span Owner: XYZ Utility

Insulator Type: Pin

Count: 1 ON\_POLE

1 FT TIP\_DOWN

Pick Bays Add Del

Say a small sized primary span is selected from our list. Once a selection is made, that item will be added to the list of elements included in our model. In the list you will see the symbol associated with a primary (the blue “P”) – this is also determined when setting up the configuration file.

Despite adding a small sized primary, it is possible to change those attributes after the fact using the drop-down menus. Additionally the count of the primaries can be adjusted – for example it would be changed to three for a three phase primary.

There is also a drop-down list for different ways the primary is attached to the structure. This list is populated with: attachment directly to the pole, single or double crossarms, alley arms, communication arms, davits, and extensions.

The measurement indicated in feet reflects the location of the spans on the pole – this can be set as a distance from the top of the pole, or as a distance from the groundline up. This is adjusted in the drop-down to the right of the measurement value.

O-Calc LE Not Calculated

+Spn +Eqp +Guy +Oth

P Primary - Small

Primary Small

Span Owner: XYZ Utility

Insulator Type: Post

Count: 3 CROSSARM\_X1

1 FT TIP\_DOWN

Pick Bays Add Del

The Span owner can be set, as well as the insulator type. Insulator types that are available can be selected during set-up of the configuration file.

### Picking Bays

Once the attribute values of a span are set, the user can select which bays that particular span can be added to. Selecting “Pick Bays” Expands a list – each of the Bay’s created previously is available in the list, and will be highlighted in green when selected. One or multiple bays can be “Added”. Once a span is added to a bay, the miniature top-view display will show reflect changes in the model being constructed. Additionally, a list will be created to show which bays are occupied.

A user can add spans to corresponding bays and then collapse this item in the list using the drop-down arrow – this will help in keeping components organized as more are added to the structure.

O-Calc LE Not Calculated

+Spn +Eqp +Guy +Oth

P Primary - Small

Back Small

Left Utility

Line

Front CROSSARM\_X1

DOWN

Pick Right Add Del

Add Bays

Cancel

Pick Bays Add Del

Front 150 Ft 0 Deg

Back 150 Ft 180 Deg

O-Calc LE Not Calculated

+Spn +Eqp +Guy +Oth

P Primary - Small

### Adding Secondary and Comm Spans

The process for adding secondary and communication spans is essentially the same as adding primary spans. The same “+ Span” is used, and the “Span” option would be selected from the list. The user can then select either “Secondary” or “Comms” from the menu, and that span type will be added to the list of components on the structure. Below are two images showing what each could look like in the list.

S Secondary - Small

Secondary Small

Span Owner: XYZ Utility

Insulator Type: Spool

Count: 5 ON\_POLE

5 FT TIP\_DOWN

Pick Bays Add Del

Front 150 Ft 0 Deg

Back 150 Ft 180 Deg

C Comms - 3in

Comms 3in

Span Owner: XYZ Utility

Insulator Type: Single Bolt

Count: 1 ON\_POLE

18 FT GROUNDLINE\_UP

Pick Bays Add Del

Left 150 Ft 270 Deg

Right 150 Ft 90 Deg

### Adding Drops – Service and Comm Drops

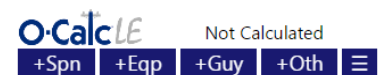
Again, this process is essentially the same as those previously described – the only difference is selecting the “Drop” option from the “+ Span” list. Then, a selection is made between adding a “Service Drop” or a “Comm Drop”. Examples of each are shown below.

| SD Service Drop - S  |     |    |     |     | CD Comm Drop - S   |     |    |     |     |
|--|-----|----|-----|-----|--|-----|----|-----|-----|
| Service Drop   S   |     |    |     |     | Comm Drop   S  |     |    |     |     |
| Span Owner: XYZ Utility  |     |    |     |     | Span Owner: Cable Company  |     |    |     |     |
| Count: 1   ON_POLE   |     |    |     |     | Count: 1   ON_POLE   |     |    |     |     |
| 20 FT   GROUNDLINE_UP  |     |    |     |     | 17 FT   GROUNDLINE_UP  |     |    |     |     |
| <input type="button" value="Pick Bays"/> <input type="button" value="Add"/> <input type="button" value="Del"/> <input type="button" value="Minuature View"/> |     |    |     |     | <input type="button" value="Pick Bays"/> <input type="button" value="Add"/> <input type="button" value="Del"/> <input type="button" value="Minuature View"/> |     |    |     |     |
| Front  | 150 | Ft | 0   | Deg | Right  | 150 | Ft | 90  | Deg |
| Back   | 150 | Ft | 180 | Deg | Left   | 150 | Ft | 270 | Deg |

Notice that for these drops, the symbol is different than it is for the previous spans. This is an option that can be changed during the setup of the configuration file – symbol colors and associated letters can be set for spans of different types, and for drops of different types.

### Adding Equipment

Adding additional components to a pole, such as transformers, streetlights, and other components can be done using the “+ Equip” button across the top of the O-Calc LE application.



The contents of the equipment folder is established during the setup of the O-Calc configuration file. Some of the items “Equip” could contain are streetlights, transformers and crossarms.

### Adding a Streetlight

Begin by clicking the “+ Equip” Button to open the drop-down list of equipment. From here, you can select the “Streetlight” option to view a list of available streetlight sizes.

When the streetlight is added, it will show in your list of components. The attributes for the streetlight include install height, count, and angle. The streetlight is shown as a dark blue circle in the minature top view display.

| L Streetlight - M                             |  |  |  |  |
|---|--|--|--|--|
| Streetlight   M                               |  |  |  |  |
| Equip Owner: XYZ Utility                      |  |  |  |  |
| Count: 1   Angle: 0                           |  |  |  |  |
| 24 FT   GROUNDLINE_UP                         |  |  |  |  |
| <input type="button" value="Minuature View"/> |  |  |  |  |

### Adding Transformers

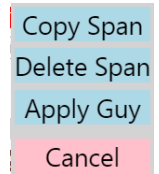
In the same way that other types of equipment are added, transformers are also included in the list of types of equipment that can be added to a structure. Using the “+ Equip” option allows the user to select from a predetermined list of transformer sizes, and add one or several to the structure. The attributes for transformers include count, attachment height, and angle of installation.

| T Transformers - Medium                       |  |  |  |  |
|---|--|--|--|--|
| Transformers   Medium                         |  |  |  |  |
| Equip Owner: XYZ Utility                      |  |  |  |  |
| Count: 1   Angle: 0                           |  |  |  |  |
| 3 FT   TIP_DOWN                               |  |  |  |  |
| <input type="button" value="Minuature View"/> |  |  |  |  |

### Adding Guy Wires

In addition to being able to add spans and equipment, a user is also able to add guying to their list of collected components. This can be done in two ways.

If a user has already added all of the spans to a structure, they can simply click on the symbol for that span, which opens a list of options. Among those options is “Apply Guy”. Selecting this option will open a secondary list of guy wires that had previously been established during the configuration file set up, or a list of all guy sizes. Once selected from this list, the guy wire type must be selected. From this list, a user can add either a down guy, a pushbrace, a sidewalk guy, or a span head guy.



The available attributes for the guy, regardless of type, are lead length, lead angle, and installation height. When the guy is added by clicking on the symbol for a span, the installation height for the guy matches the installation height of that span. Additionally the installation angle is automatically set.

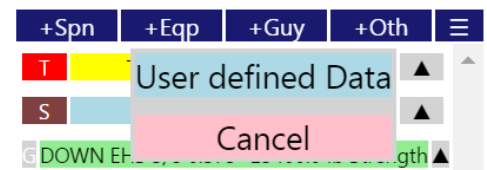
The other way to add a guy is to use the “+ Guy” button listed along the top of the display. This leads the user through the same selection process. However, when using this option, the installation height for the guy wire must be determined by the user, rather than utilizing the installation height value of the span.

### *Deleting or copying a Guy*

If a guy needs to be deleted, the user can click on the symbol for the guy, and select “Delete” from the list. If a user wishes to copy and existing guy, this can also be done by selecting the symbol.

### *User Defined Data*

It is also possible to add user defined to a pole you are collecting. This item can be added to your configuration file during initial set-up. User data can be added by selecting the “+ Oth” Option from the top menu, then selecting “User Defined Data”.



When you’ve added this item, you will see a large list of options added to your list of components on the pole; it looks like this:

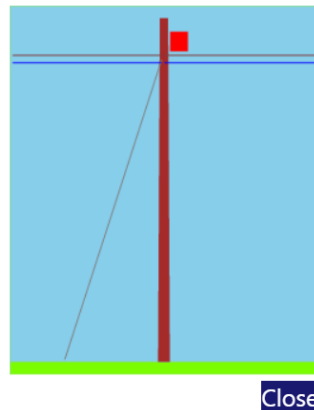
In this window, the user can select any of the listed conditions that may be present on the pole. There are also areas to enter a midspan height or field notes, and select whether or not the pole is in concrete.

### Additional Options

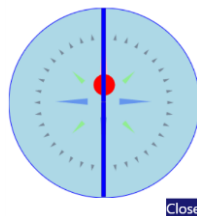
At the top, righthand corner of the display, is a dropdown menu with additional options for viewing the structure being collected.

*Sort* – this option allows the user to sort the list of components on the structure according to installation height – items at the top of the pole are listed near the bottom, and items lower down are listed near the top.

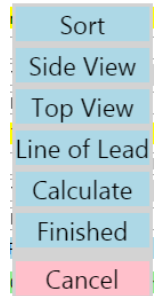
*Side View* – allows the user to see a side profile of the structure being collected. This display is similar to the schematic view window available in O-Calc Pro

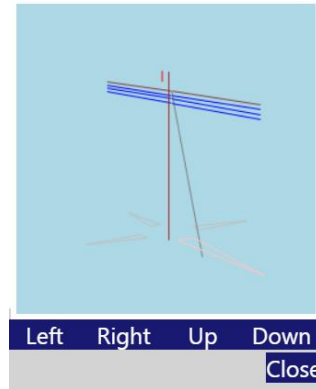


*Top View* – allows the user to see an overhead view of the structure being collected. This display is similar to the top view window available in O-Calc Pro.



*3D View* – Shows the user a simplified 3D rendering of the structure that they have collected, and allows them to view it from different perspectives.





*Line of Lead*- Allows the user to enter a value that will adjust the rotation of the entire structure.

LOL:

|     |      |     |
|-----|------|-----|
| 1   | 2    | 3   |
| 4   | 5    | 6   |
| 7   | 8    | 9   |
| 0   | .    | Del |
| Clr | Cncl | OK  |

*Calculate* – this option allows the user to determine the capacity utilization of the structure, and display this value as a percentage on the main collection screen.

O-Calc<sup>LE</sup>

Not Calculated

O-Calc<sup>LE</sup>

54% W:90°

*Finished* – this option is selected when all collection for a structure is complete, and leads us to the last stage – Processing!

O-Calc<sup>LE</sup>

GCU Percentage = 54%  
Worst Wind Angle = 90°  
Guys = Guys present

Collect Another Pole

Change Project

Exit