



O-Calc® Pro 7.0.1

LCI Plugin User Guide

Osmose O-Calc® Pro LCI Plugin User Guide

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This document outlines the functionality of the O-Calc Pro LCI plugin. O-Calc Pro version 7.0.1 offers these two optional data driven components: the LCI (Line Connectivity Index) and the PLDB (Pole Loading Database). O-Calc Pro uses a utility (described in this appendix) to install the database (PLDB) on your network. The LCI plugin allows users to perform a 'Lasso' operation on a map to include any poles in your database and bring those poles into a Line Design automatically. So, users can perform their work and save the updated pole files back to the database (PLDB) thereby capturing work history throughout the life cycle of the poles.

Introduction to O-Calc Pro Database Nomenclature

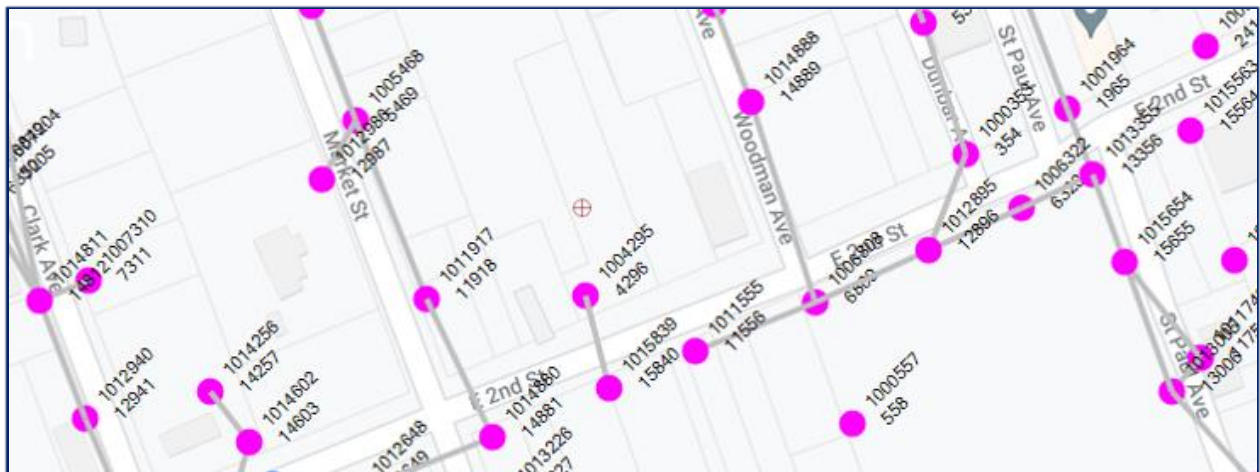
This section defines the components associated with an O-Calc Pro Database. View the appendix for technical component descriptions of the O-Calc Pro Database "Schema". The schema describes the organization and storage of data in a database and defines the relationship between various tables.

LCI – Line Connectivity Index

This term refers only to the "Line Connectivity Index" component. The LCI is a compact data representation of pole locations and their connection to adjacent poles via attached spans (conductors and cables). The LCI is managed within the O-Calc Pro Database using two tables: LCI Poles and LCI Spans.

The LCI is used to store existing poles with known locations and ID numbers. Use the LCI in situations where a private enterprise source of pole locations and information (i.e. Portal software) is not accessible to you.

See the example below of how the LCI is visualized within the O-Calc Pro Line Design map. Pole locations are represented using pink pole icons (dots) on the map and grey lines for spans (conductors and cables) connecting the adjacent poles.



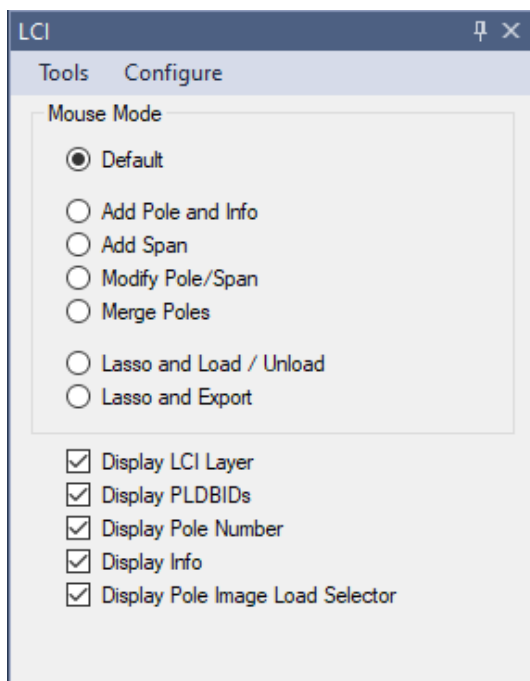
PLDB – Pole Loading Database

The Pole Loading Database (PLDB) is a data structure for storing Pole Loading Analysis (PLA) records in a .pplx format compatible with the O-Calc Pro interface. The PLDB is a complex representation of the information contained in each pole model (.pplx file) and enables various queries to be executed. The LCI differs from the blob-based storage mechanism used in a Portal software. For example, the PLDB allows the assignment of an Analysis ID for each version of a pole model. This allows the tracking of changes throughout the life cycle of the pole, providing access to historical pole information.

LCI Plugin Interface

When the “LCI_Plugin.pplugin” is activated in O-Calc Pro, a new tab will be added next to the Line Design map area named “LCI” as depicted below.

The LCI tab has two submenu options in the tool bar: “Tools” and “Configure.” In the “Mouse Mode” section of the LCI dialog box, a set of radio buttons are used to indicate how the users mouse interacts with the LCI View in the Line Design map area. A set of check boxes indicate the features displayed within the Line Design map area.



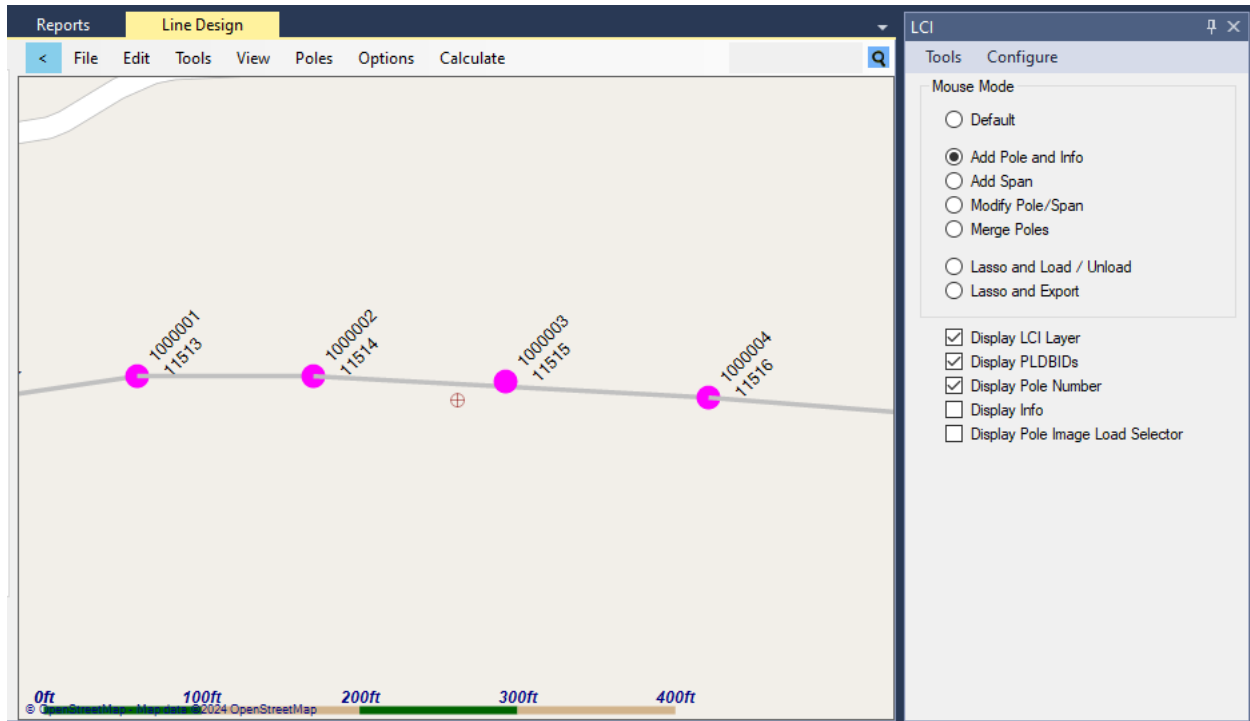
LCI View in Line Design

Use the check boxes in the LCI dialog box to display the following:

- **Display LCI Layer** – Displays pink pole icons (dots) and gray connecting lines in the O-Calc Pro Line Design map area.

- **Display PLDBIDs** – Displays the 7-digit PLDBID next to the pole icon on the map. PLDBIDs are unique IDs for each pole. Numbering starts at 1000001 and IDs are managed by the O-Calc Pro database/processes.
- **Display Pole Number** – Displays the pole number if the customer pole number exists. The Pole Number attribute can be viewed within the various pole tables in O-Calc Pro.
- **Display Info** – Displays the Info annotation if it exists. The Info annotation can be viewed in the Line Design map area.
- **Display Pole Image Load Selector** – Displays the Pole Image Load Selector which is helpful when lassoing poles on the map. If multiple images are associated with a pole, the user can select which images should be loaded.

Below is an example of the LCI View in the Line Design map area, with three out of five check boxes checked:



LCI Mouse Modes

Mouse Mode radio buttons dictate how the left mouse button operates within the LCI View in the Line Design map area.

- **Default** – The default mode disables the mouse left click. A right click and drag pans the LCI View in the Line Design map area, and the center wheel mouse button enables zooming.
- **Lasso and Load / Unload** – The Lasso and Load enables a user to left click and lasso several poles within the LCI and load the O-Calc Pro models into a Line Design. This operation can be

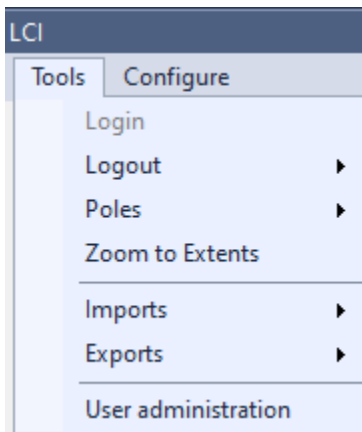
performed any number of times, either adding more poles or removing poles from the Line Design.

- **Lasso and Export** – The Lasso and Export enables a user to left click and lasso any number of poles and export information into a CSV file. The default information exported into the CSV file includes the PLDBID, Latitude, Longitude, and Type attributes all taken from the LCI Poles table.

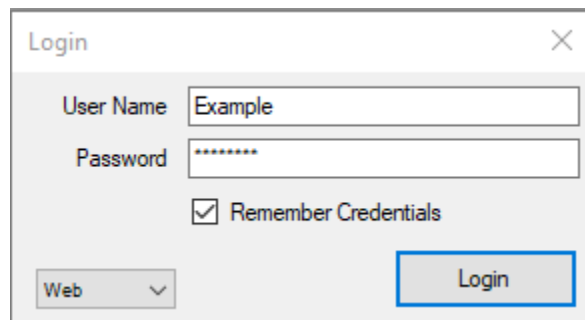
Must have proper permission to use these display options in LCI:

- **Add Pole** – Enables the user to add another pole to the LCI Poles table, adds the pole at the left click location. Assigns the next available PLDBID.
- **Add Span** – Enables the user to add a span to the LCI Poles table. The user must hold shift key and left click two existing poles within LCI.
- **Modify Pole/Span** – Enables the user to modify poles and/or spans in LCI. Poles can either be deleted or moved. Spans can either be deleted or split.
- **Merge Poles** – Enables the user to merge two poles within LCI by lassoing two poles.

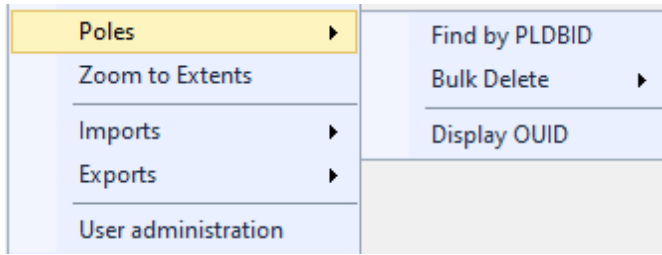
LCI Tools Menu Items



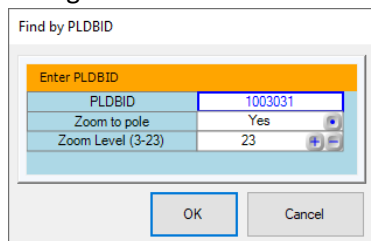
- **Login** – When O-Calc Pro is launched with LCI plugin active, the first step is to connect to the database. The Login option is found in the Tools menu of the LCI. Note: Once the user is logged in, the Login option is greyed out.



- **Logout** – Logs the user out of the currently loaded project.
- **Poles**



- **Find pole by PLDBID** – Select the ‘Find pole by PLDBID’ option to display the following dialog box:

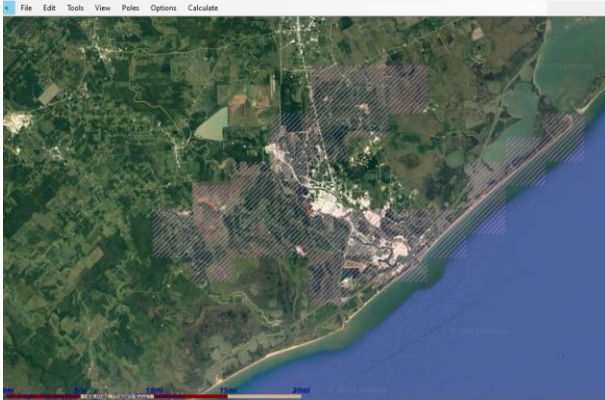


Find by PLDBID enables the user to enter a PLDBID number, Zoom to pole, and enter a Zoom Level (3-23). The larger the zoom level value, the closer you are zoomed in on the pole. The view port (on screen viewing area) is centered on the pole when the Zoom to pole is set to “Yes.”

- **Bulk Delete**



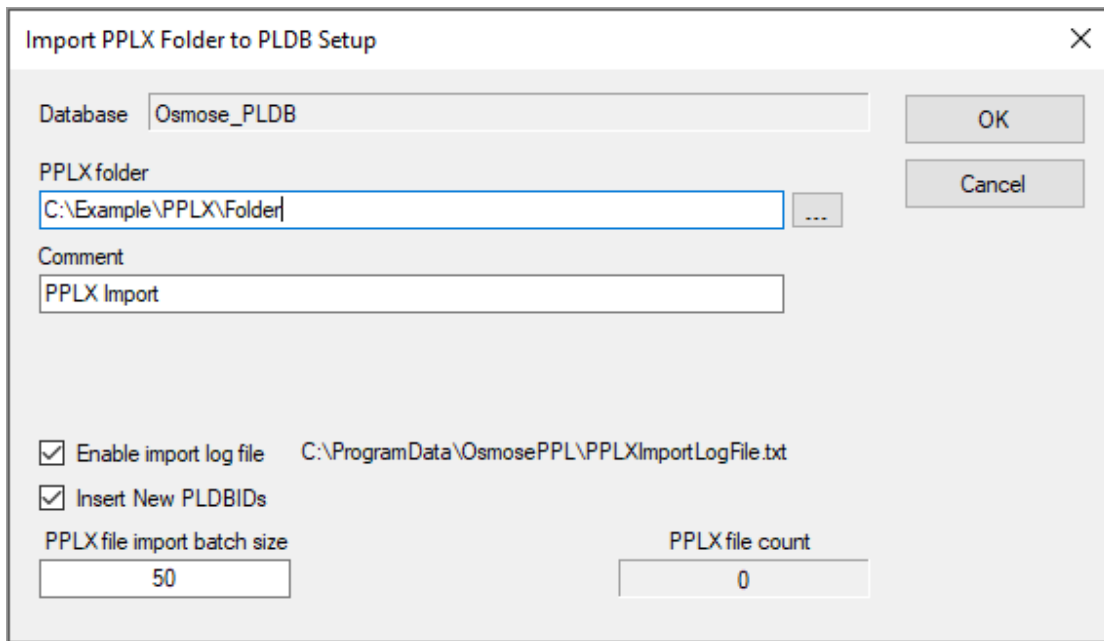
- **By external file** – allows user to use a CSV file that contains a list of PLDBID to be deleted.
 - **By poly** – allows user to use the on-map polygon to select the poles to be deleted.
- **Zoom to Extents** – Zoom to Extents option zooms the Line Design map area to the full extents of the LCI data available for the current project. The Zoom to Extents occurs regardless of whether the ‘Display LCI Layer’ is checked or not. When the extents of the LCI data is 20 miles or greater, the LCI Pole locations are displayed as a crosshatch area of the minimal bounding box of the LCI poles. This is accomplished for display performance reasons.



- **Imports** – The Imports option contains two submenus.

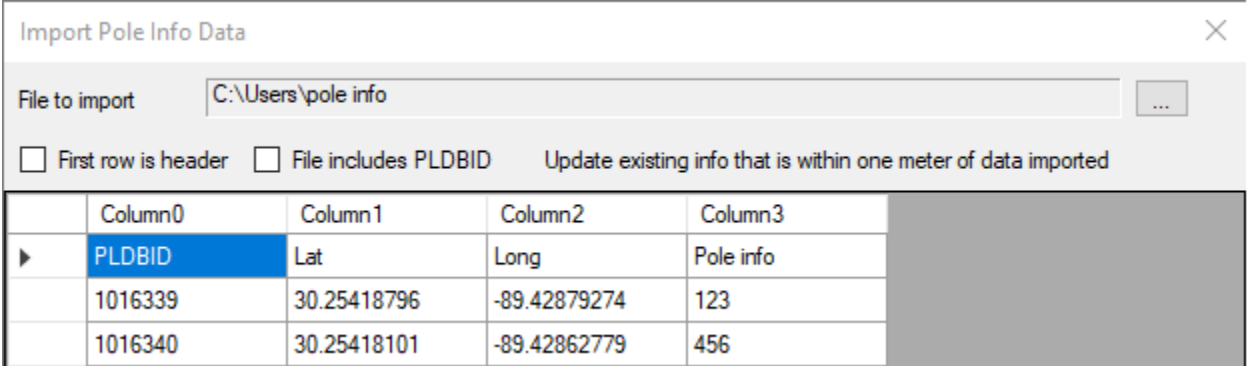


- **Import PPLX Folder to PLDB** – Enables the user to point to a folder of PPLX files to be imported to the PLDB. If the import finds existing data within 1 meter it will update instead of creating a new object.



- **Enable import log file** – check the box to save a log file that shows a more detailed report for the completed or failed import process.

- **Insert New PLDBIDs** – check the box to add new LCI record with new PLDBIDs.
- **Import Pole Info Data** – This tool allows users to use a CSV file of Pole info to edit info in the Pole Data Tables. This section describes how to use Import Pole Info Data.
 - If the import finds the existing info within 1 meter it will update the existing data.



Below is a sample of CSV data that can be used for the pole info data import.

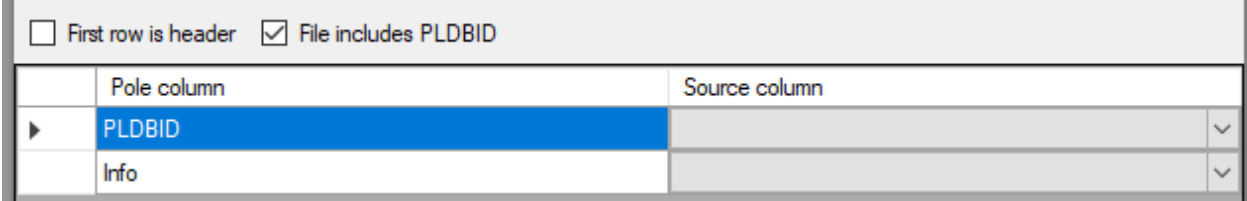
The CSV must contain either PLDBID values or Lat and Long values and Pole Info to be uploaded for the pole.

	A	B	C	D
1	PLDBID	Lat	Long	Pole info
2	1016339	30.25419	-89.4288	123
3	1016340	30.25418	-89.4286	456
4	1016341	30.25418	-89.4285	789

First row is header – check the box if the first row of the CSV file contains column headers.

File includes PLDBID – check the box if the CSV contains a PLDBID column.

If **File includes PLDBID** box is checked the following option will be presented:



If the **File includes PLDBID** is not selected the following option will be presented

<input type="checkbox"/> First row is header	<input type="checkbox"/> File includes PLDBID	Update existing info that is within one meter of data imported
	Pole column	Source column
▶	Latitude	
	Longitude	
	Info	

If the **First row is header** is selected the drop down for Source column will show the header name:

Source column
Lat
Long
PLDBID
Pole info

If the **First row is header** is not selected the drop down for Source column will show the default column name:

Source column
Column0
Column1
Column2
Column3

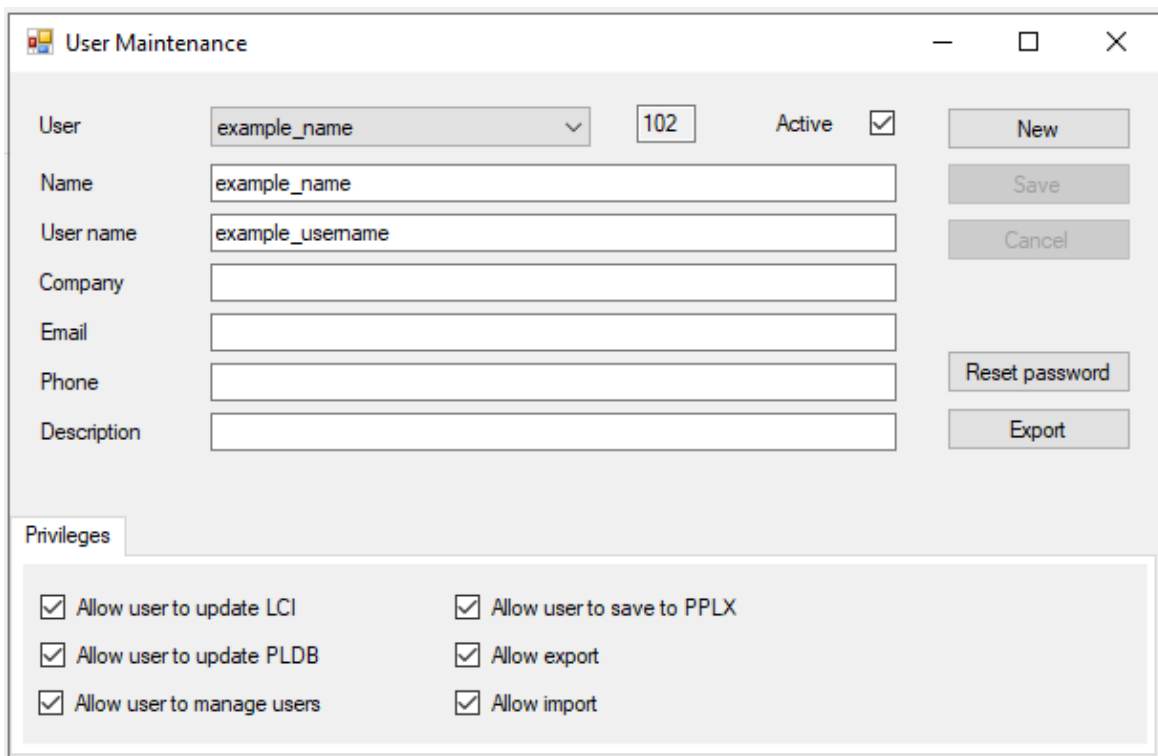
If there is an error importing the pole info data, the Validation error window is presented and the option to save the report to a file is available.

Validation Errors			
	Row	Value	Error
▶	0	1016339	PLDBID 1016339 was not found or is not of Pole In...
	1	1016340	PLDBID 1016340 was not found or is not of Pole In...
	2	1016341	PLDBID 1016341 was not found or is not of Pole In...

- **Exports** – The Exports menu option has two submenu options.



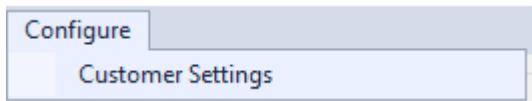
- **Export table data** – Use to export a table database into a CSV file.
- **Export to PPLX** – Use to generate PPLX files for all the poles in a CSV file.
- **User Administration** – This option is normally inaccessible. A user needs to Login via the Administrative User Level to access these functions.



- **New** – Click to create a new user.
- **Save** – Save changes in the User Maintenance. This option will become available after starting a new user creation or editing an existing user.
- **Cancel** – reverts any changes made in the User Maintenance.
- **Reset password** – Resets the password of the selected user to the default “LCI”.
- **Export** – Exports the list of Users and the user information such as their privileges and database access.
- **User** – Displays the user being edited in the User Maintenance.
 - **Name** – The “display name” for the User list.
 - **User Name** – The user ID used for the login credentials.

- **Active** - Check this box to allow a user login privilege. If unchecked the user is unable to log in (effectively disabled).
- **Privileges**
 - **Allow user to update LCI** – permits the user to make changes within the LCI layer, such as adding/deleting poles or adding/adjusting spans.
 - **Allow user to update PLDB** – permits the user to save PLAs to the O-Calc Pro database.
 - **Allow user to manage users** – enables the user to access the “**User Administration**” functions.
 - **Allow user to save PPLX file** – allows the user to save a pole analysis from the O-Calc Pro database into a PPLX file.
 - **Allow export** – allows user to access the “**Export**” function.
 - **Allow import** – allows user to access the “**Import**” function.

LCI Customer Configuration Menu



- **Customer Settings** – The Customer Configuration menu item enables the user to see detailed information about the project they are currently connected to.

The screenshot shows a dialog box titled 'Customer Configuration' with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Name:** Text box containing 'Osmose'.
- Project:** Text box containing 'Line Design Projects'.
- Server:** Text box containing '(local)'.
- Database:** Text box containing 'Osmose_PLDB'.
- File Storage Path:** Text box containing '\\path\example\images'.
- Version:** Text box containing '118'.
- Timeout:** Text box containing '300'.
- Enable Analysis Comments:** A checked checkbox.
- Save analysis for active loadcase only:** A dropdown menu.
- Truss Status:** Text box containing 'Disabled'.

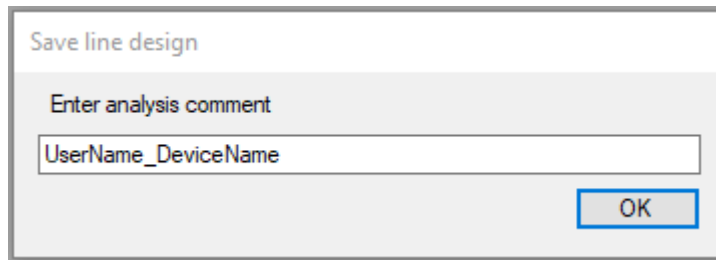
Buttons for 'Save' and 'Cancel' are located on the right side of the dialog.

Note: The automatic Osmose Trussing Solution is currently disabled. Please contact an Osmose Software engineer through our HubSpot site for help activating this feature.

The following options should be set by the project manager/owner.

- **Name** – Typically be populated by the customer’s name which may be different from the project name.
- **Project** – Shows the project name or owner/manager of the project.

- **Server** –Navigation path that points to the database the user is connected to.
- **Database** – Name of the project designated in the database (ex: MS_PLDB)
- **Version** – To the right of the Database field there is a box which indicates the schema version, i.e. the structure of database tables, indices, constraints, etc.
- **Timeout** – To the right of the version there is the server timeout setting. A length of time, in seconds, the software waits when communicating with the LCI database.
- **File Storage Path** – Network directory where the pole images are saved.
- **Enable Analysis Comments** – When saving a Line Design the user can add a comment to the Line Design (by default the comment field will be populated with the UserName_DeviceName).



The image shows a dialog box titled "Save line design". Inside the dialog, there is a label "Enter analysis comment" above a text input field. The input field contains the text "UserName_DeviceName". At the bottom right of the dialog, there is an "OK" button.

- **Save analysis for active loadcase handling** – When saving a Line Design the user can save a new analysis record for each load case attached to the pole or only one record using the active load case. Note: The load case contains the applicable pole load loading regulation values for wind, ice, pole strength and safety factors.

LCI Plugin - PLDB database installation utility

To use the LCI plugin you'll need to install a PLDB database. Follow these instructions to install a PLDB database on your network to be maintained by your IT department. Prior to the version 7.1 release of O-Calc Pro in 2024, the PLDB and LCI functionalities have only been accessible to Osmose users on our network.

Maintenance tasks include the following:

- 1) Establishment of 3 required logins with the expected server roles for access to PLDB databases.
- 2) Creation of new customer/project PLDB databases.
- 3) Upgrades of customer/project PLDB databases.

The PldbInitializer utility is designed to verify and perform the required maintenance/setup.

Prerequisites

- 1) SQL Server 2019 (or greater) installation (Azure instances are not supported).
- 2) User performing installation must have Windows authentication privileges to SQL Server instance.
- 3) Windows authentication login has sysadmin privileges.

PldbInitializer.exe

- A single executable that is to be executed from a command-prompt.
- System Checks - Executing PldbInitializer.exe performs the following checks. If any of these fail the process is terminated and corrective action is required.
 - o Check of an existing installation. If there is an existing installation of Commercial or Internal LCI_Plugin a/o PLDB database, the process will terminate.
 - o Location installed instance of SQL Server. If there are installed instances of SQL Server 2019 or greater the first located instance is used for the installation. Otherwise, the process terminates.
 - o Attempt to connect to located SQL Server instance using Windows Authentication of the logged in user. If there are issues connecting the process is terminated.
- Installation/ setup
 - o Add required logins – There are 3 SQL Server Logins that will be added to the SQL Server instance each with different server roles.
 - Osmose_Admin
 - Osmose_RO
 - Osmose_RW
 - o Create required databases.
 - Osmose_Master
 - A single row is seeded in table Customer (Line Design Projects)
 - Two rows added to DbUser table (Admin, LciMaster)
 - Osmose_PLDB
 - Created using the latest Db Schema (schema 117)
 - o Seed settings file LCIcustomerDatabaseSettings.xml in folder C:\ProgramData\OsmosePPL\LCISettings

```
<?xml version="1.0" encoding="utf-8"?>
<LciCustomerInfoDBSettings xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <DBServerName>(local)</DBServerName>
  <DBName>Osmose_Master</DBName>
  <DBUser>Osmose_Admin</DBUser>
  <EncryptedDBPassword>5SDBWFE1X1uZwzQ5xFZ83w1C+xu+5I9+eBm1YZRivB0EtGm6Xo6MIQ==</EncryptedDBPassword>
  <DBLCIROUser>Osmose_RO</DBLCIROUser>
  <EncryptedDBLCIROPassword>5SDBWFE1X1uZwzQ5xFZ83w1C+xu+5I9+eBm1YZRivB0EtGm6Xo6MIQ==</EncryptedDBLCIROPassword>
  <DBLCIRWUser>Osmose_RW</DBLCIRWUser>
  <EncryptedDBLCIRWPassword>5SDBWFE1X1uZwzQ5xFZ83w1C+xu+5I9+eBm1YZRivB0EtGm6Xo6MIQ==</EncryptedDBLCIRWPassword>
  <DBLCIDevUser>Osmose_Dev</DBLCIDevUser>
  <EncryptedDBLCIDevPassword>5SDBWFE1X1uZwzQ5xFZ83w1C+xu+5I9+eBm1YZRivB0EtGm6Xo6MIQ==</EncryptedDBLCIDevPassword>
</LciCustomerInfoDBSettings>
```

If the installation/setup is successful a screen like the following appears:

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.4412]
(c) Microsoft Corporation. All rights reserved.

C:\Users\tpalladino>cd \osmose\temp\PldbInitializer

C:\Osmose\Temp\PldbInitializer>PldbInitializer.exe
Setup LCI PLDB Database
- Checking for existing installation...
- Locating installed instance of SQL Server...
- Running as: OSMOSE\tpalladino
- Connecting to instance (local)
- Adding required logons
- Creating database...
- Seeding database...
- Creating PLDB database...
- Writing out settings file...
Press any key to continue

C:\Osmose\Temp\PldbInitializer>_
```

If the installation/setup is executed on a system that has an existing Osmose Internal configuration an error message is displayed, and the process is terminated.

If the installation/setup is executed on a system that has an existing Commercial configuration an error message is displayed, and the process is terminated.

To reinitialize an existing Commercial configuration, execute PldbInitializer.exe with the **/Initialize** command-line option.