Flow Planner® Change Log

5.14.0.0

Released on 5/08/2023, Monday

- 1. Fixed issue with Calc with aggregating From-To Group.
- **2.** Added logic to filter out invalid characters in fields read from CSV file and Location text in the drawing. Also added auto-catenation for all fields over 25 characters.

5.11.0.0

Released on 7/12/2022, Tuesday

- 3. Fixed security issue that caused reports not to show up in Chrome or other browsers.
- **4.** Fixed Simple Report problem with Tugger studies where the Frequency was being multiplied by the distance or time.

5.9.9.9

Released on 3/16/2020, Monday

5. Moved FPC.DAT user settings file into User's Local Directory.

5.7.2.0

Released on 12/10/2019, Tuesday

1. Installer change only. No change to product version. Added installer parameters to specify RLM Server Name and RLM Port as command line arguments to the setup.exe installer.

5.7.0.0

Fixed on 8/20/2019, Tuesday

- **2.** Fixed bug in calculation for Process Templates when spaces existed at the beginning or end. This caused the application to fail during a Calculation.
- **3.** Fixed bug in calculation when trip frequency exceeded 32,000. This caused the application to fail in calculation with an overflow error.
- 4. Provided support for AutoCAD 2020.

5.6.0.1

Fixed on 9/21/2018, Friday

5. Fixed bug in calculation for From-To Groups. Always required >1 groups even if Calc option FROM-TO Group was not selected.

<u>5.6.0.0</u>

Fixed on 8/2/2018, Thursday

- **6.** Fixed bug in calculation for From-To Groups. Occurred when only one group existed.
- 7. Fixed bug in calculation when some Products had their Calc property set to "No"
- **8.** Fixed charting bug for Tugger studies involving bars being created for time slots where no trips are made or where a no-trip bar is created "on-the hour". For example 8.6 created as a blank bar when a bar exists for 9.

5.5.0.0

Fixed on 6/27/2018, Sunday

- 9. Support for AutoCAD 2019
- 10. Compatibility fixes for PCAD 2019 product (OEM)
- 11. Minimum required .NET version .NET 4.0
- 12. Dropped support for older versions of AutoCAD. Minimum supported version of AutoCAD is 2013.

<u>5.4.2.0</u>

Fixed on 9/26/2017, Tuesday

13. Support for AutoCAD 2018

5.4.1.0

Fixed on 10/20/2016, Thursday

14. Fixed bug with Tugger Routes where sometimes assigning a Route to a Delivery Row would not actually assign that Route to the Delivery Row. This bug could also make the program ignore the Route Driver assigned to a Location.

5.4.0.0

Fixed on 10/7/2016, Friday

15. Changed the licensing options. Now the program works in Free mode with a limit of 50 Routes and some disabled features, such as, Dock Solver, User defined Processes, and Tugger Routes.

- **16.** Disabled the checkbox Regen All Paths which previously allowed the user not to recalculate paths from the drawing. This is due to an issue with the path time algorithm which will be addressed in a future update.
- 17. Checking "Inches Only" on the Paths tab now updates the Listview Header with the unit "Inches".
- 18. Removed Loaded and Unloaded Walk Speed textboxes from the setup tab as they are no longer used.
- **19.** Fixed bug in Routing Tab button Update Paths which sometimes caused a Product not to show up in the View Results window.
- **20.** Fixed a bug in the Simple Flow Report when performing Relationship studies where the X and Z relationship distances did not show up as negative values.

5.3.4.0

Fixed on 10/5/2016, Wednesday

21. Fixed bug in Calculation of Method Type utilizations when a user selects the Skip Via Locations option prior to Calculation.

5.3.3.0

Fixed on 9/15/2016, Tuesday

- 1. Added ability for walk time to be computed at both the From and To location when performing a unit load calculation, but only for the To location when performing a tugger study. This is determined when the Parts-Per-Container field for the routing line is -1 or -2.
- 2. Added a new field in the Routing CSV file (column AD) to report the Join Line Walk time and distance when the user selects to Ignore Join Lines and they specify a walk speed.
- 3. Modified the Time and Volume Utilization charts for tugger studies to include routes that did not occur because nothing was being delivered.
- 4. Fixed a bug in Tugger Volume and Time utilization charts which added one additional container to the quantities.
- 5. Fixed an issue where an error would show "Aisle Line Intersection Problem" when two locations were substantially close to one another (less than 1/1000 of a base drawing unit).

<u>5.3.0.0</u>

Fixed on 6/7/2016, Tuesday

- 6. Fixed a bug in Volume Utilization Chart related to charting a value less than what was shown in the Routing.
- 7. Fixed a bug with trying to generate a Relationship Chart in the Reports tab before the user calculated their study.
- 8. Added the ability to compute a Walk Time along the Join Line for EACH container delivered at that location in a Tugger Routing calculation. The program now divides this container quantity in the Routing file line by the Full Container Quantity value entered for the container on that routing row. In this way, the user can define how many containers the material handler can carry while walking on the Join Line to drop off the containers.

- 9. Fixed a bug in the Process Tab when users were trying to calculate predetermined time studies (MTM-B, MTM-UAS, Modapts or BasicMOST). The calculation now works correctly, and the list of standard codes for MTM-B and MTM-UAS displays correctly when the user selects the up-arrow button next to the Activity code field.
- 10. Added support for AutoCAD 2017

5.2.0.0

Fixed on 3/6/2016, Wednesday

- 11. Changed the calculation for computing walk times on Join Paths (when ignore aisle joins is checked) such that this time is added for each container delivered at that location regardless of if multiple routing lines are required. Multiple routing lines to a location typically occur when performing tugger studies and delivering containers from different container groups to the same destination location.
- 12. Fixed a bug when generating tugger routes using a Figure-8 approach (where the FROM, TO and STAGE fields of a delivery record are all specified). This bug occurred when the FROM location was served by a different tugger route than the TO location. Now the software will automatically default to using the tugger route mapped to the TO location and will ignore that route mapped to the FROM location. The only exception is with a ROUTE specified to the Delivery record as an override to that tugger route mapped to the TO location.

Fixed on 3/22/2016

1. Fixed a bug in the licensing system that caused it to fail on non-US English based operating systems.

5.1.0.0

Fixed on 10/27/2015, Tuesday

- 13. Fixed a bug that caused an unhandled exception when a random seed with a non-numeric character was entered for a tugger.
- 14. Fixed a bug that caused an unhandled exception when opening a blank drawing in AutoCAD, starting FlowPlanner, opening a csv file, running a calculate and hitting escape for each missing location. FlowPlanner will correctly note that all paths are zero length, then the unhandled exception occurs.

Fixed on 10/29/2015, Thursday

- 15. Fixed a bug that caused location labels to be created in the wrong place when the UCS in AutoCAD was not set to WORLD.
- 16. Fixed a bug that allowed the user to reload the main Routing window when the Edit Aisle window was still open.

Fixed on 11/13/2015, Friday

17. Replaced the existing licensing system (standalone, KEYLOK, and University) with RLM licensing.

Flow Planner version 5.1.0.0 released on 11/20/2015, Friday

<u>5.0.1.0</u>

Fixed on 6/16/2015, Tuesday

1. Added support for AutoCAD 2016.

Fixed on 7/07/2015, Tuesday

- 2. The create aisle congestion checkbox will now only be enabled when aisle flow is active.
- 3. User will now be prompted to adjust the quantity of a method when it is over utilized.

Fixed on 7/17/2015, Friday

4. Fixed a bug that would cause an invalid tugger aggregate error if you calculated a FROM TO tugger study.

Fixed on 7/21/2015, Tuesday

5. Fixed a bug that would cause a crash when joining aisles if the product and location names where the same.

Fixed on 7/23/2015, Thursday

6. Fixed a congestion bug that occurred when multiple aisle layers were used.

Fixed on 7/27/2015, Monday

- 7. Fixed a bug that would occur when adding a new location during a tugger study.
- 8. Fixed a bug related to the dock storage solver.

Fixed on 7/28/2015, Tuesday

9. Fixed an aggregate method utilization report bug in the total time calculation.

Fixed on 7/29/2015, Wednesday

- 10. Updated the tugger module to show unused deliveries.
- 11. Fixed bug that caused a calculation to crash if setting tab option "Ignore Load Unload Times".

Fixed on 7/30/2015, Thursday

12. Fixed bug that caused the congestion chart to crash. Removed congestion chart option when performing a straight calculation.

Fixed on 7/31/2015, Friday

13. Fixed bug when editing fields under the Methods tab and then clicking update results in default settings populating.

Fixed on 8/1/2015, Saturday

14. Fixed a bug when joining locations to an aisle that caused an index outside the bounds of the array exception.

Fixed on 8/3/2015, Monday

- 15. Added a new feature to set the elevation of an aisle line to zero if it had a non-zero elevation.
- 16. Reworked the product list so it would perform a refresh for all rows at one time, instead of one row at a time.
- 17. Fixed a bug where there were duplicate location text labels. Now the user will have the option to display a dialog that will show the list of duplicate text labels.

Fixed on 8/13/2015, Thursday

- 18. Fixed a bug where there were locations on both side of an assembly line. Using straight flow tugger generation, the software will route the sequence alternately on both sides of the aisle. When using aisle flow, the software should have been sequencing visits to one side of the aisle and then visiting the other side.
- 19. Fixed a bug in the tugger generate routes. In some scenarios a warning would be displayed when initializing the graph.
- 20. Fixed a bug that did not allow the user to exit out of entering work center points.

Fixed on 8/14/2015, Friday

21. Added the ability to specify a tugger route in a row of a delivery file. This overrides the default behavior which was to inherit the tugger route from the location visited.

Flow Planner version 5.0.1.0 released on 8/18/2015, Tuesday

4.2.2.0

Fixed on 12/19/2014, Thursday

1. Fixed a bug that caused an unhandled exception when opening a tugger file from the Part Routings tab. Now a warning is displayed since tugger files should not be opened from the Part Routings tab.

Flow Planner version 4.2.2.0 released on 12/29/2014, Monday

4.2.1.0

Fixed on 11/20/2014, Thursday

1. Fixed a bug in the tugger module when suppressing the randomization of the first delivery in the SEQ statistical distribution.

Flow Planner version 4.2.1.0 released on 11/24/2014, Monday

4.2.0.0

Fixed on 8/13/2014, Wednesday

1. Fixed some typos in the Flow Planner UI.

Fixed on 9/4/2014, Thursday

 Fixed a bug on the Tuggers tab that caused the Staging Time and secs labels in the Step 2: Location Route Groups to move incorrectly when resizing the Flow Planner dialog box.

Fixed on 9/19/2014, Friday

3. Fixed a bug on the **Process** tab that caused an invalid time to be displayed when using a Template. The time should have been set to -1.

Fixed on 9/24/2014, Wednesday

- 4. Fixed a bug on the Add/Edit Aisle dialog box. In some cases when pressing the **Add Line** or **Set Dir/Width** button a dialog behind AutoCAD would popup and then go away in quick succession.
- 5. Made changes to the Methods and Products tabs to round Qty/Time values to two decimal places.

Fixed on 9/26/2014, Friday

Enhanced the data file loading process. Now when loading data files any errors that are found will be displayed in a single dialog box.

Fixed on 9/28/2014, Sunday

- 7. Enhanced running calculations from the **Part Routings** tab. Now when running a calculation any errors that occur will be displayed in a single dialog box.
- 8. Fixed a bug on various tabs that caused combo-boxes to have their contents highlighted when resizing the width of the **Flow Planer** dialog box.

Fixed on 9/30/2014, Tuesday

Enhanced the Product list on the Products tab to support multi-select editing for most fields.
 Enhanced the Methods list on the Methods tab to support multi-select editing for most fields.

Fixed on 10/1/2014, Wednesday

10. Enhanced the **Utilization** tab to allow filtering the Utilization chart by X-axis label for **Aggregate**, **Tuggers (Time)**, **Tuggers (Volume)**, **Method (Time)** and **Method Type (Time)**.

Fixed on 10/2/2014, Thursday

- 11. Fixed a bug that caused the group name to not be applied correctly in the **Activity Code** within the **Process** tab.
- 12. Fixed a bug that caused an **Incorrect Speed Value** error message to popup multiple times when running a calculation. Now this message will only be recorded once per calculation
- 13. Enhanced the **Utilization** tab to allow the data behind the Utilization chart to be copied to the clipboard.

Fixed on 10/3/2014, Friday

14. Enhanced running calculations from the **Part Routings** tab. Now a pass through point delay time can be specified for each location. The default value for the delay time will be 0 seconds.

Fixed on 11/10/2014, Monday

- 15. Fixed a bug that allowed adding a route on the Part Routings tab without specifying a container name.
- 16. Enhanced the aisle placement code. Now it is possible to undo and delete aisle segments from the Add/Edit Aisle dialog launched from the Paths tab.

Fixed on 11/11/2014, Tuesday

- 17. Enhanced the **Part Routings** tab to display the **Description** in the list of routings. Also made it easier to specify the **Description** for a routing.
- 18. Fixed a bug that caused the tugger volume and container counts to be incorrect for figure 8 studies. Also fixed the reports to reflect those changes.

Fixed on 11/13/2014, Thursday

- 19. Fixed a bug that caused the Calculate button to remain in a disabled state on the **Part Routings** tab after adding a new routing.
- 20. Enhanced the tugger module to allow the user to suppress the randomization of the first delivery in the SEQ statistical distribution.

Flow Planner version 4.2.0.0 released on 11/17/2014, Monday

4.1.0.0

Fixed on 7/24/2014, Thursday

1. Added support for AutoCAD 2015.

Flow Planner version 4.1.0.0 released on 7/25/2014, Friday

4.0.0.0

Fixed on 4/3/2014, Thursday

1. Fixed a bug in the metric tugger tutorial files. The Hydra Pumps Tugger.csv file was using commas for the delimiter. It should have been using semi-colons for the delimiter.

Fixed on 4/25/2014, Friday

Fixed a bug in the drawing of flow arrows. When color by frequency was turned on the arrows were being drawn using the product colors. The arrows should have been drawn using the frequency colors.

Fixed on 5/30/2014, Friday

3. Fixed a bug on the Tugger tab. When clicking on the Aisle Flow radio button the Create Aisle Congestion check box was not being enabled. Similarly, on the Tugger tab when clicking on the Straight Flow radio button the Create Aisle Congestion checkbox was not being disabled.

Fixed on 6/3/2014, Tuesday

4. Fixed a bug on the **Reports** tab. When the settings are metric the relationship chart **Text Height** shows inches for the units.

Fixed on 6/4/2014, Wednesday

- 5. Fixed a bug on the **Processes** tab. The caption above the **Time** text box below the **Process** list was cut off. Updated the caption to be **Time** (sec) which fits properly above the text box.
- 6. Fixed a bug on the **Paths** tab. Pressing the **Erase All Drawing Paths** button should have been deleting all aggregate paths (including congestion) and their associated arrowheads.

Fixed on 6/11/2014, Wednesday

- 7. Fixed a bug on the **Results** dialog. Comparison of time, cost and distance is not the correct percentage if you select the rows in reverse.
- 8. Fixed a bug on the **Locations** tab. Pressing the **Erase All Locs in DWG** button does not remove those locations from the list that are no longer referenced in the **Part Routings** or **Tuggers** tab.
- 9. Randomized the Tugger SEQ delivery algorithm such that the first delivery is initiated across the possible delivery windows.
- 10. Fixed a bug when importing files on the **Part Routings** and **Tuggers** tabs. If the file is not imported the data associated with that file should not be cleared out.
- 11. Added a checkbox called **Ignore aisle joins** on the **Part Routings** tab to disregard distance, time and cost along aisle joins.

Fixed on 6/12/2014, Thursday

- 12. Enhanced the calculation routine to handle stops on a pass-thru points.
- 13. Fixed a bug on the Paths tab. The Add/Edit Aisle dialog was not updating the appearance of aisle lines in the drawing.
- 14. Fixed a bug on the Paths tab. The Join Locs to Aisle function was not properly handling locations that were on aisle lines.
- 15. Fixed a bug on the **Part Routings** tab. Congestion diagrams should not have been including frequency on join lines. Congestion lines should not have been drawn on join lines.

Fixed on 6/16/2014, Monday

- 16. Enhanced the calculation routine to include walk time for **Aisle Joins** when the **Walk Speed** setting is greater than zero.
- 17. Fixed a bug that caused the **Part Flow Routings** label to be cut off on the **Save As** dialog box launched from the **Part Routings** tab.

Fixed on 6/17/2014, Tuesday

18. Enhanced the error checking when adding aisle lines to a drawing from the Paths tab. Proplanner.Common.dll: External library file that FlowPlanner uses for the license update and installation wizard. The form prompt when launching the application with no license (30 days trial, Update by Email options shown) is from this file. Also the same form shows when clicking on "View License" button in the Settings tab.

Flow Planner version 4.0.0.0 released on 6/19/2014, Thursday

3.8.10.0

Fixed on 3/6/2014, Thursday

- 1. Fixed a bug in the reading and writing of the **Routings** in the CSV file. There was a mismatch between the CSV file and the code for the **Via Unload** and **Via Load** times.
- 2. Fixed a bug that caused containers to be repeated in the container combo box on the **Routings** tab when adding a new routing that contained a new container name.

Flow Planner version 3.8.10.0 released on 3/13/2014, Thursday

3.8.9.0

Fixed on 2/11/2014, Tuesday

1. Fixed a critical bug in the licensing system.

Fixed on 2/12/2014, Wednesday

- 2. Fixed a bug that caused an exception when going the **Routings** tab, selecting the last **Product**, selecting the last **Part** and then clicking the **Description** button.
- 3. Fixed a bug that caused an exception when adding a **Method** on the **Methods** tab when not setting the **Quantity** first.

Flow Planner version 3.8.9.0 released on 2/19/2014, Wednesday

<u>3.8.8.0</u>

Fixed on 1/28/2014, Tuesday

- Fixed a bug in the tugger volume results. Go to the Tuggers tab and open a tugger study. On the Tuggers tab Generate Routes. Now go to the Part Routings tab and Calculate. Note that on the Results dialog the TugVol % values are all empty. The TugVol % values should not have been zero.
- Fixed a bug in the Results dialog. Go to the Tuggers tab and open a tugger study. On the Tuggers tab
 Generate Routes. Now go to the Part Routings tab and Calculate. Now the Results dialog will
 appear. On the Results dialog select Routes, note that you will see a History tab. The History tab
 should not be visible when Routes is selected.

Fixed on 1/29/2014, Wednesday

- 3. Fixed a bug in the container list generation on the **Containers** tab. The descriptions for the containers were not being displayed.
- 4. Fixed a bug in the **Add** container functionality on the **Containers** tab. When adding a container the description was not being saved.

Flow Planner version 3.8.8.0 released on 1/30/2014, Thursday

3.8.7.0

Fixed on 10/14/2013, Monday

1. In certain scenarios the install routine would overwrite the licensing information when upgrading to a newer version of Flow Planner. The install has been updated to make sure the licensing information is not overwritten on an upgrade.

Fixed on 10/17/2013, Thursday

- 2. When loading the Tugger Delivery file, Loc and Mhe files (Tugger tab) the software is not defaulting to the directory where the drawing was found. This is working correctly for when we load the data files from the Routings tab. Updated the Tugger module to apply the correct default directory.
- 3. The Show Route Volumes and the Show Unused Deliveries buttons open dialogs from the Tugger tab. The dialogs are modeless which means the user can go back to the Tugger tab and continue to work. This causes confusion if the user runs another calculation and presses the Show Route Volumes or the Show Unused Deliveries button again. To eliminate the confusion the dialogs have been modified to be modal. This means the user would have to close the dialog before they could go back to the Tugger tab.

Fixed on 10/18/2013, Friday

- 4. On the Locations tab the column header titles in the Groups/Routes list box were incorrect after clicking on the Groups and Routes radio buttons. Updated the code to make the column header titles "Name" and "Color" independent of the Groups and Routes radio button selection.
- 5. When first starting Flow Planner on the **Locations** tab the title of the Groups/Routes group box is "Routes and Color". The title of the group box should have been "Groups". The code has been updated to fix the group box title.
- 6. Generating Tugger routes when some tugger pass thru points are unnamed causes a large number of "Empty Location Name" error messages to pop up. The code has been adapted to only display one "Empty Location Name" error message in this scenario.
- 7. Need to verify that the user has entered a "*T/" or "*F/" for the Tugger Route Path (if pass-thru points are used). Updated the Tugger code to do the following. If slashes are detected in the path, the path must start with "*T/" or "*F/". If no slashes are detected we will check if the path refers to a location. In that case the path must start with "*T/" or "*F/". Note that this check is performed when changing the Path on the Tuggers tab and clicking Update. The check is also performed when performing an Import Deliveries on the Tuggers tab.

Fixed on 10/21/2013, Monday

8. Need to allow a Route name to include a "-" (dash) or "_" (underscore). Originally the code was using the dash as a delimiter between the route name and the time interval and an underscore as a delimiter between the hours and minutes. The code has been updated to use a "¦" (broken vertical bar) as the delimiter between the route name and the time interval and a "." (decimal point) as the delimiter between the hours and minutes. Also added two additional digits to the time interval for the seconds. For example the old format was "ZONE1-07_10" and the new format is "ZONE1\07.1000".

Fixed on 10/22/2013, Tuesday

- 9. Results are only being displayed for a calculation when it's Aggregate by Product. If any other Aggregate by type is selected you will only get the Total line in the results dialog. Reworked the result generation code to display calculation results for all Aggregate by types.
- 10. When installing Flow Planner if the end user had previously installed the Autodesk Exchange Store version they would end up with two versions of Flow Planner installed. Enhanced the installation to automatically uninstall the Autodesk Exchange Store version of Flow Planner if it is present on the end user's computer and has the same or an earlier version number.

Fixed on 10/23/2013, Wednesday

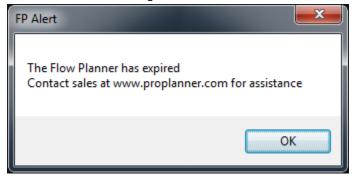
11. The copyright notice on the splash screen was being cut off on Windows 8. The copyright notice field on the splash screen has been widened to fix the issue.

Fixed on 10/29/2013, Tuesday

12. Reworked the aggregate stats function to correctly calculate the Container Qty for tuggers. The previous calculation was including staging areas and pass-thru points when calculating the Container Qty.

Fixed on 10/30/2013, Wednesday

13. Fixed a bug that caused a dialog to pop up saying the Flow Planner license had expired when running Flow Planner the first time using a Trial license.



Flow Planner version 3.8.7.0 released on 10/31/2013, Thursday

3.8.6.0

Fixed on 09/16/2013, Monday

- 1. When changing the range in the utilization graph to something smaller than the total number of bars an exception occurs. The software has been updated to resolve the bug. The steps to reproduce the bug are listed below.
 - Open a drawing in AutoCAD and then open a Flow Planner project.
 - Run a Calculation.
 - On the **Utilization** tab change the range to something smaller than the total number of bars.
- 2. Adding a Row in the **Routings** tab not working properly. The software has been updated to resolve the bug. The steps to reproduce the bug are listed below.
 - Load the tutorial example (standard Hydrapumps flow study)

- Calculate a straight flow study
- Select the Add Row button on the Routings tab
- Perform another straight flow calc
- You will notice that the flow distance for the product that you added the route for is now infinity and the program becomes unstable

Flow Planner version 3.8.6.0 released on 09/17/2013, Tuesday

3.8.5.0

Fixed on 08/27/2013, Tuesday

1. Fixed logic for the Process (Load/Unload) base time when the FROM and TO locations for the route path are the same. In this situation, the base stop time should not be referenced for that route, only the per-container time should be added for that route line.

Fixed on 08/28/2013, Wednesday

- 2. Fixed an exception that would occur when you entered a value of ZERO for a product quantity on the **Products** tab and then ran a Calculation.
- 3. Fixed a delimiter problem that caused a comma to be placed where a semicolon should have been in the header of the LOC file (Tugger Routes Section). This happens when the default delimiter is set to a semicolon.
- 4. Fixed a bug that caused the software to wrongly prompt the user to select locations. This occurred when adding locations to the drawing that were not in the routing and then trying to delete those locations using the Delete button on the **Locations** tab. When a calculation was run the user would be prompted to select all of the locations (which already exist in the drawing and locations tab).

Fixed on 08/29/2013, Thursday

- 5. Fixed bug in the Tugger module whereby the Method Type is not being properly referenced when defined for the Route Path.
- 6. Fixed a bug in the Congestion Frequency calculation such that the frequency value of a path is not used as its direct frequency, but instead as its Frequency divided by its effectiveness percent.

Fixed on 08/30/2013, Friday

- 7. Fixed bug that caused the locations list on the Locations tab to be incorrect when the Location Text Layer is changed on the Settings tab. The list should have only been displaying location defined in the routings and locations defined on the Location Text Layer. Locations that are not on the Location Text Layer should have their X and Y values set to 0.
- 8. Added a right-click menu to the Utilization chart. The right-click menu has one option called Copy. Selecting that option copies an image of the chart to the clipboard. The chart can then be pasted into applications like Excel, Word, etc.

Fixed on 09/03/2013, Tuesday

9. Added a Staging time value to the Route table, so that staging times can be specified (over-rides the global staging time value).

Fixed on 09/05/2013, Thursday

10. The routing section of the CSV Routing file must be contiguous. If a CSV Routing file that is not contiguous the user is told to manually resort the routings and re-load the file. The product was enhanced to automatically resort the routings in the CSV routing file if they were not contiguous.

Fixed on 09/10/2013, Tuesday

- 11. Volume was not spelled correctly in the header of the Step2:Location Route Groups list view on the Tuggers tab.
- 12. The stage time assigned to a route driver was not being saved to the LOC file. The software has been updated to correctly write out the TUG_ROUTES header and now writes out the stage times correctly.
- 13. The stage time was incorrectly being applied when going through a pass-through point (which should have no Load/Unload time). The Locations tab was enhanced to allow the user to specify if a location is a pass-through point. Also gave the user the ability to specify that a stop is required at a pass-through point.

Fixed on 09/11/2013, Wednesday

- 14. After running a tugger calculation, go to the **Products** tab. Set the quantity of each product (route) to zero. Now repeat the calculation, note that the same results will be displayed. The software has been updated to correctly filter out products (routes) that have a zero quantity from the results.
- 15. On the **Products** tab set two or more products to have Calc set to No. Now go to the **Part Routings** tab and run a calculation, there will be no results displayed in the dialog. The software has been updated to properly handle the scenario where multiple products have their Calc set to No.

Flow Planner version 3.8.5.0 released on 09/12/2013, Thursday

3.8.4.0

Fixed on 06/19/2013, Wednesday

- 1. Flow Planner aggregation error doing tuggers.
 - Open the **Hydra Pumps.dwg** from the Flow Planner Footlnch Tutorial folder
 - Start Flow Planner
 - On the Part Routings tab click the File Open button and select the Hydra Pumps.csv file
 - On the Tuggers tab click the Import Deliveries button and select the Hydra Pumps
 Tugger.csv file
 - On the Tuggers tab click the Generate Routes button
 - On the Part Routings tab click the Calculate button
 - On the Results dialog click the Routes radio button
 - On the Part Routings tab select Part in the Aggregate by combo box
 - On the Part Routings tab click the Calculate button

Note that the totals on the Results dialog are twice what they should be.

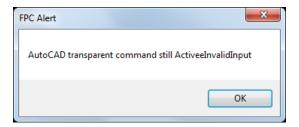
Fixed various text strings and controls on the Flow Planner UI so they would not be cut off. Made some modifications to the dialogs so they would look better when the user changes the text size in Windows from Smaller – 100% (default) to Medium – 125% or Larger 150%.

Flow Planner version 3.8.4.0 released on 06/19/2013, Wednesday

3.8.3.0

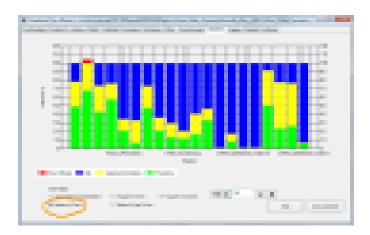
Fixed on 05/30/2013, Thursday

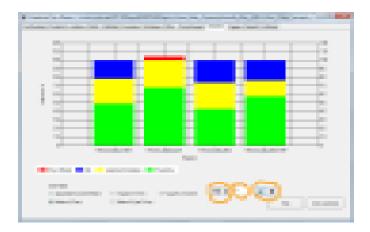
Go to the Paths tab and select Join Locs to Aisle. Go to the Part Routings tab turn on Aisle Flow and then
run Calculate. Go to the Freq/Congest and select aggregate Congestion. Now select Goto AutoCAD and
then select Query Path. The following error will be displayed.



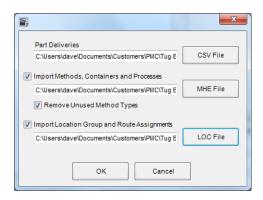
Fixed on 05/31/2013, Friday

Go to the Paths tab and select Join Locs to Aisle. Go to the Part Routings tab turn on Aisle Flow and then
run Calculate. Go to the Utilization tab and select Method (Time). When the number of items in the
chart is changed from 20 to say 4, the buttons for moving forward and backward in the chart are not
working.



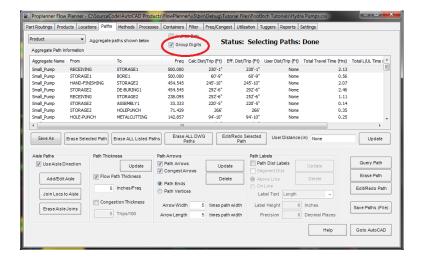


 From the Utilizations tab click Import Deliveries. The dialog that pops up contains buttons for picking the CSV, MHE and LOC files. The file pickers that pop up when those buttons are clicked do not contain any file extension filtering.

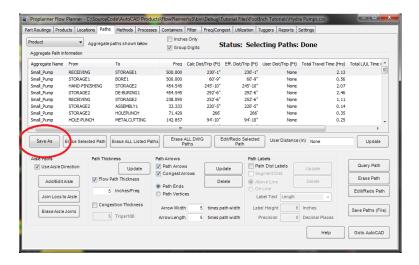


Fixed on 06/04/2013, Tuesday

4. Need a new global setting on the Paths tab list for controlling the appearance of the thousands separator. The setting will be a check box that will be located under the existing Inches Only check box on the Paths tab. The Group Digits check boxes on the Paths tab, Filter tab and Query Path dialog will be linked together, so if you change one it will change all of them.



5. Add a **Save As** button on the **Paths** tab list. This button will start a file picker so you can save the contents of the list to a CSV file. Note that the **Line Delimiter** defined in the **Settings** tab will be used when constructing the CSV file.



Flow Planner version 3.8.3.0 released on 06/06/2013, Thursday

3.8.2.0

Fixed on 05/24/2013, Friday

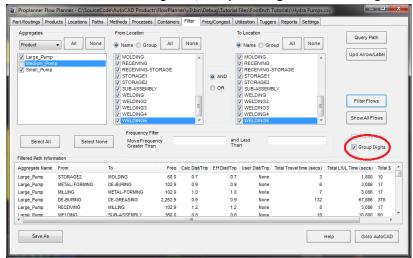
1. Calculate functionality threw a "out of index" error after the routings were created out of Tugger file (LeanChart).

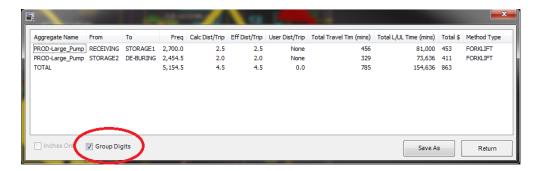
Flow Planner version 3.8.2.0 released on 05/24/2013, Friday

3.8.1.0

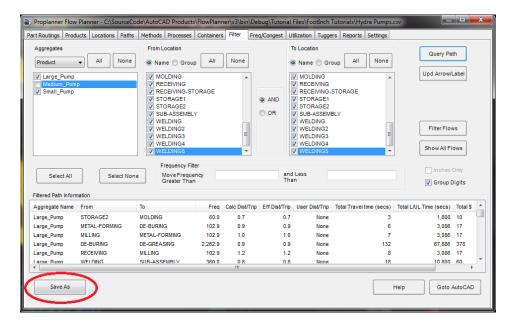
Fixed on 05/23/2013, Thursday

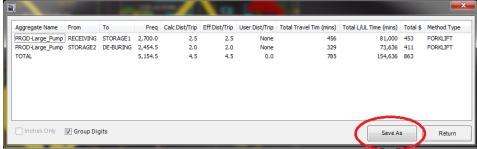
Need a new global setting on the Filter tab list and Query Path dialog for controlling the appearance of
the thousands separator. The setting will be a check box that will be located under the existing Inches
Only check box on the Filter tab and next to the Inches Only check box on the Query Path dialog. The
check boxes will be linked together, so if you change one it will change all of them.





2. Add a **Save As** button on the **Filter** tab list and **Query Path** dialog. This button will start a file picker so you can save the contents of the list to a CSV file. Note that the **Line Delimiter** defined in the **Settings** tab will be used when constructing the CSV file.





3. Reworked the **Flow Planner Install** so when installing over the top of an existing **Flow Planner Install** you will only be prompted to uninstall the existing version when necessary. Uninstalling is only necessary when the existing installation is version 3.7.9.0 or earlier.

Flow Planner version 3.8.1.0 released on 05/23/2013, Thursday

<u>3.8.0.0</u>

Fixed on 05/15/2013, Wednesday

Part routing color by frequency legend incorrect. Open the Hydra Pumps.dwg from the tutorial. Start
Flow Planner and select the Hydra Pumps.csv file. From the Part Routings tab select Color by Frequency.
From the Part Routings tab run a Calculation. From the Reports tab Insert Legend. Note that the legend
that appears contains: Large_Pump, Medium_Pump and Small_Pump. The legend that appeared should
have contained: A, E, I, O and U.

Fixed on 05/16/2013, Thursday

- 2. On the **Methods** tab. At the bottom of this screen there is a field that says "Minutes Per". It should say "Minutes per Year", where Year is the time unit value that the user selects on the **Products** tab. Also, "Turn Ang" should say "Turn Angle". Fixed some additional labels that were being cut off in the UI.
- 3. Filter not working correctly for the congestion aggregate type. Open the Hydra Pumps.dwg from the tutorial. Start Flow Planner and select the Hydra Pumps.csv file. From the Paths tab Join Locs to Aisle. From the Part Routings tab select Aisle Flow and then Calculate. From the Filter tab select aggregates type Congestion. Note that the A, E, I, O and U options are all unchecked. All of these check boxes should initialize to a checked state. Now attempt to filter just on A for example, the paths are not being filtered.
- 4. Filter not working correctly when color by frequency is turned on. Open the Hydra Pumps.dwg from the tutorial. Start Flow Planner and select the Hydra Pumps.csv file. From the Part Routings tab select Color by Frequency then Calculate. On the Filter tab note that the Large_Pump, Medium_Pump and Small_Pump are in the Aggregates list. Since Color by Frequency is turned on we should see A, E, I, O and U in the Aggregates list. Everything in the Aggregates list should be initialized to a checked state. Enhanced the code so filtering would work when Color by Frequency was turned on.

Fixed on 05/19/2013, Sunday

5. Fixed the KEYLOK licensing bug that required the end user to copy the topipsvr.dat file from the SysWOW64 folder to the System32 folder on a 64-bit OS. First of all the Flow Planner installation Proplanner Licensing dialog now contains three options: Standalone Licensing, University Licensing and Floating Licensing. The Floating Licensing option implements the KEYLOK licensing. Note that when selecting the Floating Licensing option you must Enter the server name or IP address which hosts the Licensing Server. The new Flow Planner install now automatically runs the KEYLOK Client installation when the Floating Licensing option is selected. So with this release the end user no longer needs to manually run the KEYLOK install. Please note that if the Flow Planner application has previously been installed on the client computer it must be uninstalled before applying this installation!

Flow Planner version 3.8.0.0 released on 05/20/2013, Monday

3.7.9.0

Fixed on 05/14/2013, Tuesday

 Flow Planner is not registering properly when multiple flavors of AutoCAD are installed on the same machine. The user that reported the bug had installed Factory Design Suite 2014 which installs AutoCAD Architecture 2014 and AutoCAD Mechanical 2014. The registry code used by the installer to register Flow Planner was not able to handle multiple flavors of AutoCAD. The Proplanner.Registry and Proplanner.Registry64 modules have been enhanced to handle the registration of multiple flavors of AutoCAD.

Flow Planner version 3.7.9.0 released on 05/14/2013, Tuesday

3.7.8.0

Fixed on 04/24/2013, Wednesday

File Open in Part Routings tab caused an infinite loop if the CSV did not have commas for the blank rows.
 Notice Line 3 and 7 do not have commas. And also no commas on Line 4 and 8 after the column header.

 Regardless of what the format is the program now handles it. If you want to correct the file yourself it's as simple as open it in Excel and resave the file in CSV format. Commas will be automatically generated.

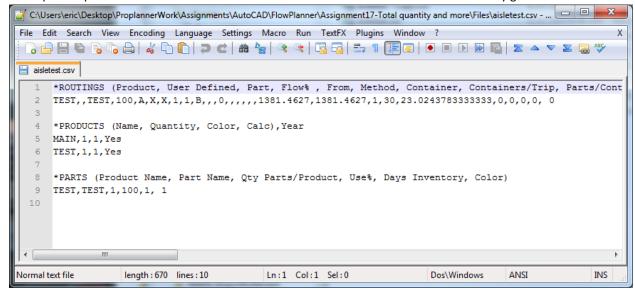


Figure 1. Incorrect CSV file

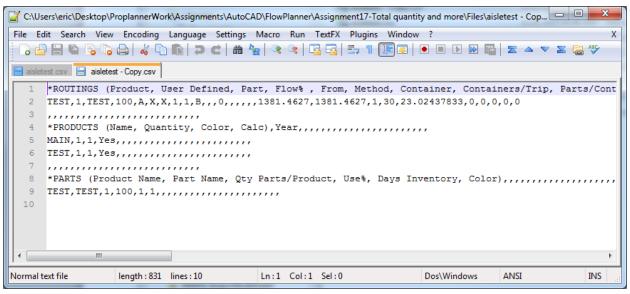


Figure 2. Correct CSV file

2. Method Types dropdown in **Methods** tab had duplicate names added.

Fixed on 05/07/2013, Tuesday

3. When Congestion is selected on the Freq/Congestion tab if you switch to the Filter tab an exception will be thrown. When Congestion is selected the From Location and To Location lists are empty on the Filter tab. The software did not expect empty lists so an exception occurred. The software has been enhanced to correctly handle the case where the lists are empty.

Fixed on 05/09/2013, Thursday

- 4. Added AutoCAD 2014 support. Reworked the underlying Proplanner.Registry and Proplanner.Registry64 modules to properly register Flow Planner for use with AutoCAD 2014.
- 5. In the **Products** tab, if you set the **Calc** option for the Product to No (for no calculation), the calculation threw an "System.IndexOutOfRangeException: Index was outside the bounds of the array" error.
- 6. In the **Products** tab, if you set the **Quantity** to 0, the calculation threw "System.ArgumentNullException: Value cannot be null" error.

Flow Planner version 3.7.8.0 released on 05/09/2013, Thursday

3.7.7.0

Fixed on 04/03/2013, Wednesday

1. Aggregated by "From-To Group" calculation threw "Index out of Bounds" error. Note for developer: Within the calcFlow() function index which was a returned value of **getFlowPathIndex** function and this had -1, hence the invalid index.

3.7.6.0

Fixed on 03/19/2013, Monday

- 1. When the Routes radio button is selected in the calculation result form,
 - a. No Total shown
 - b. Average **Travel** % and **TugVol** % were not correct
 - c. Whichever aggregate value was inserted first was moved down. So the Total row showed at Row #1. This is incorrect.
 - d. Cost, Travel %, and TugVol % in Current and History tab have two decimal points now.

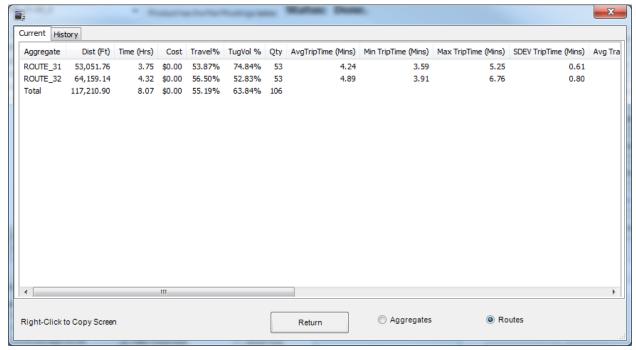


Figure 1. Corrected view of calculation result.

Fixed on 03/26/2013, Tuesday

2. FixedCost change in Method Types section in Methods tab didn't generate the correct Total Cost.

3.7.5.0

Fixed on 03/01/2013, Friday

- In the Tuggers tab, Step 2 Locaton Route Groups Update did not parse the Path column value and add the location. It was added only when the Generate Routes button is clicked. Now when you click Update or Generate Routes button new location(s) in the Path string (delimited by '/') will be added. And then in the Locatons tab you can click on Add Missing Locs button to add new locations to the drawing.
- 2. In the Tuggers tab, load tugger file, generate routes, and run calculation in Part Routings tab. In the result Routes radio box did not return any summary.

3.7.4.0

Fixed on 02/13/2013, Wednesday

1. Proplanner.Common.dll file (v1.6.6) was updated. Please refer to the footnote to learn what this file is for.

3.7.3.0

Fixed on 02/05/2013, Tuesday

- 1. In the Methods tab following labels' widths were adjusted to show all text
 - a. Method Type

- b. Load Process
- c. Eff %
- 2. In the Methods tab following dropdowns' widths (size) and dropdownwidths were adjusted.
 - a. Method Type
 - b. Color (Methods)
 - c. Aisle Path Layer
 - d. Color (Method Types)

Fixed on 02/08/2013, Friday

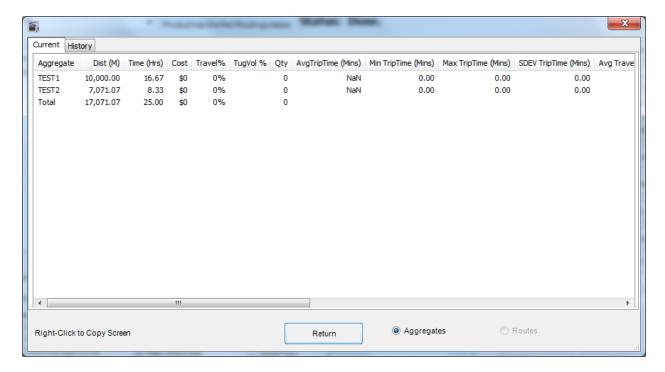
- 3. After changing the fixed cost for each Method types in **Methods** tab and doing the calculation, the total cost in the History tab was increasing by multiple. The logic was fixed by Dave.
- 4. In the Methods tab, updating Method Type name caused the index error.
- 5. Splash screen now shows the "2004 2013" instead of "2004 2012".

Fixed on 02/11/2013, Monday

6. Creating new Routings and doing the calculation gives you Qty of 0 in the result form. This was because according to the current logic if the Via Loc dropdown list is empty, nothing happens to the default values and other aggregation math (there is no else statement).

Fixed on 02/12/2013, Tuesday

- 7. PPDuplLocs form column names changed
 - a. Aggregate => Location
 - b. From Location => X
 - c. To Location => Y
- 8. Method array's Start Location property's default value is "" instead of "START". Also blank location won't be added to it.



3.7.2.0

Fixed on 01/18/2013, Friday

If the same location name labels appear multiple times in the drawing, a window form pops up when
certain buttons are clicked showing some messages that nobody understands. The way it displays the
message has changed. It now says that there are duplicate names in the drawing and by choice the list of
locations that are causing the error. E.g) Generate Routes button in the Tuggers tab and Calculate button
in the Part Routings tab will see this error.

Fixed on 01/21/2013, Monday

- 2. Application automatically detects which type (comma delimited or semicolon delimited) the CSV file is being loaded and changes the Delimiter setting in the **Settings** tab after.
- In the Filter tab, Aggregate, From Location, and To Location list view control contain the check boxes.
 Selected items should be cached so that the user can see the same setting after leaving and coming back to the Filter tab.
- 4. In the Methods tab, changing color of the Method type (drop down list) crashed the program. This is fixed.

Fixed on 01/24/2013, Thursday

5. If the **SHADEMODE** was set to wireframe, the flow lines would no longer be filled. Now the Calc command always resets shademode to filled flow paths.

3.7.1.0

Fixed on 11/16/2012, Friday

- When the user activates the 30 day Trial licence type, the application still displays the "Licence expired" message.
- 2. AutoTrial licence prompt box kept popping up even after clicking Finish. In some cases, it caused the application to crash.

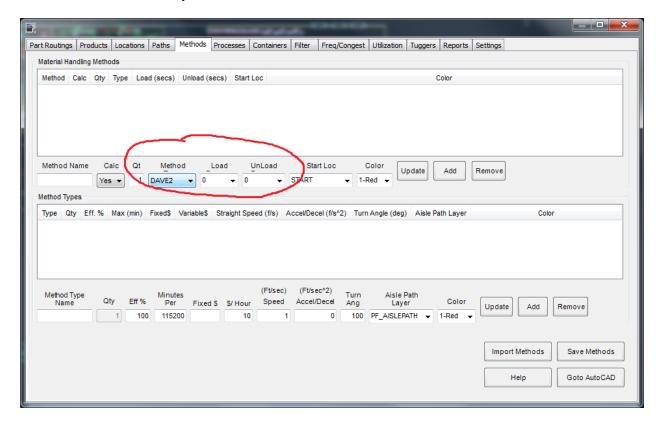
3.6.9.0 & 3.7.0.0

Because of #9 (considered "new feature"), the fix started with 3.6.9.0 but ended with 3.7.0.0 version number.

Reported by Dave Sly (Client: Volvo).

Fixed on 11/02/2012, Friday

1. Label widths were adjusted to show all text in the Methods tab.



Fixed on 11/06/2012, Monday

- 2. In the **Methods** tab, Method Type "Update" button causes a crash when no Methods are registered. It's trying to find a Method name that has the Method Type that is being updated but since there are no Methods, it's throwing an invalid index error.
- 3. Method Type drop down list does not get populated correctly.
- 4. Location limit error for the Trial license. Didn't do anything because the logic in place already was correct. Will try out again with maybe new license for Volvo and see if the same error reoccurs.

5. in the Paths tab "Join Locs to Aisle" button function did not create a line correctly.

Fixed on 11/16/2012, Thursday

6. In the Locations tab, the Name textbox and the Rename button to update the Location name selected were added. This should also update location text in the drawing and a few other places as well.

Reported by Robin Owens.

Fixed on 11/06/2012, Monday

- 7. Dist(M) value in the Current and History tabs in Calculation result form did not match.
- 8. Legends not created correctly after the Aggregated by Product calculation (Pending).

3.6.8.0

Fixed on 10/22/2012, Monday

1. Maximum locations allowed to created changed from 2000 to 5000 (MaxLocations variable in PPFPC.vb).

3.6.7.0

Fixed on 10/10/2012, Wednesday

1. Proplanner.Common.dll file (v1.6.4) was updated. Please refer to the footnote to learn what this file is for.

Fixed on 10/16/2012, Tuesday

2. Splash screen was modified to show only the Version number. It no longer displays the licence type (Full, Trial, Lite and so on). Reason: the same logic to get the license info was repeating throughout the entire application without being able to define it once and reference it from the various places. And by the rule of good coding practice, it was to be avoided. We felt that it was no trouble for the splash screen to not display the license type.



3. Licence check logic was fixed. When launching the application if there was no proper licence installed, application should be closed upon clicking OK button in the error message. But it was left open. Also It was showing the error message more than once (click OK and it shows again before closing it completely).

Fixed on 10/19/2012, Friday

4. Proplanner.Common.dll file (v1.6.5) was updated. Please refer to the footnote to learn what this file is for.

3.6.6.0

Fixed on 09/27/2012, Monday

- 1. It was reported that the license version text in the **Settings** tab did not get update after the user changes the licence. This was tested and appeared to be working.
- 2. Dropdown width property of comboboxes throughout the application were adjusted to cover long item names.

3.6.5.0

1. Dock Storage Solver issue resolved.

3.6.4.0

- 1. Add products to the dropdown list in the **Part Routings** tab only when the error checking was done successfully. Error checking happens when the user opens the files (File Open button).
 - a. opTest = addProduct(Routing(row).Product, row, 1) was moved to different place.
- CSV file should contain Product names in continguity. If not, throw an error with only this error message (none other, such as "Via Containers/Trip must be => 0" etc.) and clear all data if any were populated in/added to controls.
- 3. Part textbox in the **Products** tab did not have enough space for the long names.
- 4. Initial directory for File Open dialog (for all files—Routing, Product, Method, Location, and Resources) was not the location of the AutoCAD drawing.
- 5. Part Name dropdown list in the Part Routings tab was short in width to contain long part names.

3.6.3.0

- 1. Not all products in the **Products** tab appeared in the dropdown list in the **Part Routings** tab. This happened because dropdown list contains only the products that exist in the CSV file.
- 2. When "Insert Containers at Locations" button in the Containers tab was clicked (and one more button in the new window after this), containers got created in the drawing but with no information from "User Defined" column in CSV file shown. In the code the object instance related to this problem had its "Invisible" property was set to true.

3.6.2.0

1. If statement around "PP_ARROW" is added.

3.6.1.0

- 1. Save button in **Containers** and **Methods** tab didn't work.
- 2. Save Settings button in **Settings** tab wasn't saving license information correctly.
- 3. Import Deliveries button in Tuggers tab were disabled for certain license types.
- 4. USER-K1 file in Current folder was renamed BMOST.csv. The source code was changed to read the correct file name.
- 5. Reformatting the textboxes and renaming the labels.
 - a. In **Filter** tab, checkboxes for all items in From and To location list boxes should be checked by default
 - b. In Locations tab, there was a status bar just above AutoCAD Selection button.
 - c. In Locations tab, Location Groups listbox's column headers were renamed.
 - d. In Filter tab, "Move Frequency Greater Than" text weren't fully visible.
 - e. In Methods tab, all label widths in the Method Types section were adjusted to show full text.
 - f. In Products tab, widths of all labels beginning at "Product Name" were adjusted to show full text.
 - g. Licensing/Settings tab was renamed "Settings".

3.6.0.0

1. New license checking, saving, and reading logic implemented.