Automation Tool User Manual (for v7.0.0)

The Beasley Solidworks Automation Tool, nicknamed “Automation Guy,” is custom software created and maintained by Alexander Murr and, to a lesser extent, Kelly Howell, Carlos Villatoro, and Steven Tietz. The source code can be found on the Chart Azure DevOps repo: Chart-EC 🡪 SolidworksAddIns. The repo is administratively controlled primarily by Dana Johnston with Kristopher Tenney assisting.

The purpose of The Tool is to automate repetitive Drafting tasks by parsing data from JDE, Header Engineering, Structural Engineering, and Sales through a programmatically defined ruleset. The parsed data is then used to make a series of Solidworks and EPDM API calls which result in models and drawings for the Drafting department. The goal is to have approximately 80% of Drafting’s workload automated by the tool with the final 20% being done by hand.

The Tool has resulted in cutting down on Drafting’s workload to decrease time to get drawings out to fabrication, as well as shifting Drafting responsibilities more towards checking instead of simple, repetitive tasks.

# Install

The program and all its dependencies, can be found in the Solidworks Add-In folder [here](file:///C:\AXC_VAULT\Active\_Automation%20Tools\Hudson_\Drafting\Automation\Solidworks%20Add-In).

To manually install, first make sure Solidworks.exe is not running before doing the following…

1. “Get Latest Version” on the Solidworks Add-In folder to download all dependencies to your local machine.
2. Run the [manual installer](file:///C:\AXC_VAULT\Active\_Automation%20Tools\Hudson_\Drafting\Automation\Add-In%20Installer\SolidWorksAddinInstaller.exe) to start the process of enrolling the add-in to the Solidworks registry.

2a) With the manual installer open, select “Browse” next to the empty address box labeled “Add-in Dll”

2b) Navigate to Automation Guy.dll in the Solidworks Add-In folder and click the Open button.

2c) In the manual installer, press the Install button with the green plus sign.

To automatically install, run the [AddInDllVersionControl.exe](file:///C:\AXC_VAULT\Active\_Automation%20Tools\Hudson_\Drafting\Automation\Add-In%20Updater\AddInDllVersionControl.exe) The .exe will automatically do the above install process for you.

# Updating

With the add-in installed, each time Solidworks opens, it will automatically check for add-in software updates. If found, the updates will be applied before Solidworks opens. Once Solidworks launches, a command prompt will pop-up and check to make sure all .SLDPRT, .SLDASM, and .SLDDRW template files are up to date.

Unless you know all your template files are up to date, it is recommended that wait for the command prompt to finish checking for template file updates before accessing and of the tools in the task pane panel.

# Uninstall / Repair

If the add-in has been installed, but the host panel is not found, check Solidworks 🡪 Tools 🡪 Add-ins and make sure the two check marks next to the Automation Guy add-in are checked.

If an uninstall and re-install is needed, the manual installer can be used. In some cases, a manual uninstall will fail. This can be circumvented by removing the Automation Guy registry key directly via the Windows Registry Editor at location: Computer\HKEY\_LOCAL\_MACHINE\SOFTWARE\SolidWorks\AddIns.

# Accessing

With the program registered, open Solidworks and navigate to the task pane where you will find a new panel with a series of buttons. These buttons are described under the sections: Drawing Tools, Model Tools, UI Tools, and Automation Tools.

# Drawing Tools

Productivity tools to aid Drafters when working with Solidworks drawing files.

#### Previous Sheet

Activates the sheet listed prior to the current active sheet. When activated, the sheet zooms to fit the screen.

#### Next Sheet

Activates the sheet listed after the current active sheet. When activated, the sheet zooms to fit the screen.

#### Auto Balloon

Automatically adds call out balloons to the view on the active sheet with a view name prefixed with “iso:”

#### Position + Scale

Gathers all views on the active sheet containing view name prefixes “iso:”, “front:”, “right:”, “top:”, “bottom:”, and “left:”. All found views with those prefixes will have their scale and position updated to an estimated optimal position.

#### Align Dimensions

All dimensions on the active sheet will have their position updated to an estimated optimal position.

#### Delete Dangling

All dangling annotations such as dimensions, center marks, and centerlines will be removed.

#### Sheet Cleaner

Runs Auto Balloon, Position + Scale, Delete Dangling, and Align Dimensions for the currently active sheet.

#### Drawing Cleaner

Iterates through all sheets in the currently active Solidworks drawing and runs the Sheet Cleaner for each sheet.

#### Split Multi-Sheet Drawing

Takes the active drawing document and saves each sheet as an individual drawing document at the same location. The original multi-sheet drawing is then closed and deleted when all sheets have been processed.

#### Migrate Drawing Sheets

Imports the sheets of selected external drawing documents into the currently active drawing document. After importing, the selected files are deleted.

# Model Tools

Productivity tools to aid Drafters when working with Solidworks model files.

#### Count Holes on Selected Faces

With one or more faces selected in a model or assembly document, the number of holes will be calculated and returned to the user. This is a useful tool for quickly and accurately counting many holes to aid drafting in determining the quantity of hardware required.

# UI Tools

#### Export Config File

Exports current UI inputs as a .config file to a user specified location.

#### Import Config File

Imports a selected .config file. UI input data will overwrite the existing UI values.

# Automation Tools

In its current state, the automation tools create and edit files off the user’s desktop. To add or update vault files, the user will have to manually copy from, add, or layer to vault.

#### 28 (Walkway)

The Walkway tab is used to create header walkways which are comprised of a platform, hand rails, and support beams & bracing. For more complicated walkways, The Platform, Handrail, and Support tabs can be used to create each sub-component individually; allowing the user to quickly build a custom walkway.

The Create and Add buttons will generate new, uniquely named parts and drawings. To edit an existing component, a model must be selected in Solidworks. Only the Selected parts and their children will be edited.

Under the advanced options, the Update Locations toggle will allow or disallow the edited parts to be relocated along with modifying the components geometry. Add New End Rail and Add New End Toe Plate will add walkway end components that do not come in automatically. These components will need top be manually located, adjusted, and have a drawing created. Should the program crash or be aborted in the middle or running, the Solidworks UI may be locked. Pressing the Enable Part UI will unlock it.

#### 3 (Hood)

Like the Walkway, the Hood tab is where the user can create and edit selected components as well as create drawings. Under the Advanced Options tab, selected stiffeners can be shifted up or down using ShiftStiffeners. Positive values will shift selected stiffeners up, and negative values will shift selected stiffeners down. Adjust Stiffener Length will add or reduce length to the selected stiffeners.

#### 5 (Plenum)

The Plenum, like the above automation tools, will create and edit models, as well as create drawings for new parts created. A major difference between the Plenum and the previous tools are the Standard, Johnson, and Legacy buttons in place of separate Create and Edit Selected buttons. Each of the three buttons represents a unique plenum design. If there are plenum files on the user’s local desktop, the files will be edited. Otherwise, new models and drawings will be created on the desktop.

Under the Advanced Options, Column Size Overrides allows custom column sizes not natively supported by the automation. There are toggles for Create Drawing File, Auto Save when the tool finishes creating/updating, as well as a toggle for deleting files that are no longer necessary after making changes via the automation. The remaining inputs are to adjust the floor and wall stiffeners should the default outputs need adjustments.

#### 25 (Sub-Structure)

The Sub-Structure has a single Create/Edit button labeled as Structure. The Structure tab as well as the Braces tab are necessary inputs for the tool to run. The Advanced Options tab consists of Column Size Overrides and the same toggles as the plenum.

#### 4 (Machinery Mount)

Like the previous tools, there is an inputs tab called MachineryMount with a Create / Update button labeled as such. At this time, only Forced, Belt Driven, Motor Shaft Down designs are supported.

The Advanced tab features Stringer Size, MM. Height, and Motor Shift. All these values will be calculated automatically, but allow user overrides. It should be noted that these user overrides are not protected from being wiped out unless the adjacent lock toggle box has been checked.

#### 7 (Bundle)

The Bundle tool introduces the Import Prego button. Pressing Import Prego after filling out the job number and bank will search the vault for a matching Prego document. If one is found, the user will be prompted to accept the import by pressing Yes. If No is selected, or a Prego document can not be found automatically, an open file dialog box will appear allowing the user to manually select a Prego file. The Prego Imports section on the Bundle tab as well as all the info on the Headers tab will be imported to the UI.

On the Bundle tab, there is a section labeled as Manual. These inputs will need to be filled out by the user every time before pressing Create / Update.

#### 6 (Header)

100% of all inputs can be populated by the Import Prego button. After importing, all data is available to be manually modified, should it be required.

The Run All Headers button will create / update the required header models on the desktop. Buttons 61 through 66 can be used to create or update a specific header.

# Future Development

Development of the Tool took place between August 2023 – July 2024 under the direction of Cody Grubb, former Engineering Manager. Under the new Engineering Manager, Chad Brown, new development has ceased. Any bugfix requests to the current add-in are to be directed towards Steve Tietz.