

CTC SOFTWARE

A SYMETRI COMPANY

CTC BIM Manager Suite™ User Guide

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Suite Overview

The products from CTC Software offer many utilities for enhancing the productivity of users of Revit® software from Autodesk®. Revit users launch these tools from within the Revit software.

Although written to function correctly with the international community in mind wherever possible, CTC Software products are currently only tested on English USA versions of Revit running on English USA versions of Windows.

Installation and Configuration

The standard workstation installation requires little more than running the setup program. For more information regarding topics such as automating workstation installations and preconfiguring workstation settings, please refer to the *CTC BIM Suites Installation and Configuration Guide* document.

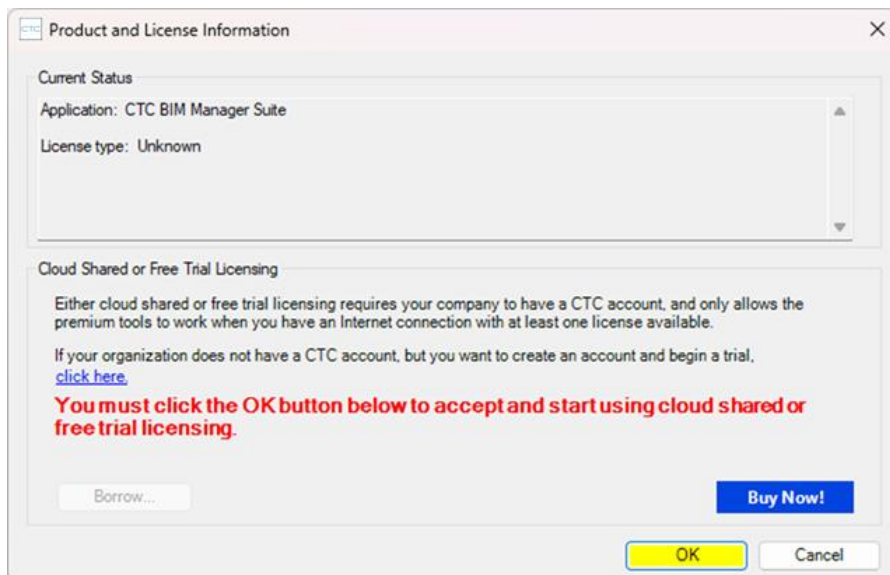
License Activation and Management

The productivity tools provided with light background colors are free tools that run without any special licensing. The productivity tools provided with dark background colors are premium tools which require licensing.

Unless initially preconfigured by the system administrator, the first time any of the licensed tools are launched from the Revit ribbon, the *Product and License Information* dialog will appear which requires acknowledging the licensing requirements by clicking the OK button at the bottom.

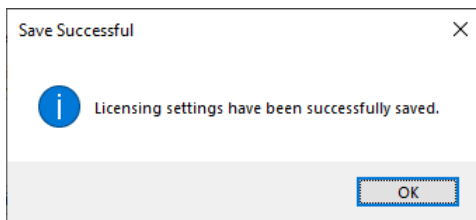
CTC Software products support only cloud-shared licensing, and also free trial licenses that use CTC's cloud licensing engine. Both of these require having an account with CTC. You must click the OK button to activate the cloud licensing and acknowledge using a CTC cloud account.

IMPORTANT: If you're not already logged into the CTC ecosystem, clicking the OK button will prompt you to login.

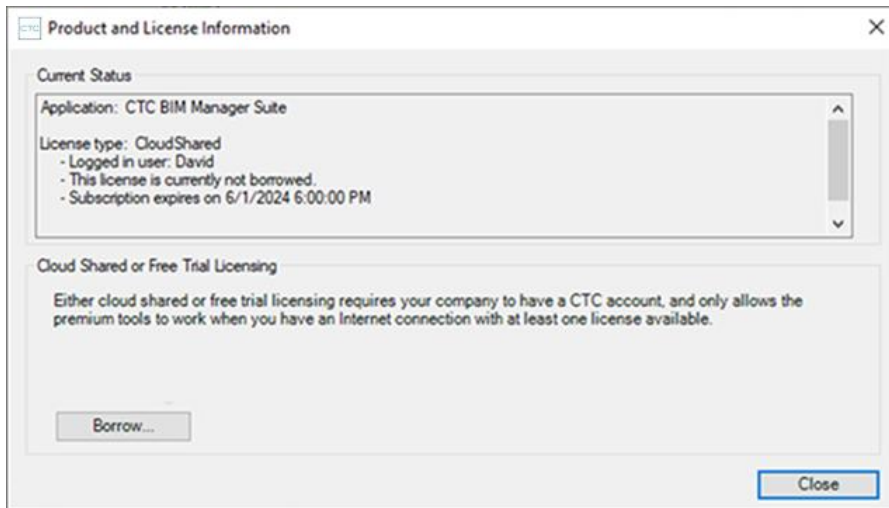


The licensing will automatically apply to all of the tools that are included in the suite which require licensing. So once the first tool has configured the licensing, the other premium tools in the suite will automatically use the same configuration.

Once you have logged in, the product will be configured for cloud shared licensing:



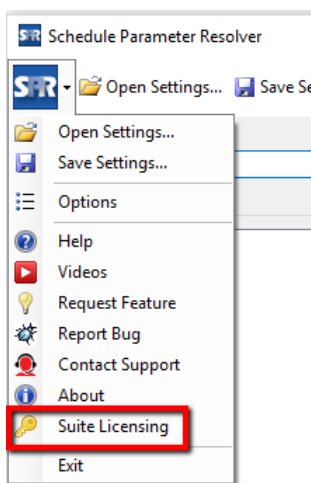
and the licensing screen will be updated to show that:



At this point, you may borrow a license for offline use (if permitted by the administrator).

Changing Licensing at Any Time

Licensing can also be changed at any time using the "Suite Settings" tool, which is discussed below, or by using the "Suite Licensing" menu choice in the licensed add-in tools:



Borrowing a Cloud Shared License

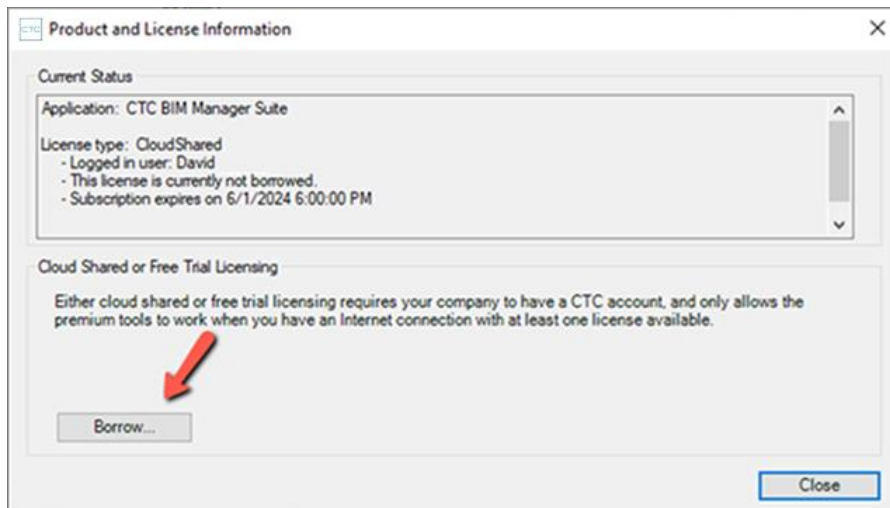
If a license is needed in anticipation of being disconnected from the Internet, borrowing a license can ensure that the CTC tools are available for use when offline.

IMPORTANT: For normal use of the software, where you have a standard Internet connection, you DO NOT need to borrow a license. Borrowing a license is normally only needed when you know you will need to use the software at a time when you won't have a reliable Internet connection. While you have a license borrowed, that is one less shared license available to all other users.

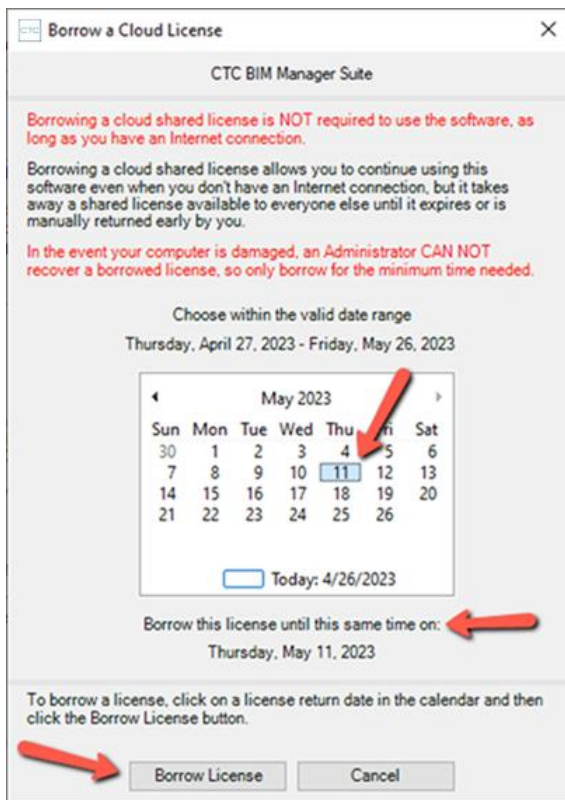
NOTE: Borrowing is only available for purchased cloud shared licenses. **Borrowing is not available for trial licenses.**

IMPORTANT: In the event your computer is lost, stolen or damaged (e.g. a hard drive crash) **an administrator CAN NOT recover a borrowed license.** In that case, the license will be unavailable to all users until the borrow period has naturally expired. *As such, you only want to borrow a license for the minimum amount of time needed.*

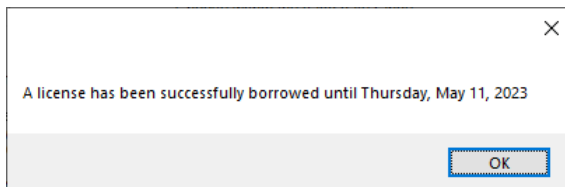
Begin by opening the *Product and License Information* screen from either the main pulldown menu of a premium tool, or from the Suite Settings add-in. From here, click the 'Borrow...' button to begin the process of choosing the length of time to borrow a Cloud Shared license.



The date selector should appear:

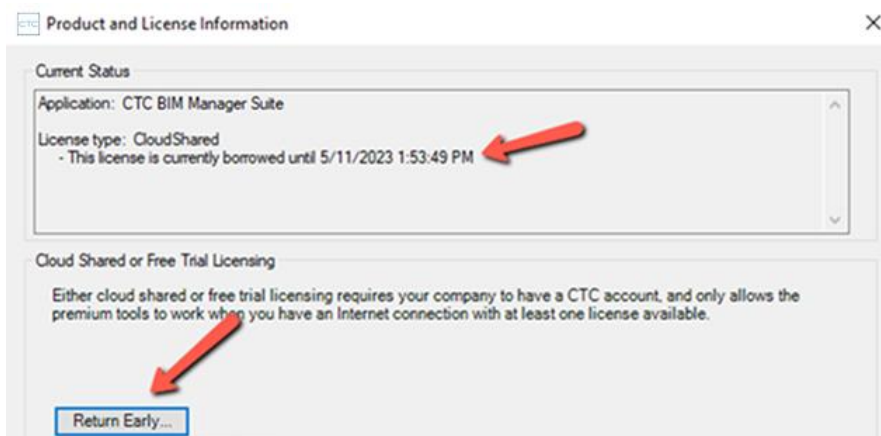


Confirm the date selection and click the *Borrow License* button. A success message should appear.

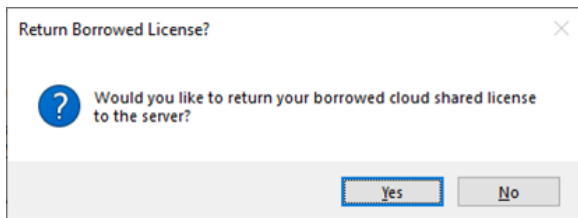


Returning a Borrowed Cloud Shared License Early

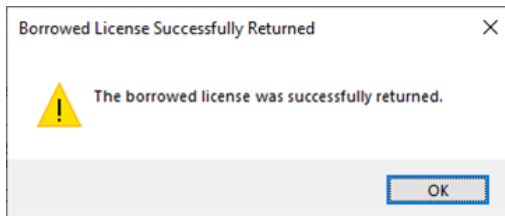
To return the license early, in the *Product and License Information* form, find the *Return Early...* button and click it.



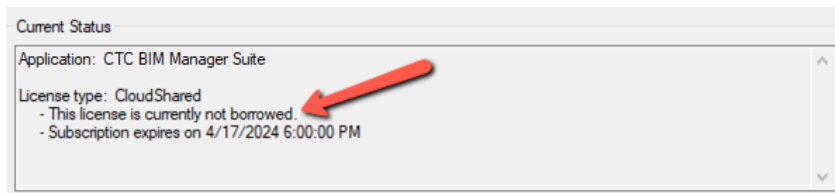
A prompt will appear confirming that the license should be returned.



Click the Yes button, then you should see:



The license status should now show a 'not borrowed' message.



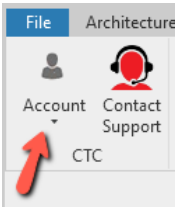
Common Revit Ribbon Buttons

The following buttons may appear on every Revit ribbon tab for which you have CTC tools installed.

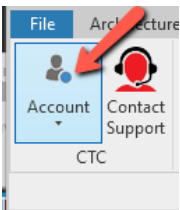
CTC Account Management (Logging in and Logging out)

In Revit, when you first visit a ribbon tab that has CTC tools on it, the Account button on the ribbon will show you whether or not you are logged in to the CTC ecosystem, and will let you visit the licensing portal, as well as login and logout.

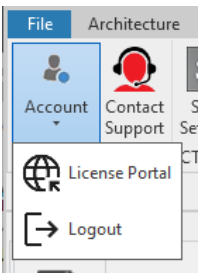
When the ribbon button icon looks like this, you can see that you are NOT currently logged in with your CTC credentials:



When you are logged in, a blue dot will appear:



When you click on this button, some dropdown menu choices will appear:



The License Portal button will open your web browser to the CTC licensing web site.

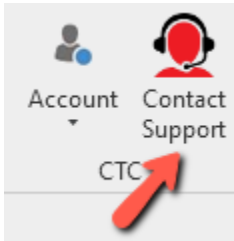
When you are logged in, the second button will say “Logout” and will allow you to logout of the CTC ecosystem.

When you are not logged in, the second button will say “Login” and will allow you to log in to the CTC ecosystem.

Note that some or all of this functionality may be turned off by your system administrator.

Contacting Technical Support

In the Revit ribbon, clicking the “Support” button will open the Support page on the CTC web site.

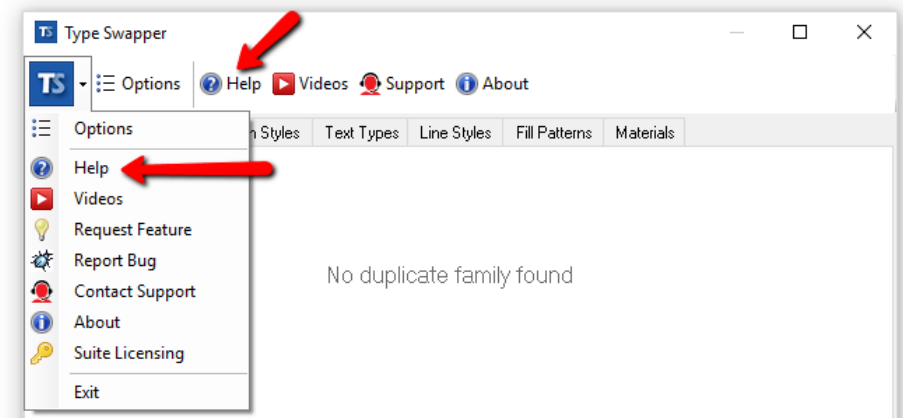


Note that this button may be turned off by your system administrator.

Common Toolbar and Menu Buttons

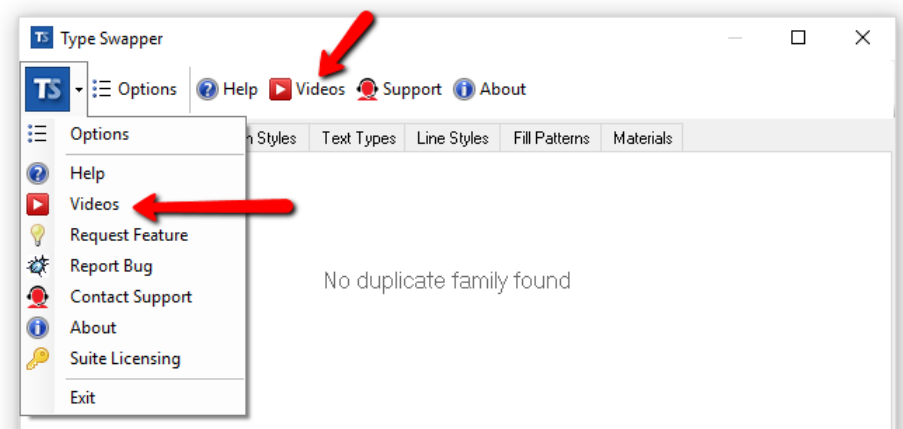
Getting Help

In the toolbar, clicking the “Help” button will display this user guide.



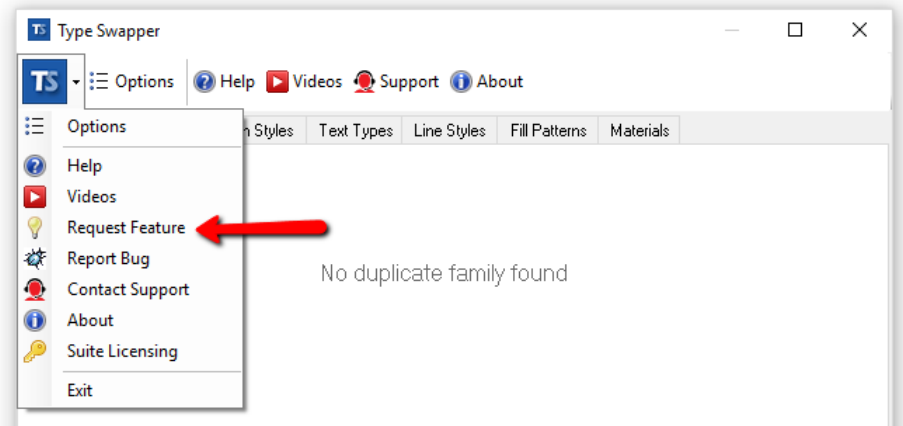
Getting More Help: Videos

An alternate source of help is to click on the Videos button, which will display a list of tool-specific videos in your web browser.



Submitting a Feature Request

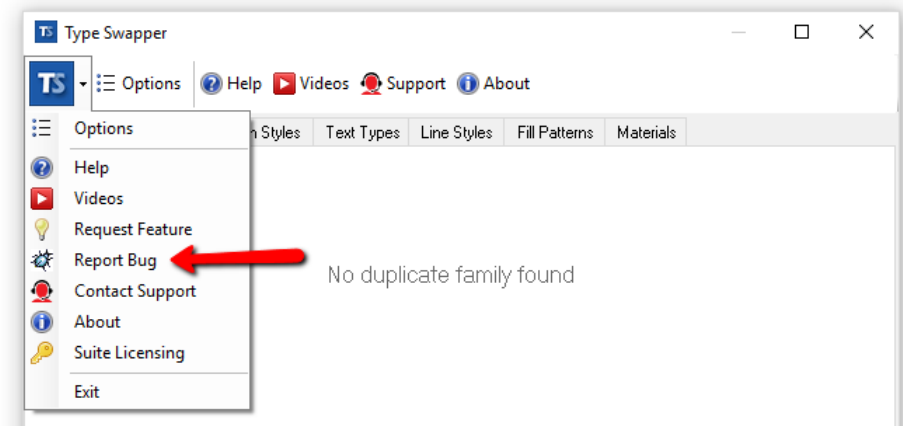
If you have an idea for enhancing a feature or would like to see a new feature added to the software, you can either use the “Request Feature” button on the About dialog (seen below) or can access that functionality using the “Request Feature” drop-down menu choice:



Selecting this option will open the Support page on the CTC web site, which allows you to add a request for a new feature by selecting the Wish List option.

Reporting a Bug

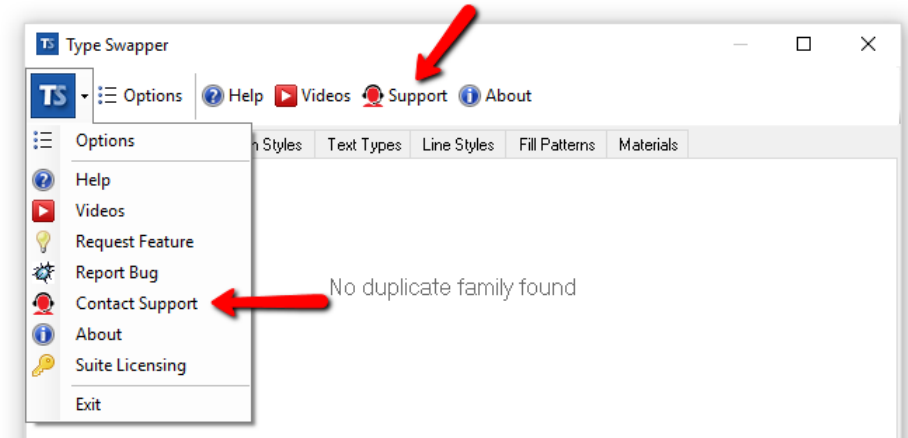
If you encounter what you feel is an issue or incorrect operation in the software, you can report this as a “bug” by either using the “Report Bug” button on the About dialog (seen below) or can access that functionality using the “Report Bug” drop-down menu choice:



Selecting this option will open the Support page on the CTC web site, which allows you to submit the information about the issue.

Contacting Technical Support

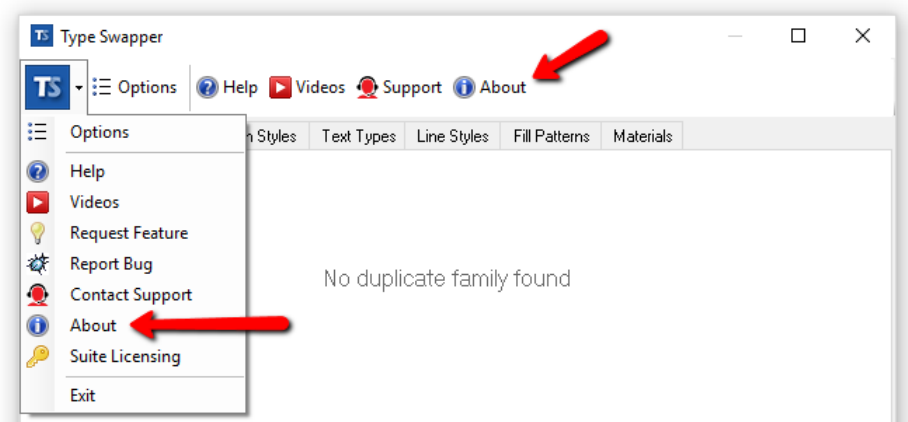
In the toolbar, clicking the “Support” button will open the Support page on the CTC web site. This button may be hidden by your system administrator.



Selecting this option will open the Support page on the CTC web site.

Getting Application Information

In the toolbar, clicking the “About” button will display a dialog which shows information about this tool.



This screen should look like this:



Suite Settings

The Suite Settings tool allows suite-level changes to be applied.

NOTE: You may need to restart Revit in order to see changes made with this tool take effect.

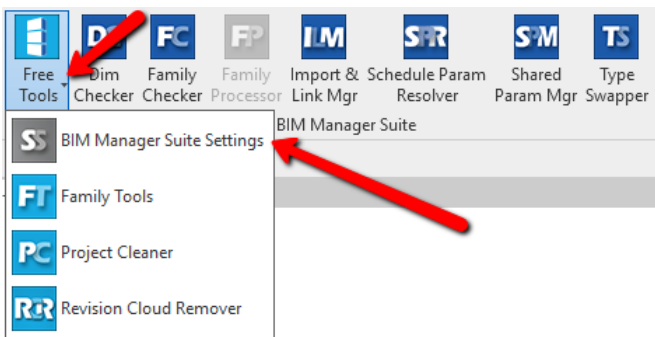
NOTE: Your system administrator may disable some features of this application.

Starting Suite Settings

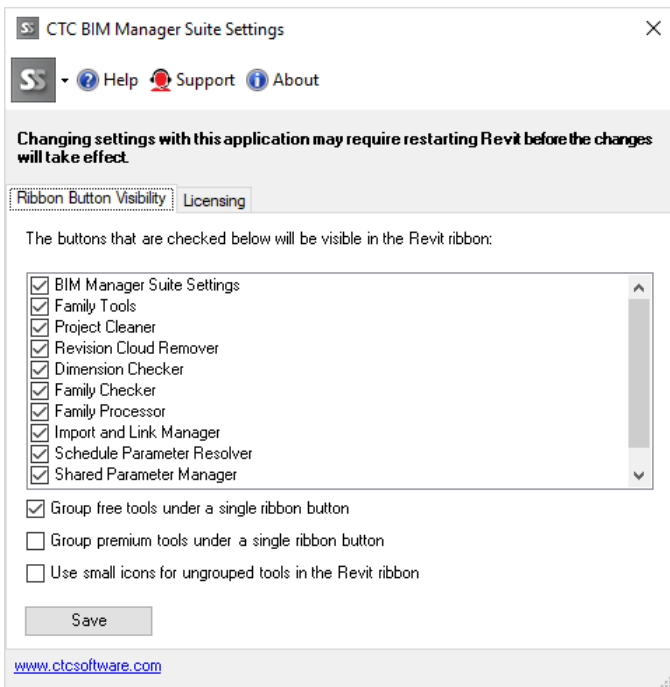
On the Revit ribbon, click on the “Suite Settings” button.



Depending on how the ribbon buttons are configured, the button may be labeled “BIM Manager Suite Settings” and be located under the “Free Tools” dropdown button on the *CTC BIM Manager Suite* panel.

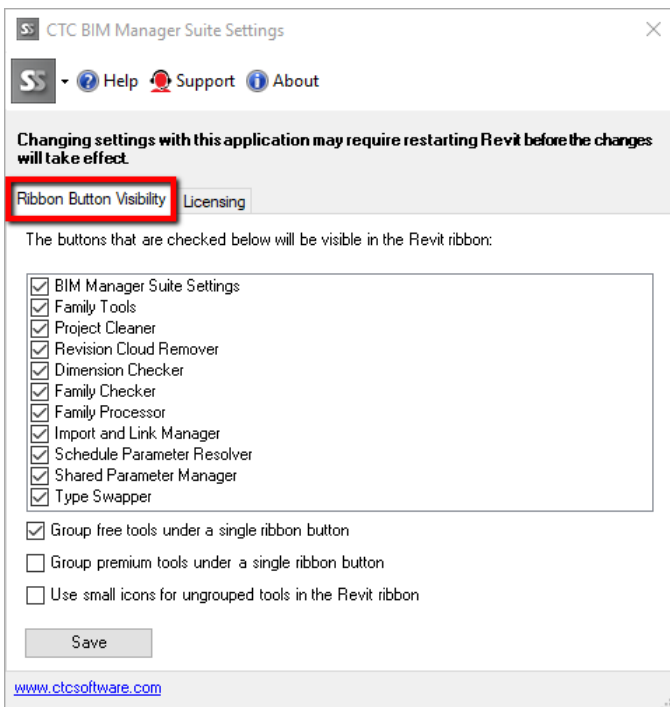


This will launch the application, which should look something like this:



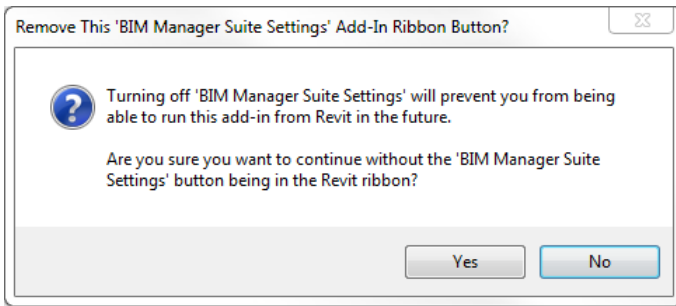
Changing Which Ribbon Buttons are Visible and how they Appear

The first tab in the Suite Settings tool allows changing which ribbon buttons are available, if this feature has not been disabled by the system administrator.

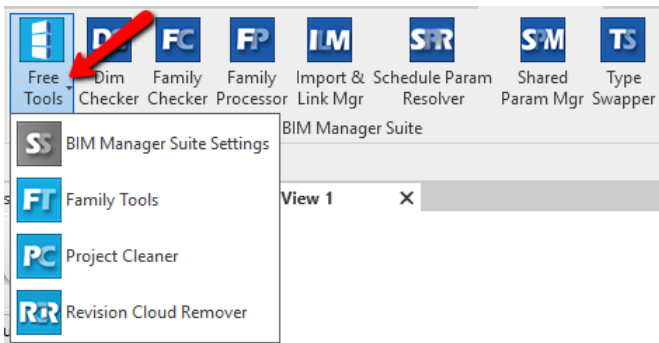
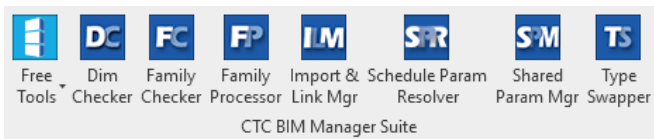


For any ribbon buttons that you don't want to have available, simply clear the checkmark by their name and then click the "Save" button.

If you turn off the button for this application itself, the following dialog will appear when you try to save that change:

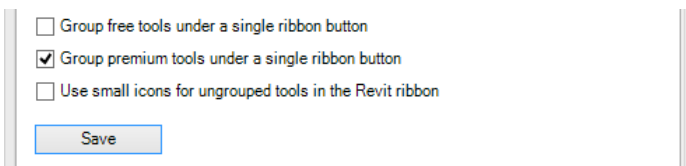


Selecting the grouping checkboxes near the bottom of the dialog will condense the tools into a dropdown button. This is the default behavior when the tools are installed on a new computer:

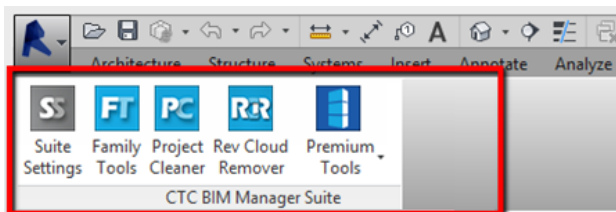


Note that if only one tool within a group is visible, the button for that tool will be placed directly on the panel. So there will be no drop-down button if there would be only one tool to show underneath it.

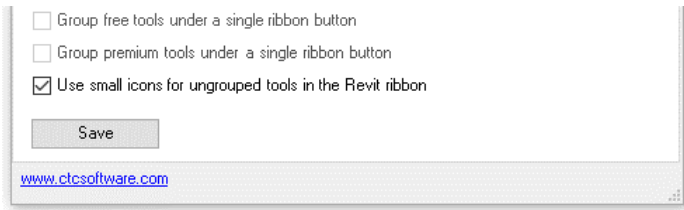
Either free or premium tools (or both) can be ungrouped. For example, these settings:



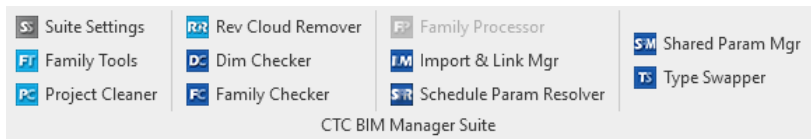
results in this:



Selecting the “Use small icons for ungrouped tools in the Revit ribbon” checkbox can save some ribbon space for ungrouped tools. For example, these settings:

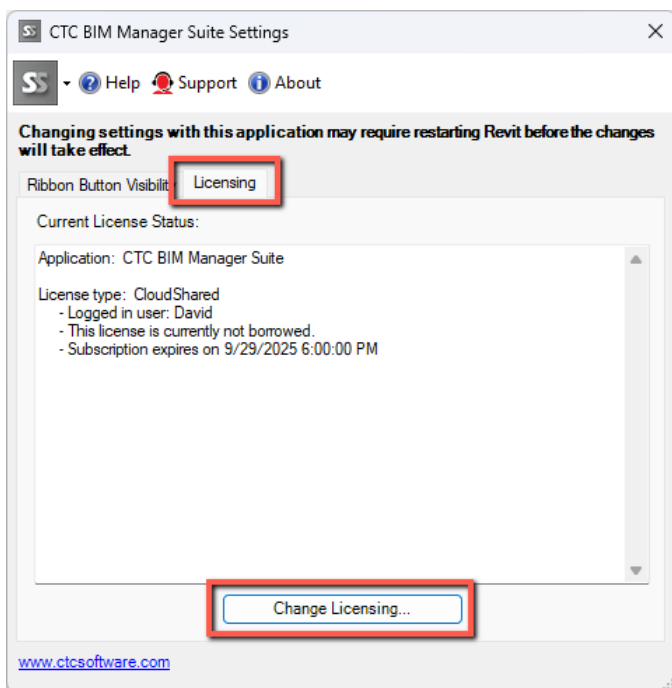


results in this:

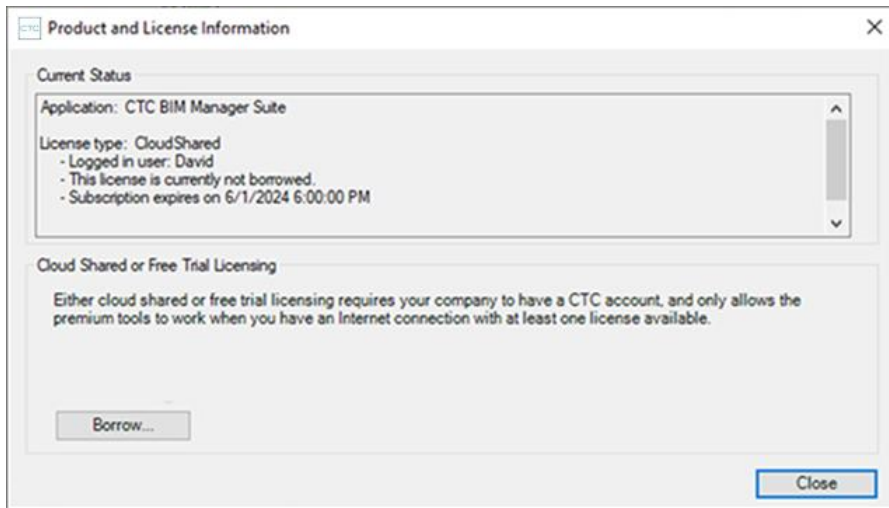


Seeing and Changing License Status

The second tab in the Suite Settings tool allows seeing the current license status and changing the licensing:



The top portion of this screen shows how the licensing is currently configured for this suite. Clicking the “Change Licensing...” button will show the dialog that allows changing how the suite is licensed:



For more information on how the *Product and License Information* dialog works, please review the “License Activation and Management” section of this document, above.

Family Preview Manager

Overview

The Family Preview Manager can be used to set default preview images (thumbnail). It works on components, detail items, annotations and most other Revit families that are stored externally to project. Preview images are used both by Windows to show a thumbnail in Windows Explorer and by Revit when viewing the properties of a family.

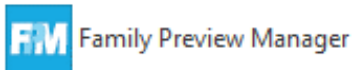
Note that some families do not support thumbnail previews such as profiles.

The previews can be set up in the following ways:

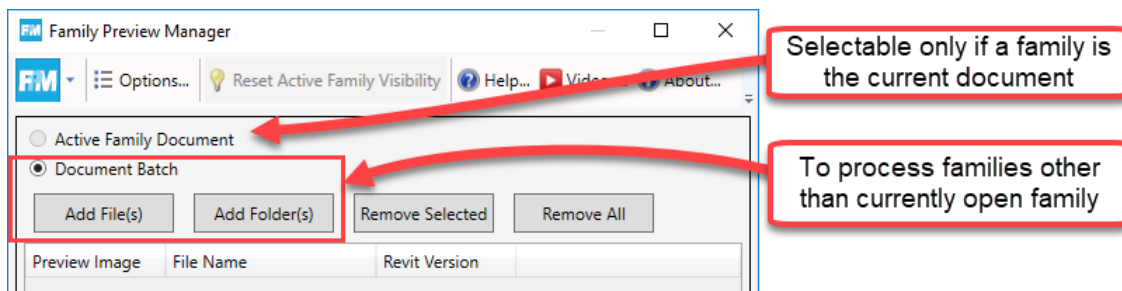
- Default Appearance – if nothing is specified by category, use the view angle, display style and detail level set as default
- Appearance By Category – determine the view directions display style and detail level based on category

Starting Family Preview Manager

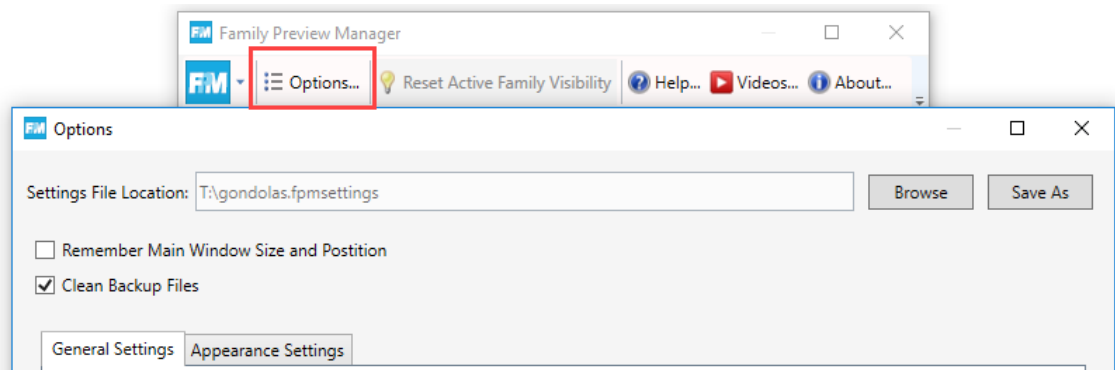
On the “CTC Software” tab, in the BIM Manager Suite ribbon, the Family Preview Manager button will be located in the Free Tools panel.



FPM can process the current family or a file/folder in batches.



Options has the settings which determines how the previews are created.



General Settings

General Settings defines how all families will be processed.

- Preview Name: determines the view to use for previews. If the view doesn't exist, it will be created.
- Set as active view: the view with the preview name will be set active.
- Enable preview visibility: approximates the appearance of the family as placed in a project – default values shown in labels, for example
- Smooth edges with anti-aliasing: curved edges will look less pixelated
- Show dimensions: when applicable, dimension objects will appear in preview
- Show reference planes: entire extent of planes will be shown. May make actual objects appear very small
- Show reference lines: similar effect as planes
- Show levels: similar effect as planes – primarily applicable for level hosted families
- Show text notes: note objects will appear in preview (not necessarily labels)
- Show invisible lines: some lines normally invisible will appear in preview
- Show flip controls: controls such as the direction of openings or doors will be displayed
- Show room calculation points: similar effect as planes and levels – may force small object sizes
- Show host elements: a door and the wall, for example
- Show connector elements: the connections used in MEP elements will be shown
- Show void elements: normally invisible, useful for showing clearance elements for example
- Show light sources: for families with lighting, show the mesh

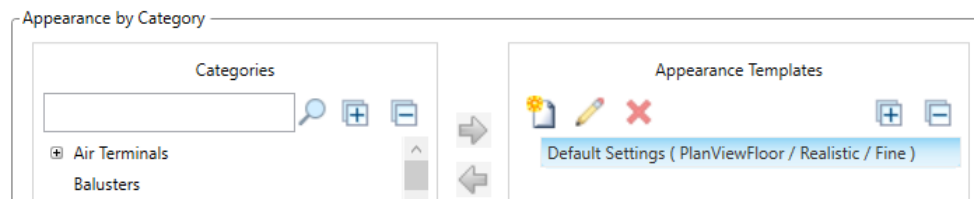
Appearance Settings

In addition to setting the default, it is possible to specify different settings by categories. This is especially helpful for families which differ in display such as doors (preview in elevation) versus mechanical equipment (preview in 3D from top left).

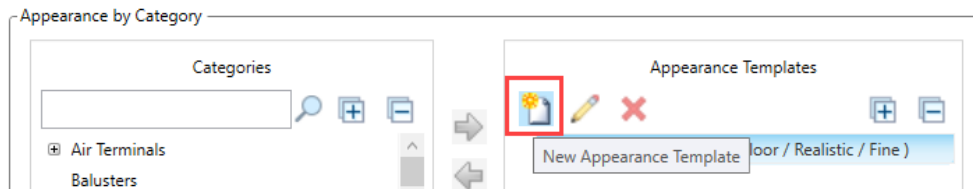
The **Default Appearance** options are analogous to Revit's view type (View Angle equals plan, reflected, elevation and 3D), display styles and detail level properties. The settings chosen here will be used for categories which do not have an **Appearance Template** defined.



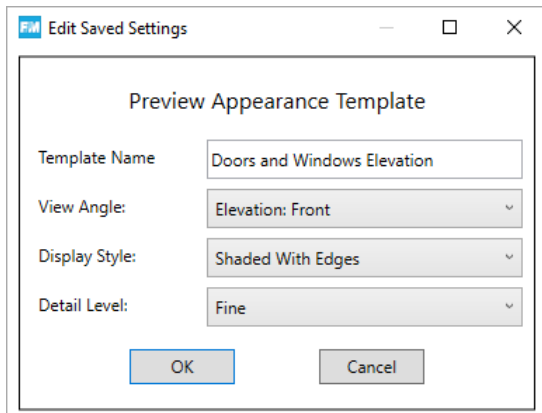
Appearance by Category has functions to create many "templates" to apply to categories of families.



To define appearance templates, first create one by clicking on the “New Appearance Template” tool button:

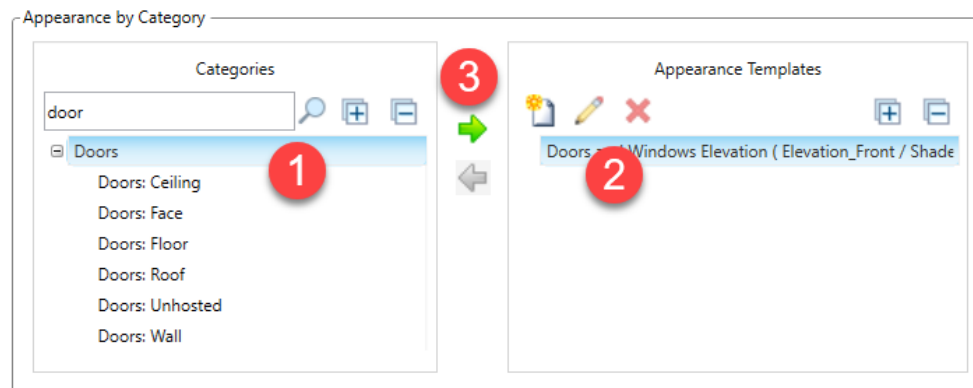


Choose the desired options in View Angle, Display Style and Detail level:

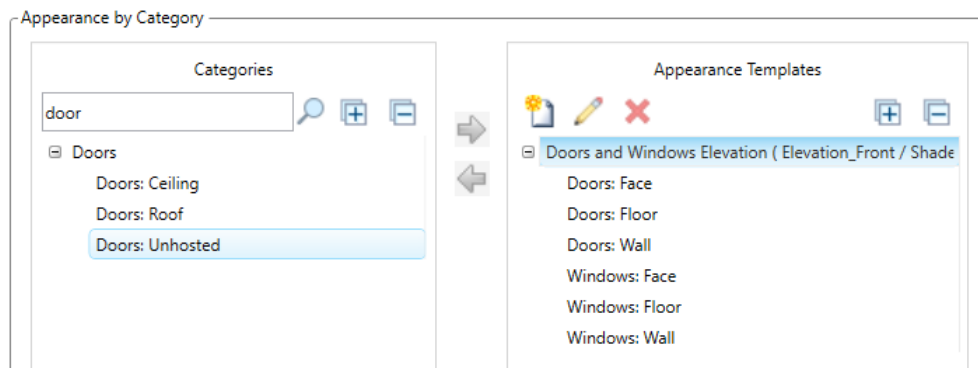


Finally, give the template an appropriate name and click OK to save it.

In the categories section, search for the door category and expand it in the list. To use the defined appearance template for all of the host types in the category, first, select it then the appearance template. Finally, click the right-pointing arrow:



Select individual host types if desired. View types remaining in the category/type list will use the Default Appearance settings:

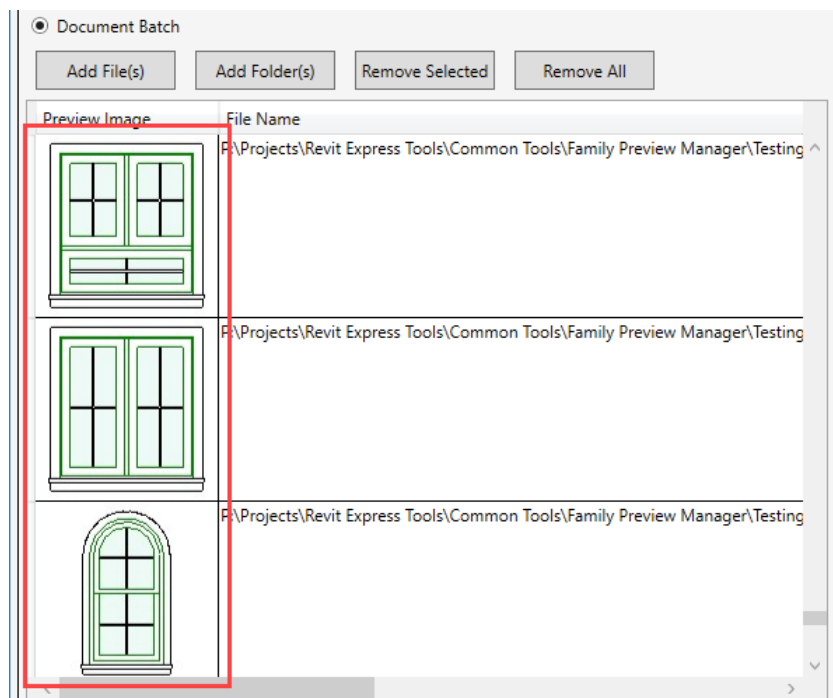


To save the configuration for later use, Browse to a folder and give the settings file (*.fpmsettings") a name.

Batch Processing Files

To add multiple families for processing, choose them individually or entire folders by using the appropriate buttons. Here, a folder was selected. Each of the families contained in the folder and subfolders are added to list for processing.

The family's current preview image is displayed (as it was when last saved).

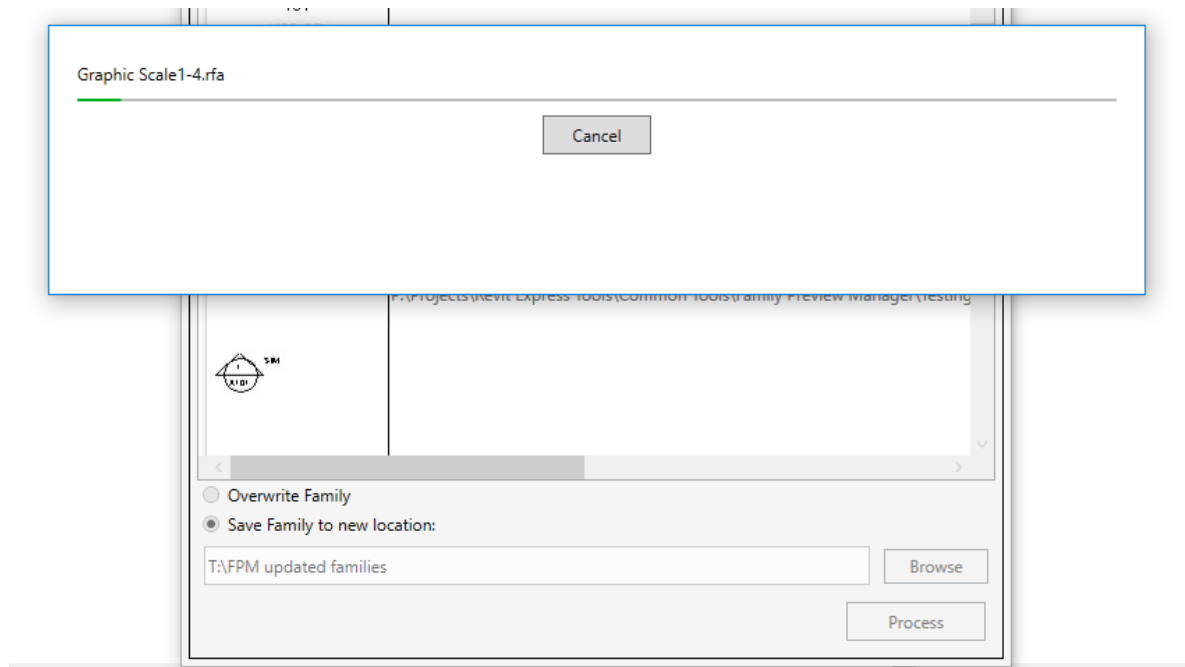


Overwrite Family will save the family after processing.

USE CAUTION! Revit will upgrade the family if it is being processed in a version later than it was last saved!

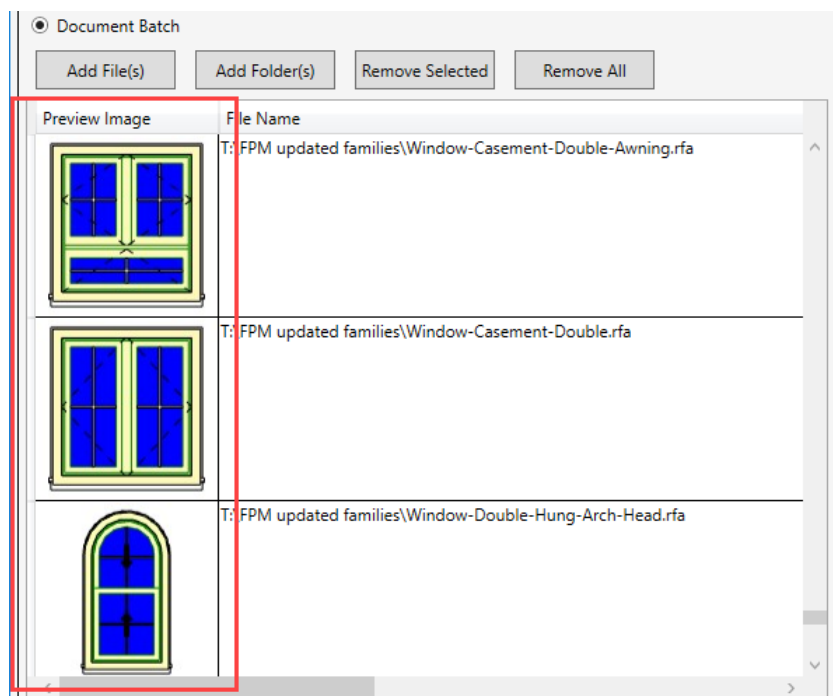
Choose a location to save a copy of the family after processing. This will not modify the original but it will not re-create the same folder structure. *Therefore, it is recommended to copy the families first and then choose to overwrite.*

Click Process to begin:



When processing is complete, a log will show successes or failures.

Clear the list and add the folder chosen as the new location to view the result. Family Preview Manager will display the preview as it was set.



Note: Windows Explorer may not show the same preview image under some circumstances.

Family Tools

Overview

Family Tools makes it easy to work with files commonly used to create Revit Families. Family Tools provides functionality to:

- Delete the “backup” files Revit creates when working on families
- Copy comma-delimited “csv” files to equivalent “txt” files, which makes type catalog creation easy by leveraging Microsoft Excel to do most of the editing
- Compare the contents of two shared parameters files
- Safely merge selected contents from one shared parameters file to another
- List which version of Revit was used to create one or more families

Starting Family Tools

On the Revit ribbon, click on the “Family Tools” button.

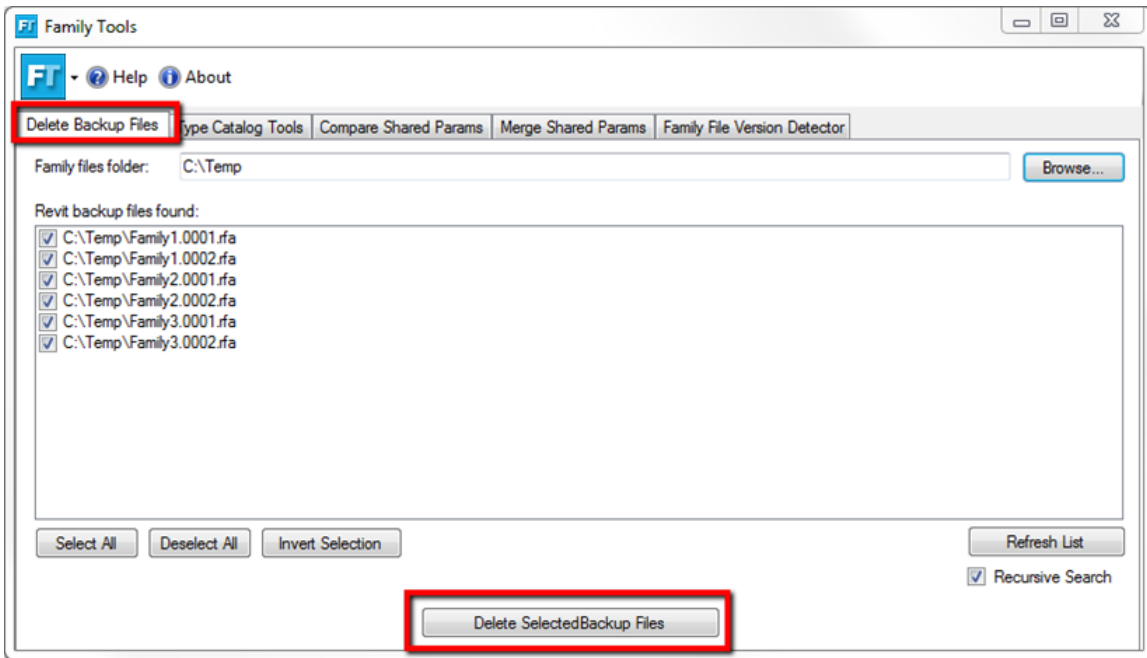


Family
Tools

Delete Backup Files

This tab makes it easy to find and delete selected backup files that Revit created.

IMPORTANT: Files that are deleted using this tool are deleted permanently. They will not be available in the Recycle Bin.



Use the “Browse...” button to find the top-level directory to be searched. If the “Recursive Search” checkbox is selected, subdirectories will be included in the search for backup files.

The “Refresh List” button forces the tool to read through the directory again, displaying the current list of backup files that exist in case the list of files has changed since the last time it looked.

Once it is done finding backup files, simply deselect the backup files that should not be deleted and then use the “Delete Selected Backup Files” button to delete the remaining ones that are checked.

Type Catalog Tools

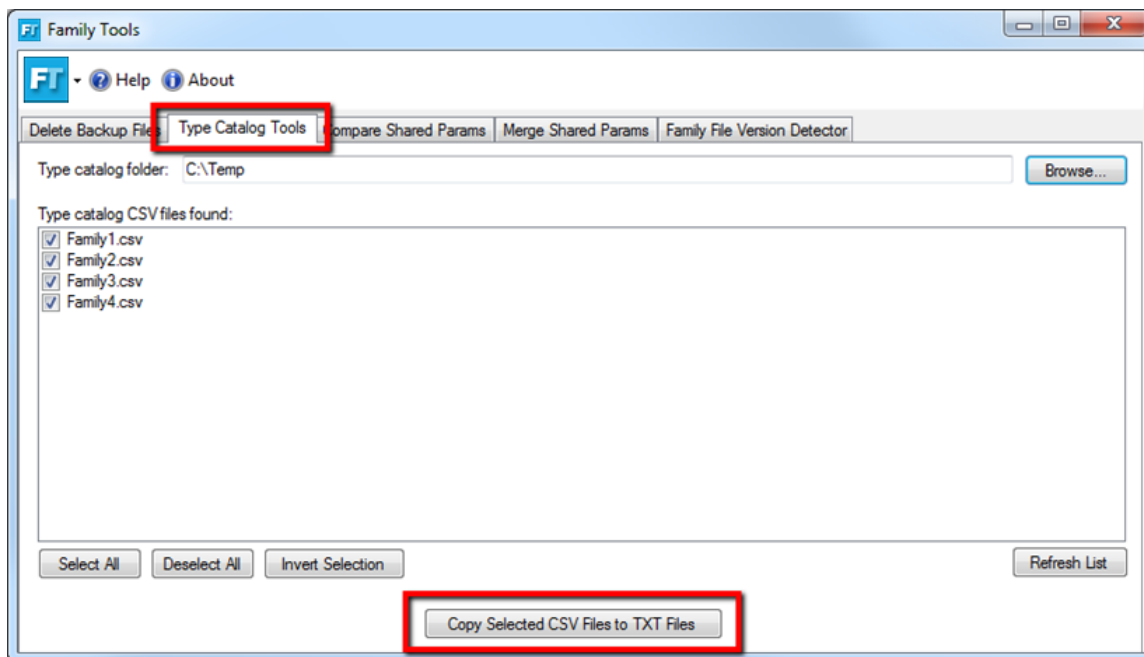
Type catalogs are comma-delimited text files that Revit reads when loading a family file into a project. They must be in the same folder as the family being loaded, and they must have exactly the same file name as the family file, but instead have a “.txt” file name extension.

Typically the easiest way to edit type catalogs is by using a tool that can create comma-delimited text files, such as Microsoft Excel. However, Excel’s native file name extension for these is “.csv” instead of “.txt”

One practice is to create master type catalog files in Excel and save them as “.csv” files from Excel. Simply double-clicking on these files from Windows Explorer will usually automatically open them again in Excel for later editing. Once the files are done being edited in Excel, they can be *copied* and renamed to the equivalent “.txt” file name.

However, this copying-and-renaming process can be very tedious, especially if many family files are being created or edited.

The “Type Catalog Tools” tab automates this copying-and-renaming process:



As with the “Delete Backup Files” tab, files to not be copied-and-renamed can easily be deselected before the “Copy Selected CSV Files to TXT Files” button is clicked.

IMPORTANT: This process will silently replace any existing txt files with the contents from their source csv files.

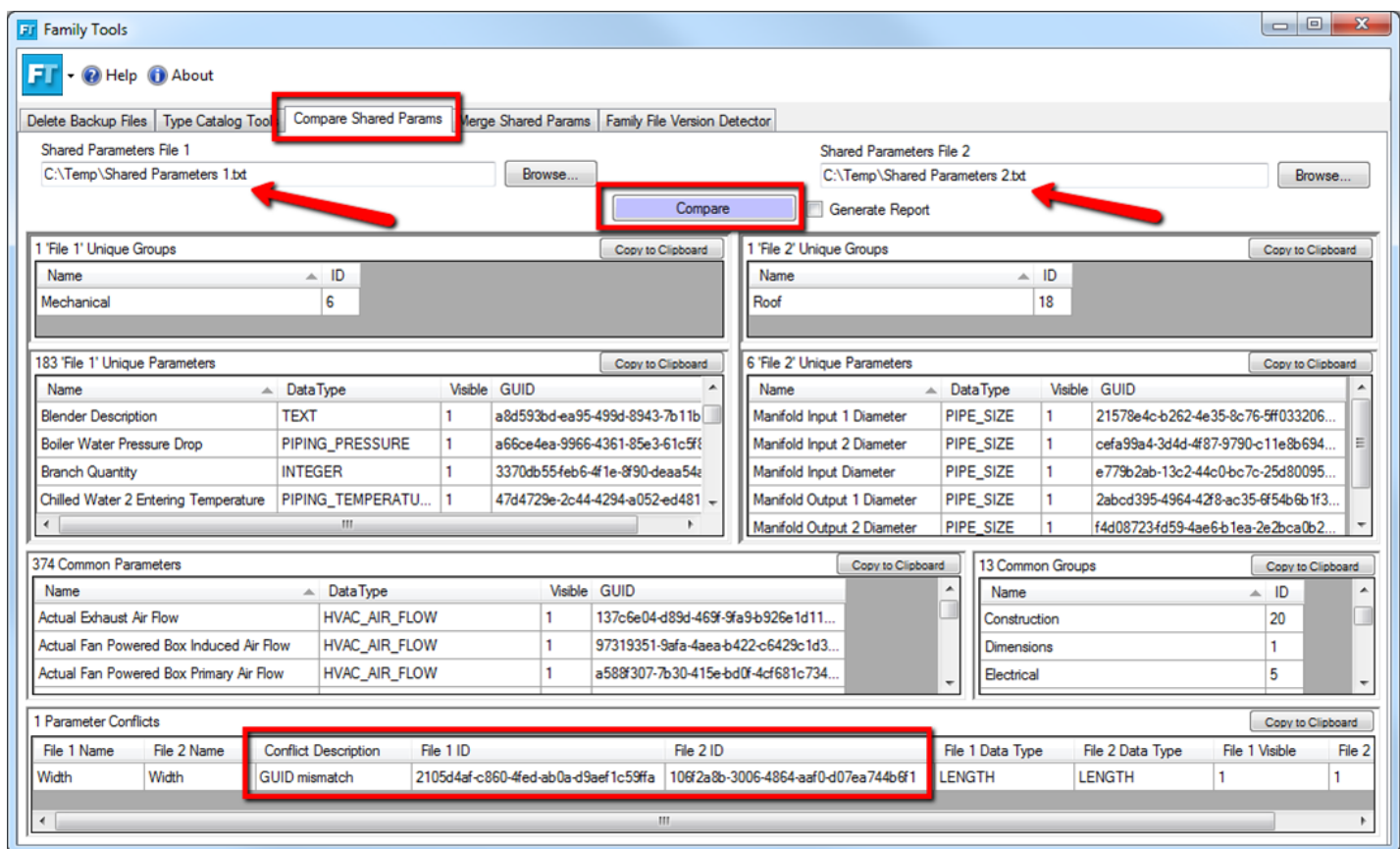
Compare Shared Parameters

Shared parameters files are specially-formatted text files that define the names and data types for special parameters that are used in Revit. For example, a shared parameter called “Voltage” might exist that is defined to be of the Revit data type “Electrical Potential.”

Each of these parameters has other information, such as what group they belong to and, most importantly, a special property called a Globally Unique Identifier (“GUID”), which is a special set of characters that uniquely identifies this parameter from all others that might be created by anyone. For example: ee1f8bb8-e503-49a8-bd5b-170d64400d82

Sometimes multiple shared parameters files come into play. For example, one company may create shared parameters for use in the families that represent its products, whereas a design firm that is using these Revit families may have their own shared parameters. Managing multiple shared parameters files can be difficult.

The “Compare Shared Parameters” tab makes it easy to see the differences between two shared parameters files:



In this example, at the bottom we can see the “Width” parameter defined in each file conflict with each other. This means that Revit will treat them as two separate parameters, with different meanings, when it is likely the intention is that they have the same meaning.

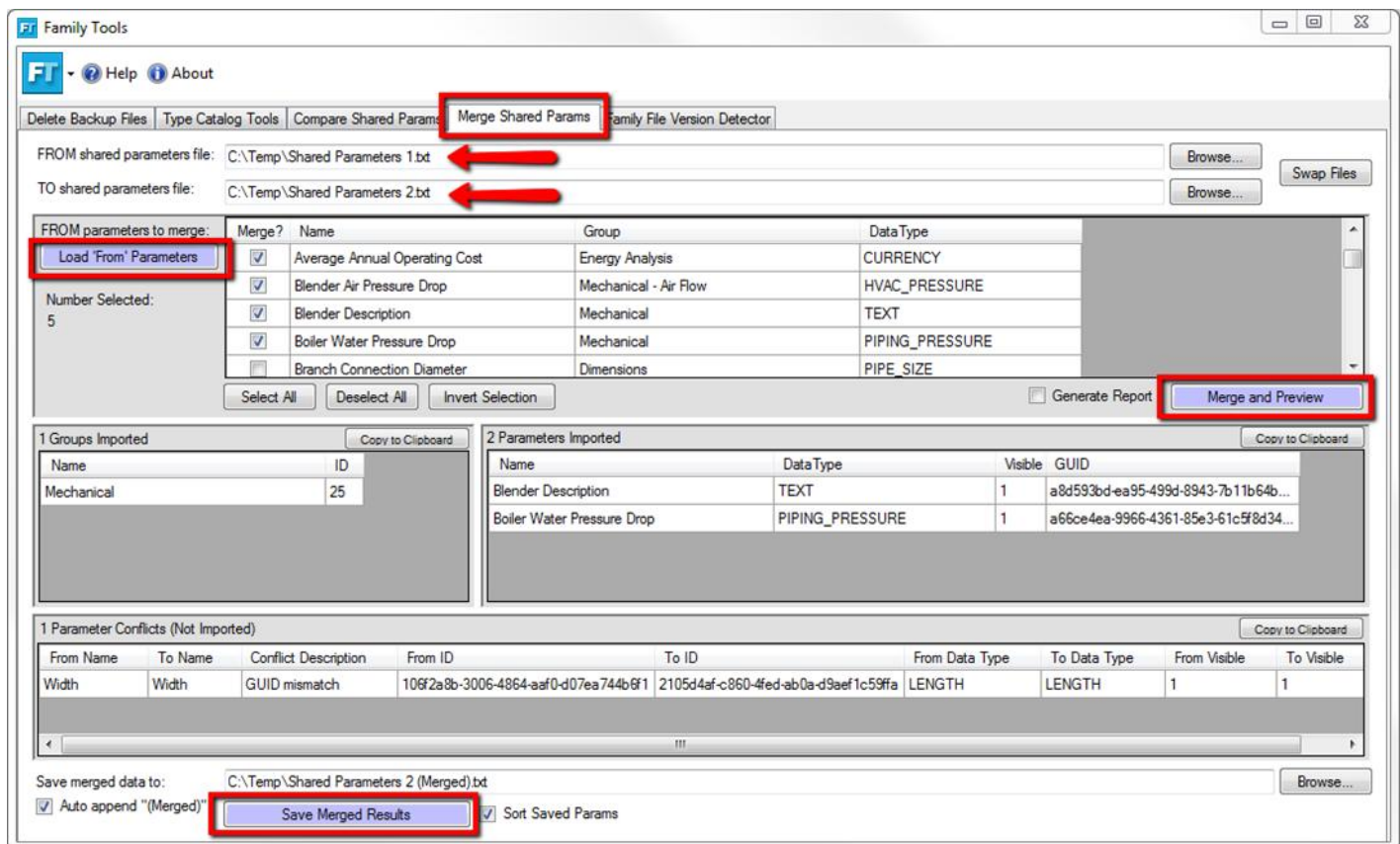
Near the “Compare” button is a “Generate Report” checkbox. When checked the results will also appear in a pop-up window as a report that can be easily copied to the clipboard.

Merge Shared Parameters

There are times when it is desirable to combine parameters from one shared parameters file into another shared parameters file. When done, this will provide a single shared parameters file that can be referenced by Revit.

Autodesk strongly recommends that shared parameters files NOT be edited manually, for example using a tool such as notepad. This is because it is very easy for a person to make a mistake, which would result in a corrupt shared parameters file.

Fortunately, the “Merge Shared Parameters” tool makes it easy to safely copy shared parameters from one file to another. This tool takes care of things like ensuring the parameter from the source file ends up in the correct group in the destination file, even if the group IDs in the files are different. It also prevents the importing of parameters from the source file that are in conflict with existing parameters in the destination file.



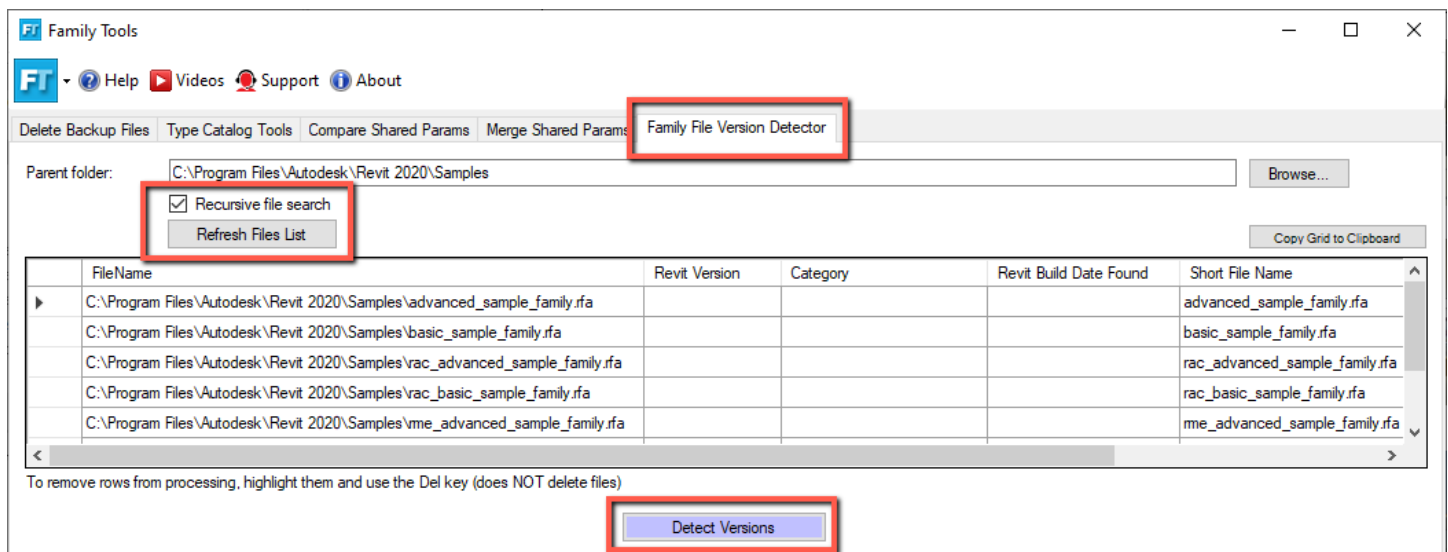
In this example, the 4 checked parameters seen plus the “Width” parameter were selected for importing. Only two were found that didn’t already exist in the destination shared parameters file and didn’t conflict with any existing parameters in the destination shared parameters file.

IMPORTANT: Clicking the “Merge and Preview” button DOES NOT update the destination shared parameters file. It only does the merge *in memory*. You must explicitly click the “Save Merged Results” button in order to get the final shared parameters file to be created.

If the “Sort Saved Params” option is checked when saving, the final file will have the parameters sorted by their names.

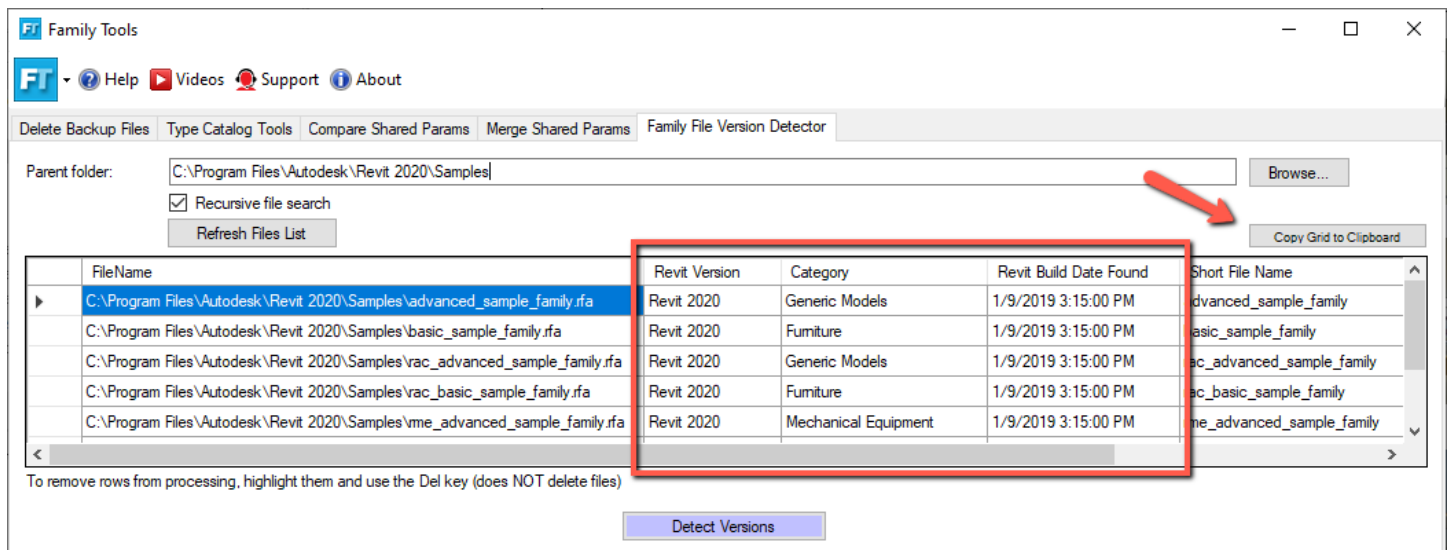
Family File Version Detector

This detects the version of Revit that was last used to save family files. This is useful for determining if upgrading of family files is needed, or perhaps if a family can be used in projects that are not on the current release of Revit. It will also show the category of each family file.



If there are families that appear in the search results that should not be evaluated, simply Ctrl+click on the row header to select multiple items in the list and click the “Delete” key on the keyboard. This will not delete the family files, but instead will simply remove them from this list of families to evaluate.

Once only the family files whose information is needed are on the list, click the “Detect Versions” button to have it analyze the families on the list and then display the results:



The “Copy Grid to Clipboard” button can be used to copy the data into the clipboard, which can then be pasted into other applications, such as Microsoft Excel.

Project Cleaner

Overview

Removing information from a Revit model is important to protect intellectual property and also to help reduce the file size of models prior to being linked into projects or prior to sending projects to outside consultants. Project cleaner removes views, view templates, view filters, images, CAD links, schedules and sheets from Revit projects.

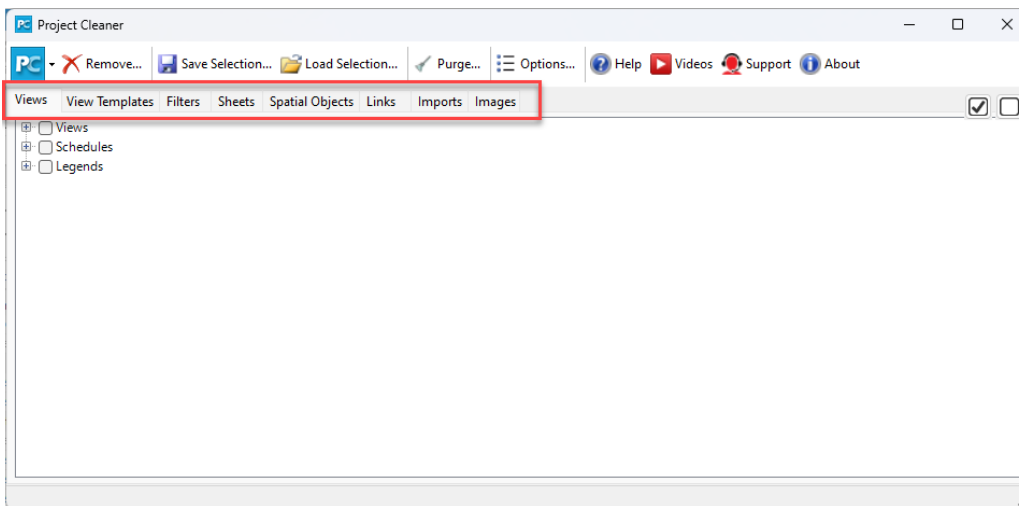
Starting Project Cleaner

On the Revit ribbon, click on the “Project Cleaner” button.



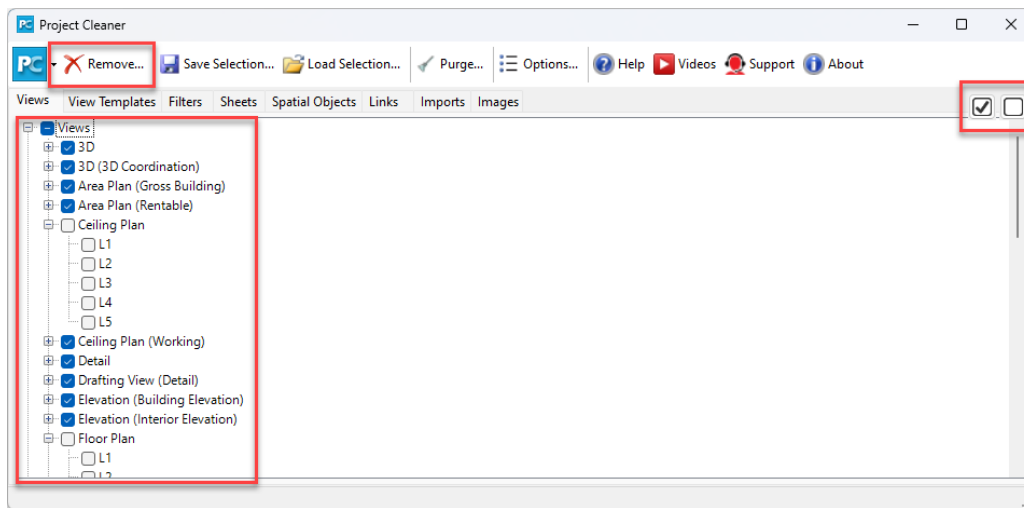
Removing Elements from the Model

Project cleaner has multiple tabs which are used to select the Revit categories and object types for removal.

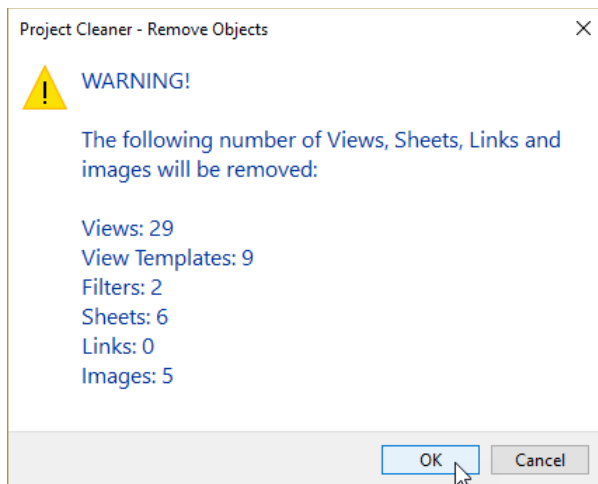


Check the checkbox next to each element that should be removed. The check all and check none tools in the upper right corner affect only the check boxes on the active tab.

Once all desired selections have been made on all tabs click the “Remove” button in the toolbar at the top of the dialog.
This will remove all checked items on all tabs.



Before deleting the elements, a confirmation dialog will be displayed:

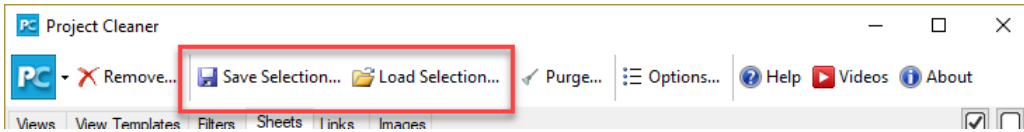


Purge

It can be helpful to purge a model to remove unused elements before or after cleaning. The “Purge” tool invokes Revit’s “Purge Unused” feature and is provided as a convenience.

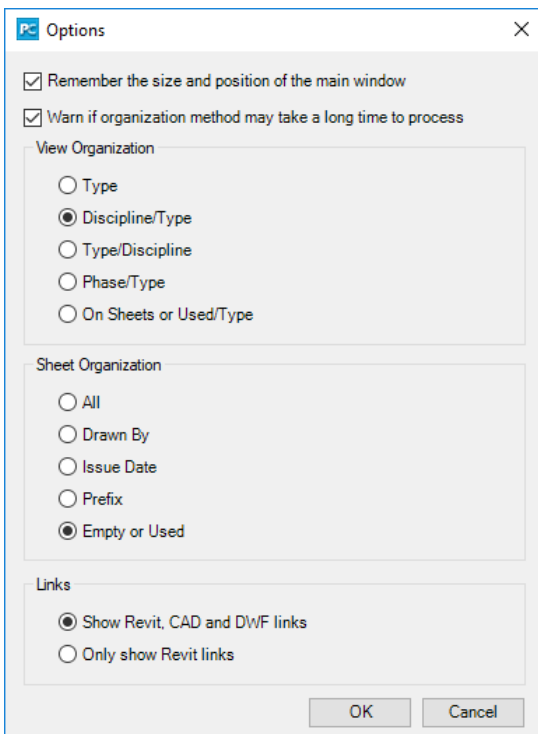
Saved Selections and Options

To save or re-load the list of elements to clean on the project, use the save and load tools on the menu.



This is particularly useful if this is a Revit model that will undergo the cleaning process regularly.

The options dialog controls default behavior of the add-in. It also contains sorting options for the lists of items in the interface.



HINT: if Project Processor detects that the View Organization option selected could require a minute or more to query, a message will be presented with information about that situation. In particular, the **“On Sheets or Used/Type”** organization method is often the cause which should be taken into consideration.

Revision Cloud Remover

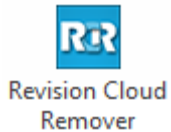
Overview

Revision Cloud Remover deletes all **non-issued** revision cloud instances from each view in a Revit project.

Note: While the tool does not merge all the revision cloud schedules, the revision cloud information will be removed from the sheets.

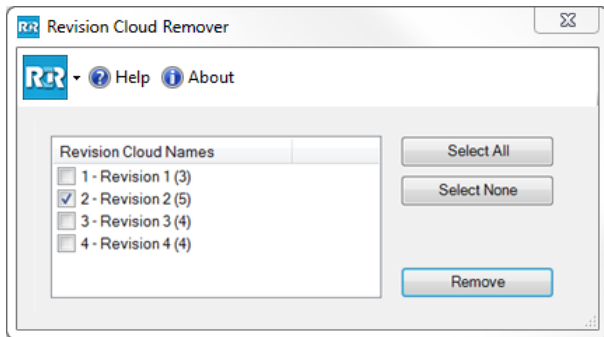
Starting Revision Cloud Remover

On the Revit ribbon, click on the “Revision Cloud Remover” button.



Remove Selected Revision Clouds

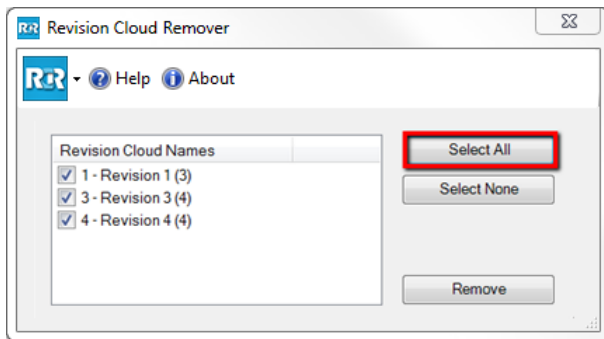
Click on the ribbon button and select the revisions you want to delete from all views in the current project:



Clicking ‘Remove’ will complete the process and all selected revisions will be removed.

Remove All Revision Clouds

To easily remove all revision clouds from the project click the 'Select All' button at the top right of the dialog.



Clicking 'Remove' will complete the process and all selected revisions will be removed.

Dimension Checker

Overview

This tool is only available for the 2013 and later versions of Revit. Dimension Checker identifies dimension strings using the dimension override options and presents them for review. Additional filter options can be used to narrow the search results.

Starting Dimension Checker

On the Revit ribbon, click on the “Dimension Checker” button.



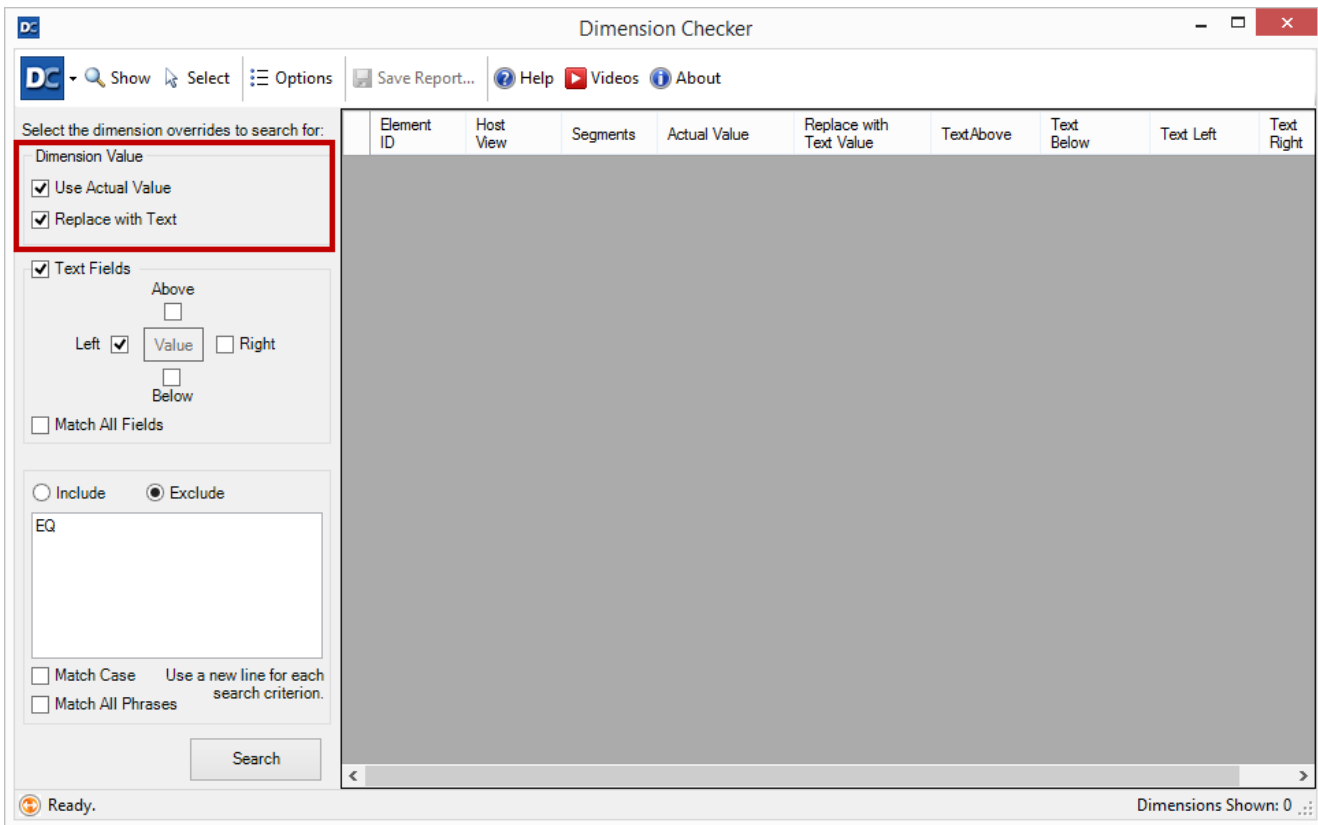
Search Filters

The first step when using dimension checker is to select the search options. The three options for filtering search results are “Dimension Value”, “Text Fields” and a list of specific characters to search for. These options are related directly to the native Revit “Dimension Text” dialog that is used to configure dimension overrides in Revit:

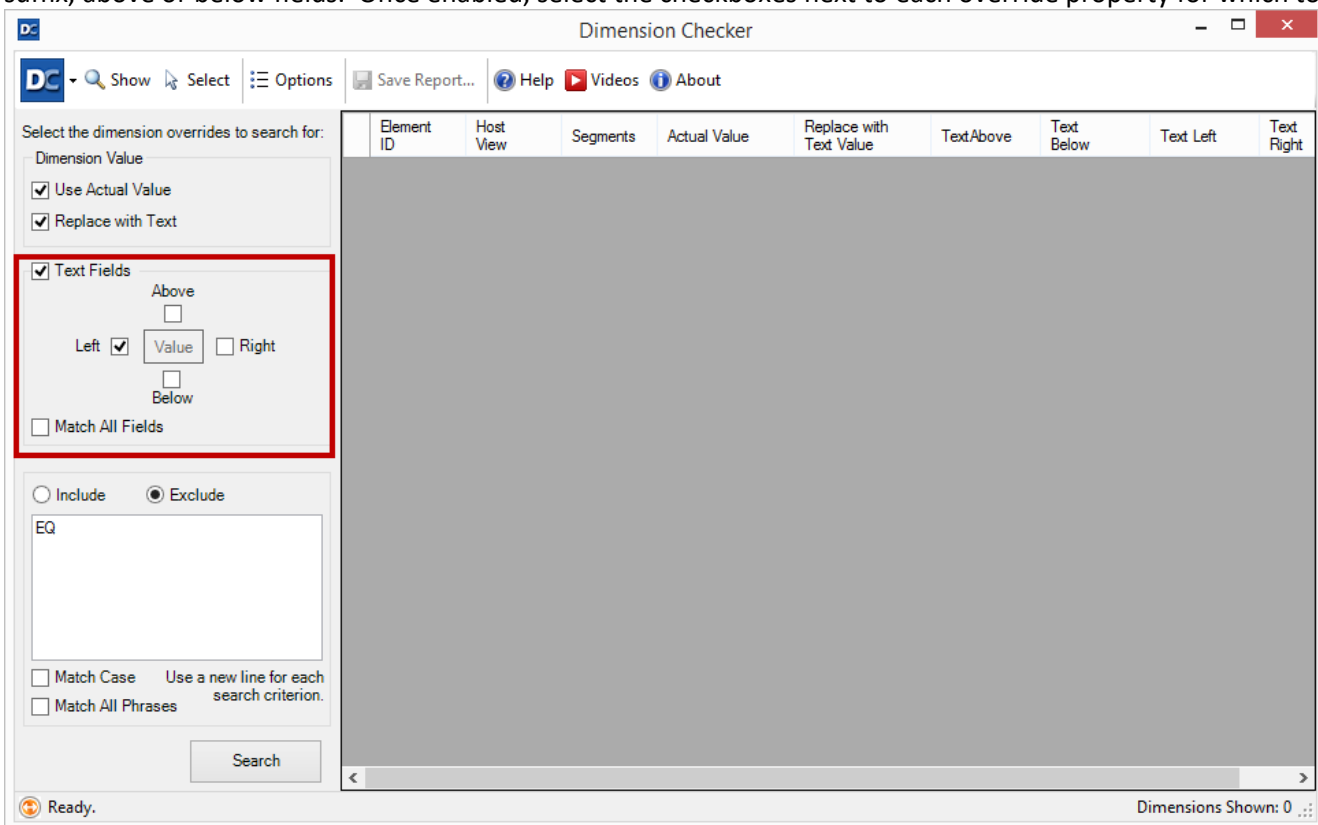
The image shows the 'Dimension Text' dialog box in Revit. It has a title bar with a close button. Inside, there is a note: 'Note: this tool replaces or appends dimensions values with text and has no effect on model geometry.' Below the note, there are two sections. The first section is 'Dimension Value' with two radio buttons: 'Use Actual Value' (selected) and 'Replace With Text'. The second section is 'Text Fields' with three input fields: 'Above:', 'Prefix:', and 'Suffix:'. The 'Value:' field is also present and contains '8' - 4 7/8\"/>

In the “Dimension Value” box in the next image, select whether to search for dimension strings set to “Use Actual Value” and/or dimensions set to use the “Replace with Text” option.

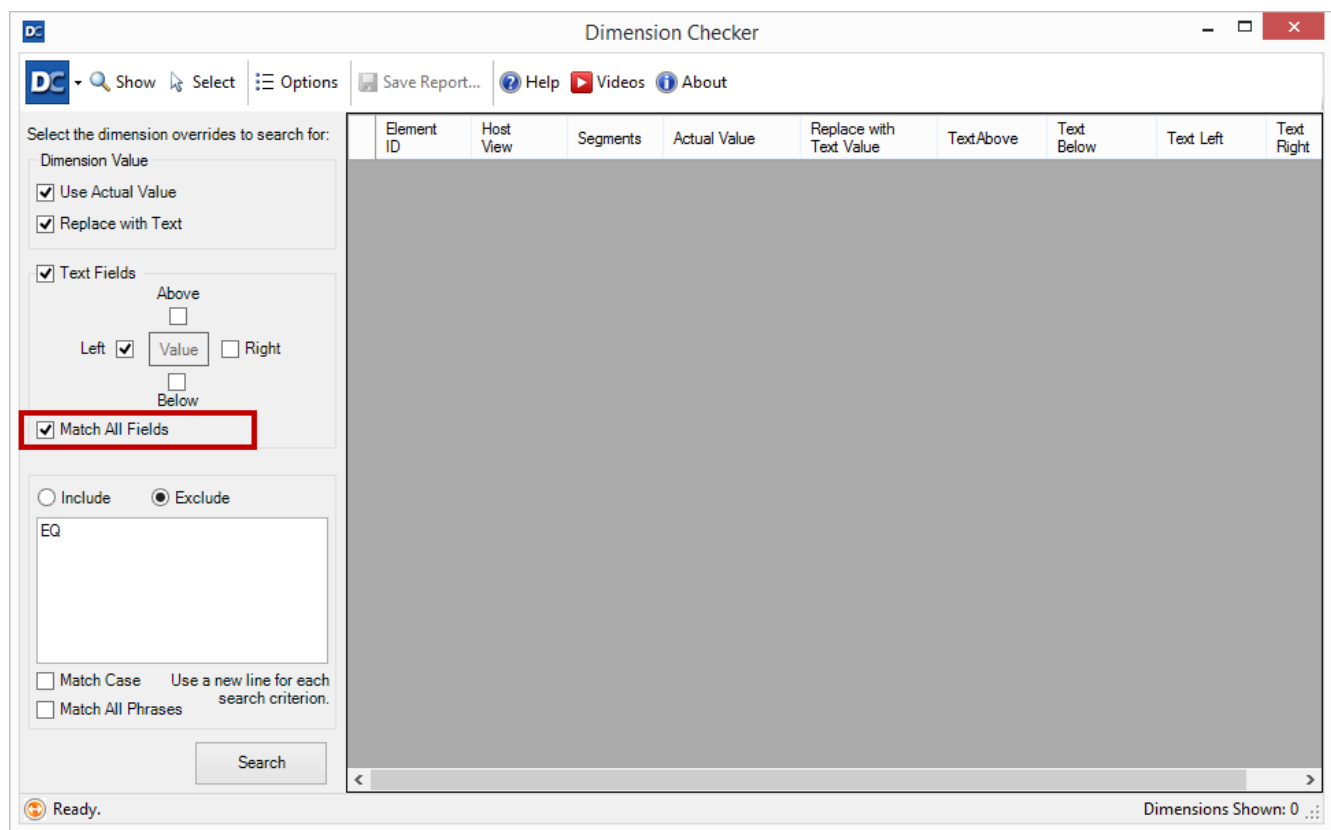
NOTE: When both “Use Actual Value” and “Replace with Text” are selected at the same time, no dimensions will be filtered from the search results unless also including other search criteria, such as for text fields or those text values that contain specific characters.



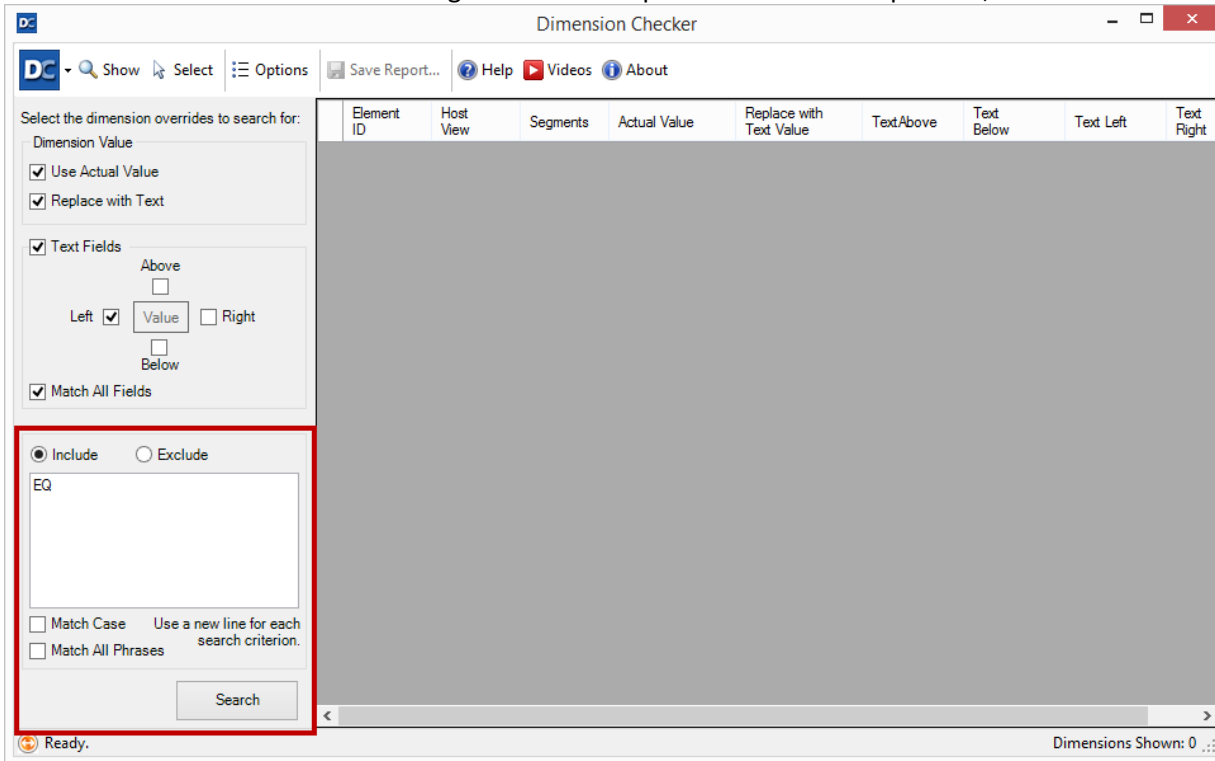
The “Text Fields” filter can be used to only return dimension strings that have an override configured for the prefix, suffix, above or below fields. Once enabled, select the checkboxes next to each override property for which to search.



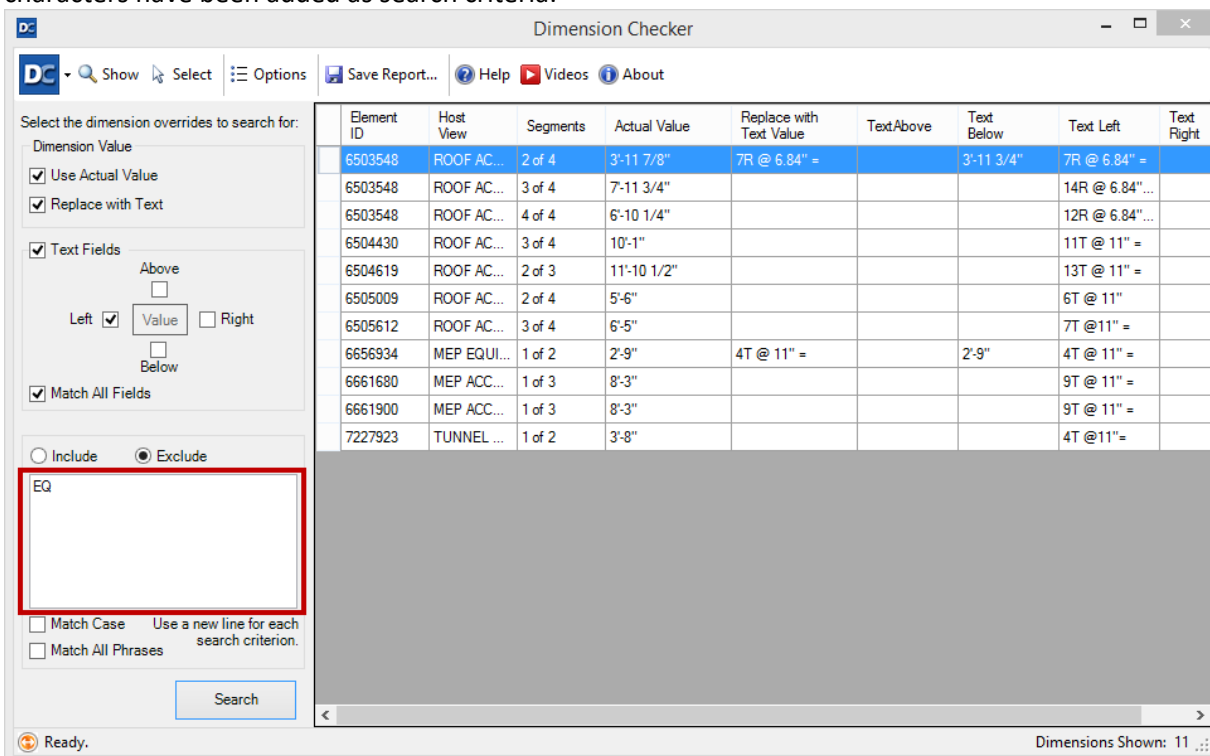
The “Text Fields” checkboxes will normally return any dimensions with any of the overrides configured (“or” logic), however by checking the “Match all Fields” checkbox, only dimension strings that have all of the selected overrides configured will be displayed (“and” logic).



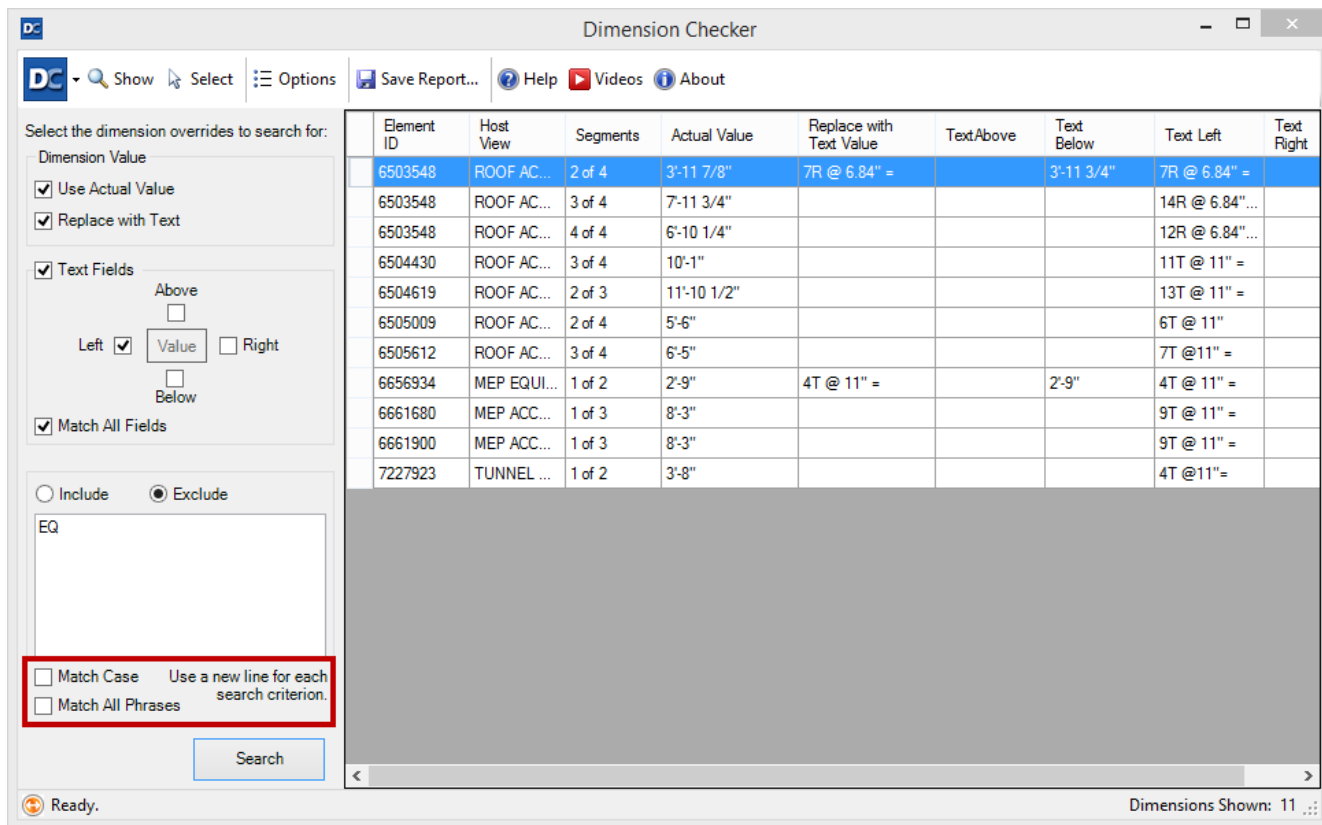
To search or filter for dimension strings that contain specific characters or phrases, use the Search controls:



Each phrase or character should be entered on its own line in the box below. Choose whether to include or exclude dimensions containing the terms. Press the Enter key to start a new line. In this example the period, comma and dash characters have been added as search criteria:



The “Match Case” and “Match All Phrases” checkboxes can be used further narrow the search results:



Once all search criteria have been specified, click the “Search” button. To refresh the result, click the refresh icon at the lower left corner of the window.

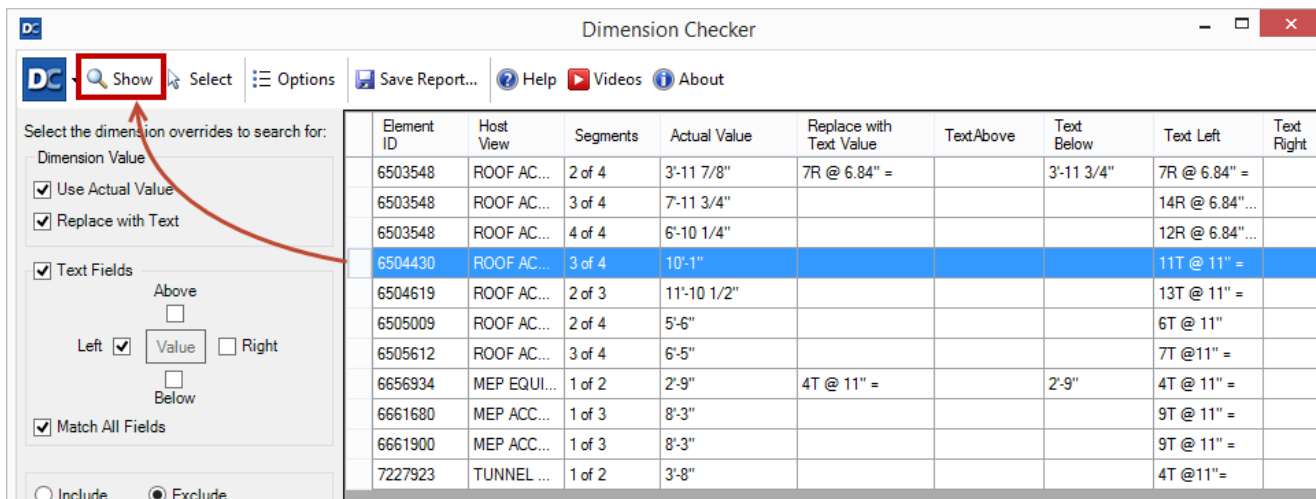
Working With the Search Results Grid

The search results will be displayed on the right side of the dialog. For each dimension the following information is collected and displayed:

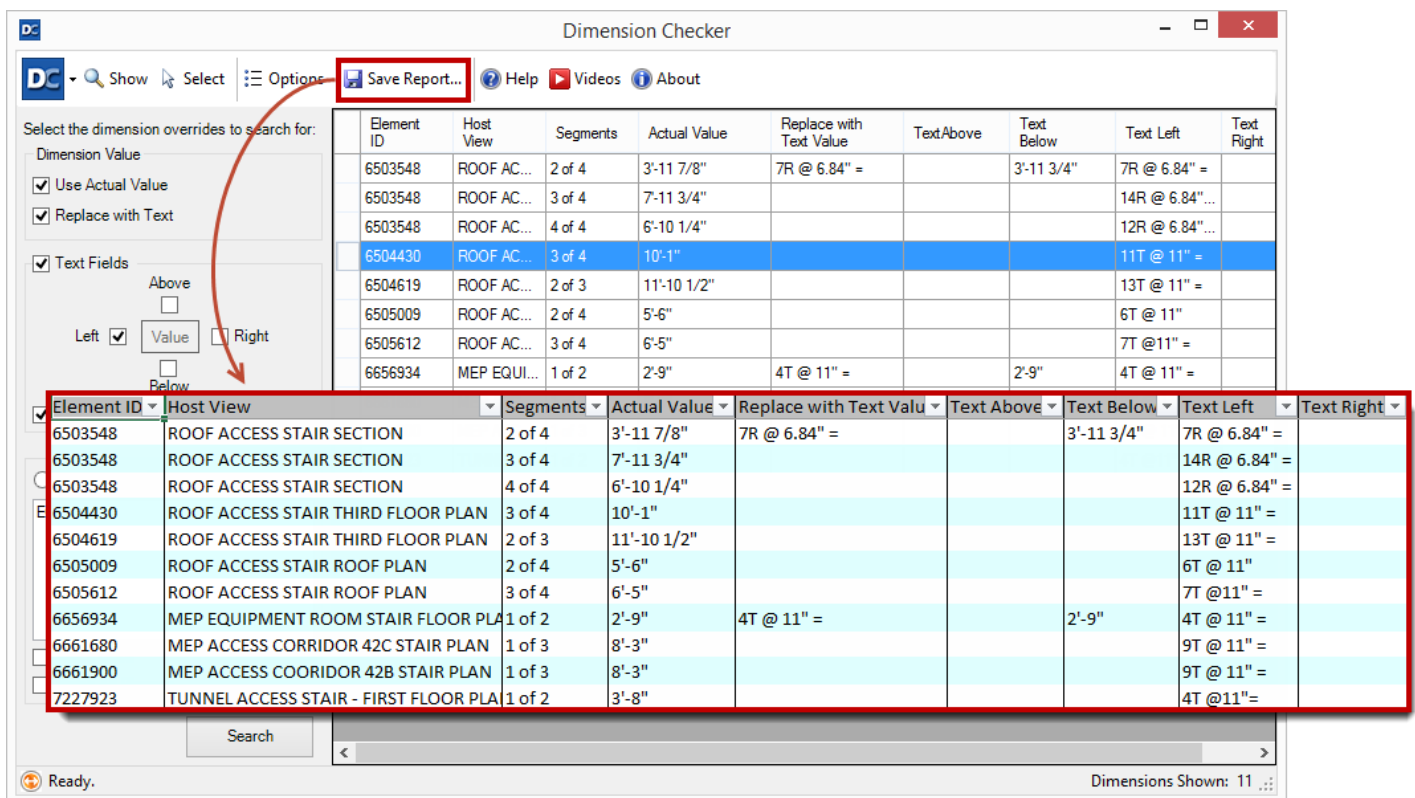
- Element ID – The Revit ID of the dimension
- Host View – Which view the dimension is located on
- Segments – List how many dimensions lines are of the same value
- Actual Value – The original value of the dimension
- Replace with Text Value – Shows the text value used to replace the dimension if configured
- Text Above – Shows text above if configured for the dimension string
- Text Below – Shows text below if configured for the dimension string
- Text Left – Shows prefix text if configured for the dimension string
- Text Right – Shows Suffix text if configured for the dimension string

The “Show” button can be used to find a specific dimension in the project. Select a single dimension and click the “Show” button, or double-click on the dimension row. Dimension Checker will open the host view and zoom in on the dimension.

NOTE: The Dimension Checker dialog is modeless, so the Revit project is active and accessible while the tool is open. The “Show” option can be used to help navigate around the model to find dimension strings for editing without closing Dimension Checker between edits.



Search results can be saved to a spreadsheet format for later review. To save the search results click the “Save” button.



Select the desired file path and choose from .XLSX, .XLS or .CSV file format.

Family Checker

Overview

Family Checker can be invaluable whenever there is a need to evaluate the consistency, completeness and overall “health” of incoming and outgoing Revit families. As is often the case, collaboration and acquisition of useful content is complex and time consuming. Ensuring that a piece of content functions correctly and contains accurate information usually requires detailed, manual examination of each one by a content manager, regardless of the original source.

Use Family Checker to quickly evaluate Revit content from manufacturers, project collaborators, Revit content sites such as Autodesk Seek and in-house libraries. To begin checking families, declare the common shared parameter file, acceptable parameter groupings, allowable names and build the list of family files to check. The Family Checker will open, gather information and produce a spreadsheet-based report without modifying the families themselves.

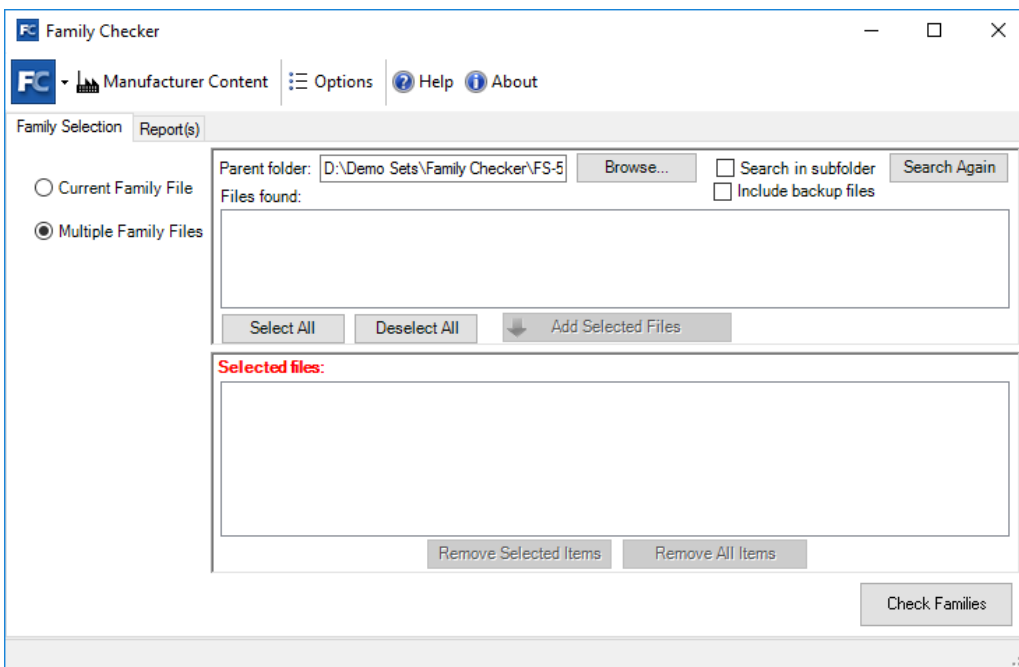
Based on the generated report, a content manager can identify and fix families which don’t meet the established criteria and best practices.

Starting Family Checker

On the Revit ribbon, click on the “Family Checker” button.

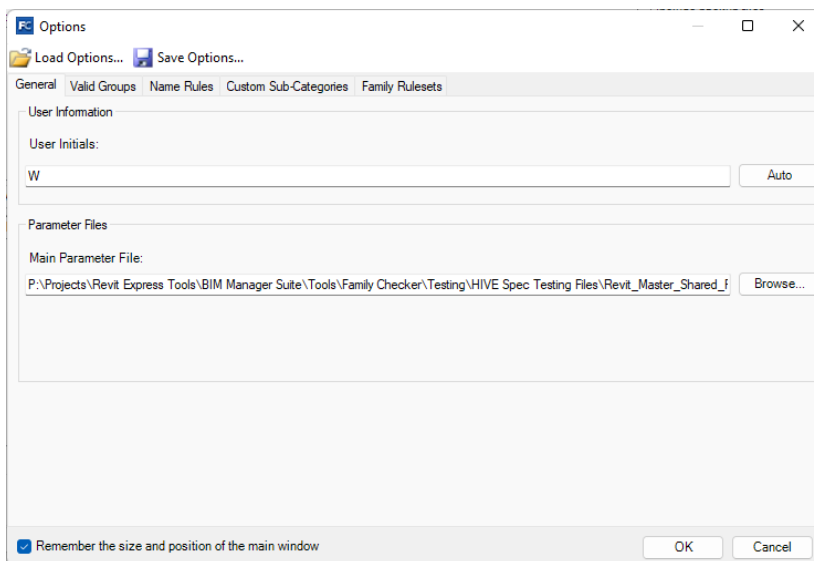


When the Family Checker opens, the main form is presented:



Family Checker Configuration

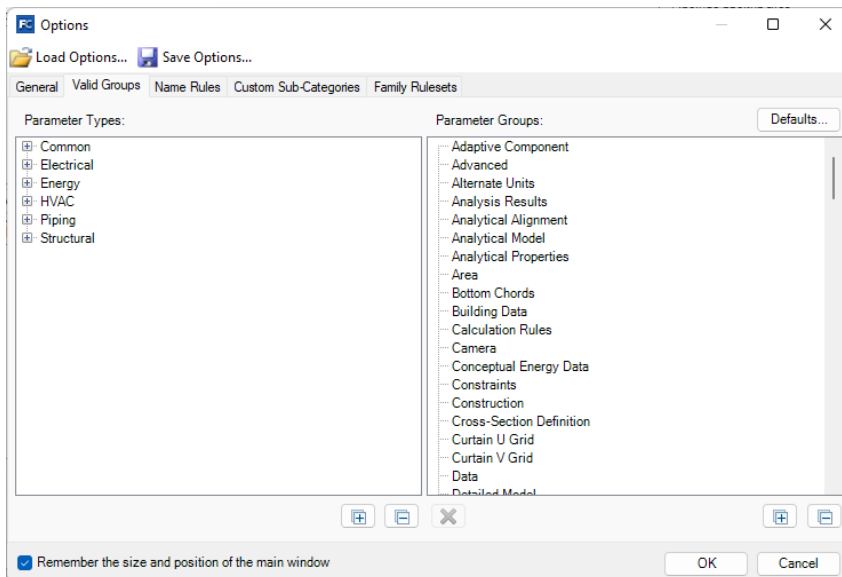
Prior to using the Family Checker, it is necessary to configure some of the application options. From the main toolbar, click the options button. The first tab displayed contains the 'General' options that will be used when the selected family files are processed:



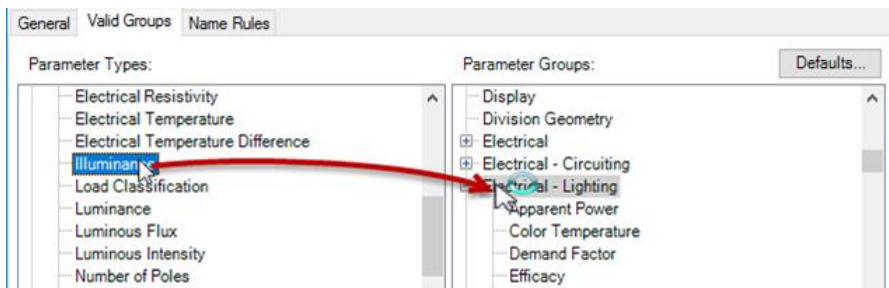
User Initials: Specify what characters identify the user running the report. Click 'Auto' to get the logged in user

Main Parameter File: The path to the shared parameters file which contains the shared parameters that should be used with the families being checked

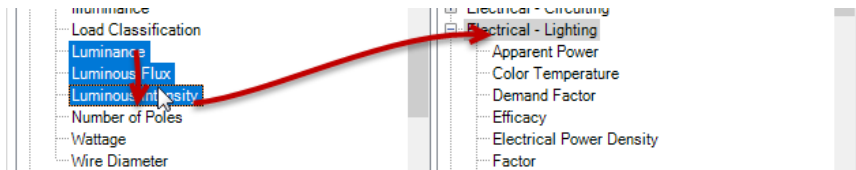
The 'Groups' tab contains two panes which display the way parameters should be grouped in the family:



To add Parameter Types to Parameter Groups, simply expand the type and drag it to the desired group:

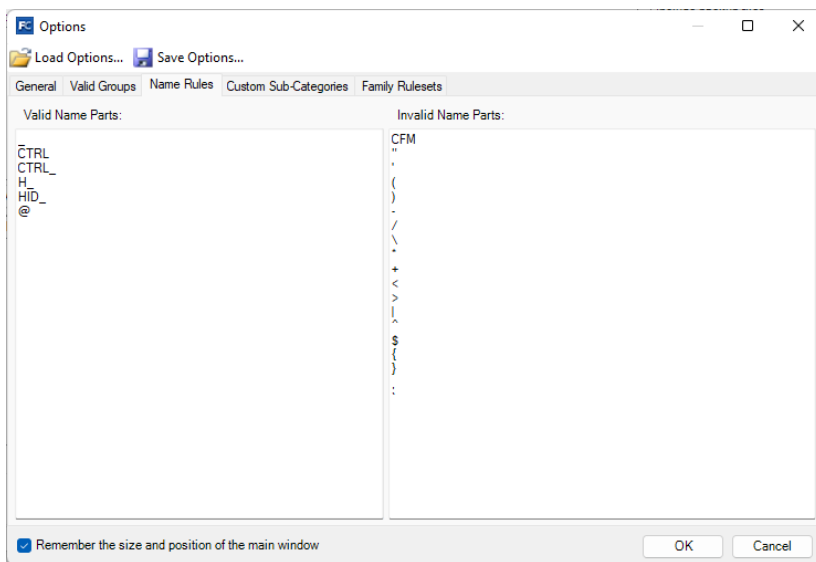


Hold the SHIFT or CTRL key while selecting to drag multiple types to a group:



To reset the changes made to groupings, click the 'Defaults...' button.

The 'Name Rules' tab enables Family Checker to evaluate parameters for disallowed or non-standard characters in their names:

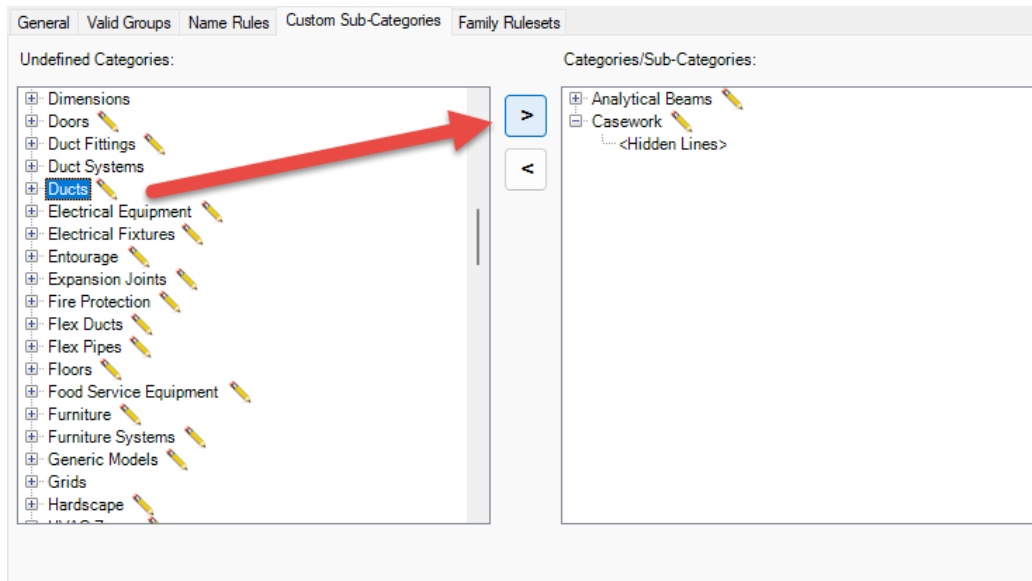


This function can be helpful in identifying invalid characters or unwanted combinations of letters which may interfere with useful data extraction, proper scheduling, or BIM standards. The check is run by matching parts of the parameter names with the specified combinations. If a match is found, the name is declared valid or invalid, depending upon which list the character combination is defined in.

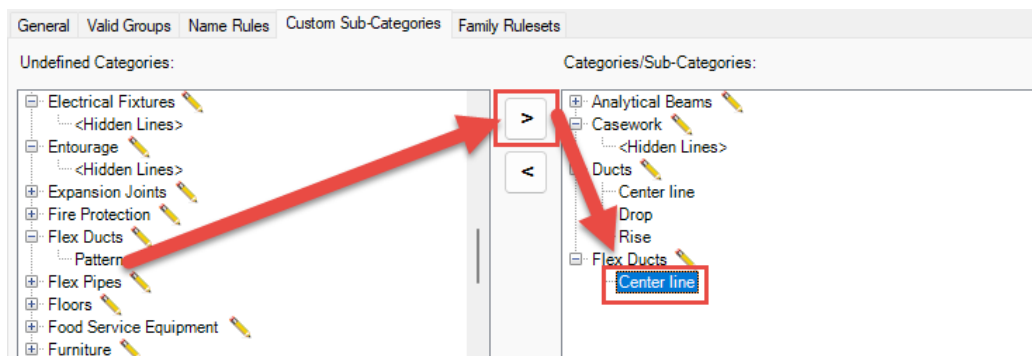
To define valid or invalid name parts, simply type each combination in the appropriate list. Press Enter or Return to add another item to the list.

Custom Sub-Categories

Select items from the 'Undefined Categories' list and use the right arrow to include in the checking process.



Expand the category to include just some of the sub-categories in the checking process.



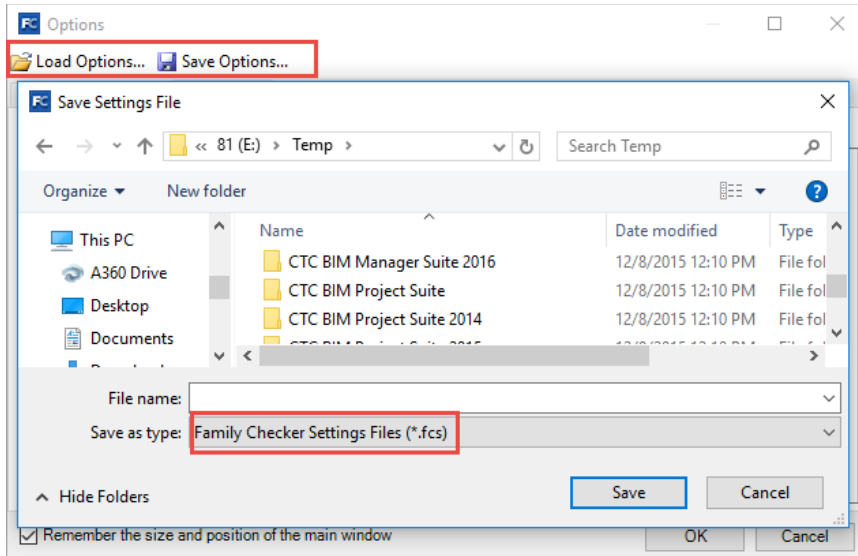
Remove items from the right pane by selecting and clicking the left arrow.

Family Rulesets

Choose options here to include when checking all of the families against the desired "custom" properties and parameters.

Saving and Loading Configurations

It may be necessary to use different rules for checking families. Family Checker can save and load its configuration options stored in .fcs files. To save or load settings, click the 'Load Options...' or 'Save Options...' buttons on the Options dialog:



When loading options, any previously unsaved changes made will be lost. Be sure to save any configuration changes before loading settings from additional .fcs files.

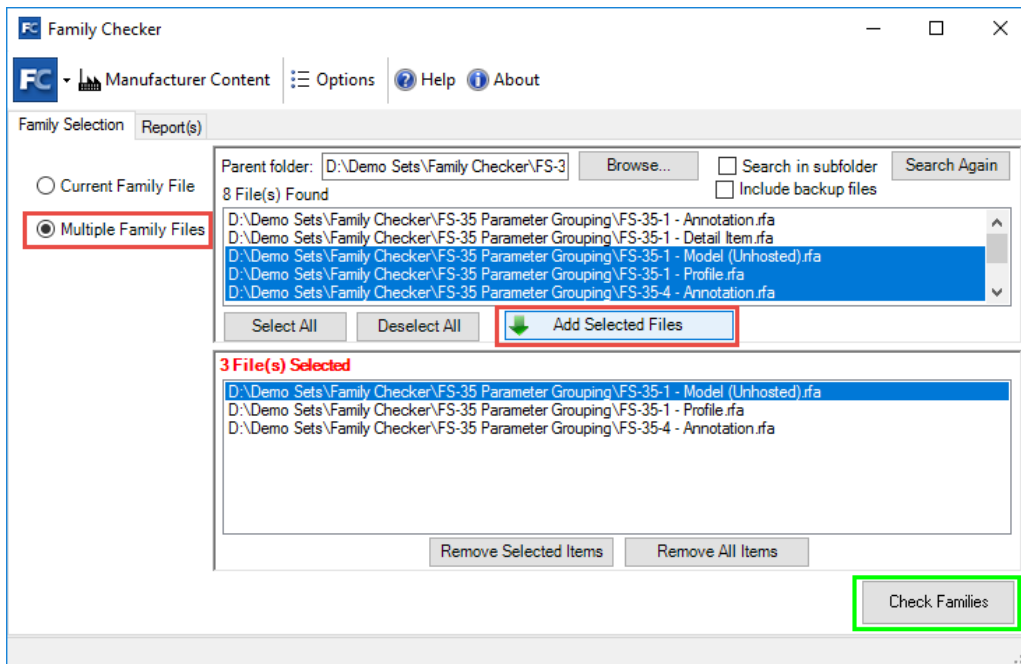
Checking Families

Family Selection

Current Family: This checks the family that is currently open in Revit

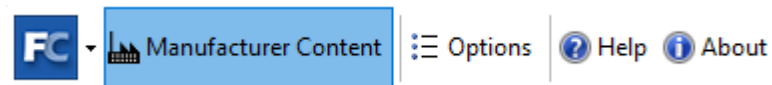
Multiple Families: Use the multi-file selector interface to search through folders for families. Browse to the folder or folders where the families to be checked are located. If the families are located within subfolders of the parent folder, check the "Search in subfolder" box to see a list of all the files.

Select families from the top pane using the helper buttons or by holding CTRL/SHIFT while left-clicking.



Continue browsing and adding families until desired list is complete. Click 'Check Families' to begin processing

Manufacturer Content: If families to be checked are obtained from or have been developed by a product manufacturer, activate the 'Manufacturer Content' button to enable additional checks for consistent "Manufacturer" parameter values.



Reports

The reports produced by Family Checker contain several tables which summarize the checks and results for each family. If multiple families were checked, each will have its own tab in the report.

Family Checker reports can be saved and reviewed in most common spreadsheet tools such as Microsoft Excel or other analysis tools such as PowerBI.

Click 'Save Report(s)' to choose a destination and file name for the report.

The report for the families follows a basic Comma Separated Values (.CSV) structure with the column names in the first

The values or ratings given for each check range from 0 or NULL meaning it does not generally apply to 5 which means it meets all optimal standards.

Family Processor

Overview

Family Processor is a tool which allows you to define one or multiple changes to one or more Revit® family files. This add-in can be used to make the following kinds of changes to Revit family files:

- Set the Classification Code (formerly known as the OmniClass value)
- Change the category
- Set “Family Parameters” settings: Shared, WorkPlane-Based, Always vertical, Cut with Voids When Loaded and Room Calculation Point
- Set the Keynotes file
- Clean up issues in the family by opening it with Auditing turned on
- Import all units of measure settings from another family file
- Change the text casing for all parameter values stored in text parameters (Text, Multiline-Text, URL, etc.)
- Sort the parameters by name within each group
- Delete one or more lookup tables
- Import one or more lookup tables from csv files
- Delete one or more materials, with a special option to delete the default materials
- Create materials and set their names, transparency values and basic red, green, and blue values
- Change the name, transparency value and basic red, green, and blue values for existing materials
- Delete parameters
- Add shared parameters and family parameters:
 - Define whether they are instance or type
 - Set their group
 - Set or clear their default value or formula
 - Define a family parameter’s name
 - Define a family parameter’s type (e.g. length, area, temperature, pressure, etc.)
- Replace an existing parameter with a specific shared parameter
- Replace all parameters in a family that have identically-named shared parameters in a shared parameters file
- Change existing parameters:
 - Value
 - Formula
 - Whether it is instance or type
 - Name (for family parameters only)
 - Change their group
- Change the order of the parameters in a family based on the order of parameters in a selected family file

This software also provides the following functions:

- Purge unused items from the families being processed
- Controlling the order in which the above steps are processed
- Save modified families to an alternate parent folder location, retaining the subfolder tree structure of the newly processed families
- Re-save even if no changes were made, which can be useful for upgrading families to a new version of Revit

- Export all parameter information, for all types, to an XML file
- Override the preview image by building a new one from the view with a specified name
- Create a new shared parameters file which contains all the unique shared parameters discovered during processing of the families
- Create a type catalog file for each family processed, with the option of deleting the types in the family before resaving it
- All family files saved by Family Processor are always compacted to their smallest possible file size.

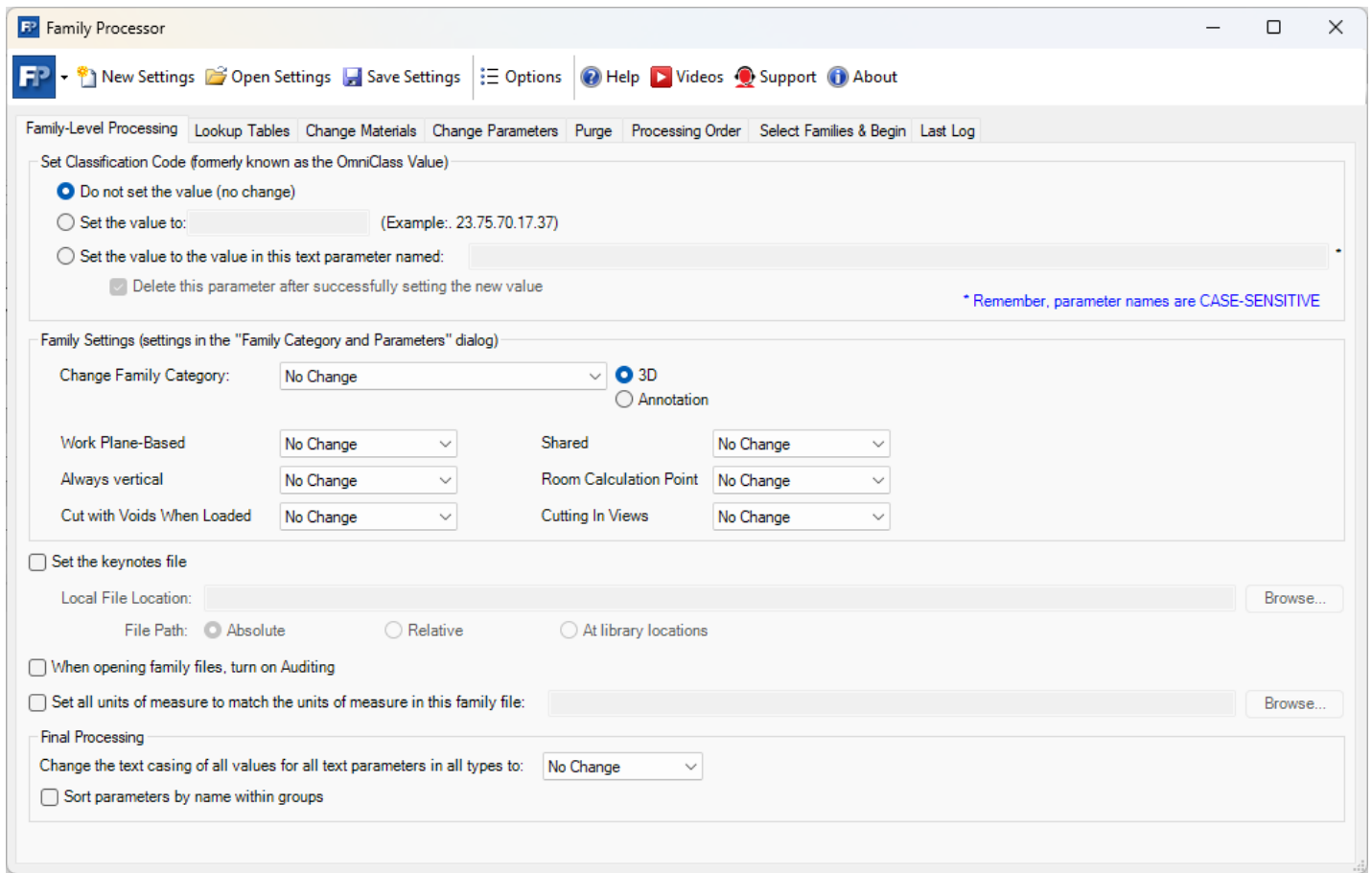
The ability to automate these tasks with accuracy and consistency can provide enormous time and cost savings, as well as reduce the likelihood of human errors inducing mistakes in the families.

Starting Family Processor

To launch Family Processor, you must have a family open in the Revit editor. This is necessary because a starting family is used as a baseline for default values that may apply to other families. This also makes it easy if you only want to automate changes to that single family. Once you have a family file open, click on the “Family Processor” button.



Once the button is clicked, Family Processor will open:



Tool Buttons

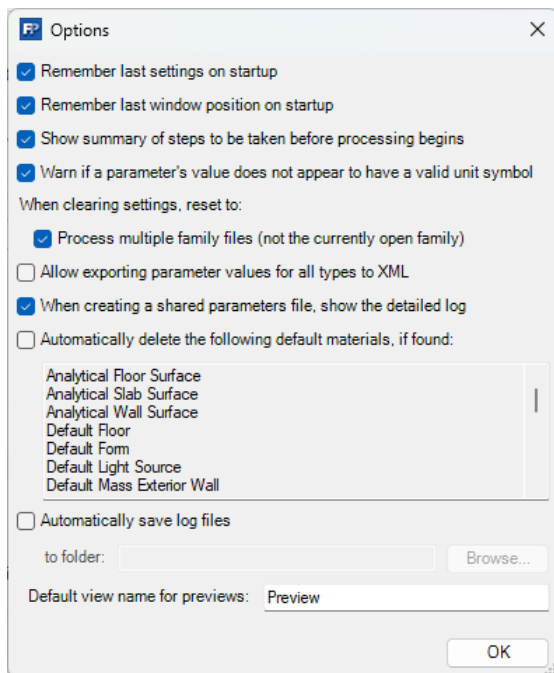
Across the top of the Family Processor dialog are the following tool buttons:

The **New Settings** button clears out all of the current definitions of changes to one or more families that should be made. Essentially, it simply clears out the settings to apply to each family.

The **Open Settings** button lets you load previously-saved settings from a file you select.

The **Save Settings** button lets you save your current settings to a file you select.

The **Options** button brings up the following dialog that lets you control how Family Processor works. These options should be fairly self-explanatory:



The **Help** button launches this user guide.

The **Videos** button opens a list of videos which can be viewed to learn more about using this tool.

The **About** button will bring up a dialog which provides information about this application.

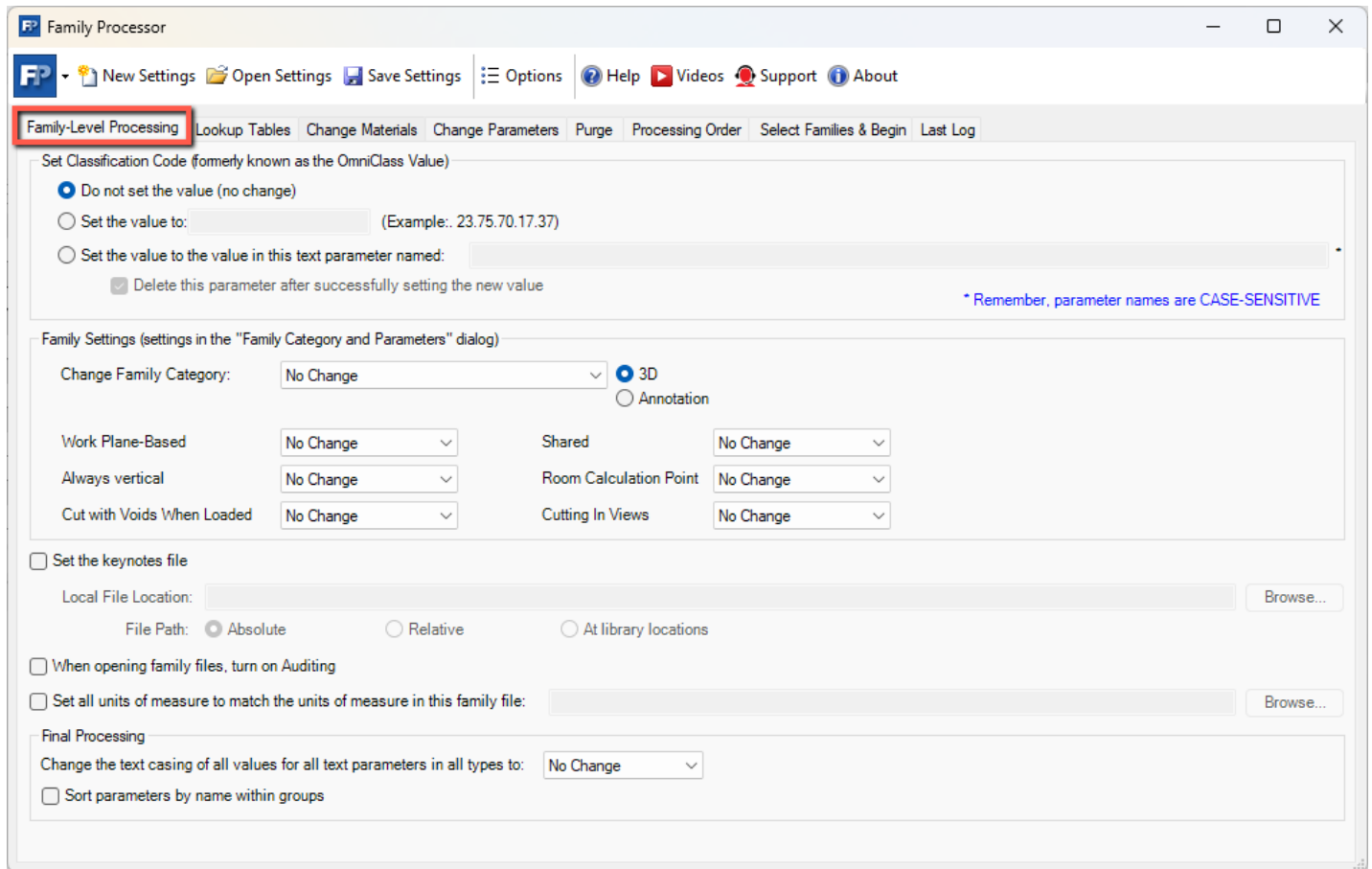
IMPORTANT: Unless you make changes on the “Processing Order” tab, the order in which changes will be applied to the families matches the order that Family Processor presents the settings to you.

As we’ll see shortly, the information in the bottom half of most tabs defines the actual actions to take on one or more families.

The top half of those tabs is used to select or specify what should go in the bottom half. For example, the “Only names containing” field above the list of choices allows you to quickly filter down the list by typing in a part of the name. Only those items that include what you type will remain on the list for selection.

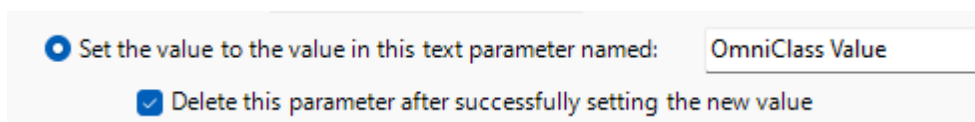
Family-Level Processing Tab

The first tab is the *Family-Level Processing* tab. This tab contains settings that apply to the entire family and not, for example, just to a parameter or a material.



This tab contains settings that allow you to apply a value to the Classification Code (formerly known as the OmniClass value) property of the family. You can select to make no change, to set a specific value, or to get the value to apply from an existing Text parameter in the family being processed.

For example, the families to be processed may have been created with an older version of Revit which did not have the Classification Code (OmniClass) property on families. If a Text parameter called *OmniClass Value* exists in each family and contains the value to be stored in the Classification Code property of families that now exists in Revit, you can specify that parameter name as the one from which to get the value:



You can also have Family Processor delete the parameter once the value has been successfully applied.

Below this section are controls for changing the category of the family as well as the checkbox-based "Family Parameters" from the "Family Category and Parameters" dialog in Revit:

Family Settings (settings in the "Family Category and Parameters" dialog)

Change Family Category: ☒ 3D ☐ Annotation

Work Plane-Based: Shared:

Always vertical: Room Calculation Point:

Cut with Voids When Loaded:

The category of the family being processed can be changed by selecting something other than "No Change" from the list:

Family Settings (settings in the "Family Category and Parameters" dialog)

Change Family Category: ☒ 3D ☐ Annotation

Work Plane-Based:

Always vertical:

Cut with Voids When Loaded:

☐ Set the keynotes file

Local File Location:

File Path: ☒ Absolute ☐ Relative ☐ At library locations

☐ When opening family files, turn on

☐ Set all units of measure to match

Final Processing

Change the text casing of all values

☐ Sort parameters by name within g

Library locations

Category list: Air Terminals, Balusters, Cable Tray Fittings, Casework, Columns, Communication Devices, Conduit Fittings, Curtain Panels, Data Devices, Detail Items, Doors, Duct Accessories, Duct Fittings, Electrical Equipment, Electrical Fixtures, Entourage, Fire Alarm Devices, Furniture, Furniture Systems, Generic Models, Lighting Devices, Lighting Fixtures, Mass, Mechanical Equipment, Nurse Call Devices, Parking, Pipe Accessories, Pipe Fittings, Planting

The "3D" and "Annotation" options are simply filters which change which category choices are in the list, to simplify the list of choices.

IMPORTANT: Be careful when changing the category of a family! When the category of a family is changed, subcategories will be lost and some category-specific parameters may be lost as well. Use this feature at your own risk.

The "checkbox" values below the category list can be set to 'No Change,' 'Set Checked,' or 'Set Unchecked.'

Below this section is the section for defining the Keynotes file this family will use. This feature is only available in Revit 2015 and later:

☒ Set the keynotes file

Local File Location:

File Path: ☒ Absolute ☐ Relative ☐ At library locations

This works like the equivalent dialog that is natively in Revit. To not set a Keynotes file, simply leave the "Set the keynotes file" checkbox unchecked.

Below this section is a control for opening family files with Auditing turned on. This can be used to help clean up family files which may have some corruption-type issues in them, to which Revit 2015 and later are particularly sensitive.

Below this option is a setting for importing the units of measure to apply to the families being processed. For example:

☒ Set all units of measure to match the units of measure in this family file:

With this option enabled, all the settings for units of measure from the “Metric Family Template.rfa” family file will be applied to all the families being processed.

This option **will NOT convert values to nominal values in the new units of measure**. For example, if a value starts out as 33mm in a family but the units of measure for length in the family being used for units of measure are inches, the value in the family being updated will NOT change to a nice, round 1.25 inches but instead will be something like 1.29921 inches. So this process simply changes the working units of measure within the family in the same manner as if that’s all that were to be changed in Revit manually.

Below this option is a setting to change the casing of all text-based parameter values. For example:

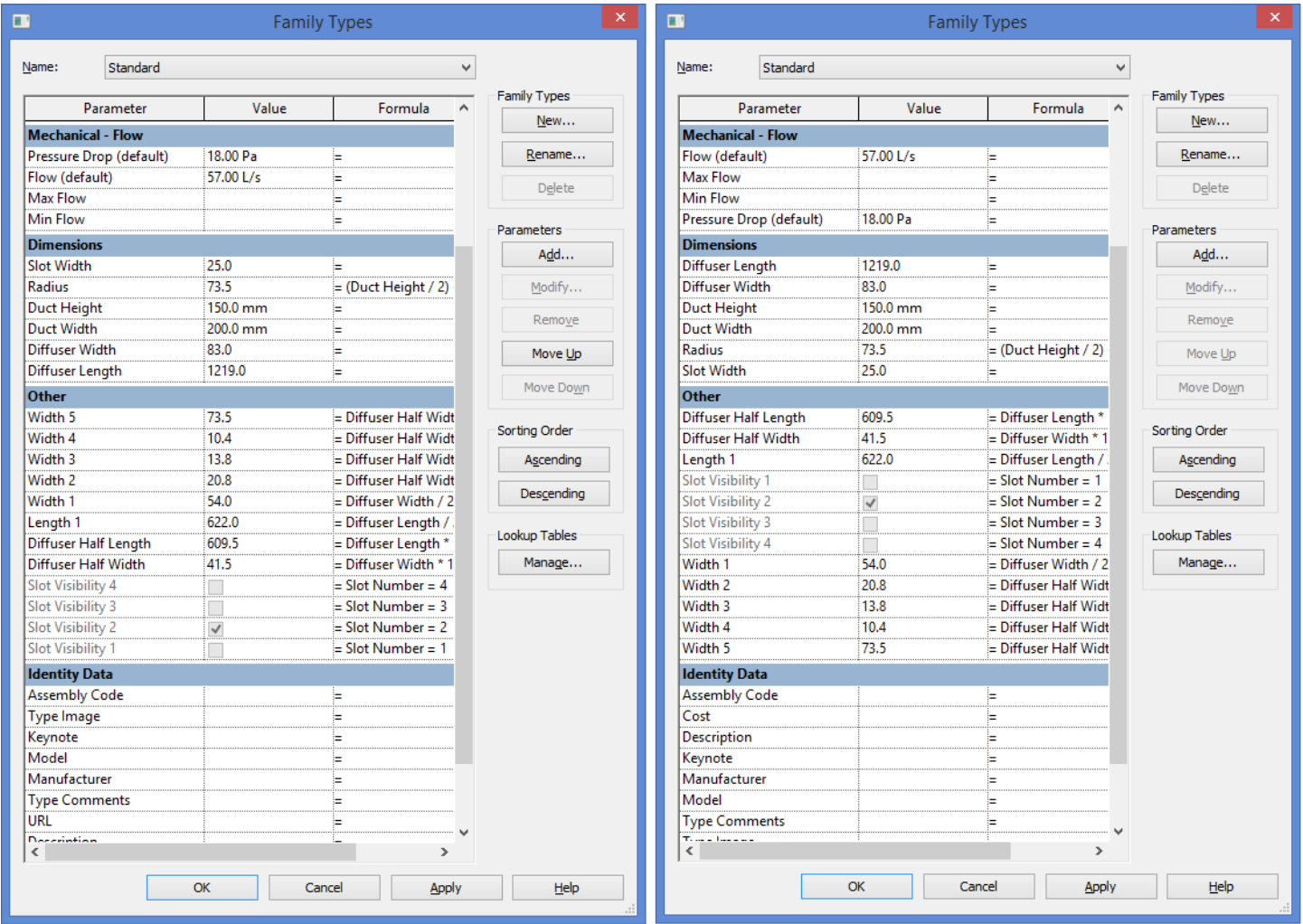
Change the text casing of all values for all text parameters in all types to:

Text-based parameter values do not include a unit of measure, and include such parameter types as Text, Multi-line Text and URL. This setting allows changing the values to all uppercase, all lowercase, or to use title casing. Title casing uses capital letters as seen in the titles of most things, such as: My Awesome Parameter

A common use case for this option is to ensure all text values are all in uppercase letters, so schedules will appear in a uniform manner.

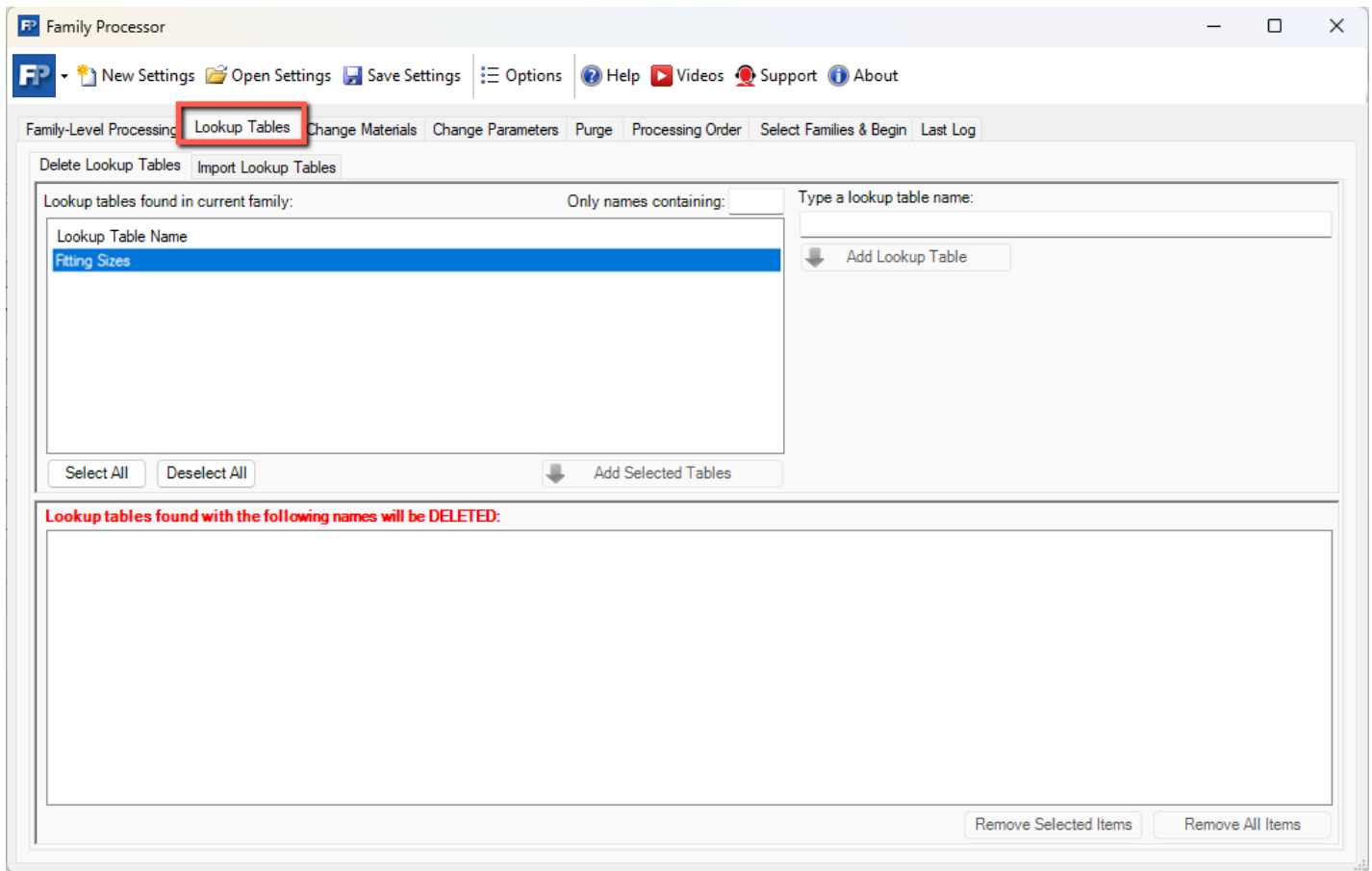
IMPORTANT: URL parameters WILL NOT have their casing changed, because many web sites have case-sensitive addresses.

Below this setting is a setting to sort parameters within groups, as seen in the Family Types dialog when editing a family. This image shows the before and after results of turning on this setting:



Lookup Tables Tab

The second tab in Family Processor is the *Lookup Tables* tab:

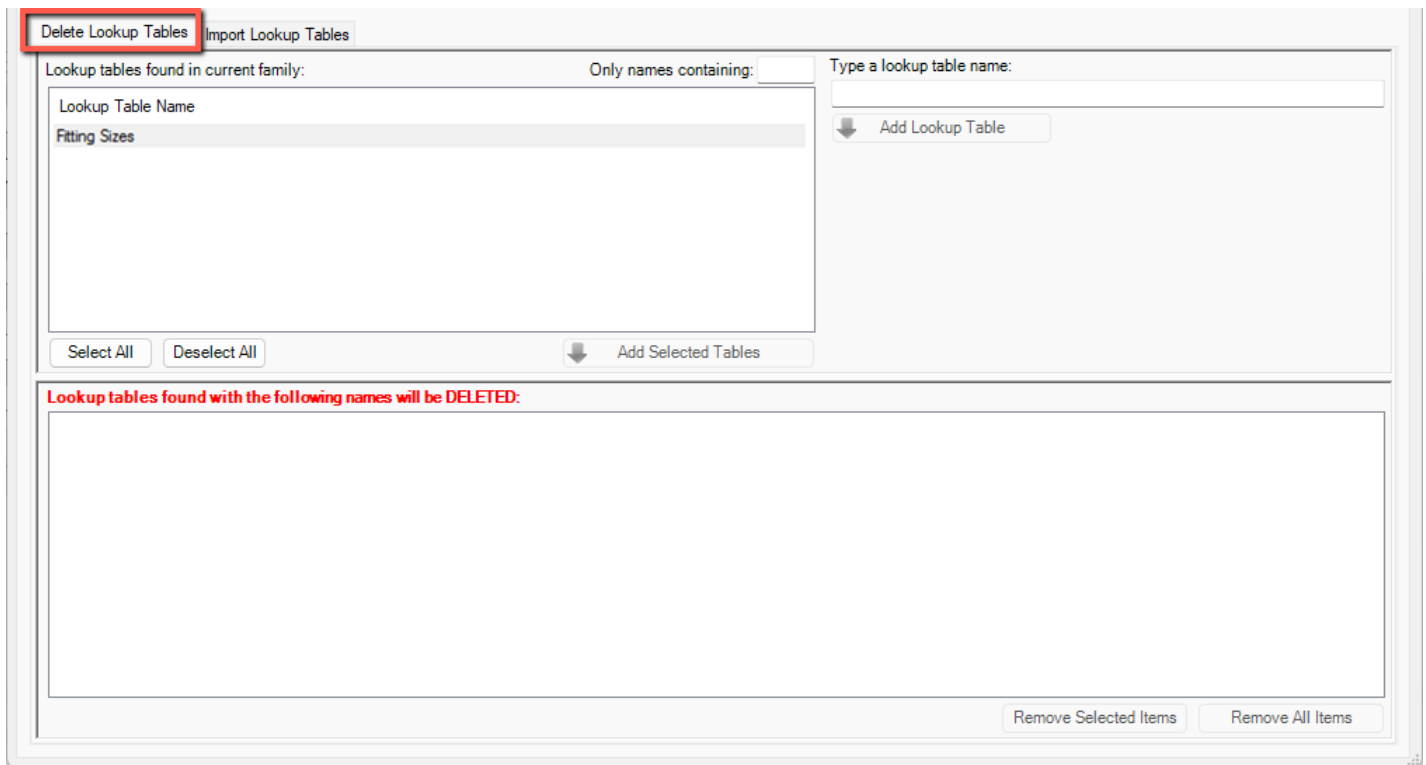


This tab allows deleting lookup tables from the family being processed, or importing lookup tables from CSV files into the family being processed.

This tab contains 2 subtabs:

Delete Lookup Tables Sub Tab

This tab allows you to define, by name, which lookup tables should be deleted from the families to be processed:



As with the other tabs, information from the currently open family is used to provide starter choices in the top half of this tab, and the bottom half of this tab is where the changes to actually apply to the families are listed. As items are added to the bottom half, they are removed from the list in the top half.

In this example, the lookup table shown in the top half (“Fitting Sizes”) is in the currently open family. To add a single item from that list to the actual list of lookup tables to delete from families you can:

- Double-click on the lookup table from the list
- Click once to select the lookup table and then click the “Add Selected Tables” button

To select multiple lookup tables from the current family, you can use the Shift and Ctrl keys to select the lookup tables to delete from families, and then click the “Add Selected Tables” button.

We may also want to delete a lookup table in multiple families to process that doesn’t happen to exist in the current family. We can do this by specifying the name in the “Type a lookup table name” field and clicking the “Add Lookup Table” button.

This was done in the above example, where a “Test Lookup Table” value was entered and the “Add Lookup Table” button was clicked.

Import Lookup Tables Sub Tab

This tab allows you to define, by file name, which lookup table files should be imported into the families to be processed:

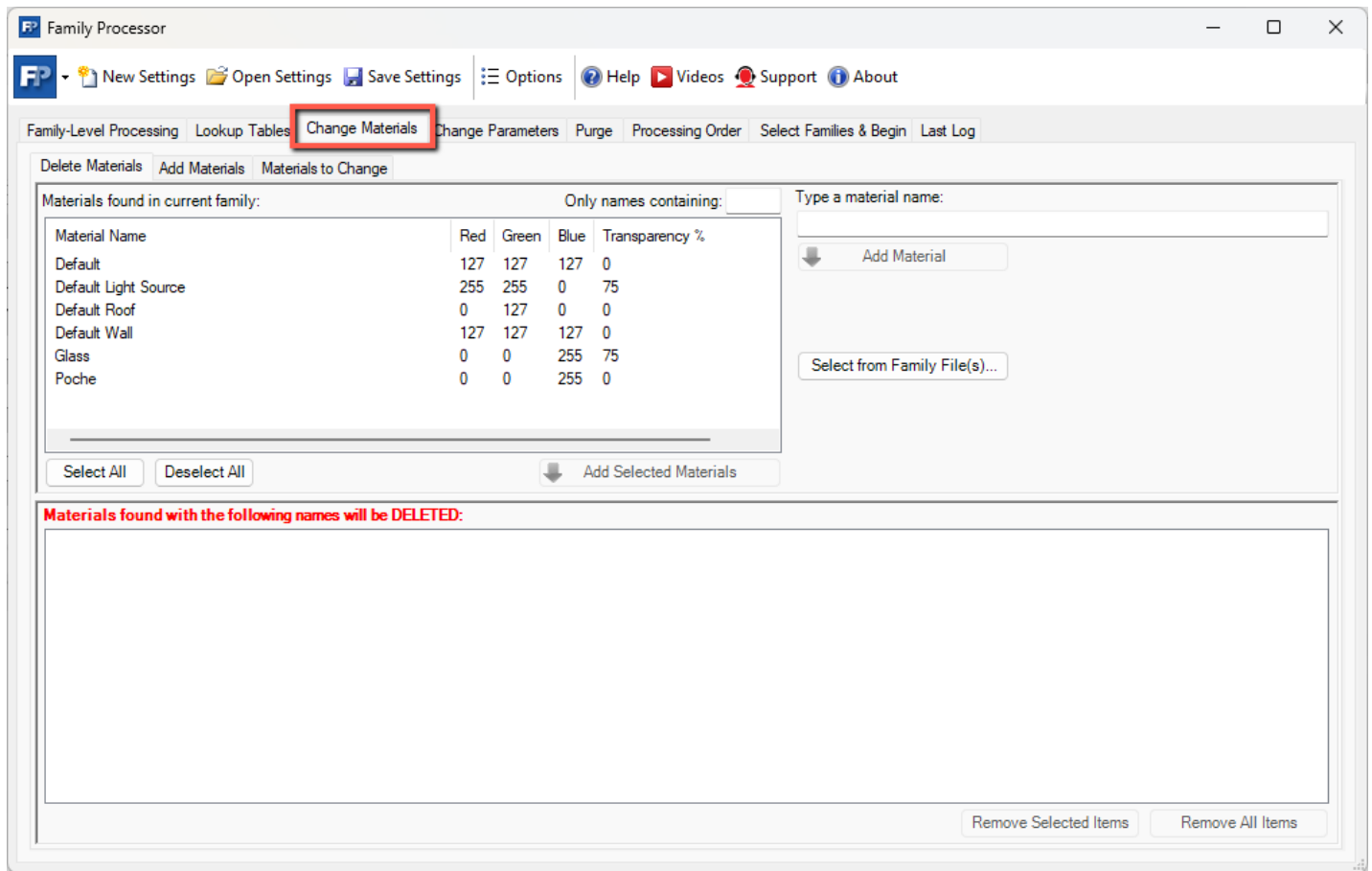


Click the “Browse for Files to Add...” button to select which CSV files to import as lookup tables into each family to be processed.

In the example above, the lookup table file **C:\Temp\Fitting Sizes.csv** was selected. During the processing of the family files, this lookup table file will be imported into each family.

Change Materials Tab

The next tab in Family Processor is the *Change Materials* tab:



This tab contains 3 subtabs:

Delete Materials Sub Tab

This tab allows you to define, by name, which materials should be deleted from the families to be processed:

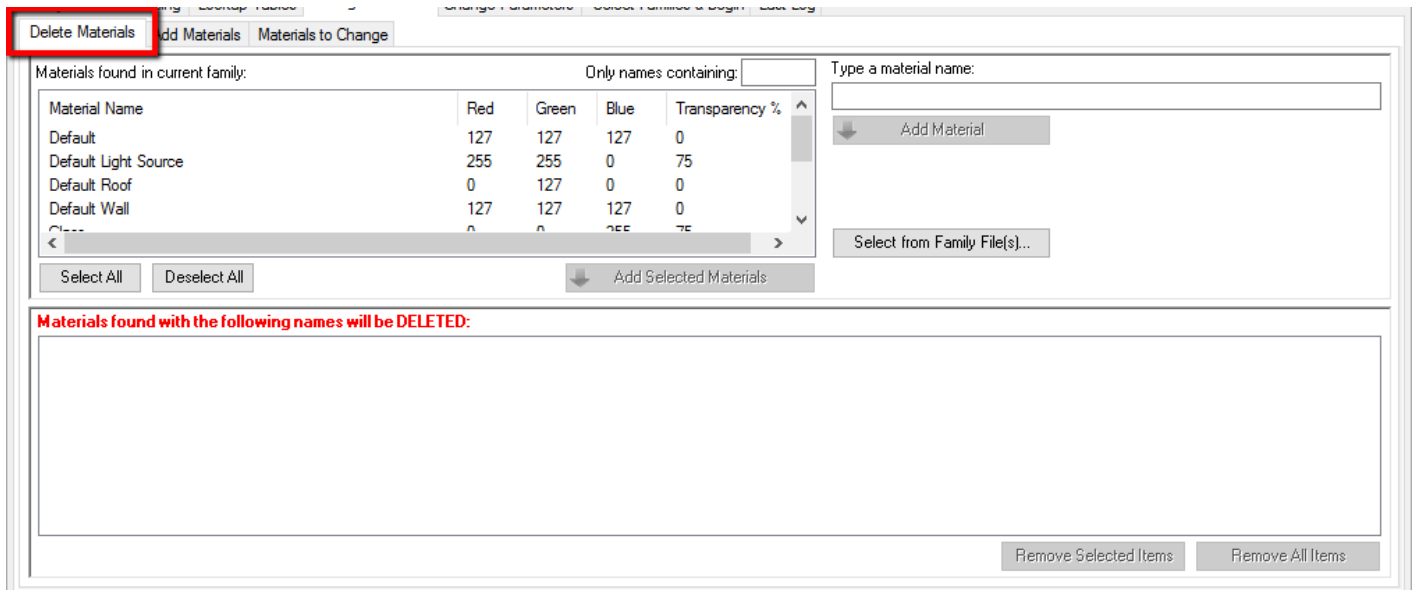
As with the other tabs, information from the currently open family is used to provide starter choices in the top half of this tab, and the bottom half of this tab is where the changes to actually apply to the families are listed. As items are added to the bottom half, they are removed from the top half.

Currently no changes to apply are listed in the example above.

In this example, the materials that appear in the top half are those in the currently open family. To add a single item from that list to the actual materials to delete from families you can:

- Double-click on the material from the list
- Click once to select the material and then click the “Add Selected Materials” button

To select multiple materials from the current family, you can use the Shift and Ctrl keys to select the materials to delete from families, and then click the “Add Selected Materials” button.



As with the other tabs, information from the currently open family is used to provide starter choices in the top half of this tab, and the bottom half of this tab is where the changes to actually apply to the families are listed. As items are added to the bottom half, they are removed from the top half.

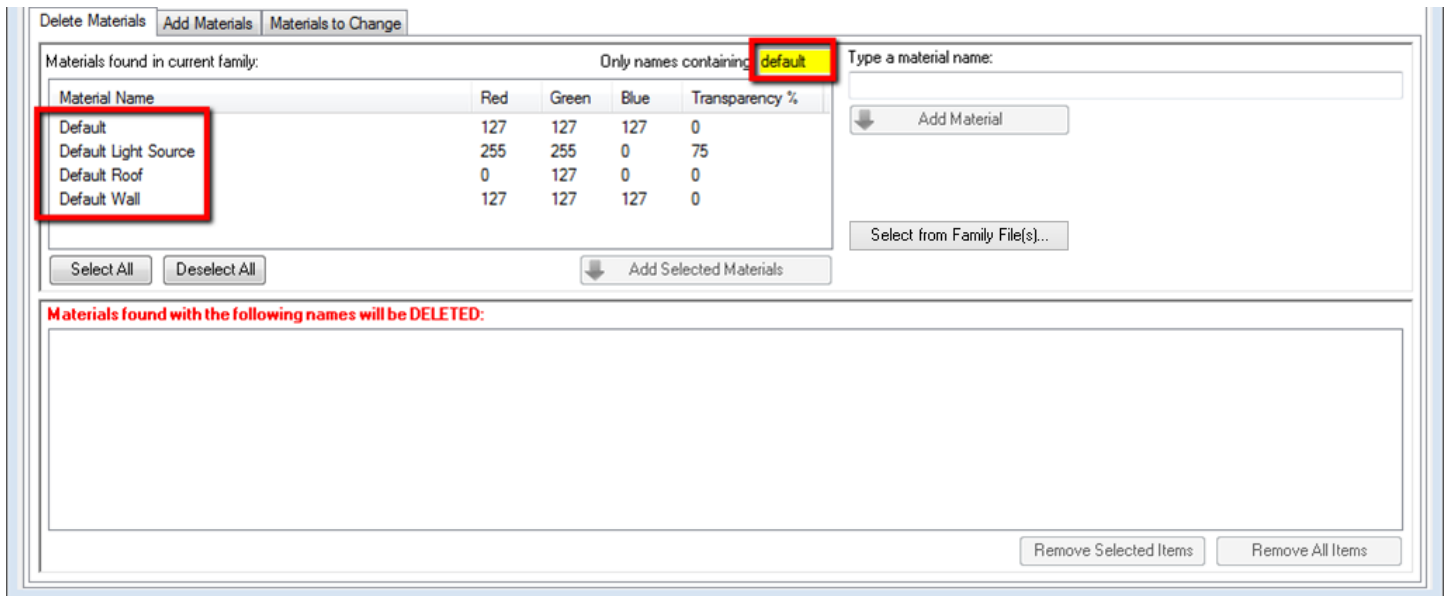
Currently no changes to apply are listed in the example above.

In this example, the materials that appear in the top half are those in the currently open family. To add a single item from that list to the actual materials to delete from families you can:

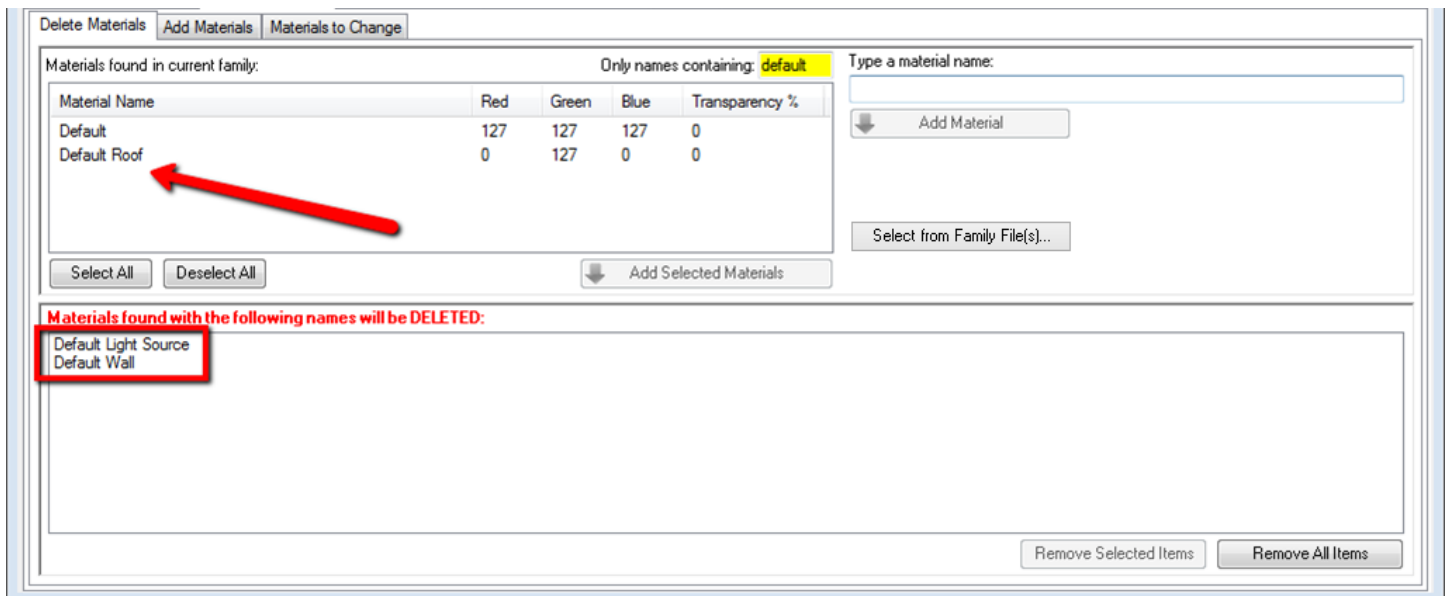
- Double-click on the material from the list
- Click once to select the material and then click the “Add Selected Materials” button

To select multiple materials from the current family, you can use the Shift and Ctrl keys to select the materials to delete from families, and then click the “Add Selected Materials” button.

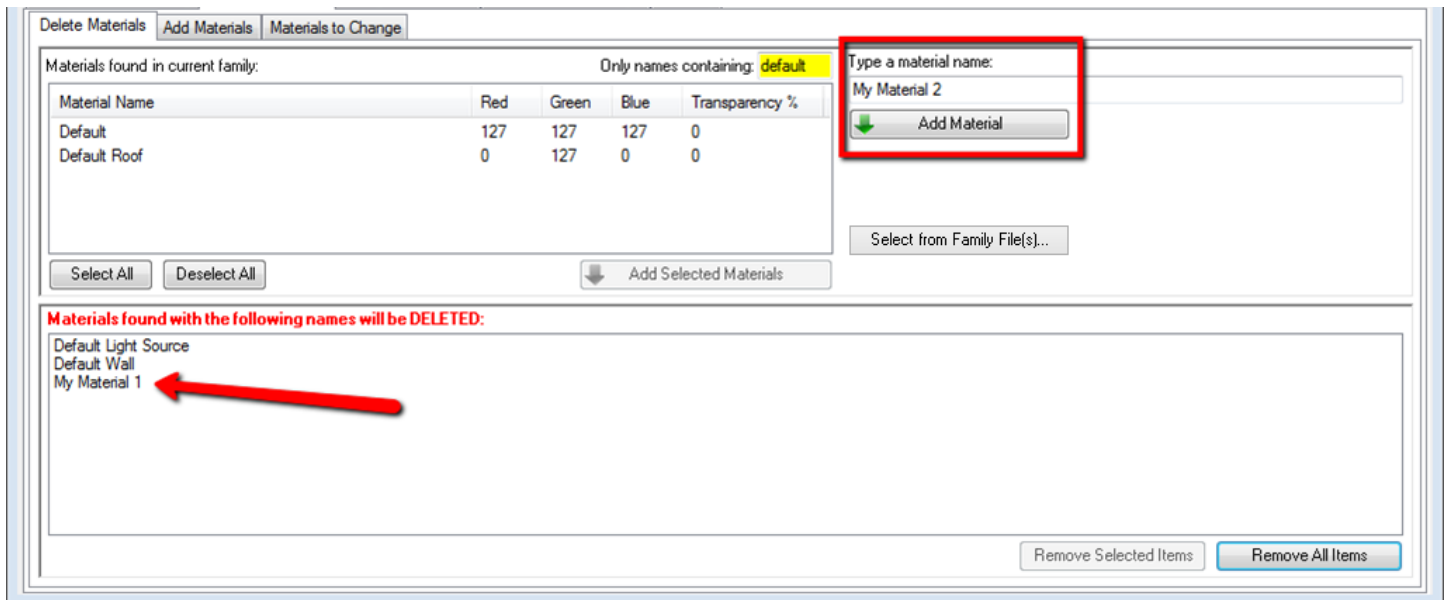
In the above example you can see that there are more materials after *Default Wall*. We can filter out all the other materials by putting the word “default” in the *Only names containing* field, which will turn yellow when information has been typed into it:



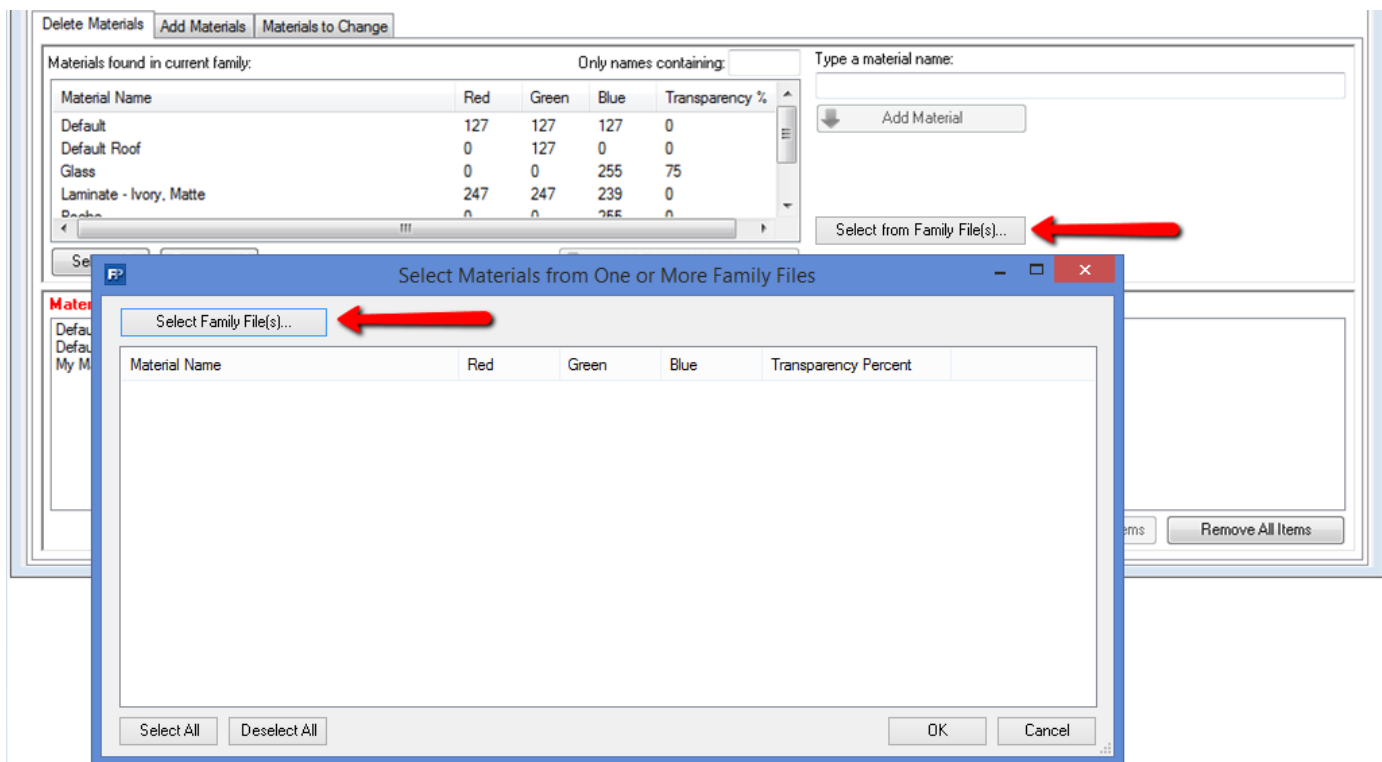
In this example we'll select *Default Light Source* and *Default Wall* and click the "Add Selected Materials" button:



We may also want to delete a material in multiple families to process that doesn't happen to exist in the current family. We can do this by specifying the name in the "Type a material name" field and clicking the "Add Material" button:



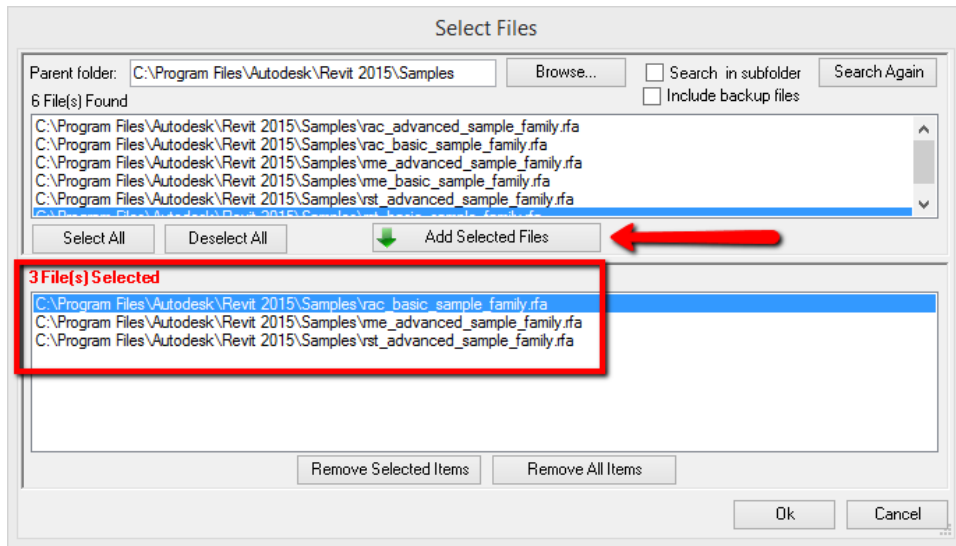
Further, we can use one or more family files other than the currently open one to get material definitions from as well. This can be useful in case you don't know all of the material names that exist in other family files to be processed:



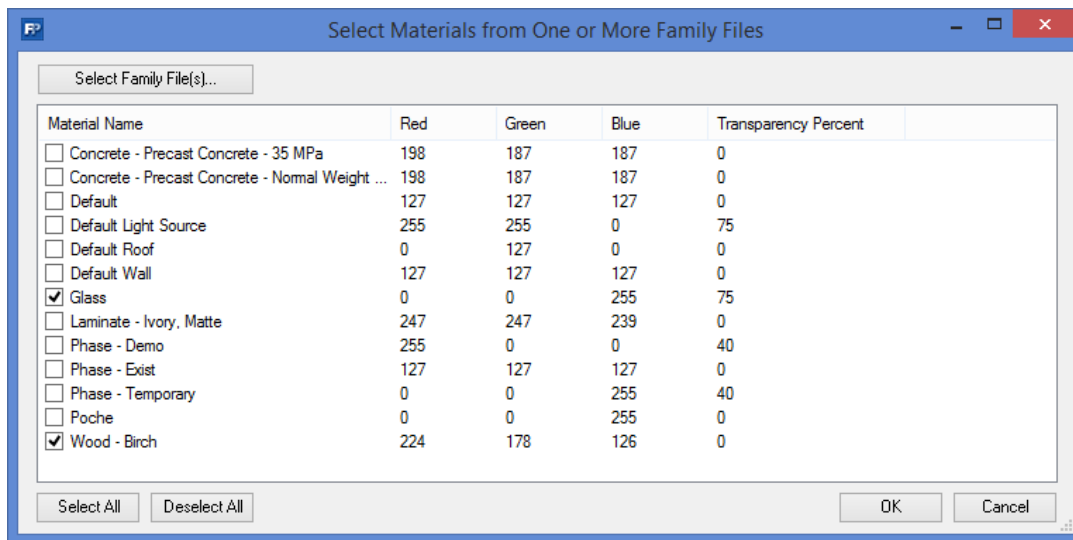
When the "Select Files" dialog appears (shown below), the "Browse..." button can be used to find a folder in which family files exist.

Once family files are found, they are displayed in the top list. One or many can be selected in the top list, and the "Add Selected Files" button can be clicked to copy the selected items to the lower list.

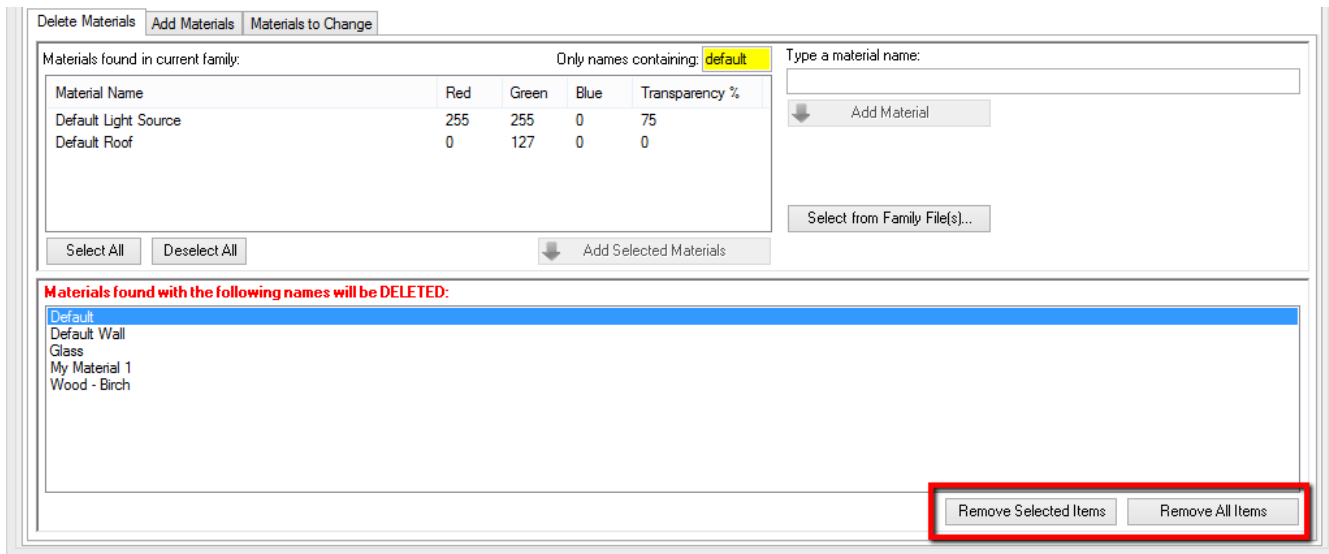
Note that files can be added from very different folders, as selected items from multiple searches can all be consolidated into one list using this dialog (search, add some, search elsewhere, add some, etc.).



Once the “OK” button is clicked, the family files in the lower list will be scanned and the list of unique materials found in all the families will be shown on the previous screen:



One or many of these can be selected. Clicking the “OK” button will return the selected items to the list in the lower section of the main Family Processor screen:



Items can be removed from the list in the bottom half of the screen by either double-clicking on them or by using the “Remove Selected Items” and “Remove All Items” buttons at the bottom of the screen (highlighted).

To use the “Remove Selected Items” button, you must first select the name(s) of the materials to remove from the list by clicking on them. You can use the Ctrl and Shift buttons while clicking to help select multiple items.

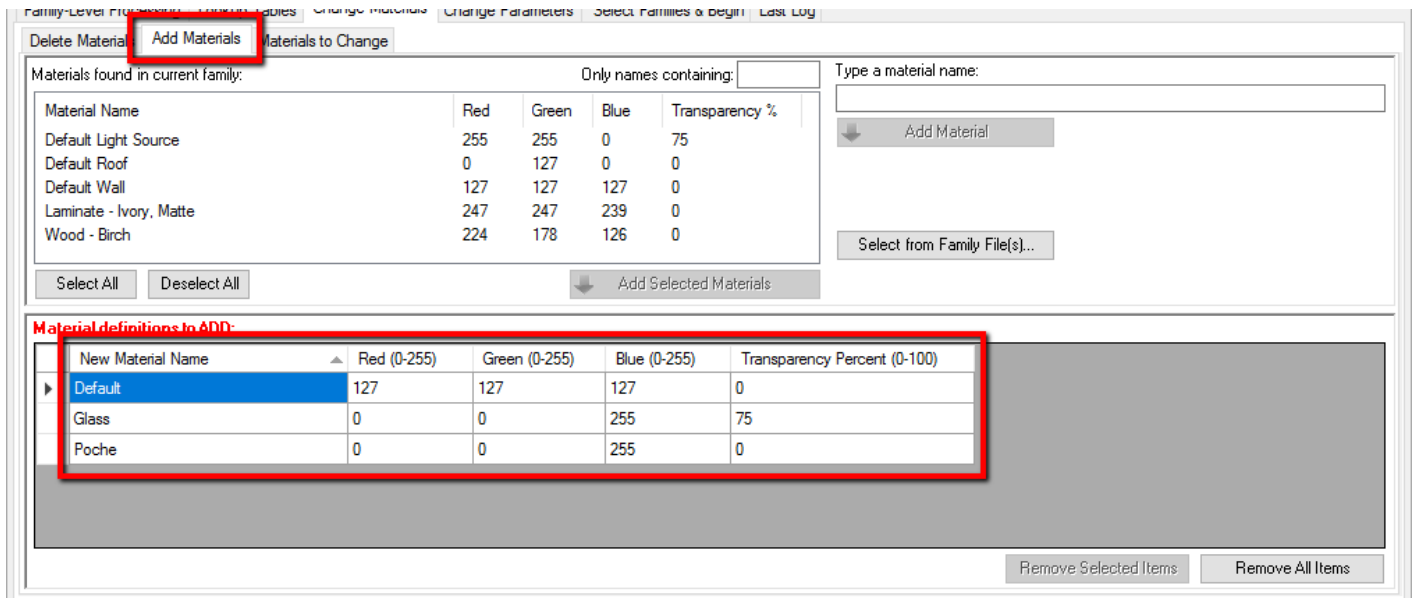
Add Materials Sub Tab

This tab allows you to define new materials to be added to a family. The following values can be specified:

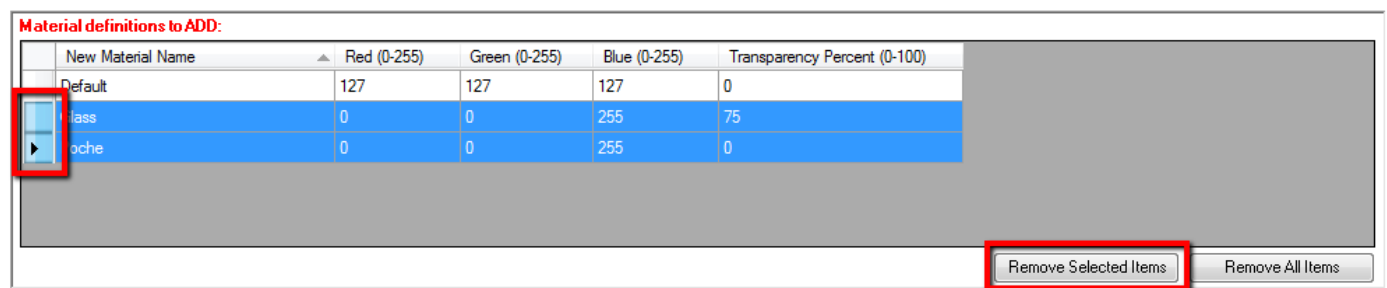
- Material Name
- Simple red value
- Simple green value
- Simple blue value
- Transparency percent value

If a material with the same name already exists on a family being processed it will not be modified with the values you specify for adding materials. If a material with the same name already exists, this addition definition will simply be ignored.

This tab works just like the *Delete Materials* tab, with the ability to set these additional values. For example:



To select items to be removed from the bottom list, you click on their row headers. You can use the Ctrl and Shift buttons while clicking to help select multiple items:



Materials to Change Sub Tab

This tab allows you to define new values for materials that already exist in families to be processed.

The following properties can be changed on materials to be edited:

- Material Name
- Simple red value
- Simple green value
- Simple blue value
- Transparency percent value

This tab works in the same way as the *Add Materials* tab. For example:

Delete Materials
Add Materials
Materials to Change

Materials found in current family:

Only names containing:

Type a material name:

Add Material

Select from Family File(s)...

Material Name	Red	Green	Blue	Transparency %
Default Light Source	255	255	0	75
Default Roof	0	127	0	0
Default Wall	127	127	127	0
Laminate - Ivory, Matte	247	247	239	0
...	...	...	...	...

Select All

Deselect All

Add Selected Materials

Material definitions to CHANGE:

Current Material Name	New Material Name	Red (0-255)	Green (0-255)	Blue (0-255)	Transparency Percent (0-100)
Default		192	192	192	0
Glass	Bulletproof Glass	0	0	240	50
My Company Material 1		0	0	0	0

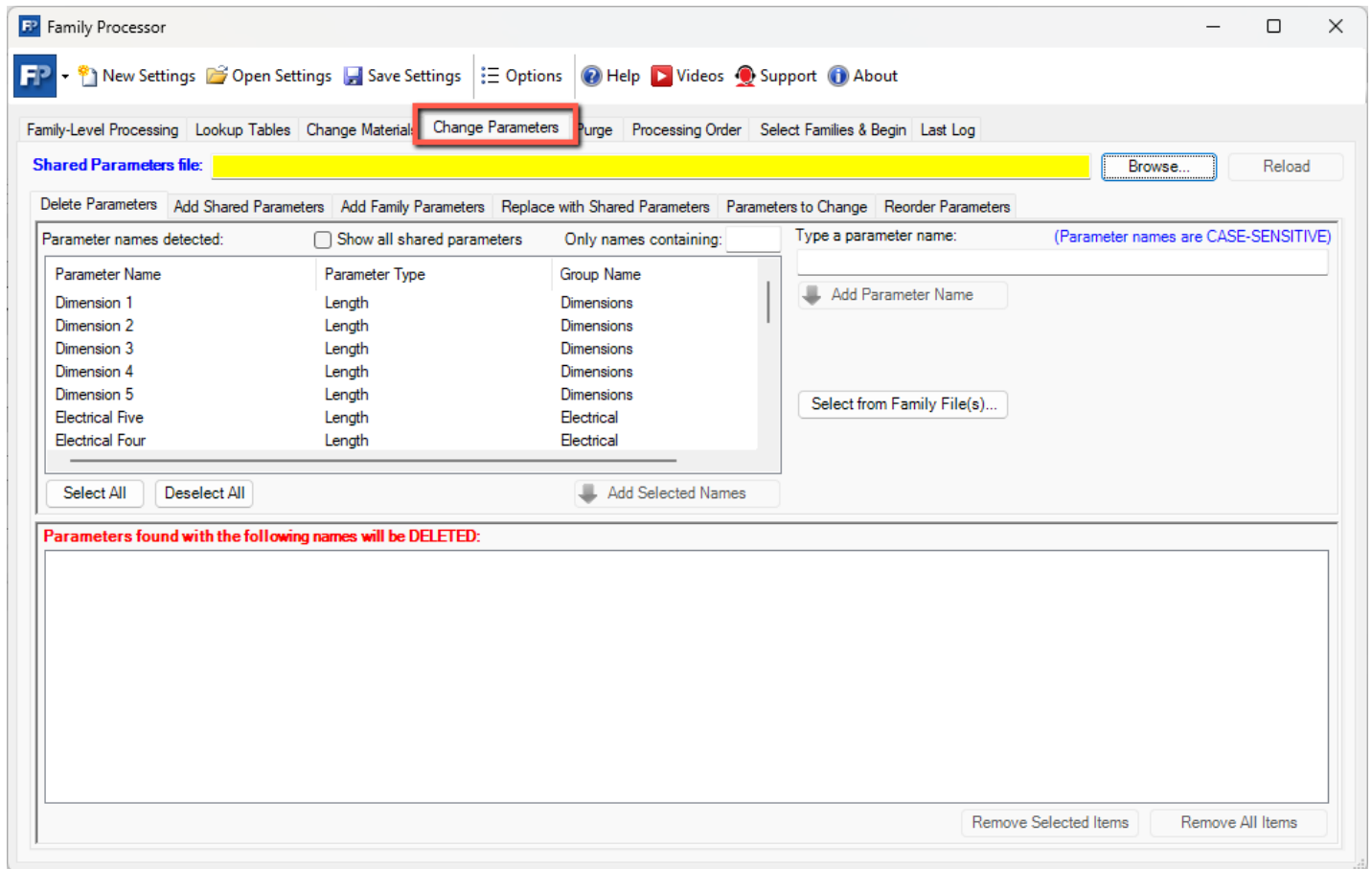
Remove Selected Items

Remove All Items

Here you can see that we changed the Default material to be a lighter gray, and we changed the name of “Glass” to be “Bulletproof Glass” and made it a lighter shade of blue with less transparency than regular glass.

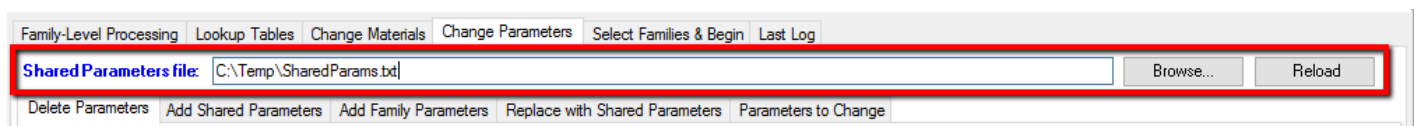
Change Parameters Tab

This tab contains tools for allowing you to change many aspects of the parameters to be found in the family files to be processed:



An important thing to note regarding changing parameters is **only ONE shared parameters file can be used when adding shared parameters or replacing parameters with shared parameters**. If you need to work with more than one shared parameters file, you'll have to process the families once for each shared parameters file.

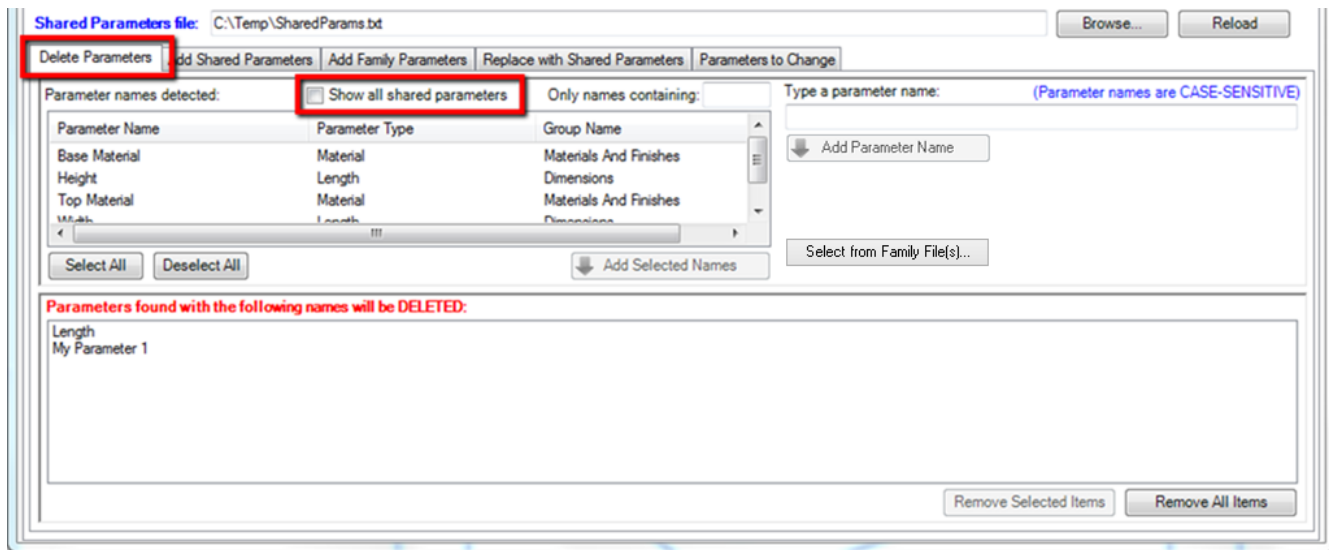
The shared parameters file to use is specified at the top of this tab. The first time you visit this tab, the empty area in which to specify the shared parameters file to use will blink yellow 3 times.



You only need to specify a shared parameters file if you will be adding shared parameters or replacing a parameter with a shared parameter.

Delete Parameters Sub Tab

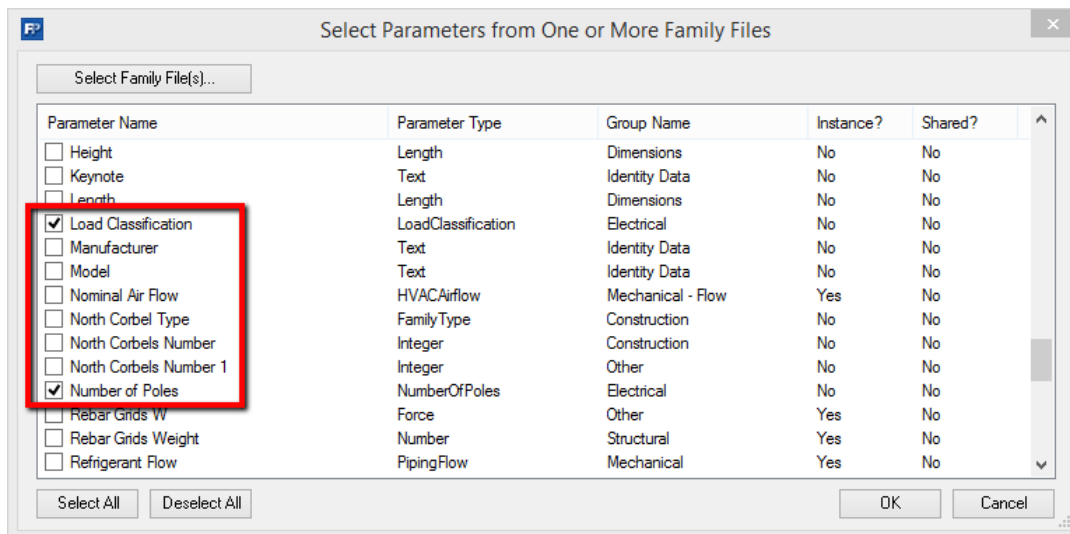
This tab allows you to define, by name, which parameters should be deleted from the families to be processed:



Remember that in Revit, parameter names are case-sensitive, so the correct use of upper- and lower-case letters matters.

This dialog works the same as the Delete Materials dialog, except for the additional “Show all shared parameters” checkbox. When unchecked it will show only those parameters that were found in the currently open family. When checked it will also include in the list all the parameters defined in the shared parameters file specified as well, if any.

Also as with the Delete Materials dialog, the “Select from Family File(s)...” button allows selecting parameter definitions from one or more family files other than the one currently open.



Add Shared Parameters Sub Tab

This tab allows you to add shared parameters to the families being processed:

Shared Parameters file: C:\Temp\SharedParams.bst Browse... Reload

Delete Parameter **Add Shared Parameters** Add Family Parameters Replace with Shared Parameters Parameters to Change

Parameters found in the current shared parameters file: Only names containing: **load**

Parameter Name	Parameter Type	Shared Parameters File Group Name
Return Fan Full Load Current	ElectricalCurrent	Electrical - Loads
Supply Fan Full Load Current	ElectricalCurrent	Electrical - Loads
Ultraviolet Lights 2 Apparent Load	ElectricalApparentPower	Electrical - Loads
Ultraviolet Lights Apparent Load	ElectricalApparentPower	Electrical - Loads

Select All Deselect All Add Selected Parameters

Selected parameters to add as SHARED parameters: Values should include unit symbols. Values and formulas will be applied to ALL TYPES in families

Parameter Name	Instance?	Parameter Type	Value	Formula	Add to Group
Rated Load Current	☐	ElectricalCurrent	20 A		Electrical - Loads
Return Fan Apparent Load	☐	ElectricalApparentPower	10 kW		Electrical - Loads
Supply Fan Apparent Load	☐	ElectricalApparentPower		20 kW	Electrical - Loads

All Instance All Type Invert Validate Unit Symbols Set Group for Selected Items Remove Selected Items Remove All Items

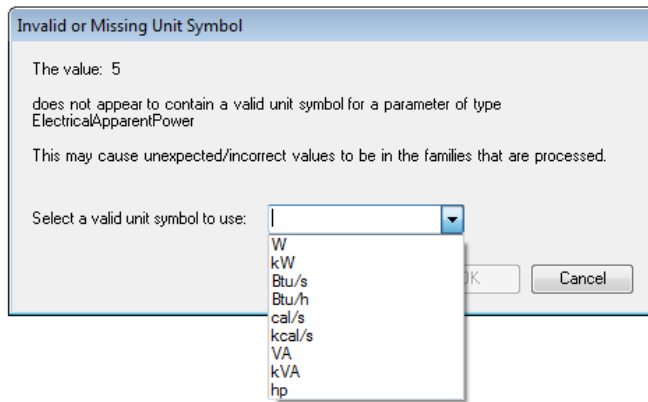
Not all groups are available in all flavors of Revit. Adding to an invalid group will result in the parameter being added to the "Other" group.

The definitions for the shared parameters can only come from the shared parameters file specified, so those are the only ones presented as choices. Family Processor uses the names of the parameters listed in this dialog and the name of the shared parameters file to tell Revit how to correctly add the shared parameters to the families being processed.

As with other parameter-oriented tabs, this tab has special features that are worth noting:

- The Parameter Types are shown to help you understand what kind of data is expected for each parameter
- The "Instance?" column in the bottom section allows you to control whether each parameter is an instance parameter or a type parameter
- The "Formula" column allows you to specify a formula for the parameter. This formula should be entered the same way you enter it into Revit.
- Just as in Revit, formulas may only reference other parameters that already exist in the family. So, for example, a formula used on the "Add Shared Parameters" tab can NOT reference a parameter on the "Add Family Parameters" tab, because the "Add Family Parameters" tab is processed later. For this case, specify the formula for the new shared parameter on the "Parameters to Change" tab, which is processed last.
- The "Add to Group" column allows you to specify which parameter group the new shared parameter should be placed in.
- Adding a parameter to an invalid group for the version of Revit being used will result in the parameter being added to the "Other" group.
- The "Value" column allows you to specify a default value for each parameter. If you leave that value blank, Revit will provide a default for you.
- If you specify a value for a parameter that has a units of measure associated with it, it is strongly recommended that you also provide the unit symbols for that value, as can be seen in the example above. You can type the value in just as you do in Revit

- The “Validate Unit Symbols” button can help provide you with a list of valid symbols typically associated with a particular parameter type. If, for example, we just type a value of “5” for Supply Fan Apparent load and then click the “Validate Unit Symbols” button, we’d see this:

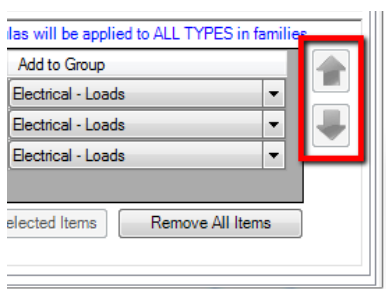


Selecting one of the choices and clicking the “OK” button will apply that unit symbol to the value in the grid.

- Family Processor will let you continue without specifying unit symbols, but the results in the final family files may be unpredictable.
- An option exists to allow Family Processor to automatically warn you if you enter a value that should have unit symbols, but doesn’t.
- Yes/No parameter values *or formulas* can be set to any of the following to mean Yes (case insensitive):
1 yes checked true
- Yes/No parameter values *or formulas* can be set to any of the following to mean No (case insensitive):
0 no unchecked false
- A material definition can be assigned to a Material parameter by setting the parameter’s value to the name of the material. Example value: Glass
- A Family Type parameter *value* (not formula) can be set using the name of the nested family and type to set it to. Use the exact text that you see for choices in the combo box list when changing the value manually.

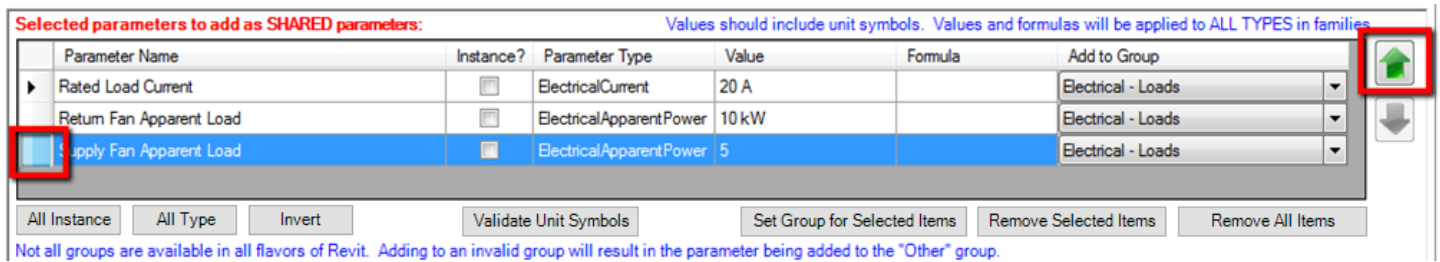
IMPORTANT: Because one new parameter to add may require a formula that references another new parameter to add, the order of the parameters being added can be very important. Just like when using the Revit user interface, **the parameter being used in the formula must be added first.**

You can control the order of the parameters to add by using the up and down arrow buttons to the right of the list of parameters to add:

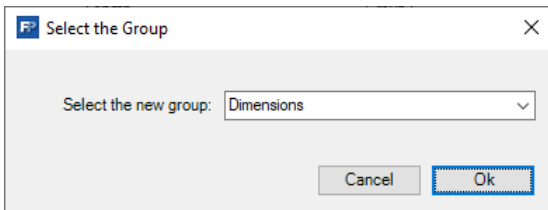


These buttons are enabled when you select one or more rows to move up and down the list by clicking on their row header buttons.

In the example above, we may want to have the *Supply Fan Apparent Load* parameter added before the others. To make that happen, we click on the row header for it, and then the up-arrow button twice:



When at least one parameter is selected, the “Set Group for Selected Items” and “Remove Selected Items” buttons will be enabled. Clicking on the “Set Group for Selected Items” button will prompt you to select a group to apply to all selected parameters. For example:



This allows you to change the group for many parameters in one step, without having to select it manually for each parameter, one at a time.

Clicking on the “Remove Selected Items” button will remove those selected parameters from the list.

Add Family Parameters Sub Tab

This tab allows you to add family parameters to the families being processed.

Shared Parameters file: C:\Temp\SharedParams.bdt Browse... Reload

Delete Parameters Add Shared Parameters **Add Family Parameters** Replace with Shared Parameters Parameters to Change

Family parameters found in current family: Only names containing:

Parameter Name	Parameter Type	Group Name
Base Material	Material	Materials And Finishes
Length	Length	Dimensions
Top Material	Material	Materials And Finishes
Width	Length	Dimensions

Select All Deselect All Add Selected Parameters

Type a parameter name: (Parameter names are CASE-SENSITIVE)
 My Parameter 3
 Parameter Type: PipeSize
Add Parameter

Select from Family File(s)...

Selected parameters to add as FAMILY parameters: Values should include unit symbols. Values and formulas will be applied to ALL TYPES in families

Parameter Name	Instance?	Parameter Type	Value	Formula	Add to Group
Height	☐	Length	457.00 mm		
My Parameter 1	☐	Length			Other
My Parameter 2	☐	PipeSize			Other

All Instance All Type Invert Validate Unit Symbols Set Group for Selected Items Remove Selected Items Remove All Items

Not all groups are available in all flavors of Revit. Adding to an invalid group will result in the parameter being added to the "Other" group.

It works exactly the same way as the “Add Shared Parameters” tab, except the list of source parameters are the parameters in the currently open family, plus you have the ability to add your own custom parameter definitions, or get definitions from one or more other family files.

Replace with Shared Parameters Sub Tab

This tab allows you to replace an existing family or shared parameter in the families being processed with a specific shared parameter from the selected shared parameters file.

Shared Parameters file: C:\Temp\SharedParams.bdt Browse... Reload

Delete Parameters Add Shared Parameters Add Family Parameters **Replace with Shared Parameters** Parameters to Change

Parameters in current family: ☐ Show all shared parameters Only names containing:

Parameter Name	Parameter Type	Group Name
Base Material	Material	Materials and Finishes
Height	Length	Dimensions
Length	Length	Dimensions
Top Material	Material	Materials and Finishes
Width	Length	Dimensions

Select All Deselect All Add Selected Names

Type a parameter name: (Parameter names are CASE-SENSITIVE)

 Parameter Type: <Select a Parameter Type>
Add Parameter

Select from Family File(s)...

Existing parameters found with Current Name to REPLACE:

Current Name	Parameter Type	Replace with SP Name

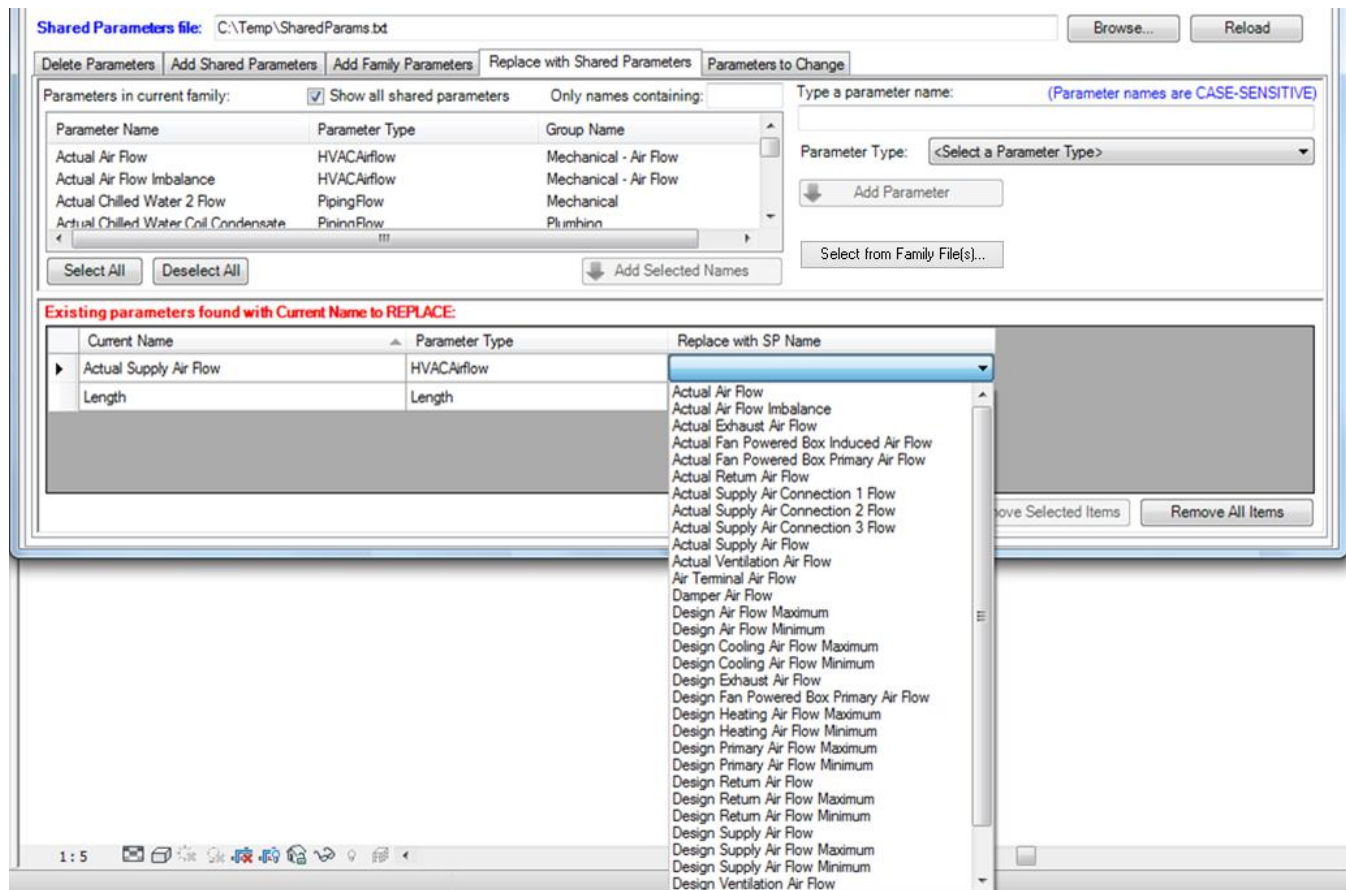
☐ Automatically replace all parameters found in the family with matching name and type found in the shared parameters file.
 Remove Selected Items Remove All Items

On this tab you define the parameter name and type to replace with a specific shared parameter. As with other tabs, the list in the top section is built from the parameters in the currently open family, plus you have the option to show or hide all the shared parameters from the currently selected shared parameters file as well.

Also as with other tabs, you have the ability to manually define your own parameter name and type to replace with a shared parameter, or get parameter definitions from another family file.

Once a parameter to replace is in the lower section, you assign a parameter from the currently selected shared parameters file to replace it with.

As can be seen in the next image, when you choose which shared parameter to use to replace the existing parameter, you only get to choose from those shared parameters defined as the same parameter type as the one to replace:



This ensures that you can only choose a replacement parameter that Revit will allow to work.

If a shared parameter exists with the exact same name and parameter type as the parameter to be replaced, it will automatically be selected by default from the list as soon as the parameter to be replaced is added to the list.

An option exists at the bottom of the list which can be used to automatically find all parameters in the family being processed whose name and parameter type matches the name and parameter type of parameters that exist in the shared parameters file and automatically replace them with those shared parameters:

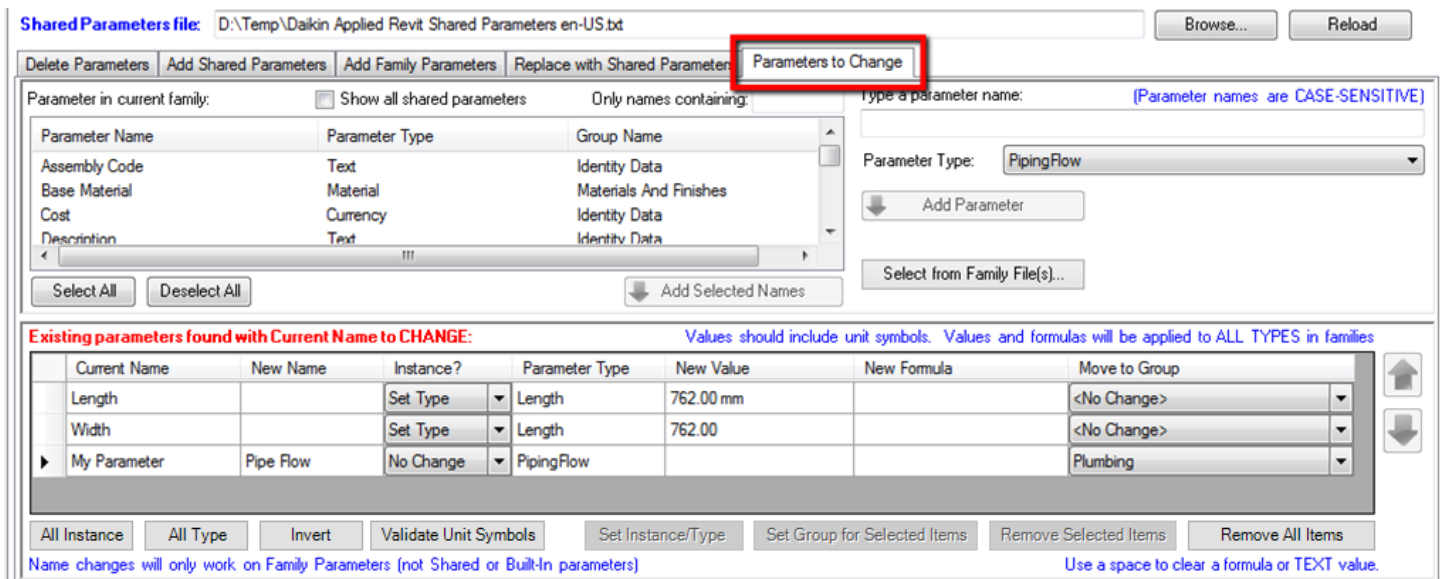


For example, if the family contains a Length parameter called Overall Length and the shared parameters file also contains a Length parameter called Overall Length, the one in the family will be automatically replaced by the one in the shared parameters file because they are both of the same parameter type and have exactly the same (case sensitive) name.

If the parameter in the family is either a family parameter or a *different* shared parameter than the one in the shared parameters file, it will be swapped out with the one from the shared parameters file. This would automatically occur for all parameters in the family with matching definitions in the shared parameters file.

Parameters to Change Sub Tab

This tab allows you to make changes to the properties of existing family and shared parameters.



As can be seen in the above image, you can change the name (for family parameters), whether or not the parameter is instance or type (or leave that setting alone), the value, the formula and the group in which the parameter should be listed.

If no characters have been typed in for a value or formula (the cell in the grid is empty), the current value or formula will NOT be changed.

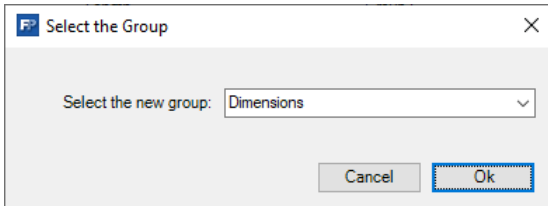
To clear out a parameter's formula or a TEXT parameter's value, **set the formula or value to one or more space characters**.

Just as in Revit, you may only change the value or formula for a built-in parameter. So you can't, for example, change the Model parameter to be an instance parameter.

When adding a FamilyType parameter (has a combo box allowing you to "swap out" one nested family for another) to the list of parameters to change while a family is open with that parameter in it, by default a number will appear in the

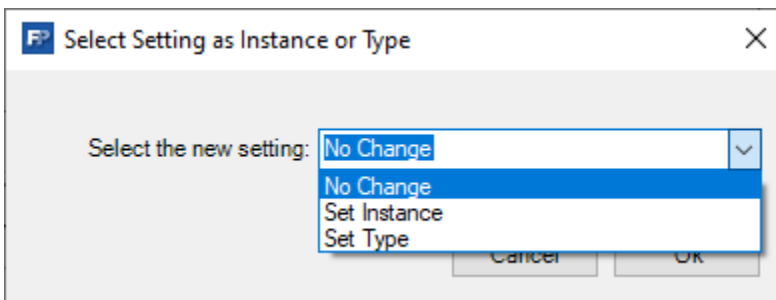
Value field representing the ID of the currently selected choice in this family. **You MUST change that value to be blank** (not even spaces, to leave its value alone) or to the name of the type to apply, exactly as it appears in the list of choices in the combo box list when changing the value manually in the family editor for the family being processed. This is because ID values are likely to vary between families. Also, as normally seen in Revit, you cannot set the formula for a FamilyType parameter.

When at least one parameter (row) is selected in the lower section, the “Set Instance/Type for Selected Items,” “Set Group for Selected Items” and “Remove Selected Items” buttons will also be enabled. Clicking on the “Set Group for Selected Items” button will prompt you to select a group to apply to all selected parameters. For example:



This allows you to change the group for many parameters in one step, without having to select it manually for each parameter, one at a time.

In similar fashion, the “Set Instance/Type for Selected Items” button allows you to set whether the selected parameters should be changed to be Instance or Type parameter, or set to “No Change” to ensure those parameters keep their current instance or type status:



Clicking on the “Remove Selected Items” button will remove those selected parameters from the list.

Handling Special Parameter Workflows

When adding parameters, the entire add will fail if a parameter with the same case-sensitive name already exists in the family. If a parameter already exists with the same name, it will remain untouched by the add process.

However, it may be desirable to “add the parameter with my value if the parameter doesn’t exist in the family, or set my value on the parameter if it already exists in the family.” Family Processor does NOT assume everyone wants to do this at all times: add means only to add, not to change existing. This ensures there is no confusion.

IMPORTANT: But this workflow can still be achieved by defining the parameter in the “Add” list, and defining it **AGAIN** in the “Parameters to Change” list.

The Add process will create it and set the value if it doesn’t exist. Whether or not it was just added, the Change process will set the value because the parameter will now exist.

Another workflow might be “I’m adding dozens of parameters by selecting them from a complex mechanical family, and the formulas for many parameters reference other parameters, but determining the order they need to be added in so all the formulas work during the add would be difficult, time-consuming or error-prone.”

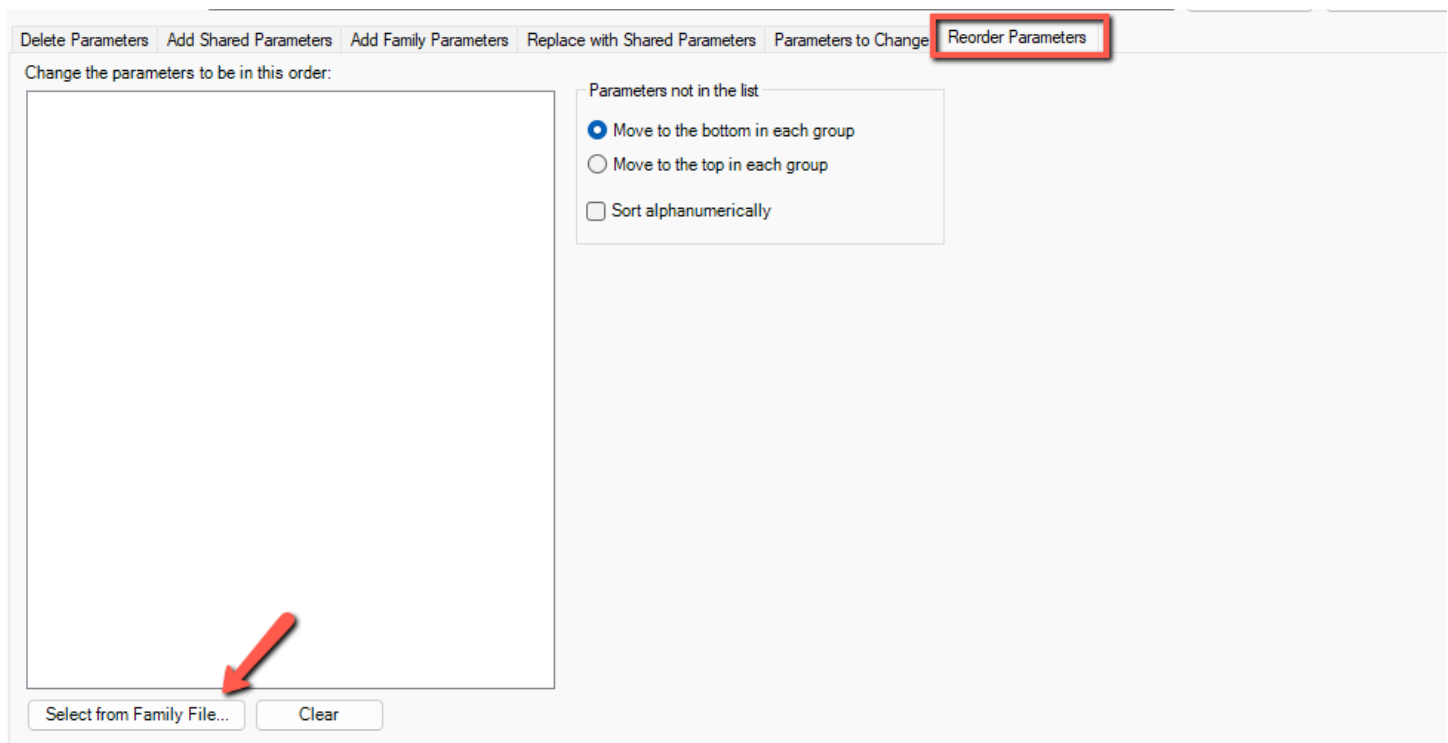
IMPORTANT: This workflow can also be achieved by selecting the parameters from another family in the “Add” list, in any order, and selecting them from the other family **AGAIN** in the “Change” list, again in any order.

In this case the parameters will be added to the family even if setting the formula during the Add fails because another parameter needed in the formula hasn’t been added yet.

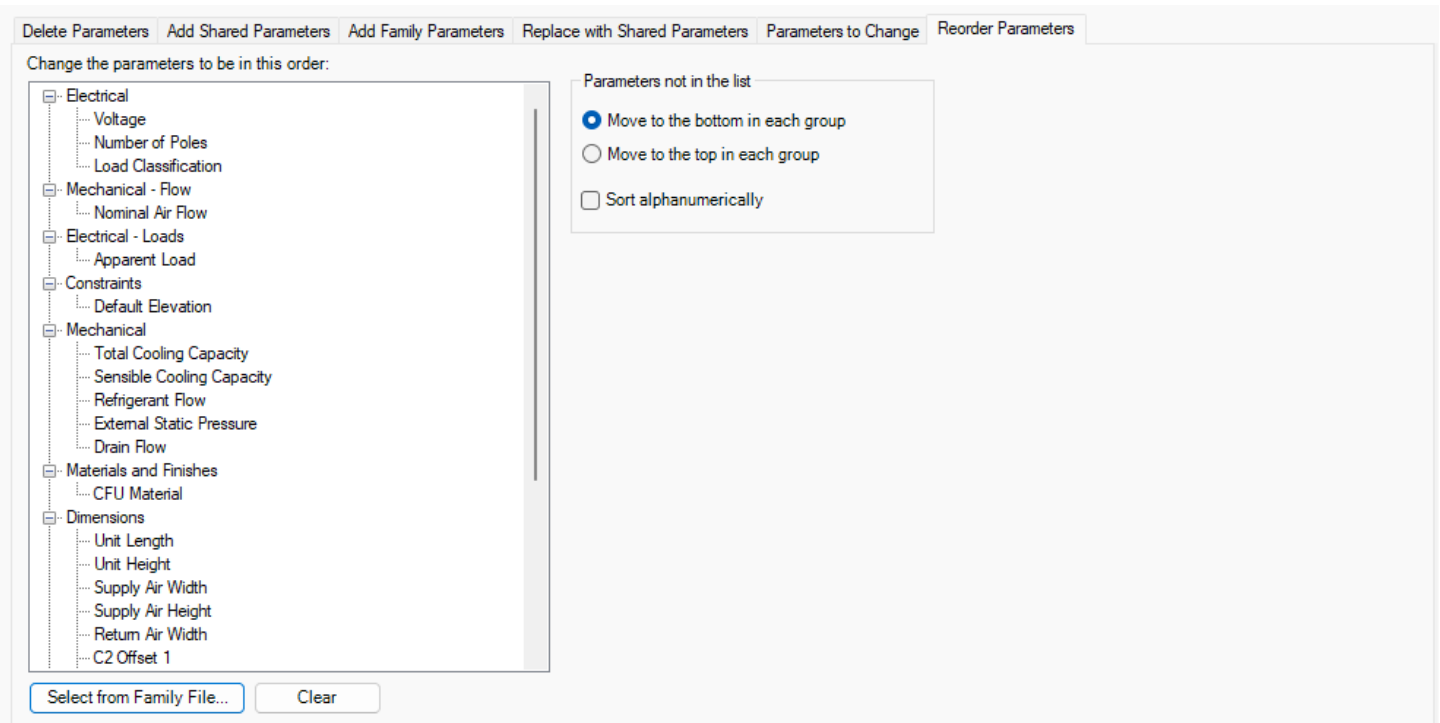
However, when the Change command is run again later, all the parameters WILL be on the family at that time, so setting the formulas again will always work.

Reorder Parameters Sub Tab

This tab allows you to make the order of the parameters in the family being processed match the order of the parameters from another family you select, as closely as possible.



Select the family file from which you want to get the order of the parameters to be. Once selected, you’ll see the order of the parameters that were in the family file you chose.

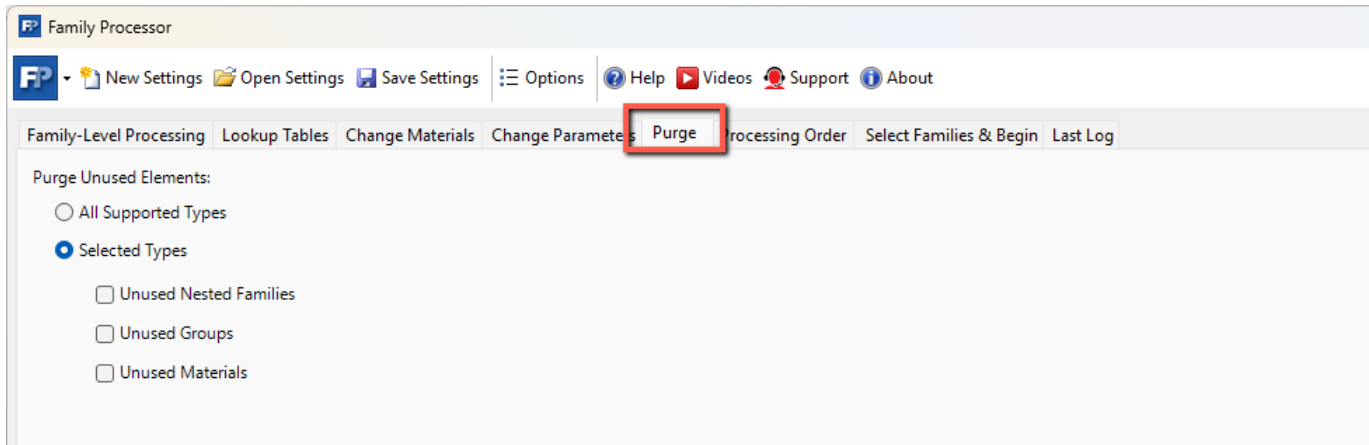


Parameters are ordered to match within each group. However, the family being processed may have more parameters in a group than the master family from which the list has been generated. This is handled by using the “Parameters not in the list” settings. Extra parameters can be placed either at the top or the bottom within each group. They will be in the same order as originally in the family being processed, or they can be sorted alphanumerically if desired.

IMPORTANT: The “Sort parameters by name within groups” option in the “Final Processing” section of the *Family-Level Processing* tab **will override any parameter ordering done by these settings** if it is turned on.

Purge Tab

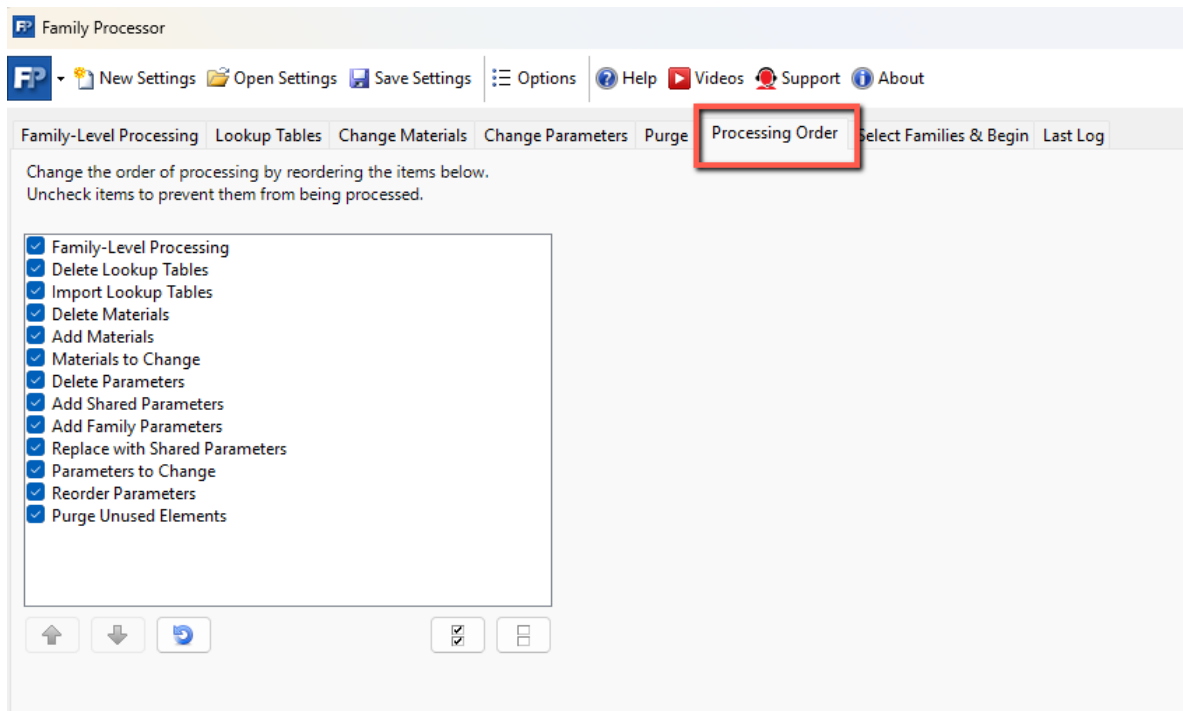
This tab allows you to purge unused items in the family being processed. This can be desirable to both simplify the family, and reduce its saved file size.



You can either select to purge all supported element types, or select only those element types for which you would like to have unused elements be removed from the family.

Processing Order Tab

This tab allows you to control the order in which the changes to be made to the family are applied:



By default, the order in which the changes are applied matches the order in which the settings are presented.

However, there are some workflows which cannot be done with the default order, or that could be done but which would require multiple runs of Family Processor with different settings on the same families.

One example is the desire to replace an existing parameter with a shared parameter if the original parameter is found, but if the original parameter is NOT found, to then add the shared parameter. This ensures the shared parameter exists on the family, but has replaced an existing parameter if it had been there originally.

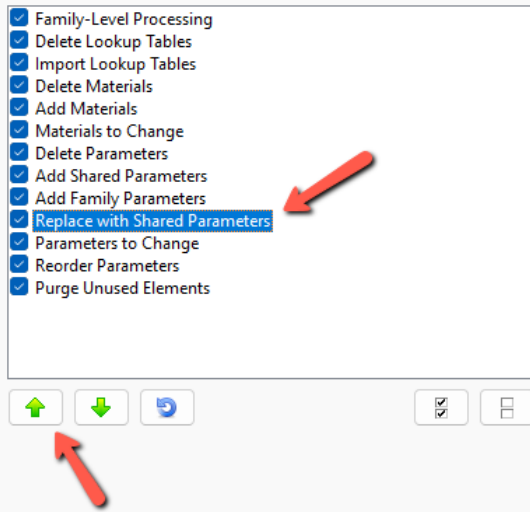
For example, “I want to replace parameter Volts with shared parameter Voltage, but if parameter Volts doesn’t exist, then add shared parameter Voltage”

Using the default processing order, shared parameter Voltage would get added even if parameter Volts exists, then the replace later would fail because shared parameter Voltage would already exist in the family, and you’d wind up with both parameters on the family.

So in this case you’d want the Replace with Shared Parameters to happen before the Add Shared Parameters.

To change the order of processing, select one or more items in the list and use the green “Move Up” and “Move Down” buttons. To make the example above work, these settings would be made:

Change the order of processing by reordering the items below.
Uncheck items to prevent them from being processed.

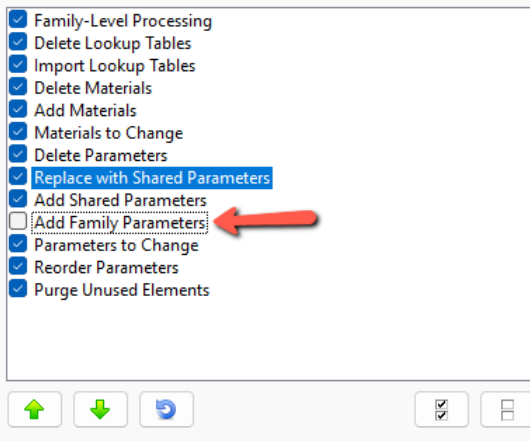


- ☒ Family-Level Processing
- ☒ Delete Lookup Tables
- ☒ Import Lookup Tables
- ☒ Delete Materials
- ☒ Add Materials
- ☒ Materials to Change
- ☒ Delete Parameters
- ☒ Add Shared Parameters
- ☒ Add Family Parameters
- ☒ Replace with Shared Parameters
- ☒ Parameters to Change
- ☒ Reorder Parameters
- ☒ Purge Unused Elements

Up Down Reset

You can also disable the settings during processing by unchecking an item. For example, if we want to keep the settings of the family parameters to add, but not apply them for the time being, simply uncheck that item:

Change the order of processing by reordering the items below.
Uncheck items to prevent them from being processed.



- ☒ Family-Level Processing
- ☒ Delete Lookup Tables
- ☒ Import Lookup Tables
- ☒ Delete Materials
- ☒ Add Materials
- ☒ Materials to Change
- ☒ Delete Parameters
- ☒ Replace with Shared Parameters
- ☒ Add Shared Parameters
- ☐ Add Family Parameters
- ☒ Parameters to Change
- ☒ Reorder Parameters
- ☒ Purge Unused Elements

Up Down Reset

IMPORTANT: The processing order is saved with the rest of the settings. If you disable an item by unchecking it and save the settings, the next time those settings are loaded that item will still be disabled.

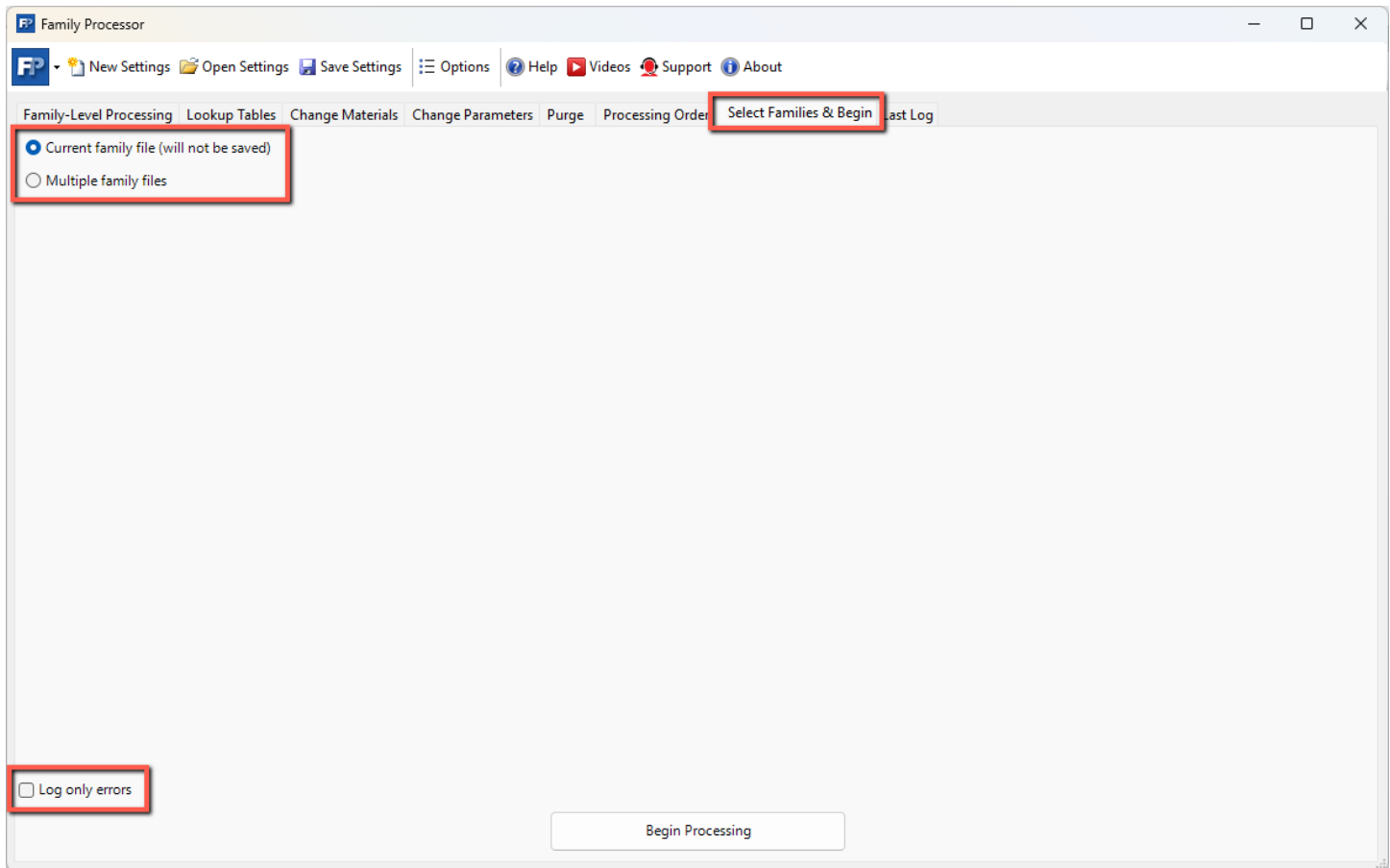
This button:



can always be used to reset the processing to the default order Family Processor uses.

Select Families & Begin Tab

This tab allows you to control which family or families are processed, and configure any special processing that should be done:



If selecting the current family file, as seen above, the currently open family will have the changes applied to it, but the family will not be saved automatically. You must do that yourself once you have approved of the changes made.

At the bottom of the screen is an option to log only errors. The Last Log tab (discussed next) shows the log of all the processing that was done during the last run of Family Processor. If this option is checked, it reduces the log to only errors that may have occurred, such as trying to add a family parameter when there was already a parameter on the family with that exact name.

If the option is turned on in the Options dialog, another checkbox may appear at the bottom of this screen that allows exporting the parameter information for all types to an XML file.

When multiple families are to be processed, the screen looks like this:

☐ Current family file (will not be saved)
☒ Multiple family files

Parent folder: ☒ Search in subfolder

Family files found:
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_advanced_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_basic_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_advanced_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_basic_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_advanced_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_basic_sample_family.rfa

Selected files to process:
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_advanced_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_basic_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_advanced_sample_family.rfa
 C:\Program Files\Autodesk\Revit 2017\Samples\rac_basic_sample_family.rfa
 D:\Temp\FP\Door-Swing-ICS-Single.rfa

☐ Preview only: Does NOT save any families to disc (useful for testing your settings)

Add prefix: Add suffix: ☐ Re-save even if no changes needed (useful for upgrades or compacting families)

☒ Save to alternate parent folder:

☐ Override the preview image using the view with this name (select or type the case-sensitive view name):

☐ Create new shared parameters file from all unique shared parameters found in families:

☒ Create type catalog files

☐ Delete the types in the families ☒ Include instance params ☐ Sort params alphabetically ☒ Sort types alphabetically ☐ Save as *.csv files

Exclude params with names including (separate with | characters, * wildcards are supported):

☐ Log only errors

The upper portion of this screen is used to select which families to process. The lower portion of this screen contains some options.

One of these options is the “Preview only” option. With this option selected, each family to process is opened and the changes attempted on them, but the families are not saved once the processing on them is complete. The Last Log tab will show both the successful changes that were able to be made to the families processed, as well as the changes that were not able to be made.

The “Add prefix” and “Add suffix” options let you change the names of the saved families to have them start with, or end with, text that you choose.

The “Save to alternate parent folder” allows you to save the changed versions to a completely different folder structure, while maintaining the same set of subfolders as in the original parent folder.

NOTE: Saving to an alternate parent folder always saves family files, even if no changes were detected.

In the example above, when the first family in the list is processed, the updated version would be saved to:
D:\Temp\Processed\Samples\rac_advanced_sample_family.rfa

This is because the “Parent folder” specified at the top is “C:\Program Files\Autodesk\Revit 2017” but the family being processed is in the *further* subfolder “Samples” – so that set of subfolders is appended to the alternate parent folder selected, which was “D:\Temp\Processed”

There are more options available as well:

☐ Preview only: Does NOT save any families to disc (useful for testing your settings)

Add prefix: Add suffix: ☐ Re-save even if no changes needed (useful for upgrades or compacting families)

☐ Save to alternate parent folder:

☐ Override the preview image using the view with this name (select or type the case-sensitive view name):

☐ Create new shared parameters file from all unique shared parameters found in families:

☒ Create type catalog files

☒ Delete the types in the families ☒ Include instance params ☐ Sort params alphabetically ☒ Sort types alphabetically ☐ Save as *.csv files

Exclude params with names including (separate with | characters, * wildcards are supported):

The “Override the preview image using the view with this name (select or type the case-sensitive view name)” allows you to specify a view to use to create a new preview image. If this option is unselected (the default) the preview image will be regenerated from the last view used to make it, retaining the same preview image as was originally in the file.

If this option is selected, and a view with the specified name can be found in the family, the preview image will be recreated using the specified view. The list of choices for views to use comes from the currently open family, however you may type in any view name you wish. Just remember that view names are case-sensitive.

The “Create new shared parameters file from all unique shared parameters found in families” option, if checked, will create a new shared parameters file that will consist of all the unique shared parameters found in all the families that are processed.

There are some limitations:

- The shared parameters file to create must not exist. You will not be able to proceed until the name of a new file to create has been specified.
- Some information, such as the descriptive tool-tip text for parameters, cannot be determined from the families and as such will not be included in the resulting shared parameters file
- The shared parameters file WILL NOT be generated if the resulting file would have included bad data, such as multiple parameters with identical case-sensitive names but different GUIDs. In a case like that, the log will include the reason why the file could not be generated.

If, in the Options, the option for “When creating a shared parameters file, show the detail log” is enabled, a separate window will appear after the processing is complete which shows which parameter was added from which family file, and which parameters were skipped because they are duplicates of ones already added to the shared parameters file. For example:

Shared Parameters Found Log			
Copy to Clipboard Save		Reset	
Shared Parameter Name	Shared Parameter GUID	Added?	Source Family
Overall Length	1d650a63-8dc5-41ec-883f-138e10513593	Yes	C:\Temp\Bug\Family1.rfa
Total Surface Area	a7667a23-2866-445e-86f5-7b533b60b94c	Yes	C:\Temp\Bug\Family1.rfa
Overall Width	55facb25-0921-4cd4-87f1-bdd55e51a1a1	Yes	C:\Temp\Bug\Family2.rfa
Total Surface Area	a7667a23-2866-445e-86f5-7b533b60b94c	No (Duplicate)	C:\Temp\Bug\Family2.rfa
Overall Height	dc28b7c-10e1-47f9-a5ae-3bcaa896282a	Yes	C:\Temp\Bug\Family3.rfa
Total Surface Area	a7667a23-2866-445e-86f5-7b533b60b94c	No (Duplicate)	C:\Temp\Bug\Family3.rfa

The “Create Type catalog files” option, if checked, will create type catalog files next to the family files being saved.

NOTE: The type catalog files will NOT include built-in parameters, such as Manufacturer, Cost, etc. These are most commonly seen in the Identity Data group.

If type catalog files exist, the new ones being generated will overwrite the old ones.

IMPORTANT: If you choose to “Delete the types in the families” be aware that once the types are removed from the families, they are gone and cannot be used to regenerate type catalogs again in the future. For example, if you generate type catalogs and delete the types from the families, then later add a parameter to the families and want to regenerate the type catalogs, the old type catalogs will get overwritten with new ones that have no types in them.

If you leave the types in the families users can still benefit from this by only loading the desired types into the project using the type selector dialog, thus keeping the project smaller and lighter and simpler to use than if all the types in the family were loaded, which is what happens when not using type catalogs.

IMPORTANT: If you choose to “Delete the types in the families” be sure to test this process on some families with this option turned OFF to ensure the type catalog files generated include all the data necessary. Once the types in the families have been deleted, the only way to get missing data back is to revert to using backup copies of the families from before the types were deleted.

If the option to sort the parameters is selected, the parameters in the type catalog files generated will be sorted alphabetically. If it is not selected, the parameters will appear in the order returned by Revit. In 2015 or later, this is the order seen within each group on the Family Types dialog in Revit, however the order the grouped parameters appear in the type catalog file is determined by Revit. For example, the Identity Data group may be shown last in the Revit user interface, but the parameters from that group may be listed somewhere in the middle.

If the option to sort the types alphabetically is selected, the types listed in the type catalog will be sorted alphabetically, but this is a TEXT sorting. So if, for example, you have types that start with numbers, they may not appear sorted in numerical order. For example, you might see something like this:

1
10
2
3
35
4

(Parameter sorting works the same way.)

If the option to sort the types alphabetically is NOT selected, the types will be listed in whatever order Revit provides.

The option to save the type catalog files to *.csv files (instead of the default *.txt files) may be useful if you want to edit the type catalog files manually in spreadsheet software before finally saving them to *.txt files for production use with Revit. For example, you may want to delete some parameters (columns) from the type catalog file before the final renaming to *.txt files, and the easiest way to do that is likely in spreadsheet software.

The option to exclude parameters by name using wildcards can remove parameters from the type catalog that are not desired.

For example, you may have a naming convention for parameters which are used to control how geometry flexes. Perhaps those parameters have names that start with CTRL. For example:

CTRL_AutoHeight
CTRL_ArrayCount

You may also want to exclude formula-driven calculated parameters whose names have “calculated” in them.

To filter both of these sets of parameters out of the type catalog, you’d type:

CTRL*|*calculated*

Note that there should be no spaces around the pipe (|) separator character.

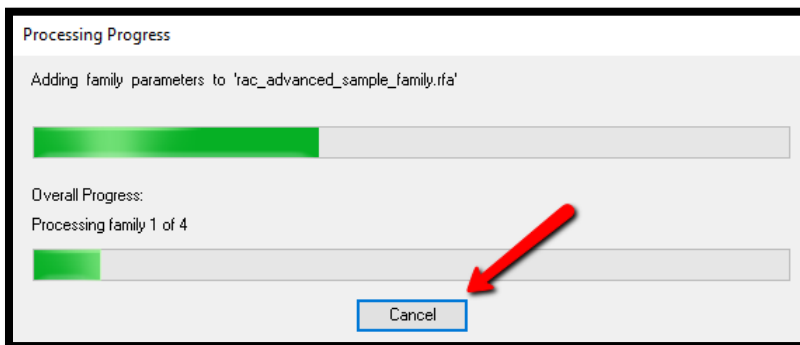
IMPORTANT: Parameter names are case-sensitive, and as such these searches are case-sensitive as well. So searching for parameters that start with

CTRL*

is different than searching for parameters that start with

Ctrl*

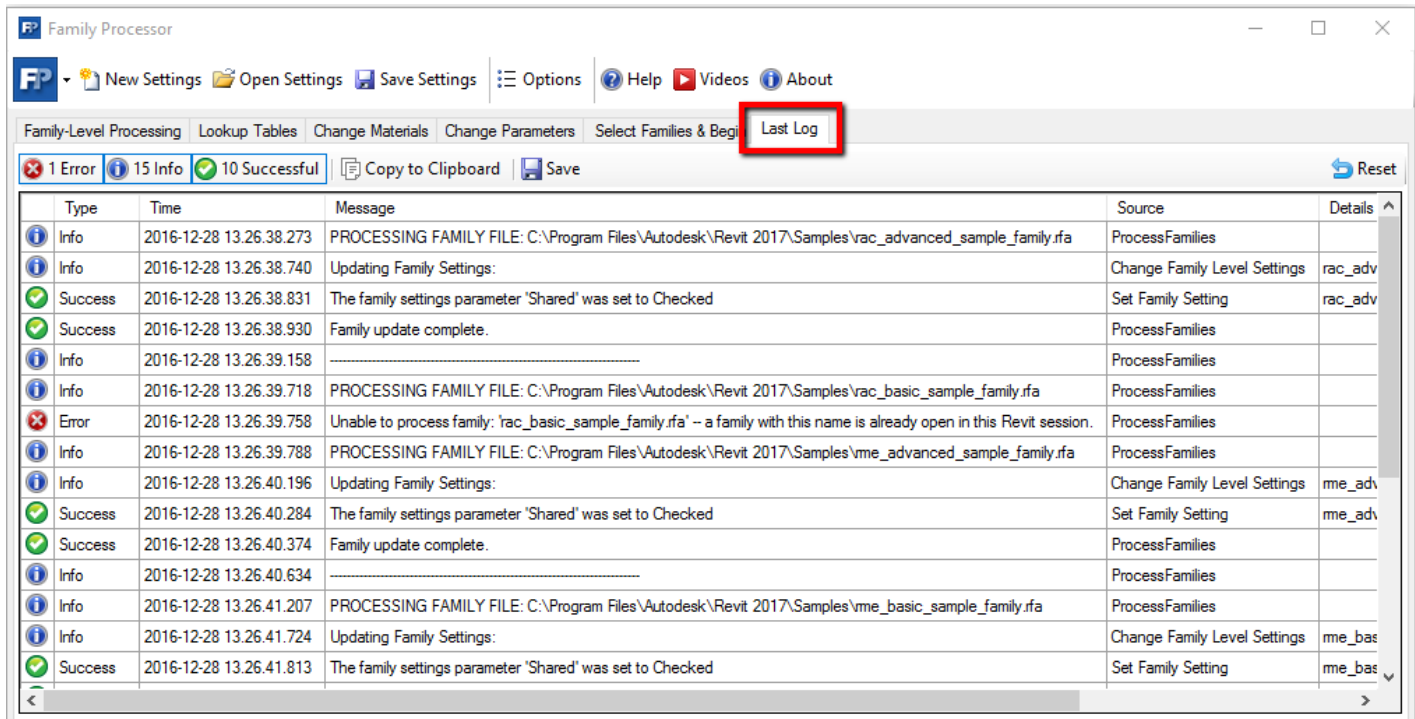
Once you click the “Begin Processing” button, the families will be opened and processed. A progress dialog that looks like this will be displayed:



If the “Cancel” button is clicked, you will be asked if you want to stop processing the families. If processing is stopped, any families processed up to this point WILL have been saved with the settings applied.

Last Log Tab

This tab is automatically displayed once processing has completed. It shows a log of all the actions that were attempted, and the success or failure of each action:



Buttons along the top allow you to turn on and off the different types of messages. For example, clicking the “Info” button will not show any Info rows in the log. Only Error, Warning and Successful messages would remain in the list.

NOTE: If the “Log only errors” option is checked then only errors (and a few info messages such as separators) will appear in the log.

The log can also be saved to one of several formats, including a spreadsheet format, comma-delimited text file, a tab-delimited text file and as an XML file.

Logs for each run can be automatically saved as comma-delimited text (CSV) files to a specified folder. This can be controlled by the Options settings.

Family Processor Best Practices

Because of the complexity of the settings that can be applied and because they can be applied to many families, it is recommended that you take great care when using Family Processor:

- **Carefully configure your settings.** By default Family Processor "remembers" your last settings between runs, so if starting a new set of operations, use the "New Settings" button first. The option to remember settings between runs can be turned off in the Options dialog.
- Test the settings by running the changes on the current family, or on multiple family files, *but in "Preview Only" mode*, then review the resulting log. Neither of these modes will save changes to any of the family files.
- Test on a *copy* of one family to process, then open the processed family in Revit and check it to ensure it was processed correctly.
- In order to keep the final family files as small as possible, Family Processor "rebuilds" the family files, **which results in no automatic backup files being created**. As such, if not saving the processed families with the "_ (Edited)" suffix, and if not saving the processed families to an alternate parent folder, make sure you have other copies of the original family files before processing begins, in case the processing results in any undesirable changes and you need to go back to the original versions for reprocessing after changing the settings accordingly.
- The currently open family will be used as a source for default values, such as for material definitions, and existing parameters and the settings/values/formulas on them. So starting with a family open that already has the settings to be applied to other families can save time and improve consistency across your content.

Import & Link Manager

Overview

Import & Link Manager provides a more complete picture of the imports and links in a Revit model. Imported CAD objects are notoriously difficult to find and remove, and this tool makes working with imports and links much easier.

Starting Import & Link Manager

On the Revit ribbon, click on the “Import & Link Mgr” button.



Once the button is clicked, Import & Link Manager will open.

The Main Dialog

The main dialog lists all of the imported or linked CAD or Revit files in the active project. For each file, the following information is displayed (some columns have been turned off in Options):

The screenshot shows the 'Import and Link Manager' dialog box. It has a title bar with the 'IM' icon and window controls. Below the title bar is a ribbon with tabs: 'All', 'All Links', 'All Imports', 'Revit Links', and 'CAD Links'. The 'All' tab is selected. Below the tabs is a toolbar with buttons: 'Pin', 'Unpin', 'Change Workset', 'Reference Type', 'Reload', 'Swap/Reload From File...', 'Swap/Reload From Folder...', 'Find/Replace...', and 'Remove'. The main area is a table with the following columns: Name, Insertion Method, Workset, Referencing Sheet, Sheet Number, Type, Pinned, Linked File Location, and Status. The table contains several rows of data, including 'Wall Base.dwg', 'Structural Base...', 'Building Sectio...', 'Exterior Elevati...', 'Section1.dwg', 'Section2.dwg', and 'Sections.dwg'. Each row shows the file name, its insertion method (Link), the workset (View "Drafting Vie..."), the referencing sheet (<None>), the sheet number (<None>), the type (CADLink (.DWG)), the pinned status (checked box), the linked file location (P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...), and the status (Loaded).

Name	Insertion Method	Workset	Referencing Sheet	Sheet Number	Type	Pinned	Linked File Location	Status
Wall Base.dwg	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Structural Base...	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Structural Base...	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Building Sectio...	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Exterior Elevati...	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Section1.dwg	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Section2.dwg	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded
Sections.dwg	Link	View "Drafting Vie...	<None>	<None>	CADLink (.DWG)	☒	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets...	Loaded

Name – The value of the “Name” parameter under Identity Data for the import or link

Element ID – The Revit element ID of the import or link

Insertion Method – Displays *Import* or *Link*

Workset – Displays the import or link’s assigned Workset

Host View – Displays either the view hosting the import/link or “(All Views)”

Referencing Sheet – For some link types, the name of the sheet where it is placed.

Sheet Number – Number of the referencing sheet.

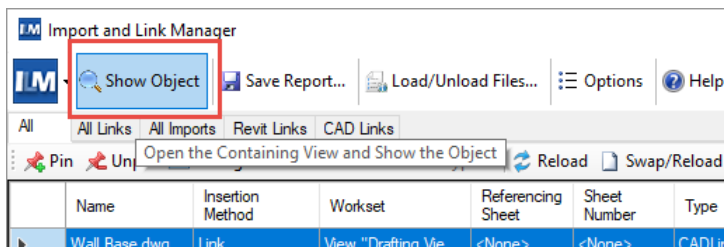
Type – The file extension of the imported or linked file

Pinned – Displays the *Pinned* status, a checked box indicates the element is pinned

Linked File Location – For linked files only, this field displays the path to the linked file

Status – For linked files only, If the linked file can be found at the path a “Loaded” status will be displayed, if the file can’t be found an “Invalid” status will be displayed.

The “*Show Object*” button can be used find a CAD object within the Revit model. To use this tool, first select the desired CAD object from the list and then click “*Show Object*”

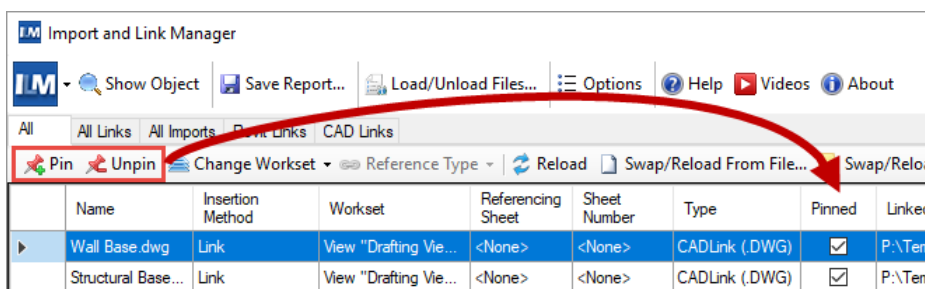


If an opened view that shows the selected CAD object cannot be found, the following message will be displayed:

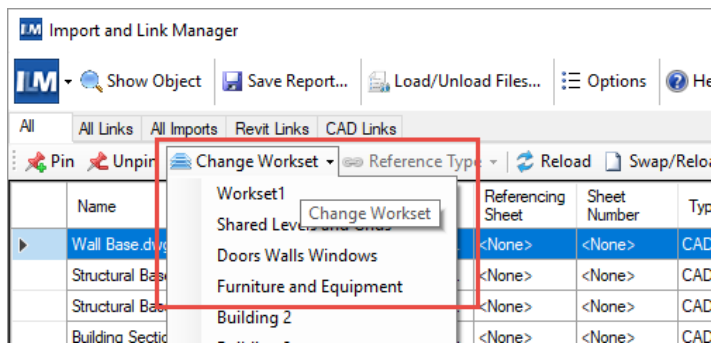


Once a view has been found for the selected CAD object, that view will be made the current view and the view will be zoomed in to the CAD object’s extents.

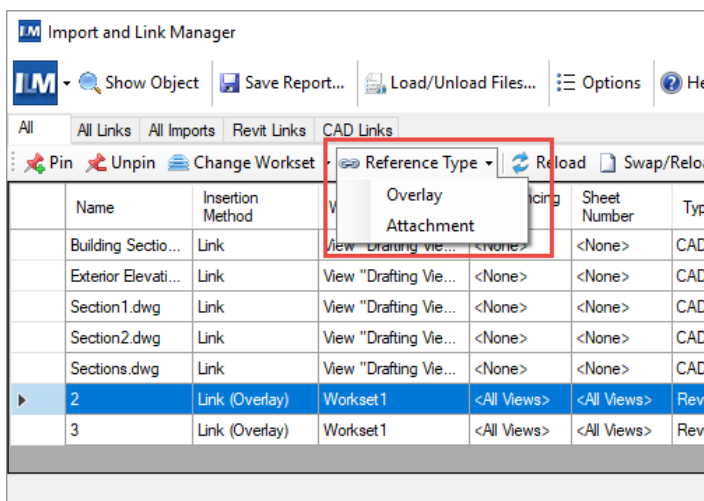
The “Pin” and “Unpin” tools can be used to toggle the *Pinned* status of each imported or linked CAD object. To use this tool, first select the desired CAD object(s) from the list and then click either “Pin” or “Unpin.”



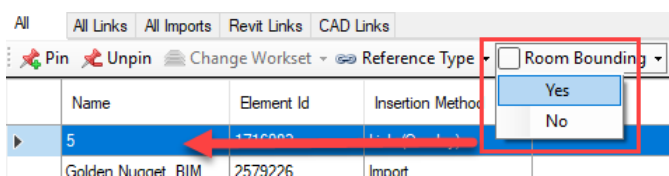
The “Change Workset” button will only be available in a project that has Worksharing enabled. To assign an import or link to a Workset, first select it from the list, then click the “Change Workset” button and select the desired Workset from the dropdown list.



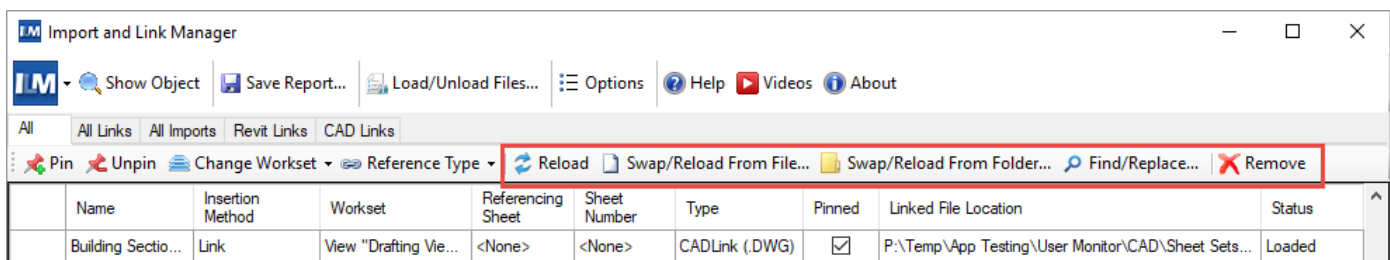
The “Reference Type” button allows the setting of .RVT links to either “Attachment” or “Overlay”.



If a Revit link is selected, the room bounding option can be set or unset.



The “Reload” and “Swap/Reload From...” buttons can be used to swap or reload an import or link with an updated or alternate file. To use this tool, first select the import or link from the list and then click “Swap/Reload From...”

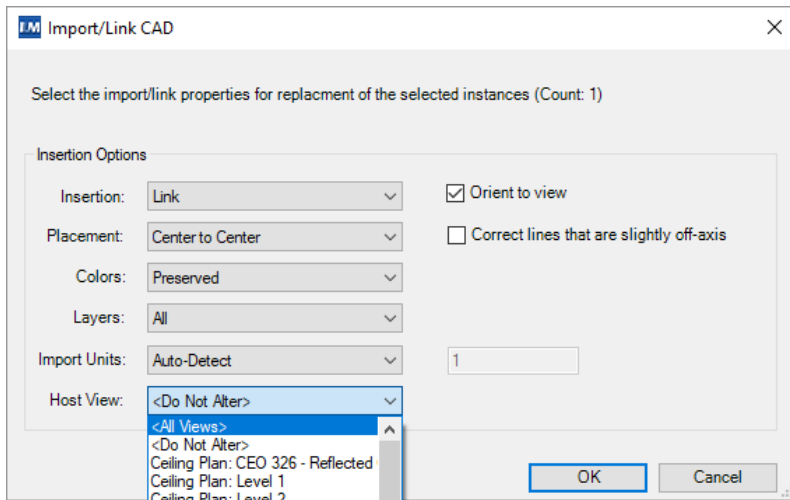


A dialog will open with the previous path to the file and options to handle the new import or link. Once the options are configured, click “OK” to apply the changes.

“Swap/Reload From Folder...” allows the selection of a source folder from which to load multiple files.

“Find/Replace...” can be used to modify portions of paths to quickly change multiple links at one time. See the topic [“Find and Replace Paths”](#) in this section.

When ILM is used to re-load a linked file, the existing link/import is removed and replaced with the updated file. Keep in mind that changes in geometry may cause the locations to shift when using center placement options. In most cases, placement according to origin (file origin - Revit origin) will produce the most consistent results.

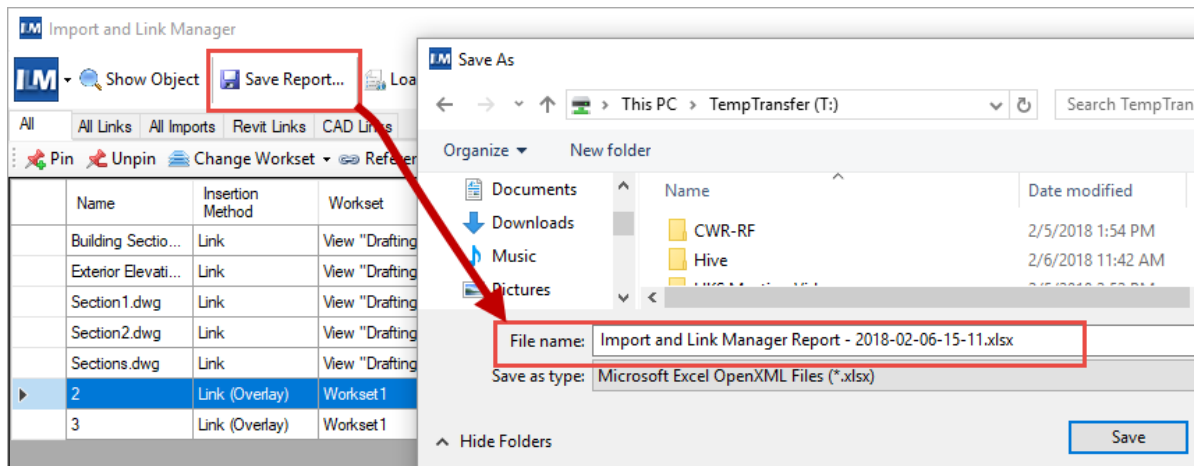


Choose “Do Not Alter” or a specific view in the list to limit the placement of the link. Choose “All Views” to make the link visible in all applicable views of the model.

The “Remove” button can be used to delete an import or link from the project. To use this tool, first select the import(s) or link(s) to remove and then click the “Remove” button.

Save Report

The “Save Report” tool is used to export the list of links as a spreadsheet. The report can be saved in either Microsoft Excel OpenXML or Microsoft Excel version 8 (xlsx or xls) types.

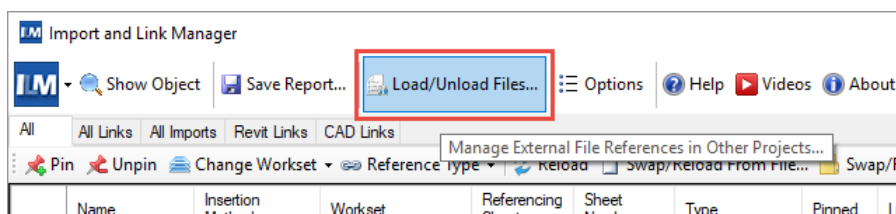


Load/Unload Files

The “Load/Unload Files...” tool can be used to load or unload links in a Revit project. This tool can only be used on documents that are not open in any Revit session.

IMPORTANT: Due to limitations when performing changes to Revit files without opening them, using this function on a workshare enabled central file is not supported. It will set the state of the project such that it will require recentralization.

Ensure the project to load or unload links from is closed, open a different project in Revit (or create a new project) and launch Import & Link Manager. Click the “Load/Unload Files...” button.



Browse to the Revit model file, select it in the browser window and choose “Open”.

The list of Links contained in the selected project file will be displayed. The “Previous File Path” and “Previous State” columns indicate link locations and the status of each link as it was when the file was last saved.

File Path	Path Type	Status
RevitKeynotes_Imperial_2004.txt	Content	Loaded
UniformatClassifications.txt	Content	Loaded
P:\Temp\App Testing\Project Activity Logger\Projects\20170919_R2...	Relative	Loaded
S17_RET Demo Building.rvt	Relative	Unloaded
P:\Temp\App Testing\User Monitor\CAD\Sheet Sets\Architectural\R...	Relative	Loaded
P:\Temp\App Testing\User Monitor\CAD\Sheet Sets\Architectural\R...	Relative	Loaded

The “Load”, “Load From...” and “Unload” buttons can be used to modify the links. Changes made to the links will be displayed in the “Desired File Path” and “Desired Status” columns.

Path Type	Status	Desired File Path	Desired Path Type	Desired Status
Content	Loaded	RevitKeynotes_Imperial_2004.txt	Content	Loaded
Content	Loaded	UniformatClassifications.txt	Content	Loaded
Relative	Loaded	P:\Temp\App Testing\Project Activity Logger\Projects\20170919_R2...	Relative	Loaded
Relative	Unloaded	S17_RET Demo Building.rvt	Relative	Unloaded
Relative	Loaded	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets\Architectural\R...	Relative	Loaded
Relative	Loaded	P:\Temp\App Testing\User Monitor\CAD\Sheet Sets\Architectural\R...	Relative	Loaded

Once all desired changes have been made, click the “Apply” button. Changes to the Revit project will be applied the next time the project is opened.

Find and Replace Paths

ILM can be used to correct portions of the paths to references on multiple links at one time. In the Load/Unload Files window, click on ‘Find/Replace’.

File Path	Path Type	Status	Desired File Path	Desired Path Type	Desired Status
RevitKeynotes_Imperial_2004.txt	Content	Loaded	RevitKeynotes_Imperial_2004.txt	Content	Loaded
UniformatClassifications.txt	Content	Loaded	UniformatClassifications.txt	Content	Loaded
P:\Temp\App Testing\Project Activity Logger\Projects\20170919_R2...	Relative	Loaded	P:\Temp\App Testing\Project Activity Logger\Projects\20170919_R2...	Relative	Loaded

In the “Find what:” text box, enter the part of the file path to search for.

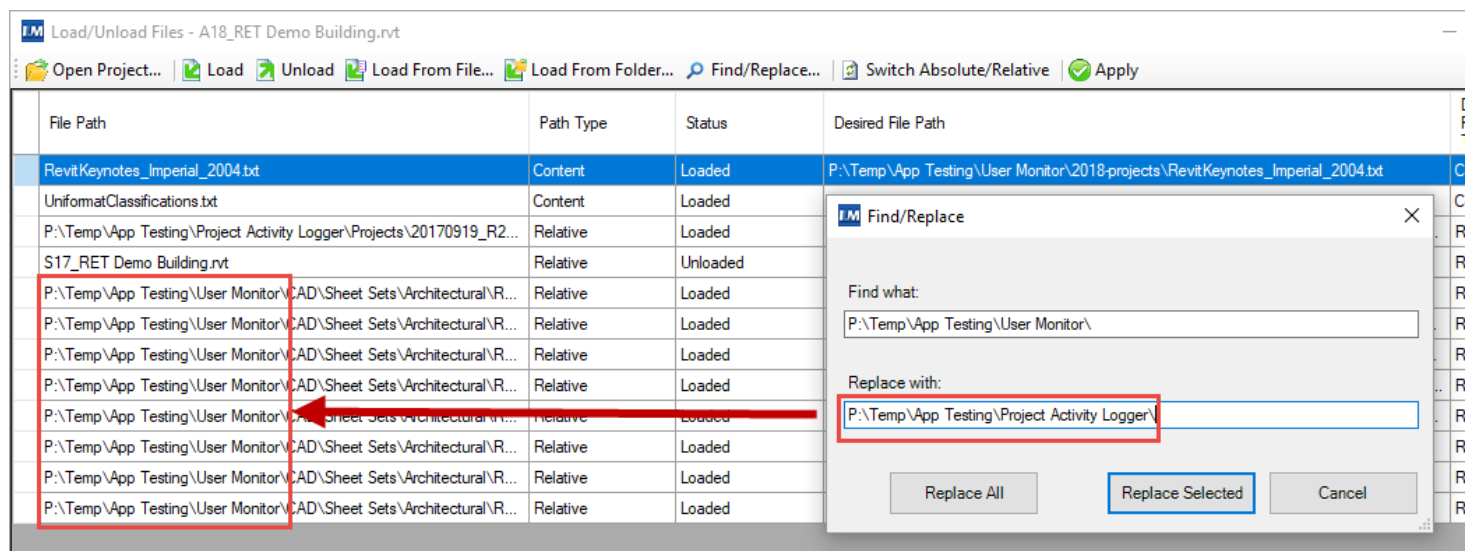
Find/Replace

Find what:
P:\Temp\App Testing\User Monitor\

Replace with:
P:\Temp\App Testing\Project Activity Logger\

Replace All Replace Selected Cancel

Type the part of the new path to use in the “Replace with:” text box.



The File Paths will be updated and saved to the Revit model.

The next time the project is opened, Revit may present a message that the model has been “transmitted” (due to the externally modified paths).

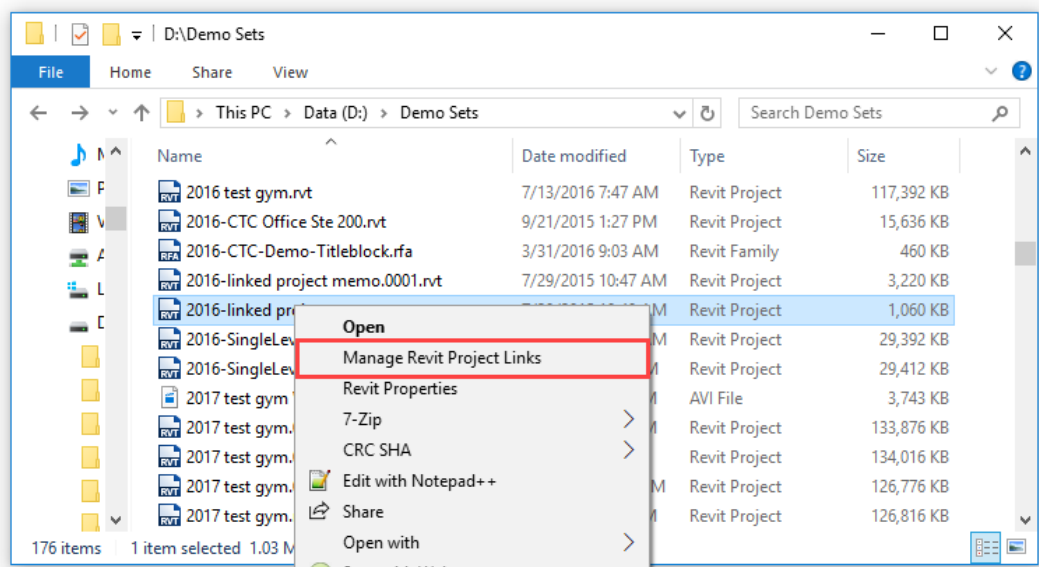
Manage Revit Project Links

Introduction

Manage Revit Project Links is installed as a shortcut in the Windows Explorer context menu. It can be used to modify link paths within Revit files without first opening the files in Revit. It is a quick way to change references within .rvt files in cases where the paths no longer match the locations of the files they previously pointed to.

Starting Manage Revit Project Links

To run it, open Windows Explorer and browse to the folder containing the .rvt file(s) whose links need to be updated. Right click on the file (.rvt) to invoke the context menu.



Revit does not need to be open to use this tool.

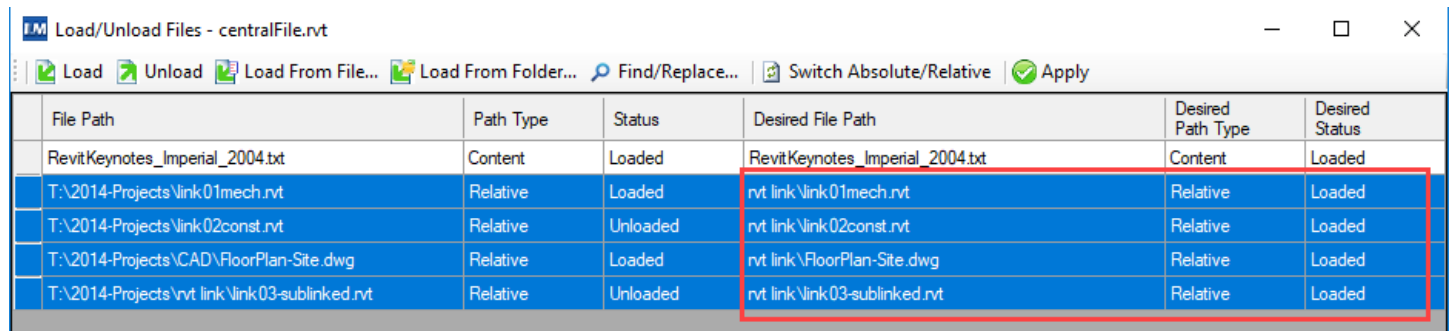
The main interface will present a list of links found in the file.

Load/Unload Files - centralFile.rvt					
Load Unload Load From File... Load From Folder... Find/Replace... Switch Absolute/Relative Apply					
File Path	Path Type	Status	Desired File Path	Desired Path Type	Desired Status
RevitKeynotes_Imperial_2004.txt	Content	Loaded	RevitKeynotes_Imperial_2004.txt	Content	Loaded
T:\2014-Projects\link01mech.rvt	Relative	Loaded	T:\2014-Projects\link01mech.rvt	Relative	Loaded
T:\2014-Projects\link02const.rvt	Relative	Unloaded	T:\2014-Projects\link02const.rvt	Relative	Unloaded
T:\2014-Projects\CAD\FloorPlan-Site.dwg	Relative	Loaded	T:\2014-Projects\CAD\FloorPlan-Site.dwg	Relative	Loaded
T:\2014-Projects\rvt link\link03-sublinked.rvt	Relative	Unloaded	T:\2014-Projects\rvt link\link03-sublinked.rvt	Relative	Unloaded

Modifying Link Properties in Revit Files

Using this interface, link path types, load statuses and file paths can be changed by selecting a row or rows and clicking the desired action on the toolbar.

The result of the actions chosen are shown in the last three columns.



File Path	Path Type	Status	Desired File Path	Desired Path Type	Desired Status
RevitKeynotes_Imperial_2004.txt	Content	Loaded	RevitKeynotes_Imperial_2004.txt	Content	Loaded
T:\2014-Projects\link01mech.rvt	Relative	Loaded	rvt link\link01mech.rvt	Relative	Loaded
T:\2014-Projects\link02const.rvt	Relative	Unloaded	rvt link\link02const.rvt	Relative	Loaded
T:\2014-Projects\CAD\FloorPlan-Site.dwg	Relative	Loaded	rvt link\FloorPlan-Site.dwg	Relative	Loaded
T:\2014-Projects\rvt link\link03-sublinked.rvt	Relative	Unloaded	rvt link\link03-sublinked.rvt	Relative	Loaded

If the changes to be made appear as expected, click Apply to make them permanent. This will modify the file selected. Be sure that it is not being used by any other program.

For more detailed information about link management and to learn about the more robust [Import and Link Manager tool](#), refer to that section in this guide.

Schedule Parameter Resolver

Introduction

Schedule Parameter Resolver aids in properly mapping shared parameters to schedule parameters. As can often happen while working on projects with other offices or disciplines or because of standards unconformity, parameters in a schedule don't properly display the expected data. Sometimes there's a conflict in name, data type or shared parameters. This tool makes it easy to sync schedule columns with the right parameter data.

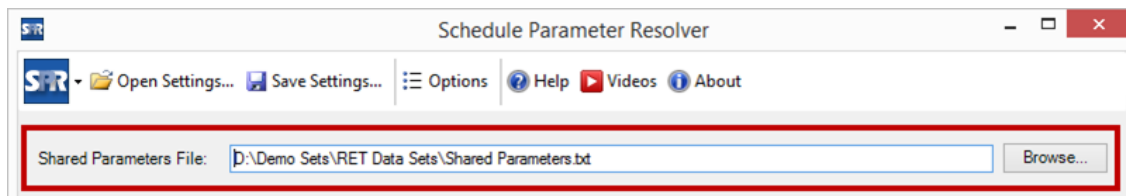
Starting Schedule Parameter Resolver

On the Revit ribbon, click on the "SPR" button.



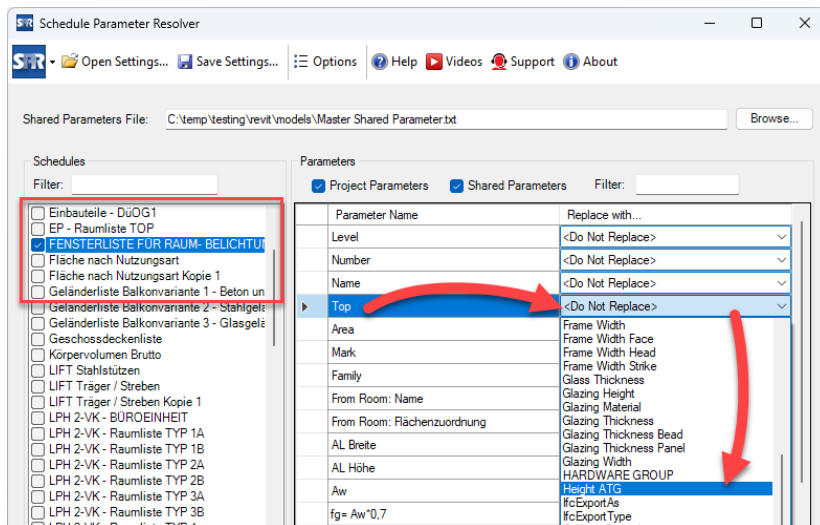
Choosing a Shared Parameter File

Begin by specifying the path to the shared parameter file which contains the parameters to map to the columns in the schedule(s). Simply click the Browse button to locate the desired .txt file (must be a Revit shared parameters file).

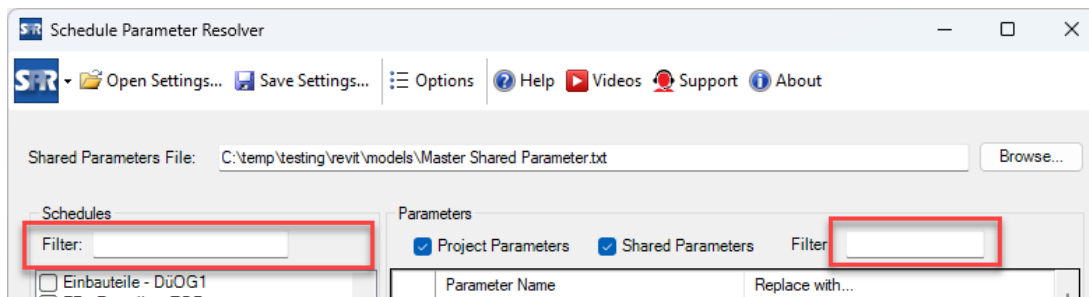


Resolving Schedule Parameters

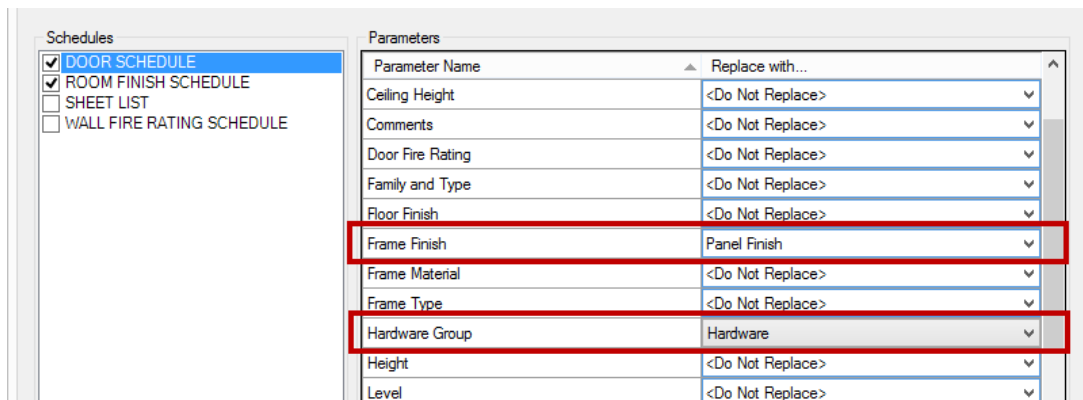
Choose the schedules that need to have their parameters synchronized with the selected shared parameters. The parameters in the schedules will be listed in the 'Parameters' list in the 'Parameter Name' column. The action to perform and available parameters in the shared parameters file will be available in the drop downs in 'Replace with...' column.



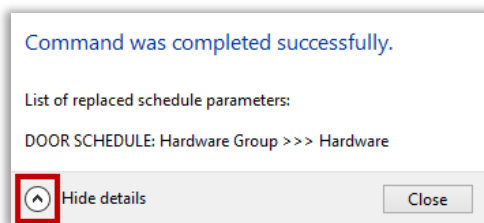
Use the filter text inputs to reduce the schedules or parameters in the list by name:



Assign all of the relevant mappings by selecting the appropriate shared parameter. Any parameters left unchanged (<Do Not Replace>) will remain unaltered.



When finished, click OK to apply the mapping or Close to exit without saving changes. Click the expand button to see the details of the operation.



Options

Shared Parameters

Add as instance: create as instance parameters if they don't exist

Add as type parameter: create as type parameters if they don't exist

Do not add to project: if the selected parameters don't exist, don't add them

Replaced Field Headers

Always use original field header: don't change the header ever

Always change the header ... : selecting this may cause unexpected changes in width if the names aren't similar

Change only if the header matches the parameter in the existing field: default

Header Groups

Only add new fields with standalone headers: no header group will be created with the new field

Extend existing groups to the replacement fields: default

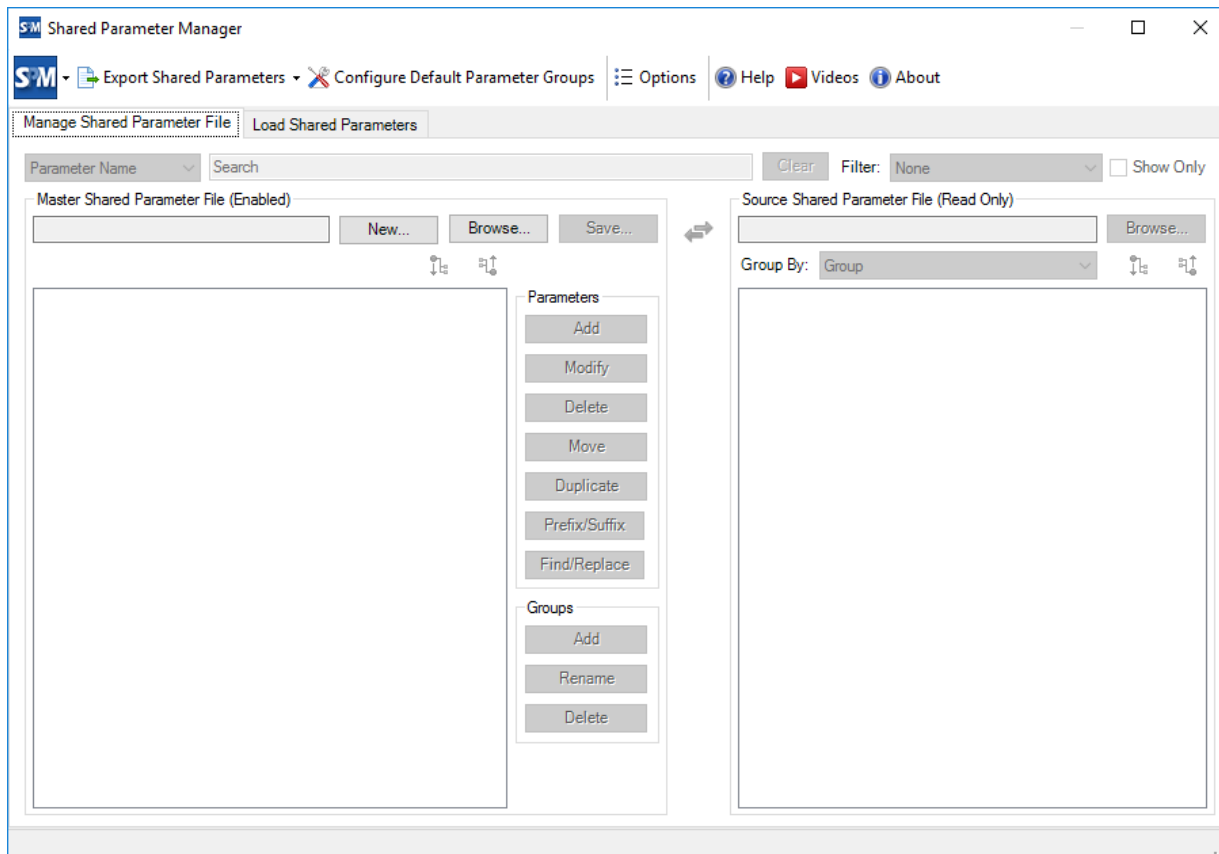
Shared Parameter Manager

Introduction

Shared Parameter Manager expands upon the out of box shared parameter editing tools to more efficiently create and edit shared parameter files, merge multiple shared parameter files, and efficiently load shared parameters into projects.

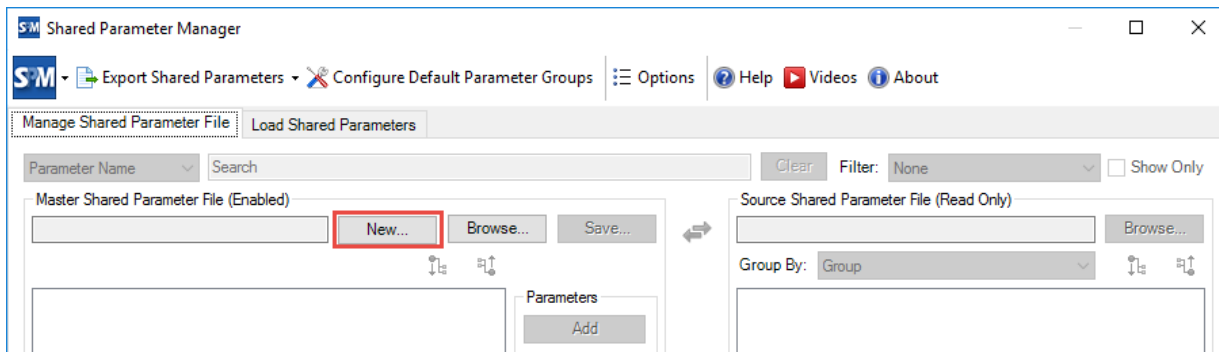
Starting Shared Parameter Manager

On the Revit ribbon, click on the “Shared Param Mgr” button.

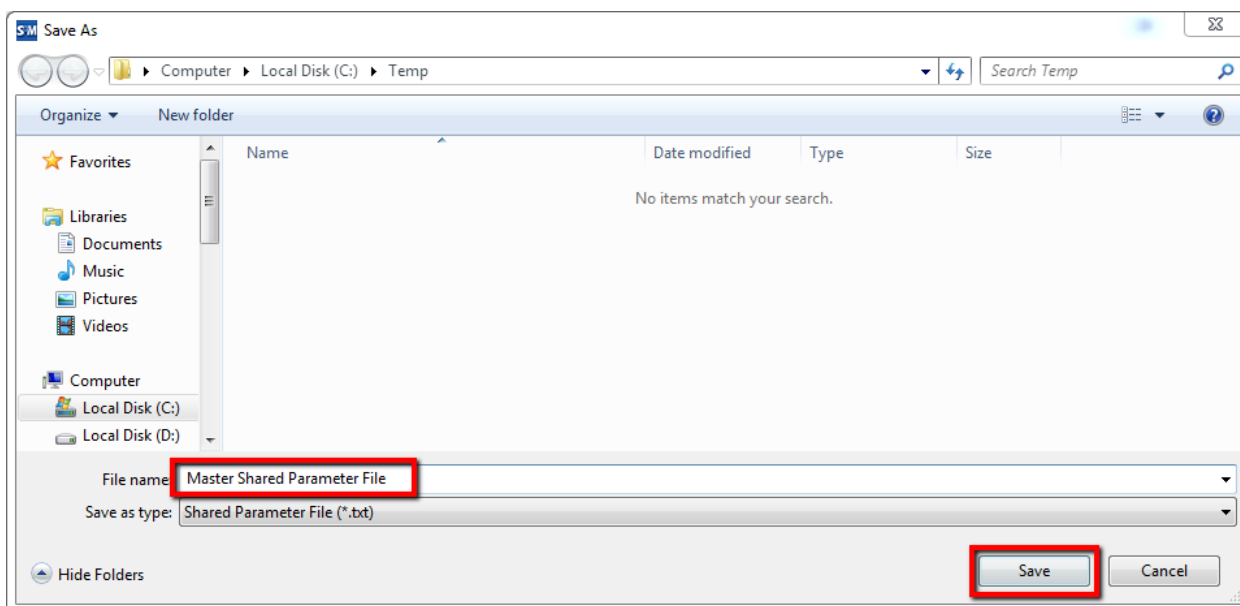


Master Shared Parameter Files

Create a new master shared parameter file by clicking the “New” button.



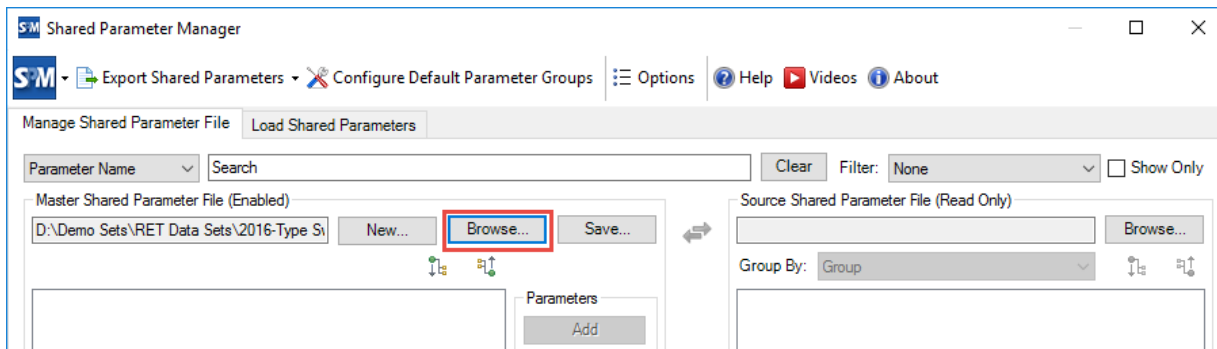
Browse to the desired storage location and provide a name for the new shared parameter file



Select “Save” to generate the new shared parameter file and have it selected as the master shared parameter file.

Selecting Existing Shared Parameter Files

To select the Master Shared Parameter file click the “Browse...” button. Only the Master Shared Parameter File will be edited by this tool.

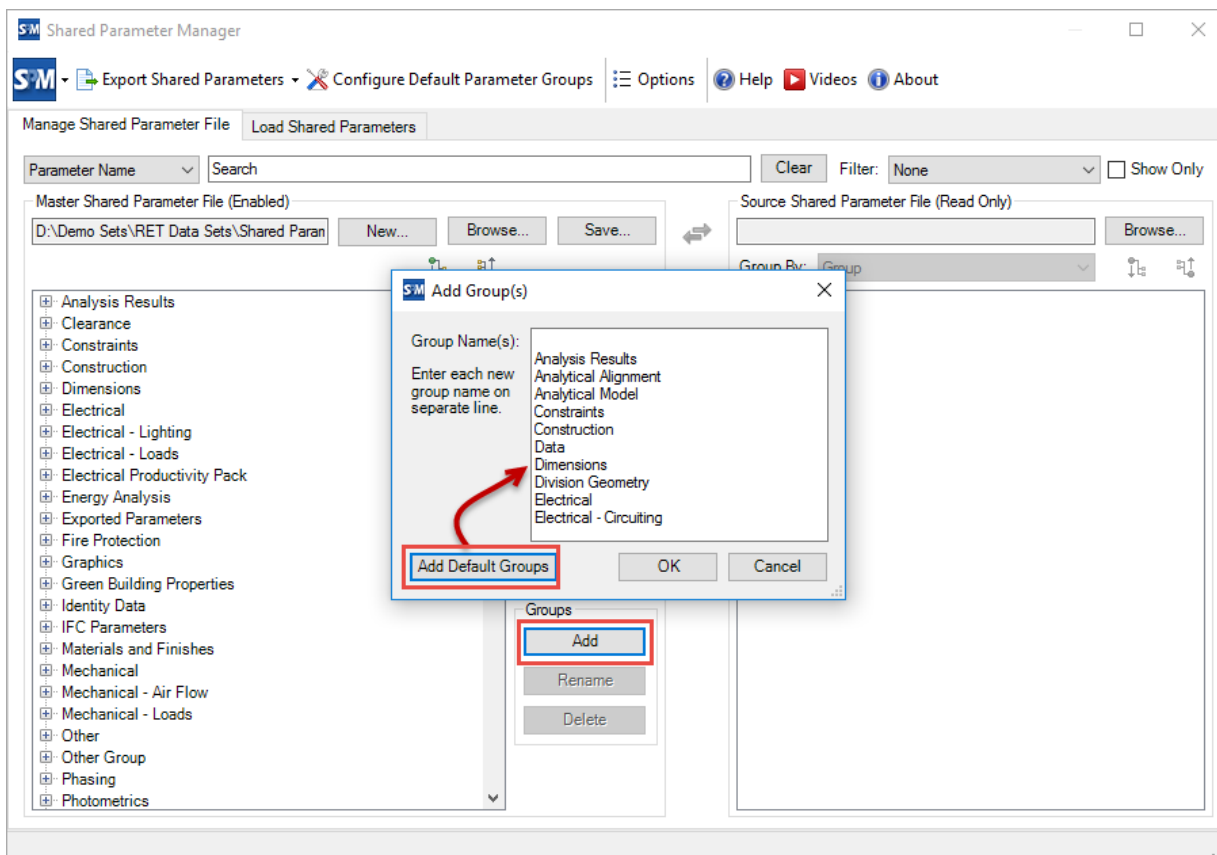


Group Management

Adding Groups

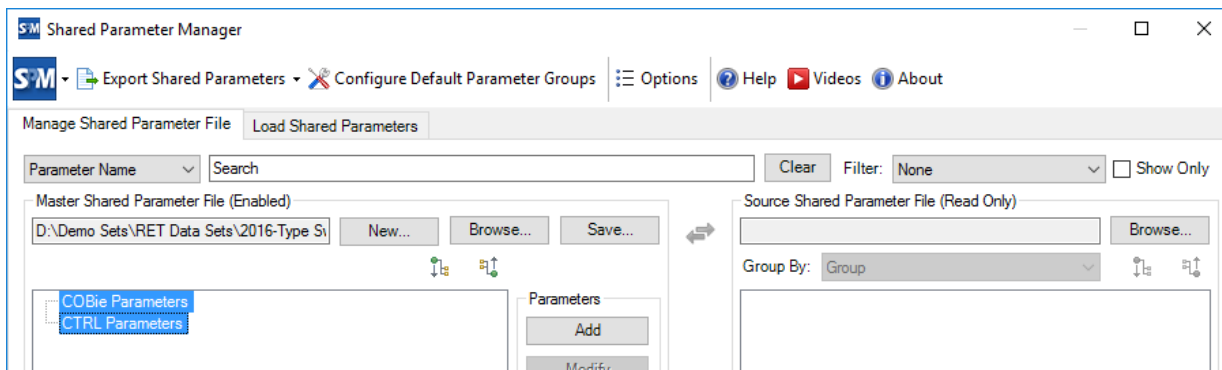
To add a group, click the “Add...” button in the Groups box.

To add all default Revit groups quickly select the “Add Default Groups” Button. Any groups that already exist will be skipped when creating new groups.



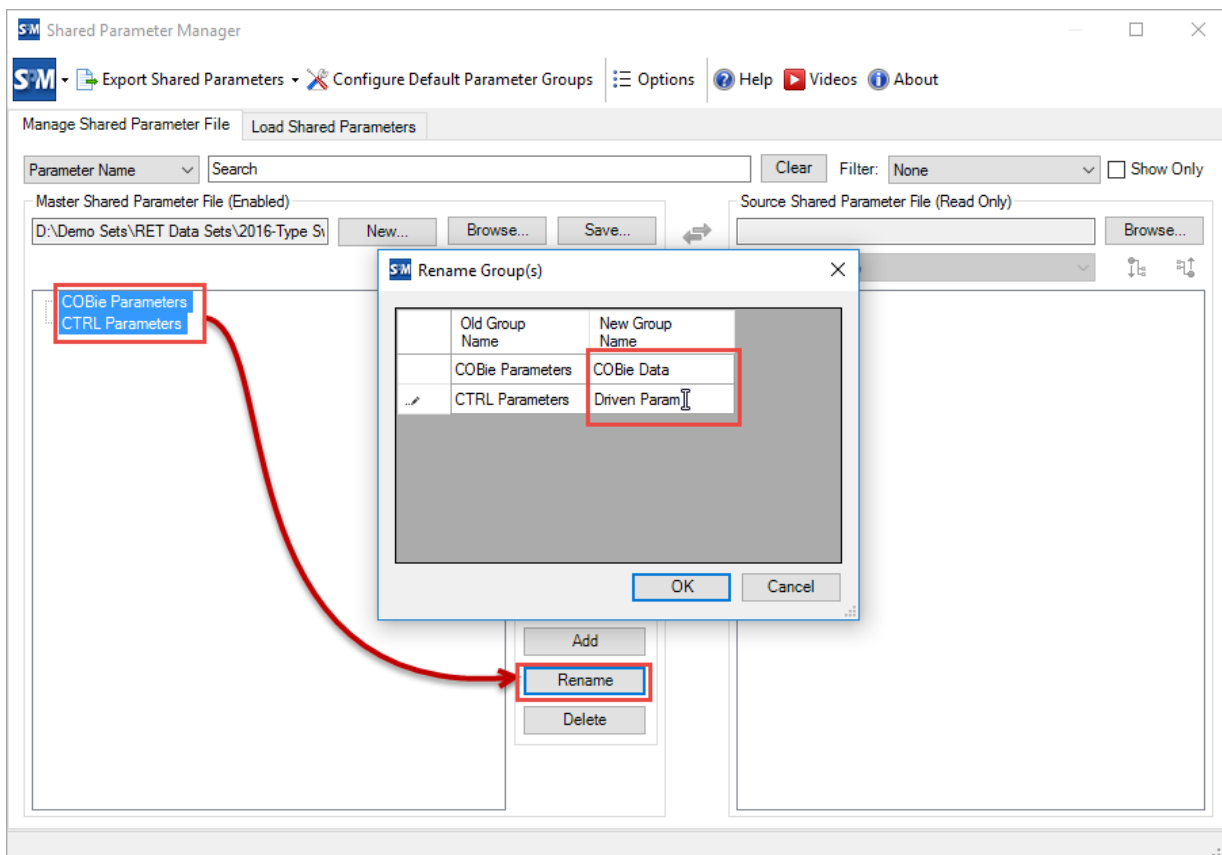
To add custom groups, type the names of each group to be created. Type each group name separated by a return or pressing the enter key. When all names have been entered, click the “OK” button.

The groups will be added to the shared parameter file.



Renaming Groups

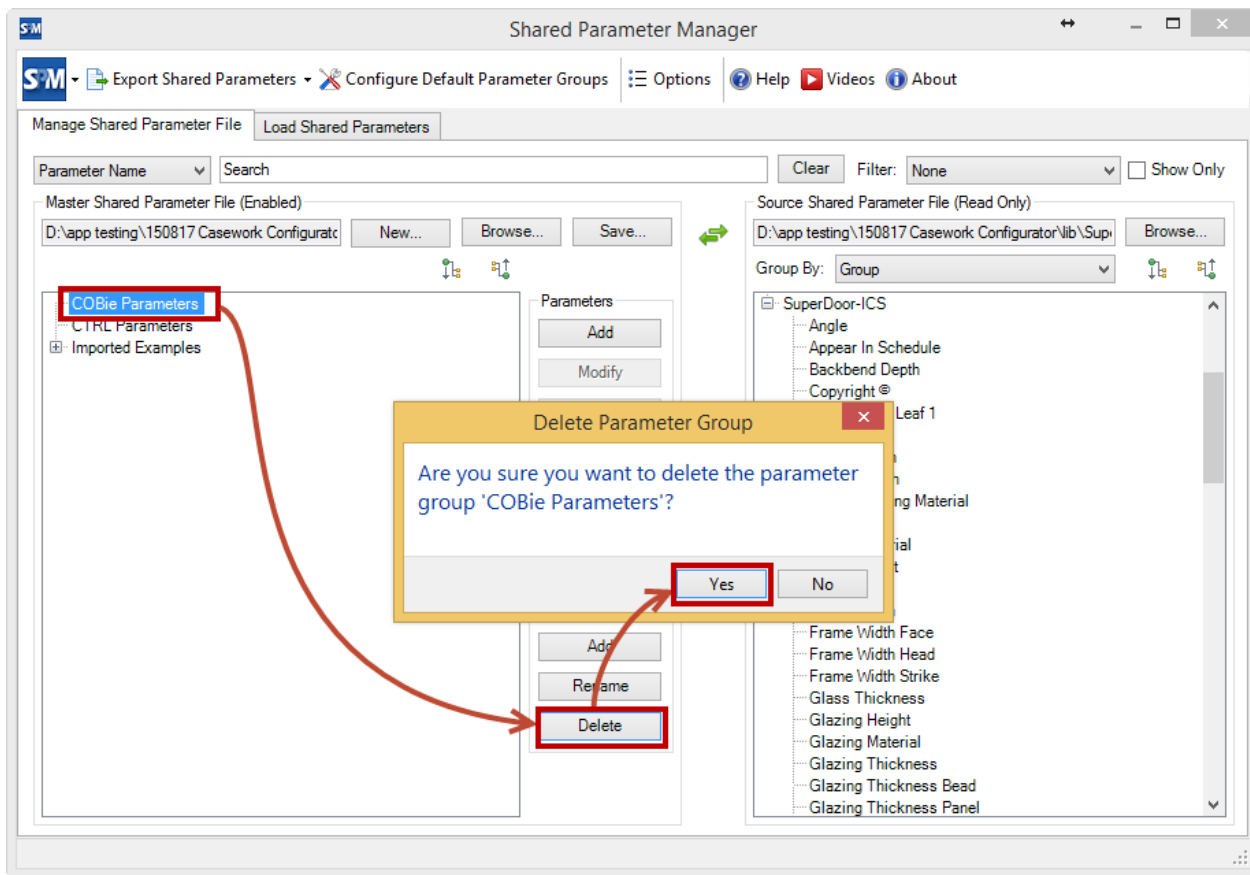
To rename a group, select one or more from the list. Then click “Rename...” in the ‘Groups’ box.



In the “Rename Group(s)” dialog, type the new name for each group and click the “OK” button.

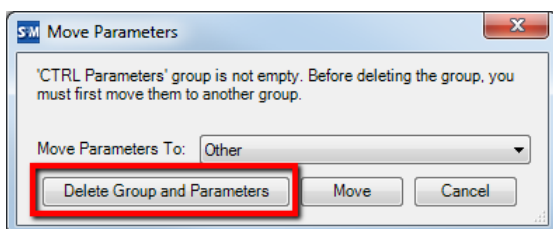
Deleting Groups

To delete a group, select the parameter group. Then select the “Delete” button in the ‘Groups’ box.



A dialog will ask for confirmation of any group(s) selected for deletion

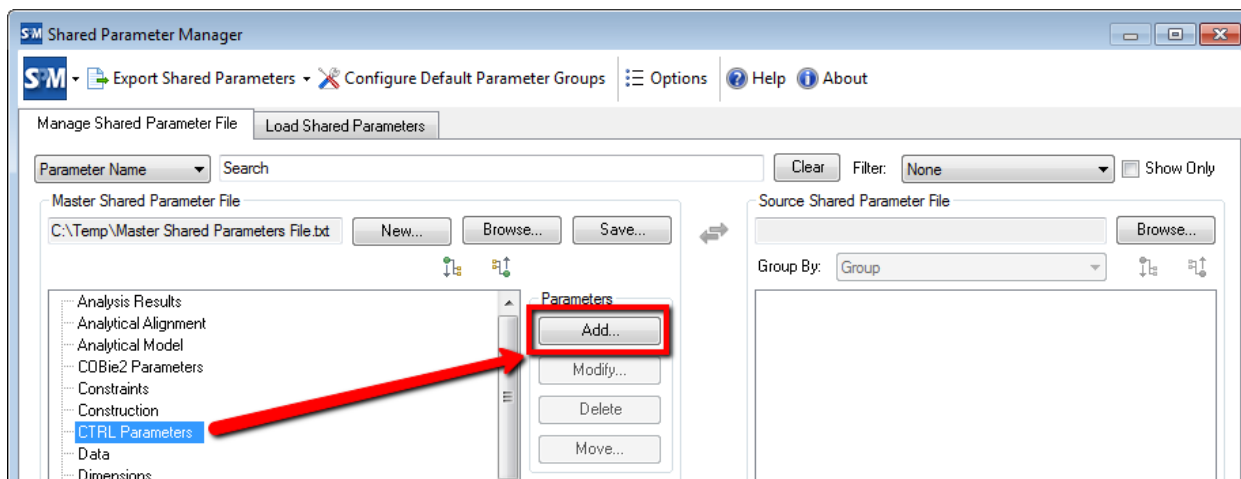
If the group selected has parameters in it at the time of deletion a dialog will prompt to either delete the group and parameters, or to move to a new group



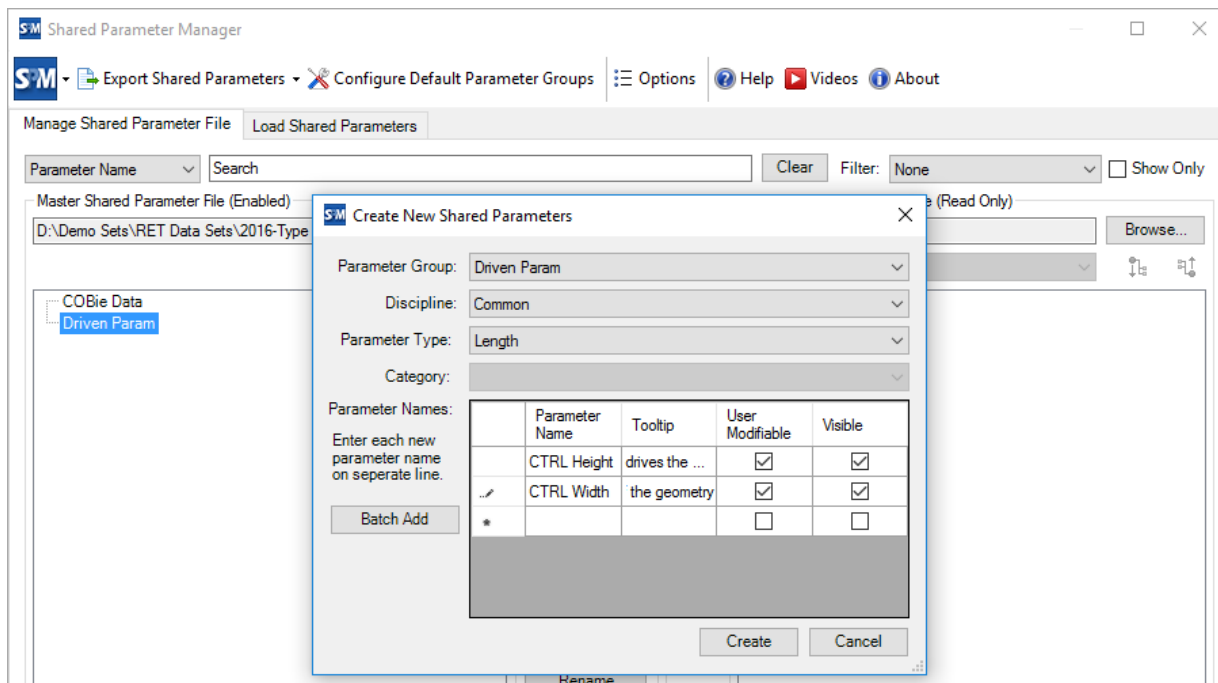
Managing Parameters

Adding Parameters

To add parameters, select a group to host the new parameters. Then click the “Add...” button in the ‘Parameters’ box.



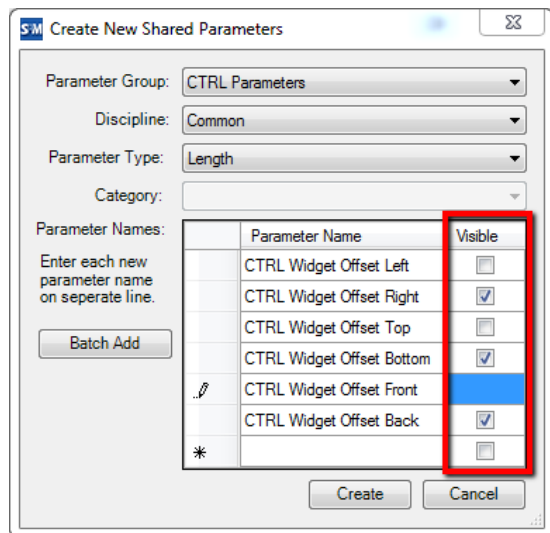
In the “Create New Shared Parameters” dialog select the Parameter Group, Discipline, Parameter type and (if applicable) the Category. Type the names of each new parameter. All parameters created will use the settings selected. Once all new parameter names have been entered click the “Create” button.



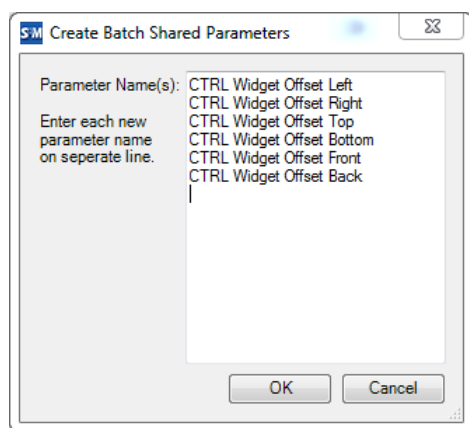
In “Create New Shared Parameters”, click the checkbox next to a parameter to make it visible or not visible.

Visibility checkbox allows the parameter to be invisible in the project. The parameter will still be schedule, however in the properties dialog box; the parameter will not be visible. It is not recommended to load this parameter invisible as a project parameter, it is recommended to load a parameter as invisible in a family, and then load into a project. The

parameter will be visible in the family in which it was created; it will not be visible in the project, or when nested into another family.



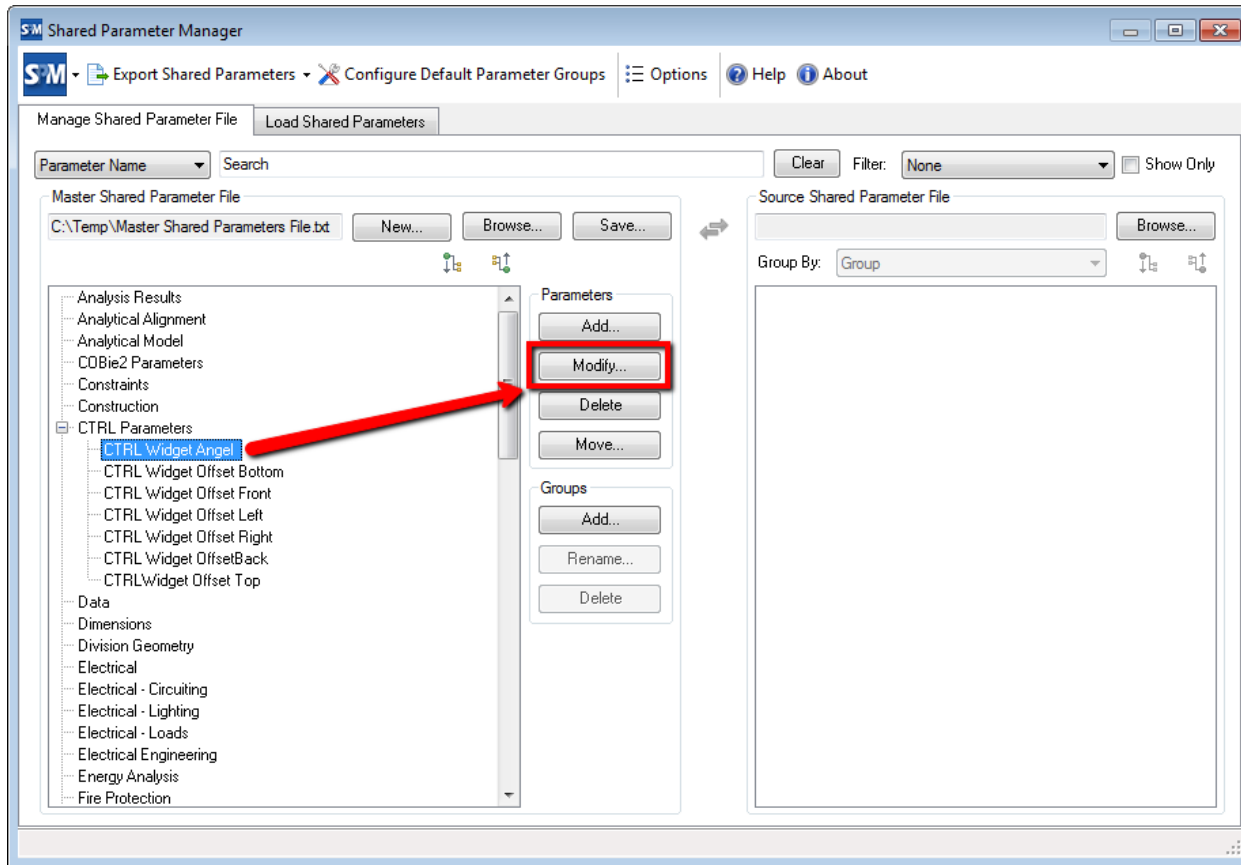
If a list exists externally or to enter parameter names in a different manner, select the “Batch Add” button. A dialog similar to the Add Groups Dialog will appear and parameter names can be entered separated by an enter.



When finished adding parameters, select the “Create” button. The entered parameters will be added to the Shared Parameter file.

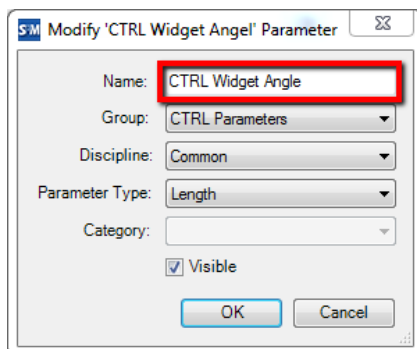
Modifying Parameters

To modify a shared parameter select a single parameter from the list. Then click the “Modify...” button in the ‘Parameters’ box

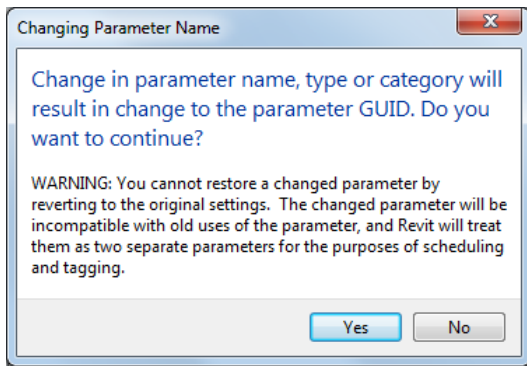


In the “Modify ‘parameter name’ Parameter” dialog, the name, group, Discipline, Parameter type, Category and Visibility can be changed.

In this example the spelling error “Angel” has been corrected to “Angle.” Click “OK” to accept the new settings.

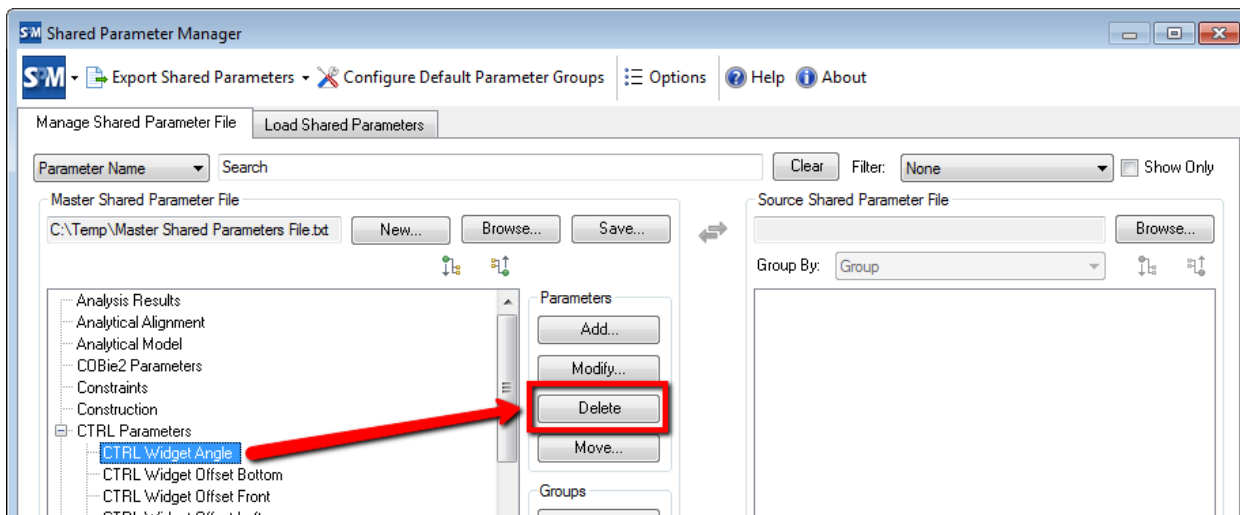


Any changes made to the Parameter name, Discipline, Parameter Type or Category will cause a new GUID to be generated for the shared parameter. The following dialog is a warning of the ramifications of changing a parameter GUID. Click “Yes” to continue or “No” to cancel.

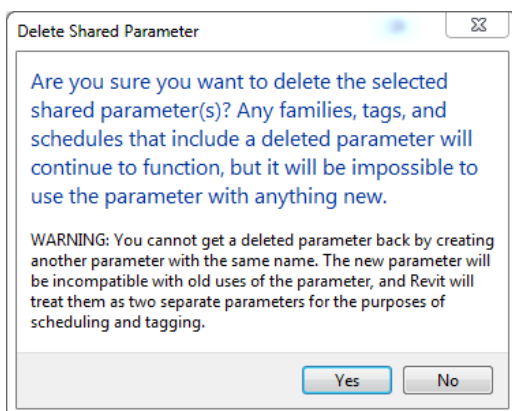


Deleting Parameter(s)

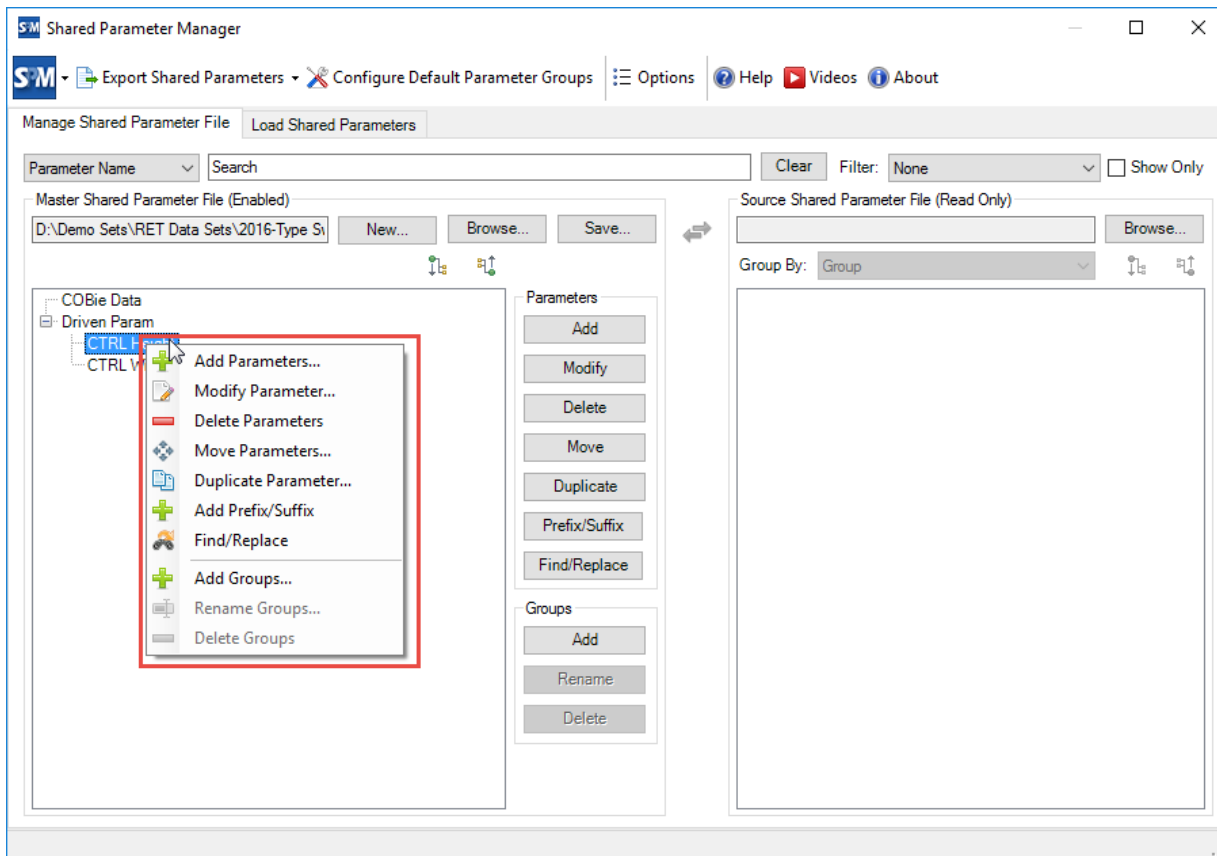
To delete a shared parameter select a parameter(s) from the list. Then click the “Delete” button in the ‘Parameters’ box



Deleting parameters is permanent and cannot be undone. A dialog box will be displayed asking for confirmation before deleting parameters from the shared parameter file.



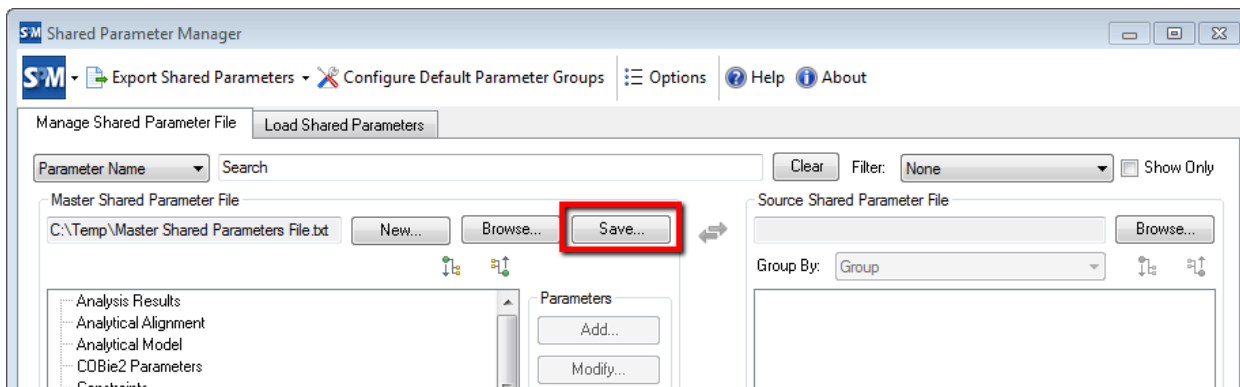
Hint: many of the actions that can be performed on groups and parameters are also available in the right-click context menu.



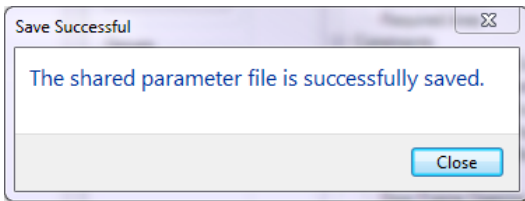
Saving The Master Shared Parameter File

Changes are only made permanent once the master parameters file is saved. After saving, it is possible to roll back changes by using one of the backup files stored in the same directory as the master.

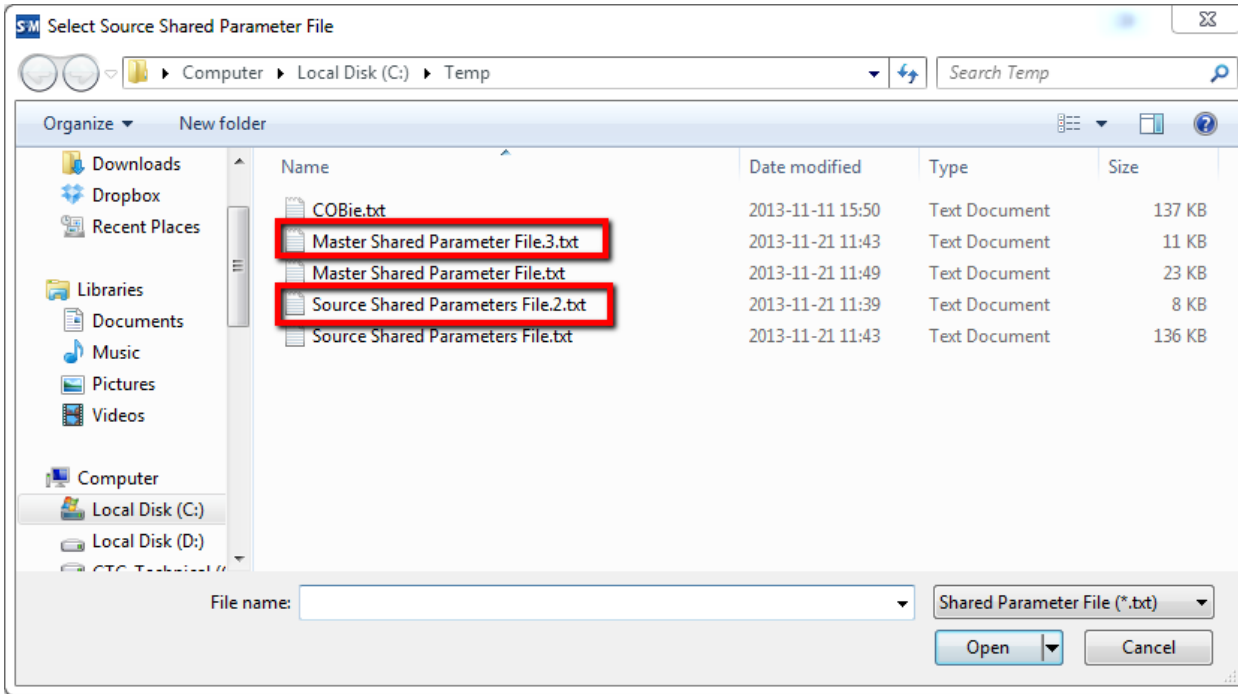
To save any changes to the master shared parameter file, select the “Save” button to the right of the master shared parameter file name



Click close, after the “Save is Successful” dialog will confirm the save.

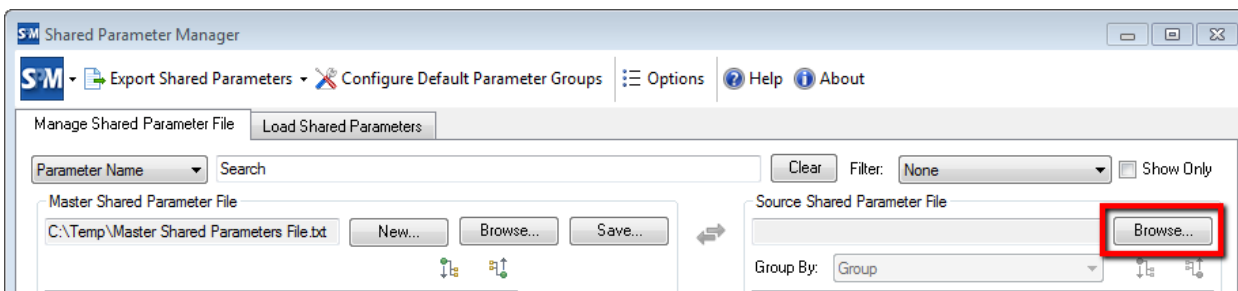


Once saved, a back-up of the original master shared parameter file will be saved in the original file path. In the file path, the back-up will appear with a .1.txt file name extension. (I.E. File name is Shared_Parameter1.txt, back-up will appear as Shared_Parameter1.1.txt). Number of back-ups saved is defaulted to 1. To change, go to options.



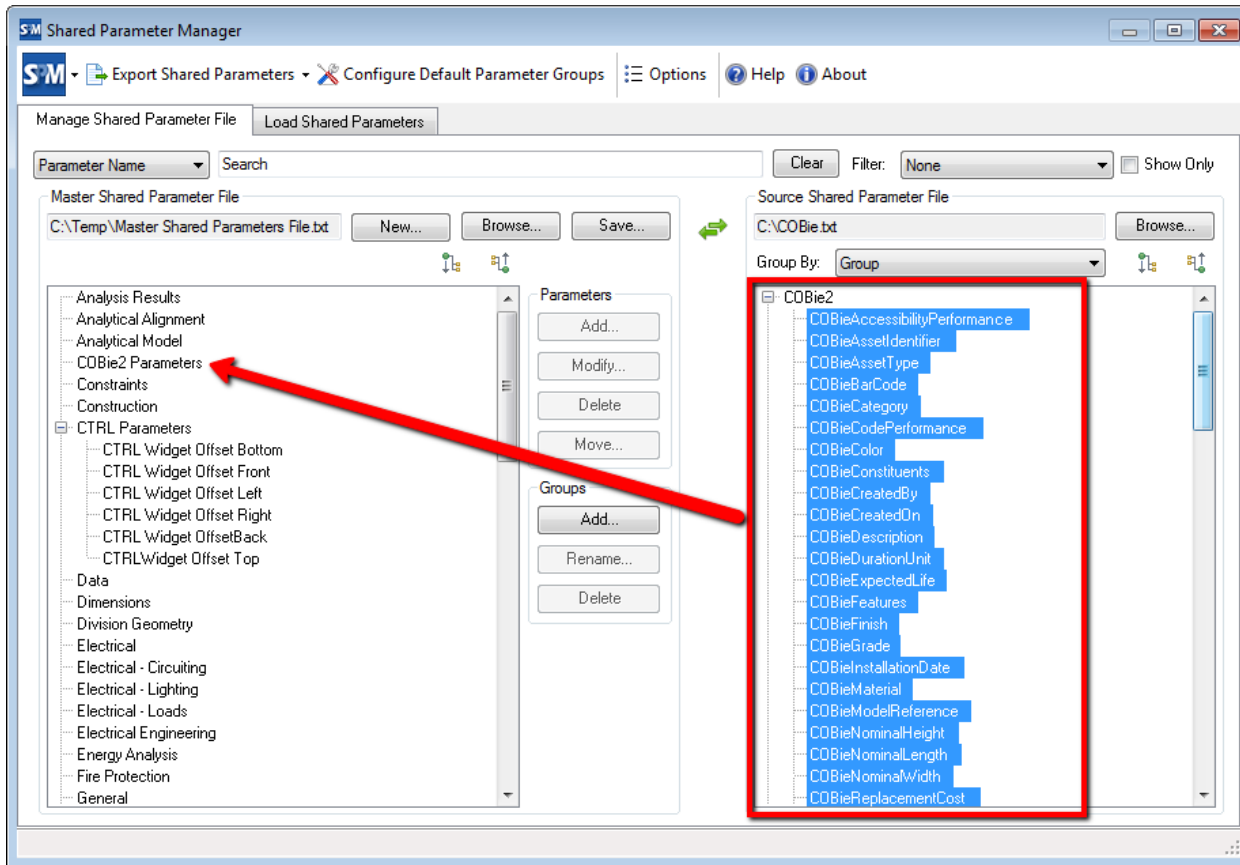
Source Shared Parameter Files

To open the source shared parameter file, click the "Browse..." button. The source shared parameter file will not be edited.



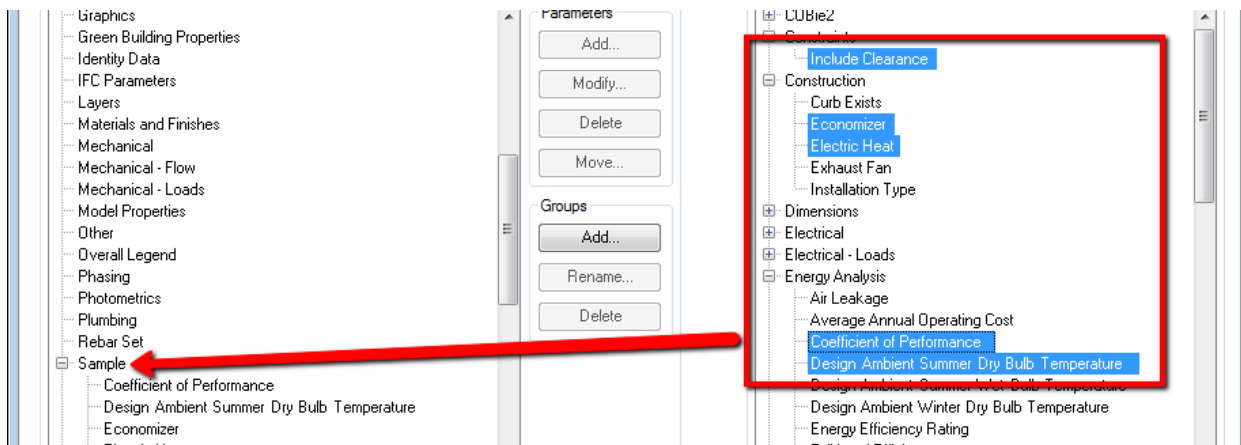
Copying Parameters or Groups from the Source to the Master

To copy shared parameters from the source to the master, select the desired parameter(s) and drag and drop them onto the desired group in the master shared parameter file.

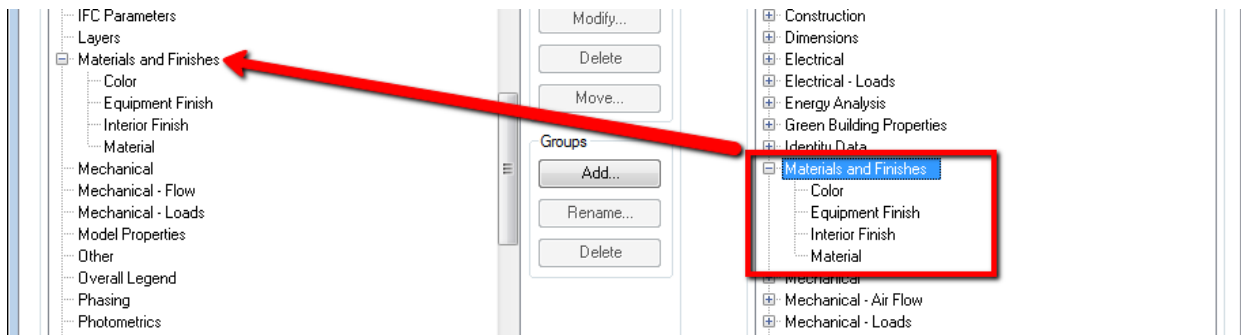


The parameter(s) will be copied into the master shared parameter file, retaining all settings and GUIDs.

Parameters from multiple groups can be dragged simultaneously into a single group.

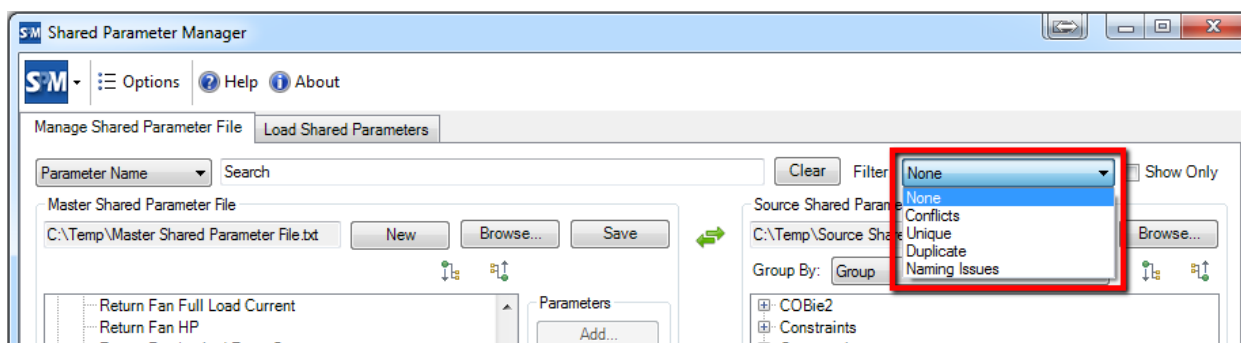


Groups can be dragged and dropped as well. When dragging and dropping a group, all parameters contained in that group will be copied too.

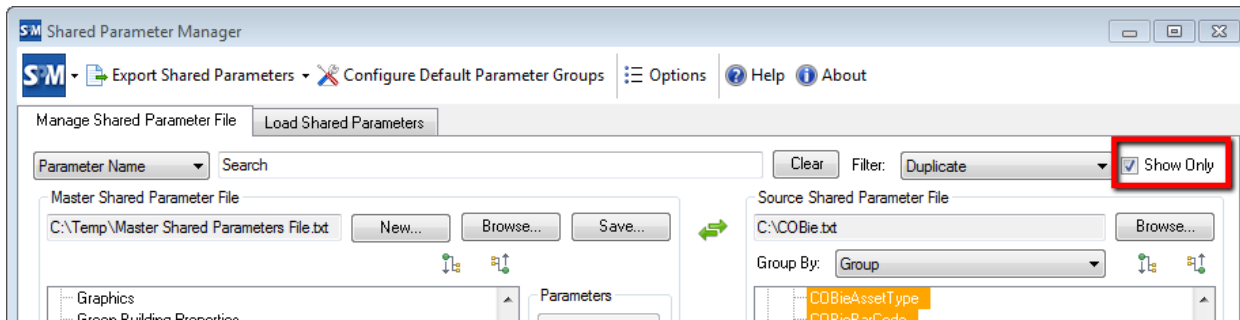


Filters

Filters can be used to show conflicting, duplicate and unique parameters as well as identify naming issues in parameter names for both shared parameter files, click the “Filter” dropdown box.

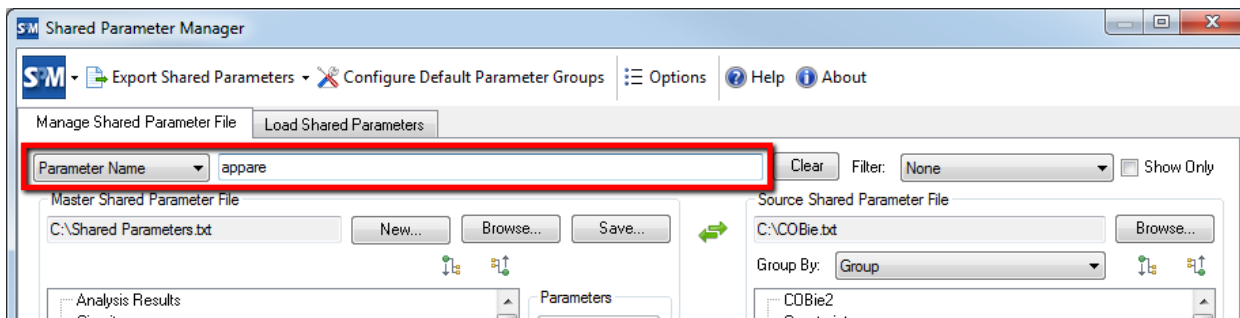


To show only parameters that match the filter criteria, click the “Show All” Checkbox.

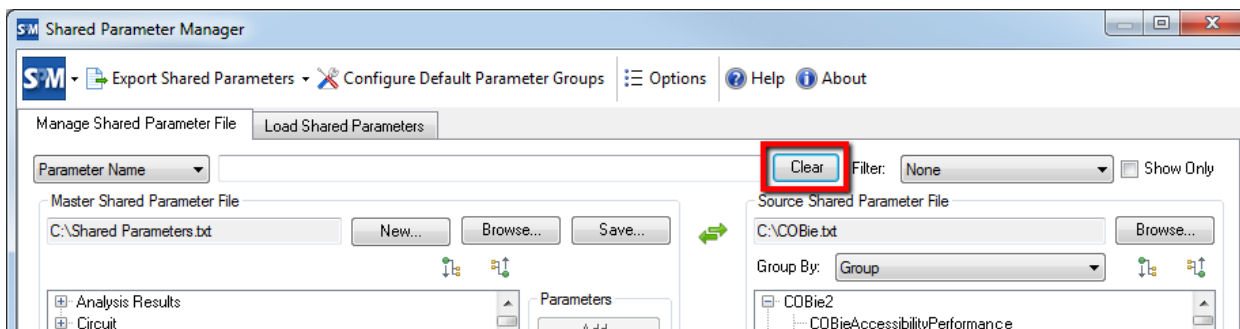


Search

To search for specific parameters, click in the search bar and type in parameter name or parameter Type. The search will break down as a new character is added.

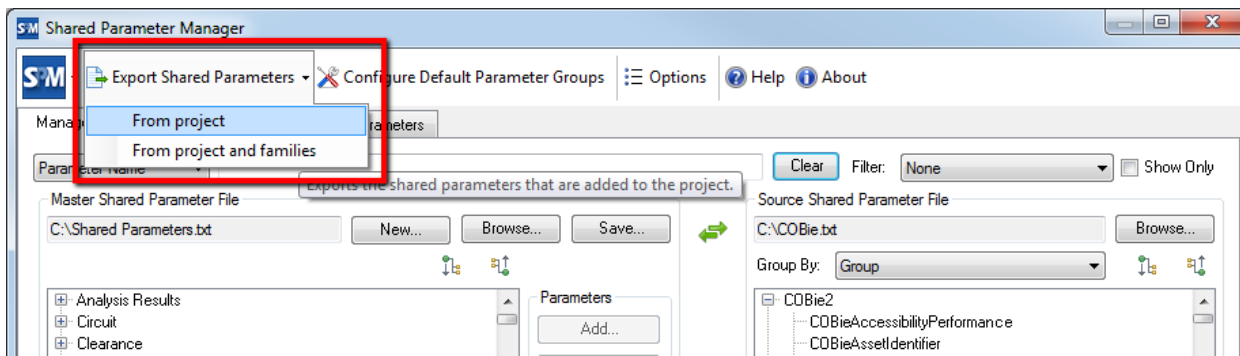


Click “Clear” to remove the search criteria and show all parameters.

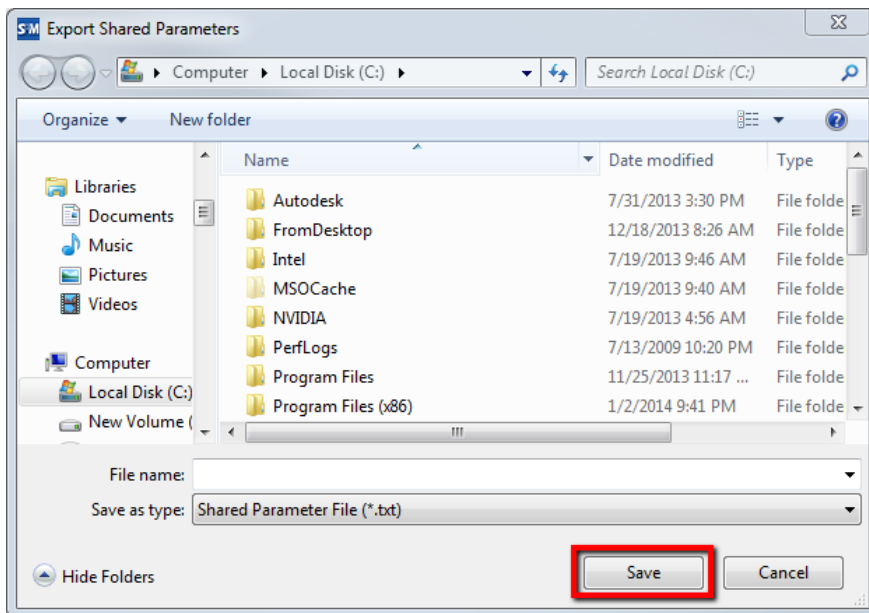


Exporting Parameters

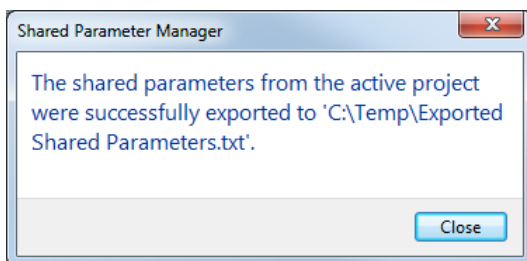
Shared Parameter Manager has the ability to export all shared parameters from a project and (optionally) any family content loaded into the project. To export parameters, click the “Export Shared Parameters” button and select either the “From project” or “From project and families” option.



A dialog will prompt for the location to save the new Shared Parameter file. Select the location and file name and click the “Save” button.



A dialog will confirm that parameters have been exported successfully.

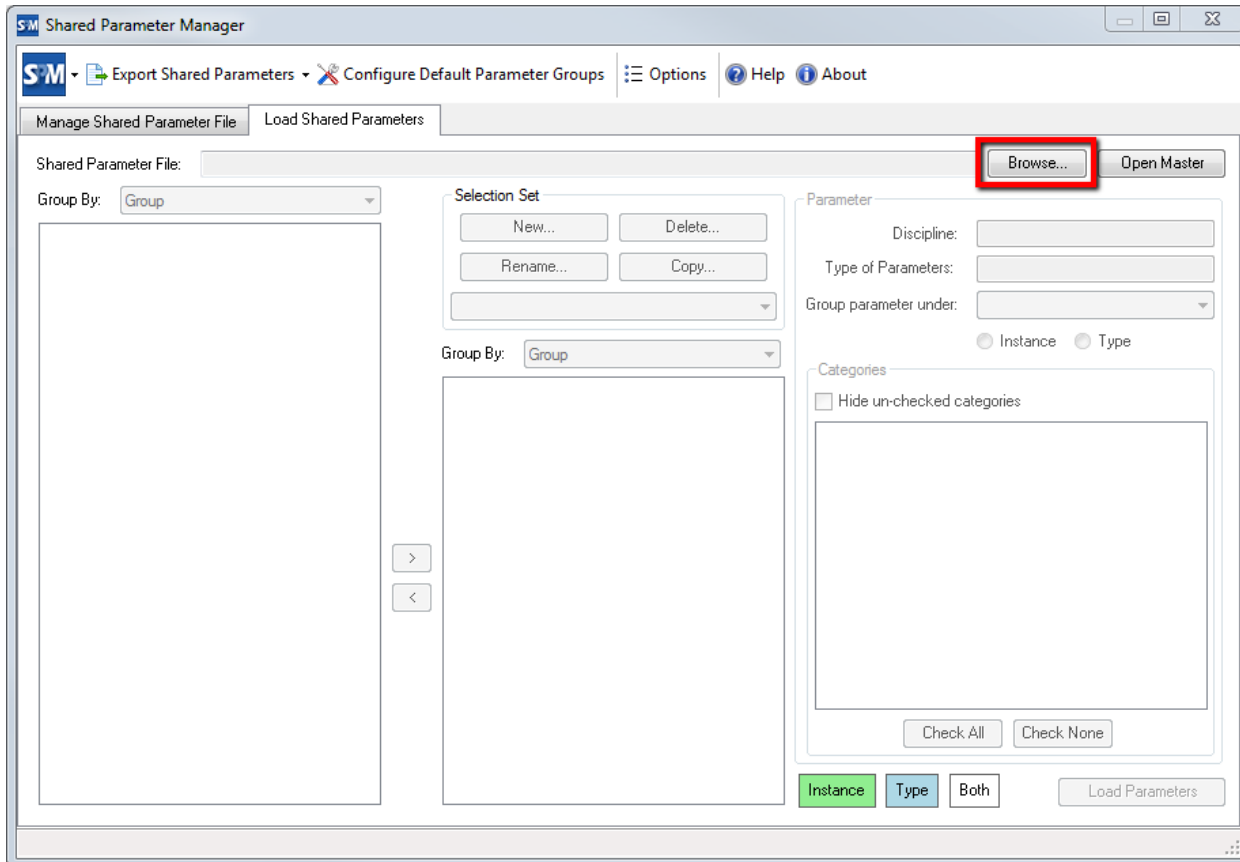


Selection Sets

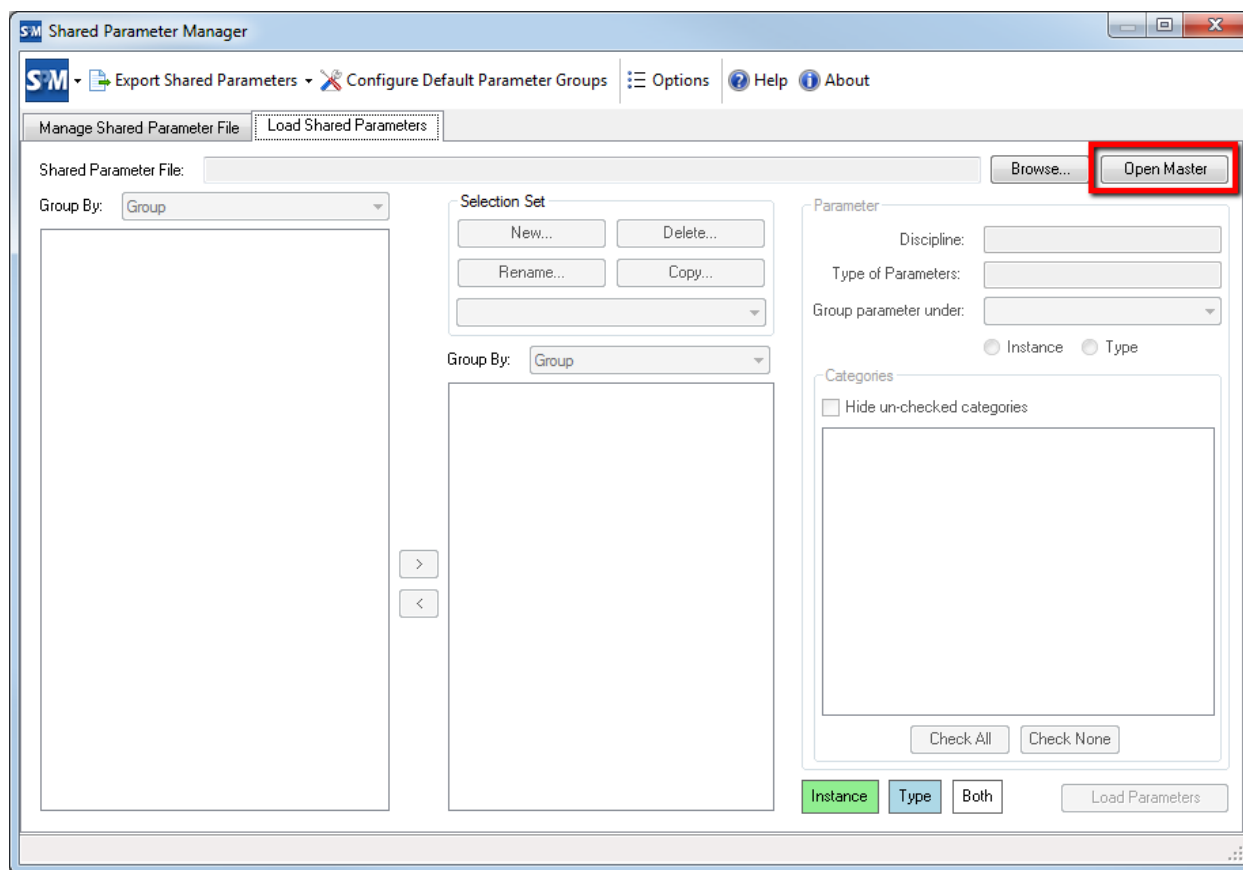
The “Load Shared Parameters” tab is used to create selection sets. Selection sets are saved collections of Shared Parameters from one shared parameter file and all of the settings required to create project parameters from them.

Opening Shared Parameter File

To open a shared parameter file, click the “Browse...” button.

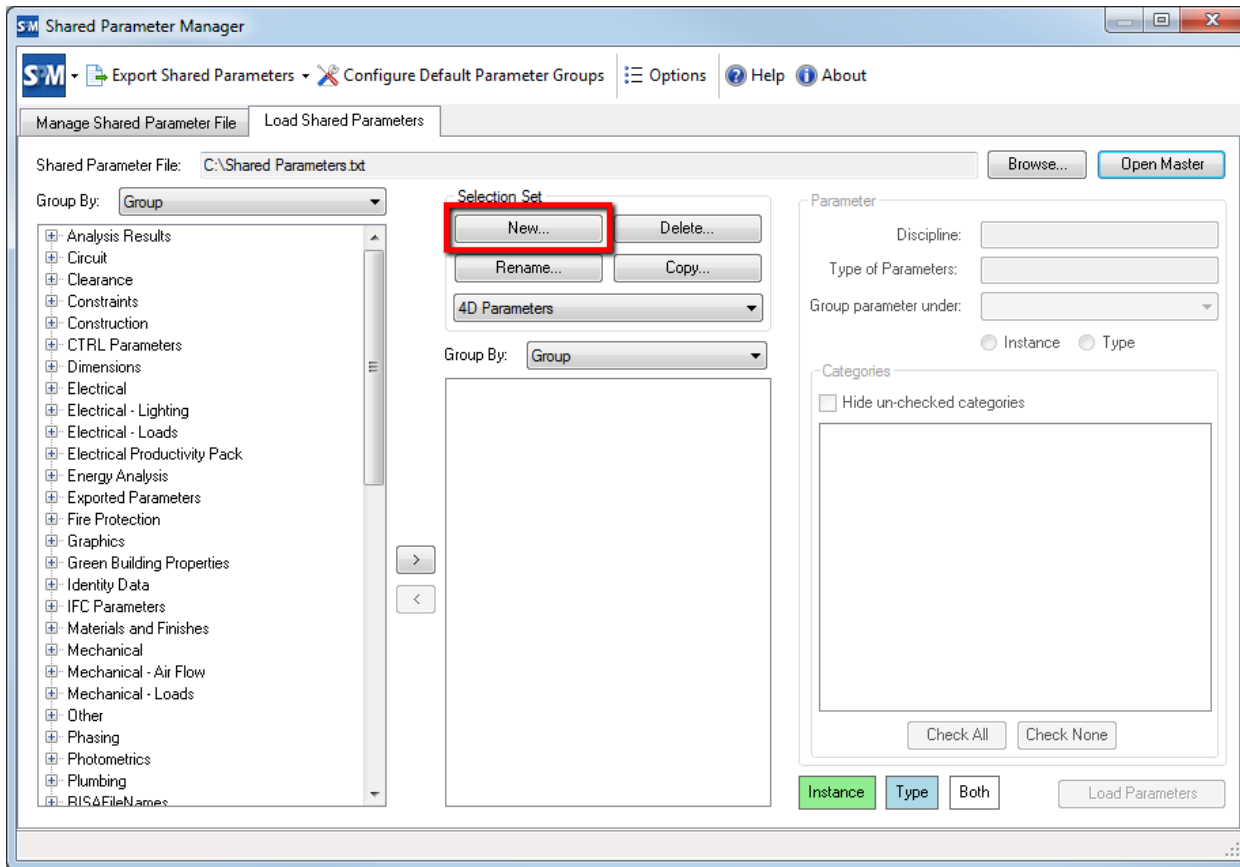


Alternatively, the “Open Master” button can be used to use the same master shared parameter file from the “Manage Shared Parameters File” tab. If no master shared parameter file is selected on the “Manage Shared Parameters File” this option will be disabled.

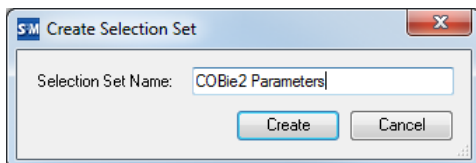


Creating Selection Sets

To create a new selection set, click the “New...” button in the ‘Selection Set’ box.

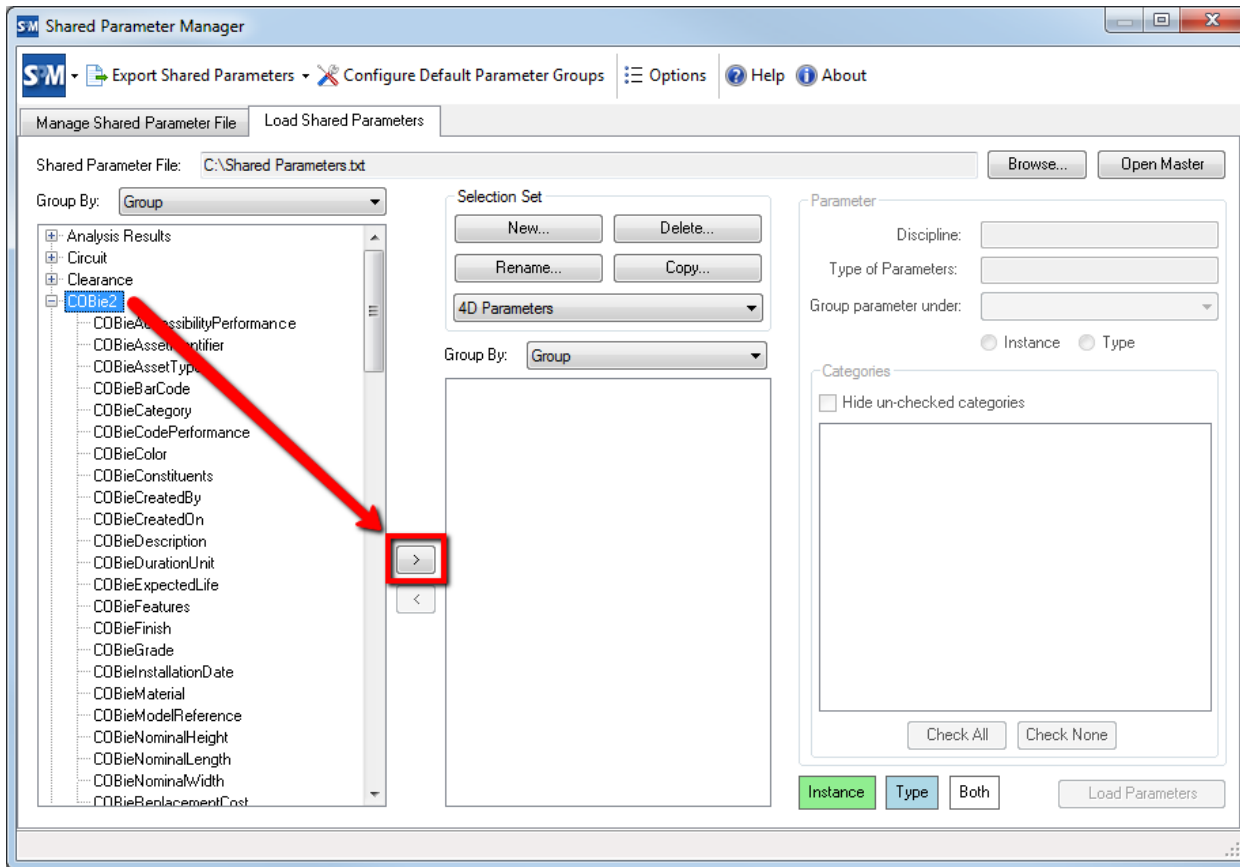


Name the selection set and click the “Create” button.



Note: Multiple selection sets can be created, using this same process.

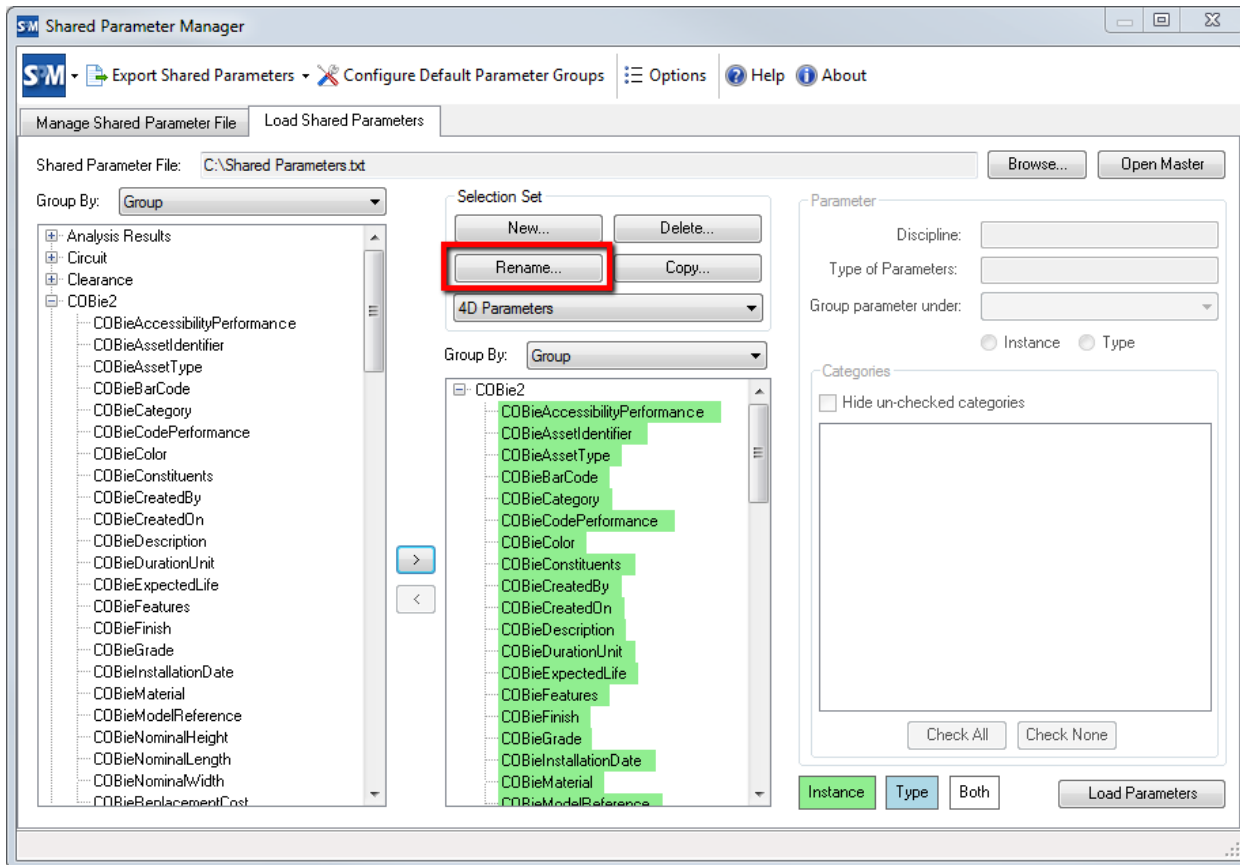
To add groups or parameters from the shared parameter file to the selection set, select the group or parameters then click the add arrow.



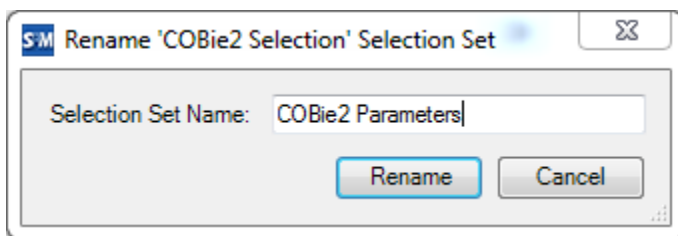
Note: Group name will copy over as well.

Modify Selection Sets

To rename a selection set, chose the selection set from the drop-down menu and click the “Rename” button.

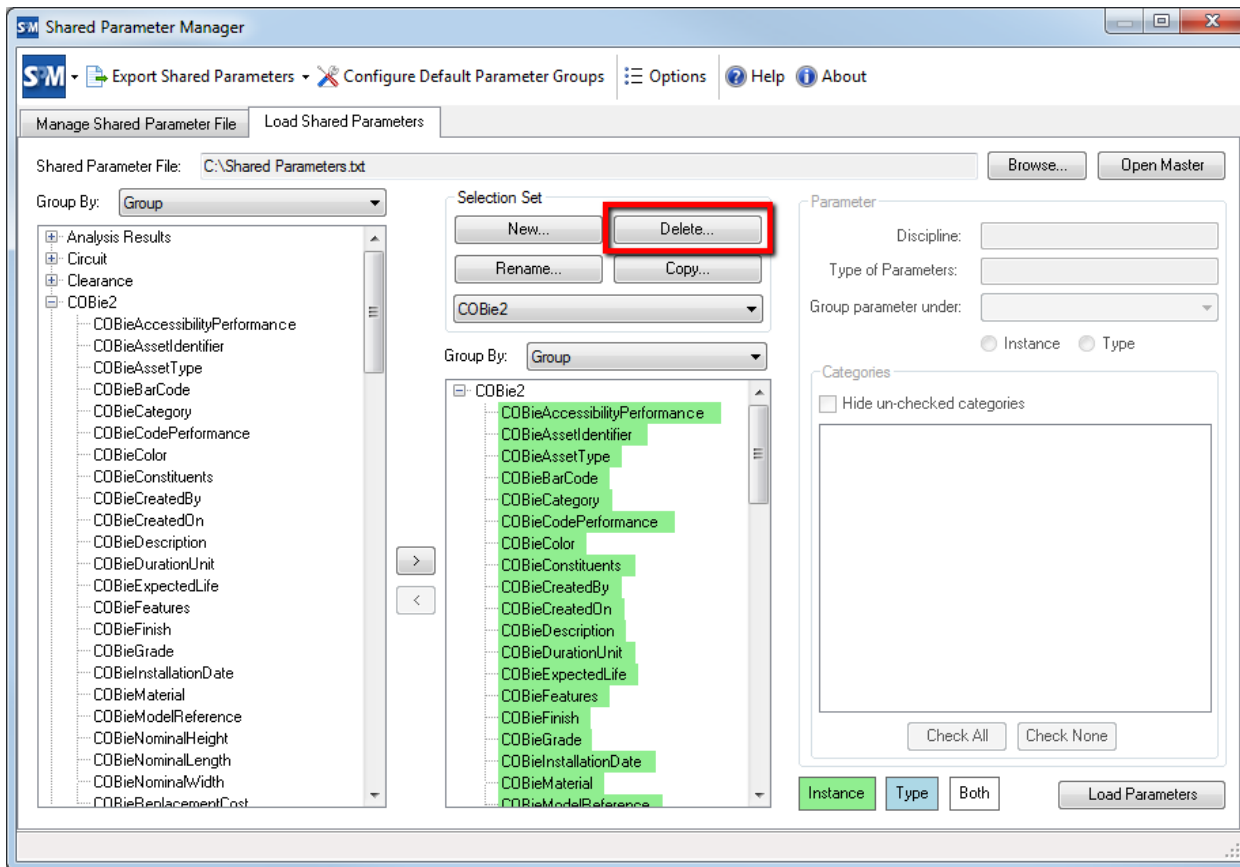


Type in new selection set name and click the “Create (OK)” button.

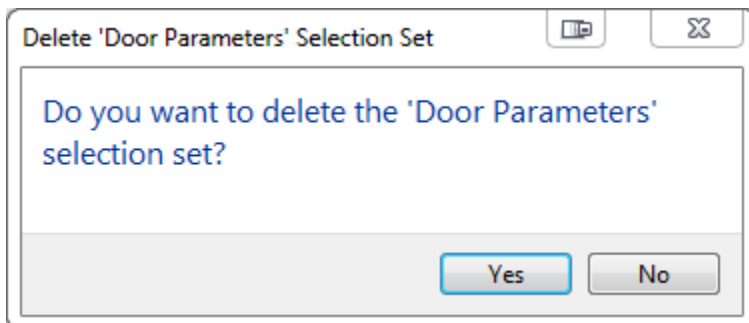


Deleting Selection Sets

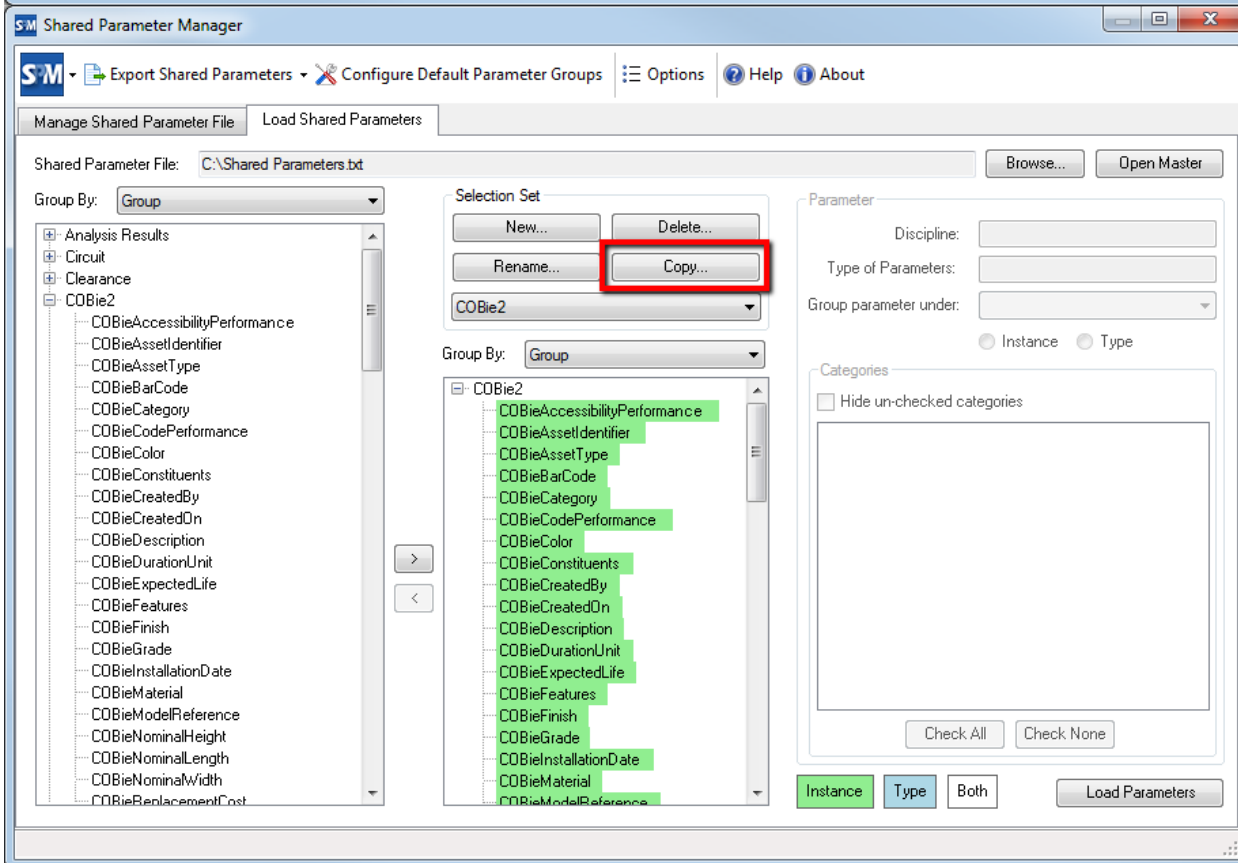
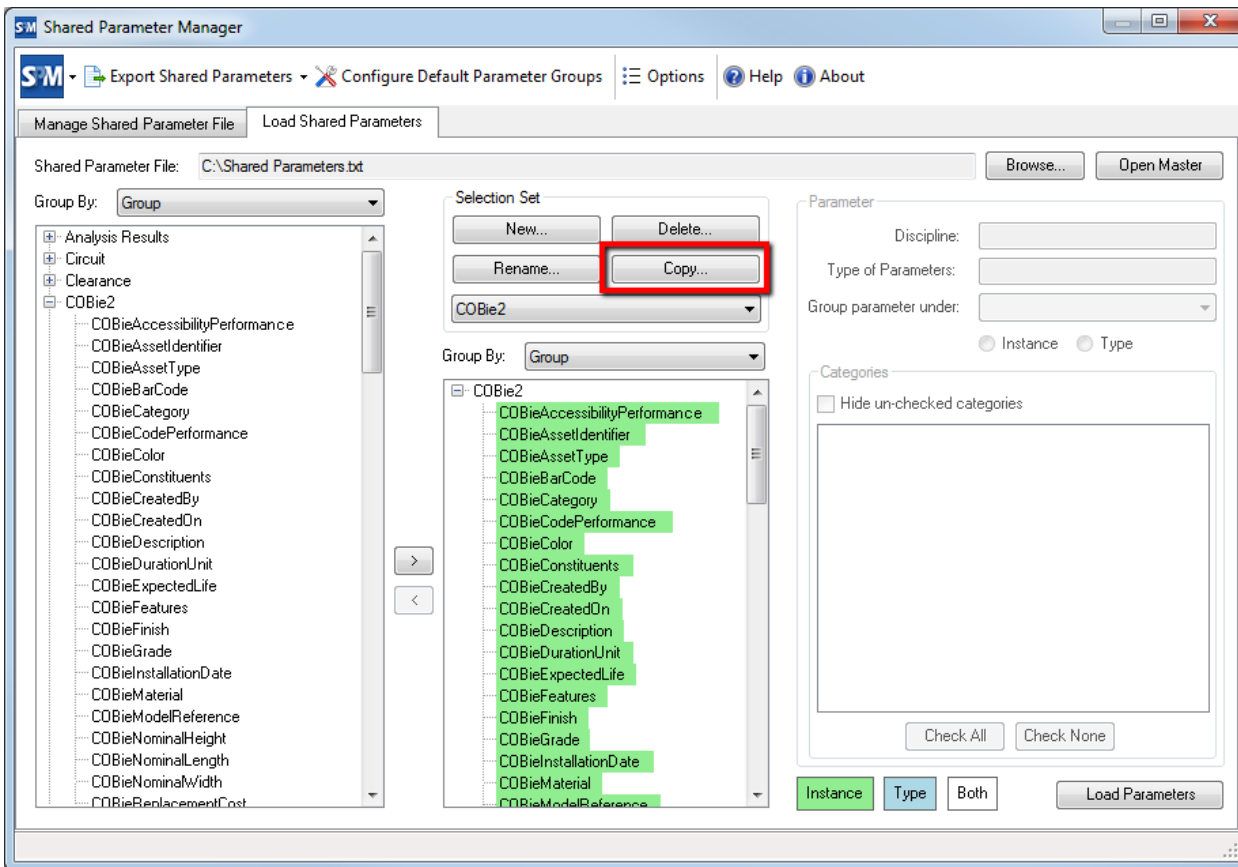
To delete a selection set, click the “Delete...” button.



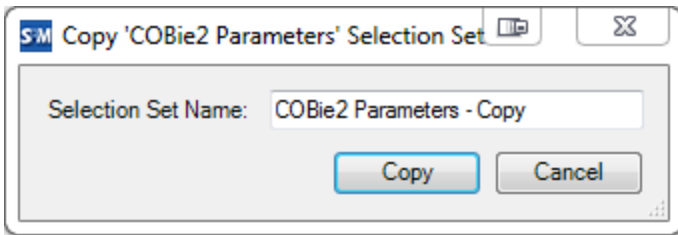
Click “Yes” to delete or “No” to cancel.



To copy a selection set, click the “Copy...” button.

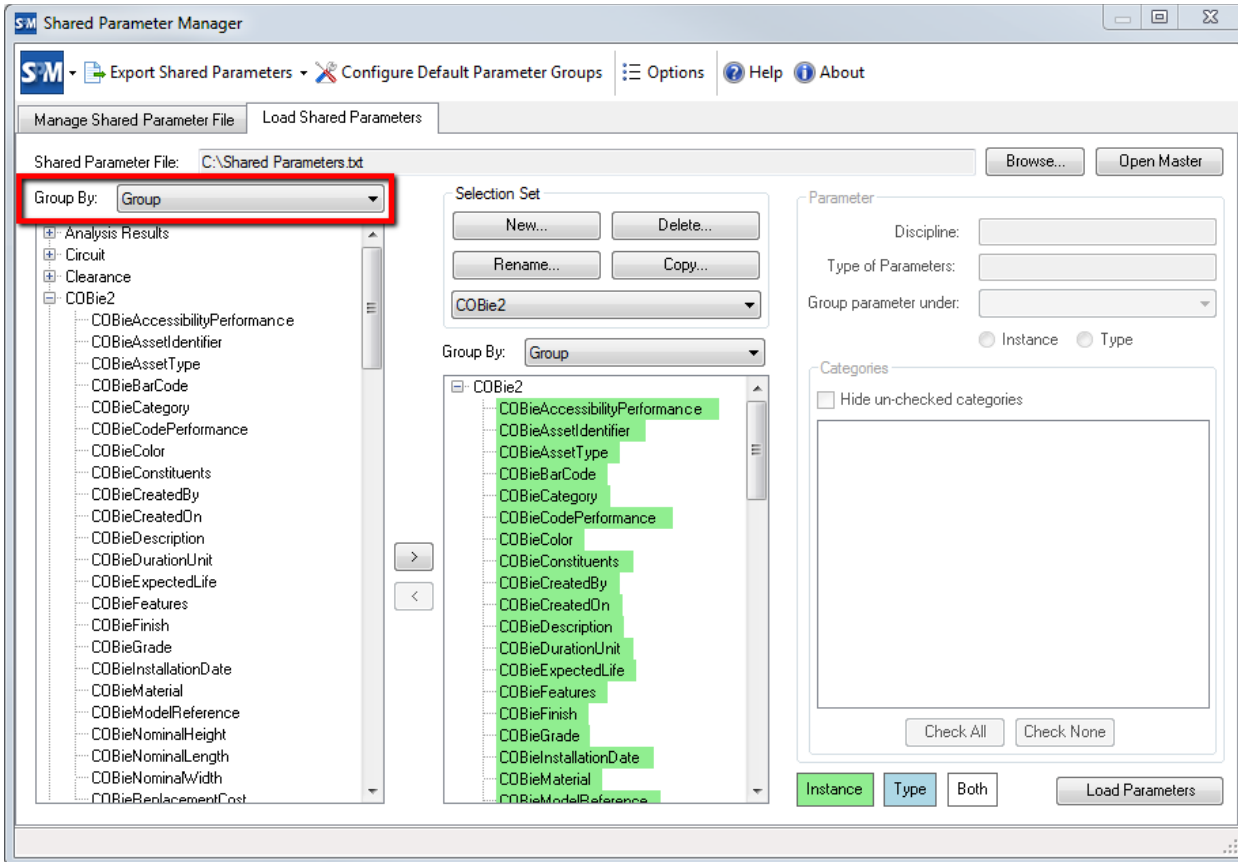


In the "Copy Selection Set" dialog, name the selection set and click the "Create" button.

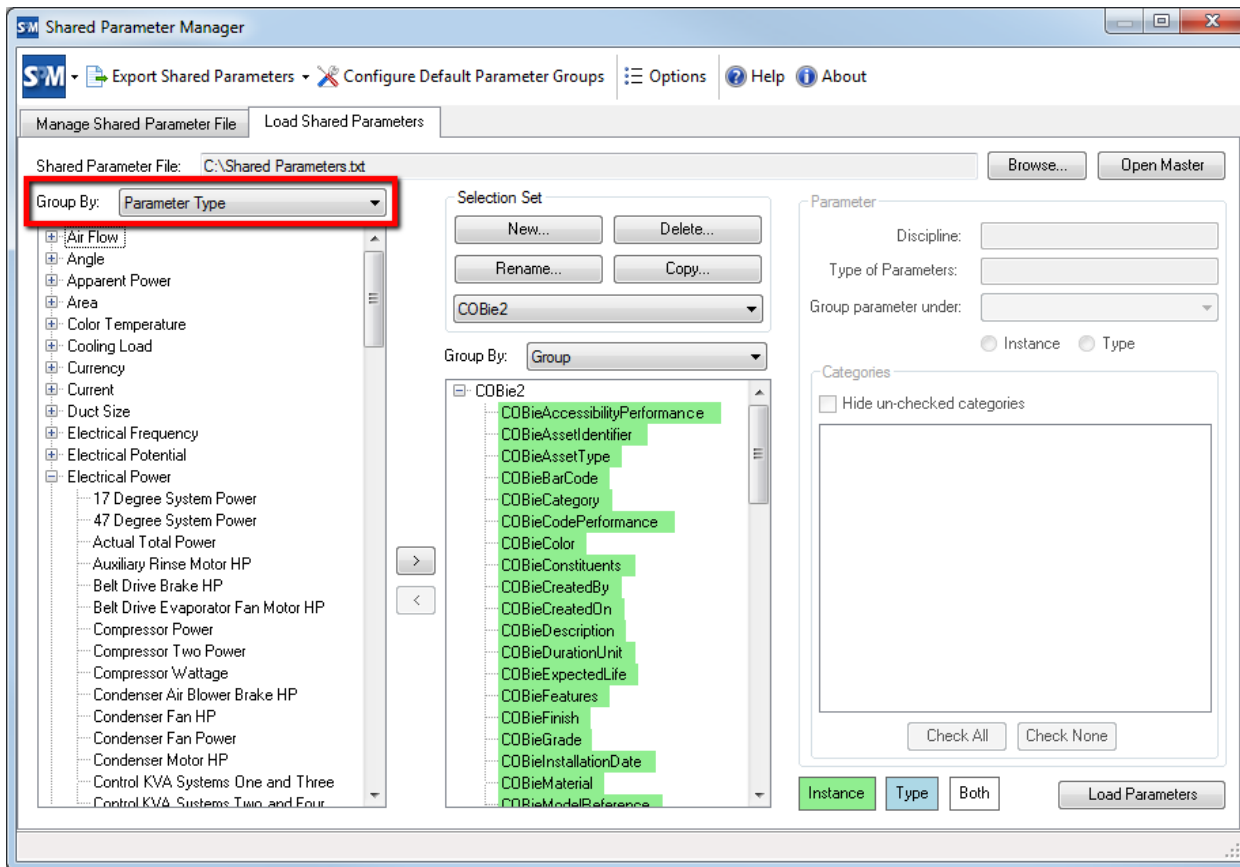


Sorting Shared Parameters File

The organization of the shared parameter file can be changed to make locating parameters easier. To organize the shared parameter file by shared parameter groups, click the “Group by...” drop down menu.

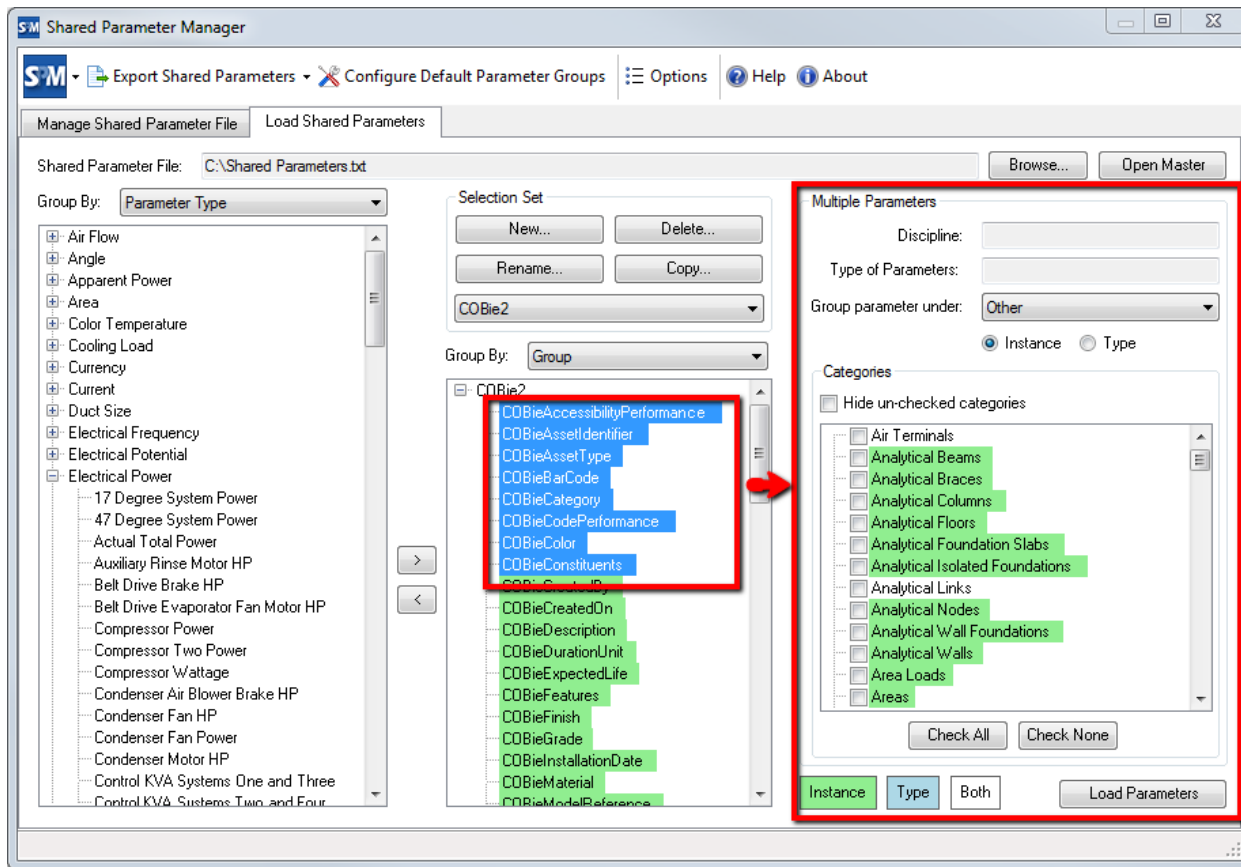


The shared parameter file can also be organized by parameter type. This will group, for example, all of the “Length” parameters together. To group by parameter type, select “Group” from the “Group By” dropdown menu.

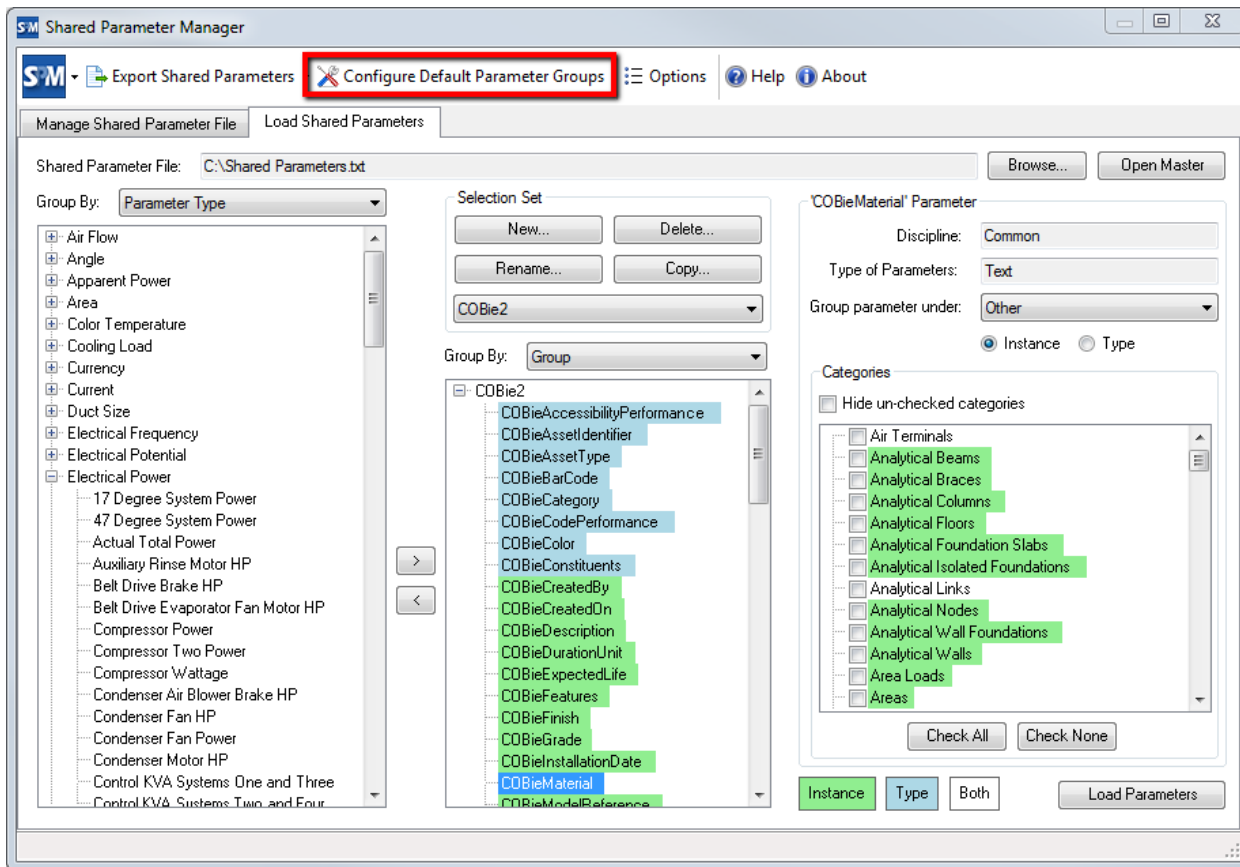


Parameter Settings

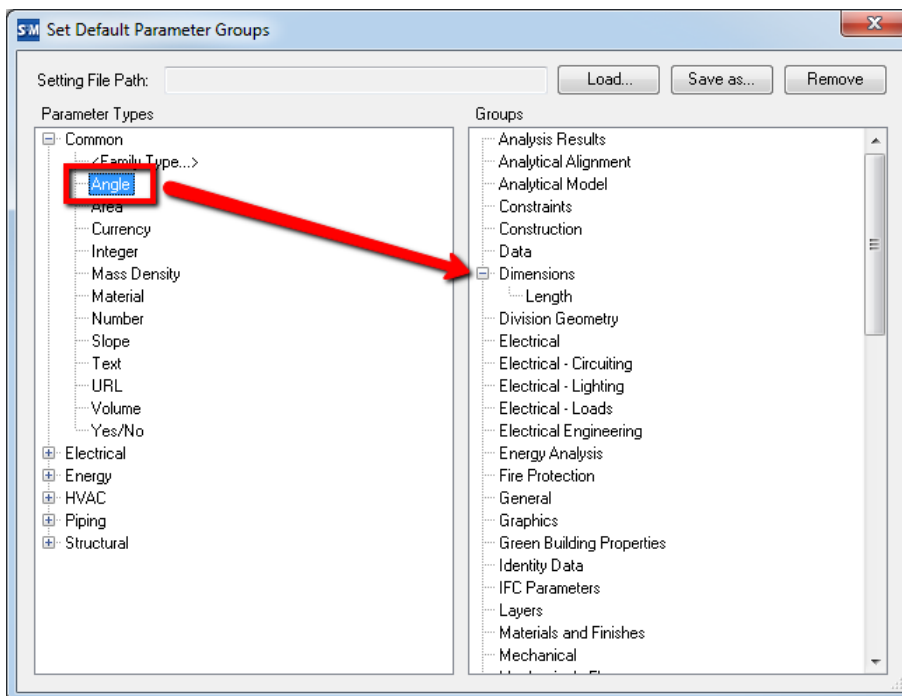
The parameter settings are used when loading the selection set into a project as Revit project parameters. To configure parameters, select them from the list and define the discipline, type of Parameter, “group Parameter under”, and whether the parameter is instance (green) or type (blue). Multiple parameters can be configured simultaneously.



Default parameter groups can be configured to help automate the process of configuring parameters. These settings will help automatically assign the “Group parameter under” value. To setup default parameter groups click the “Configure Default Parameter Groups” button.



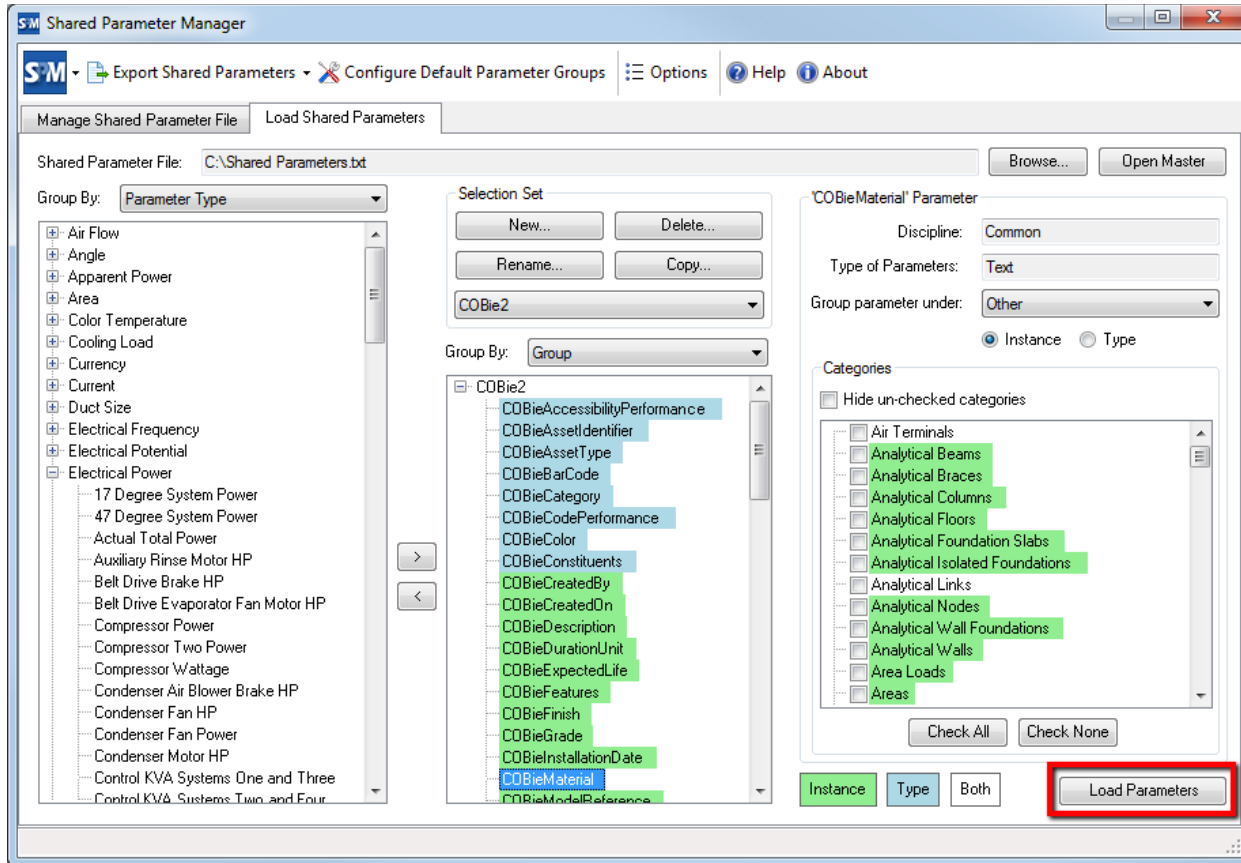
The “Set Default Parameter Groups” dialog has all parameter types on the right, and grouping options for those parameters on the left. Simply drag and drop each parameter type into the desired default group. For example, “Length” and “Angle” type parameters are typically grouped under the “Dimensions” group.



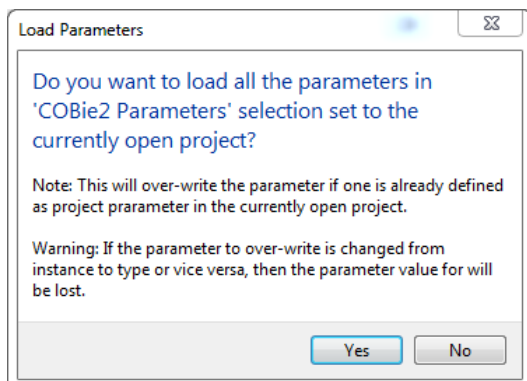
With default parameter groups configured, as parameters are added to the selection set they will be assigned their parameter group automatically. These groups can always be changed after the fact.

Loading Parameters Into the Project

Once all parameters have been configured the “Load Parameters...” button can be used to load each parameter in the selection set into the project as a shared project parameter.

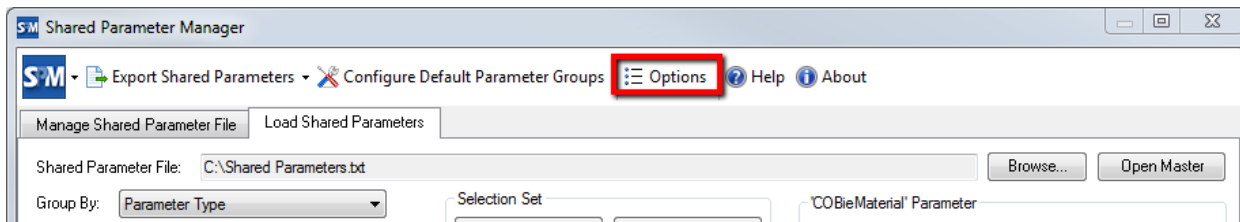


Click “Yes” to load new selection set, click “No” to cancel.

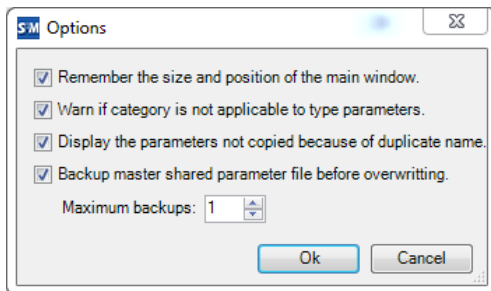


Options

To access options, select the “Options” button at the top of the ‘Shared Parameters Manager’ dialog



There are several options to control the default behavior of Shared Parameter Manager



All options are user options, meaning they will be remembered per computer

Type Swapper

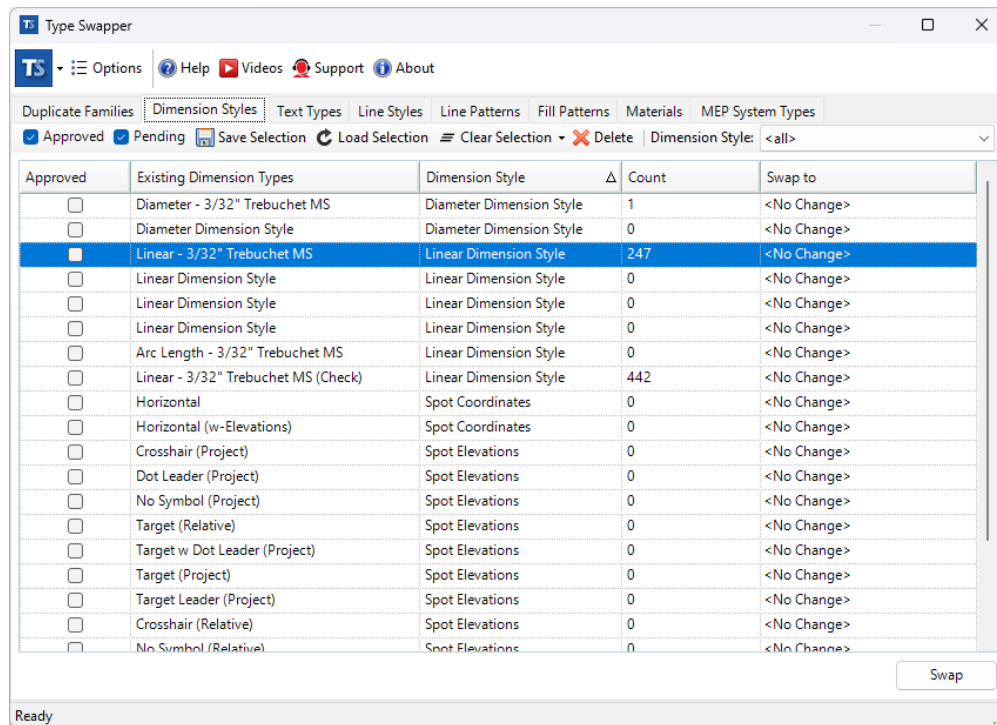
Type swapper provides the ability to change the type or style used for existing instances of text, dimensions and line elements in the active project. Duplicate family elements, usually the result of copying elements from one file to another, can also be swapped out for the original family and type.

Starting Type Swapper

On the Revit ribbon, click on the “Type Swapper” button.

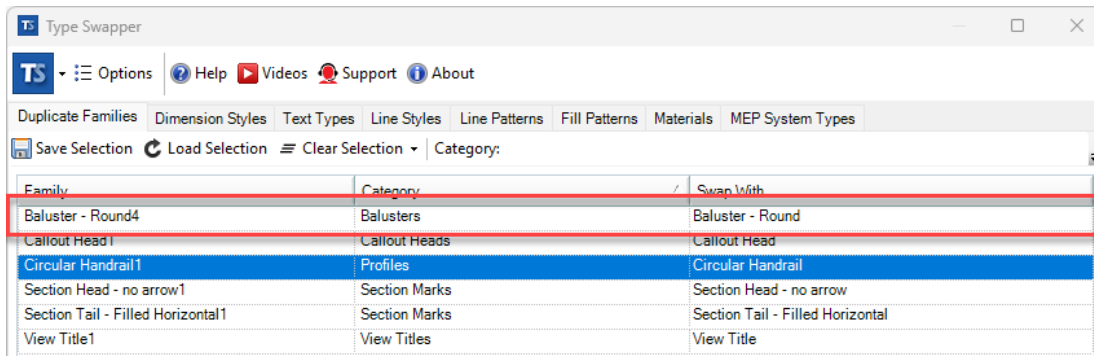


The Type Swapper dialog will appear:

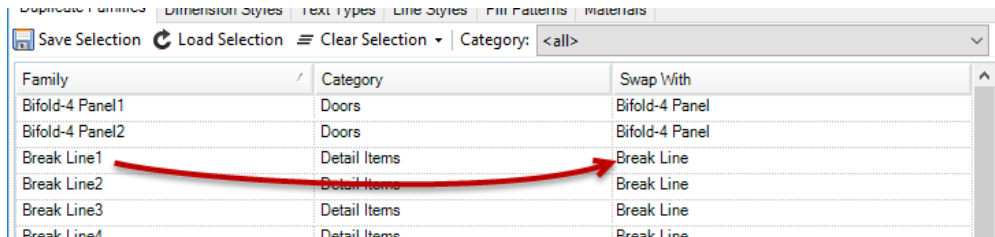


Duplicate Families

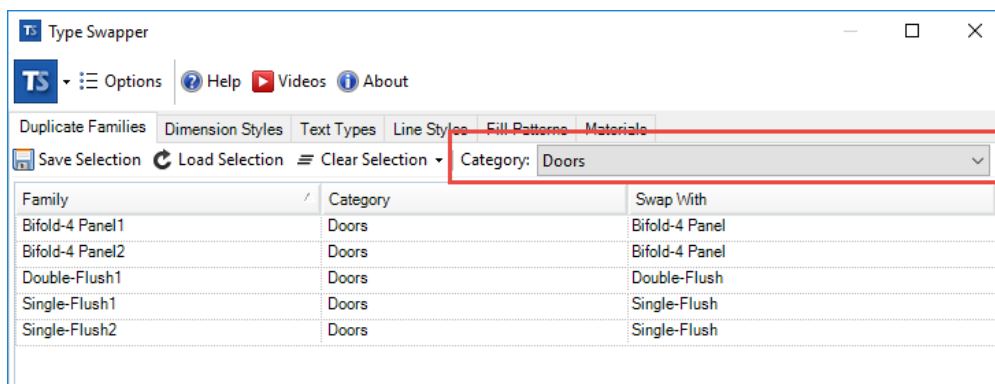
The “Duplicate Families” tab identifies families in the project that follow a naming convention of “<Family Name><number>” which is usually the result of Revit duplicating the family definition when elements are copied from project to project. For example “Baluster – Round4” at the top of the list:



Type Swapper will suggest the original family (typically <Family Name> without the number) from the project as the default “Swap With” option. In this example the “Baluster - Round” type has been selected by default.

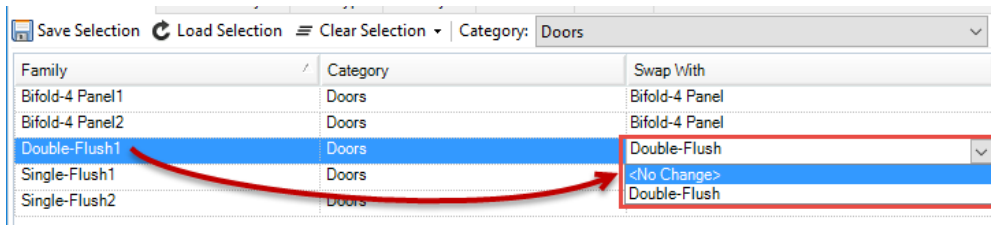


The list of families shown can be filtered by category by using the “Category” dropdown. By selecting the “Doors” category only duplicate doors are shown in the dialog below.

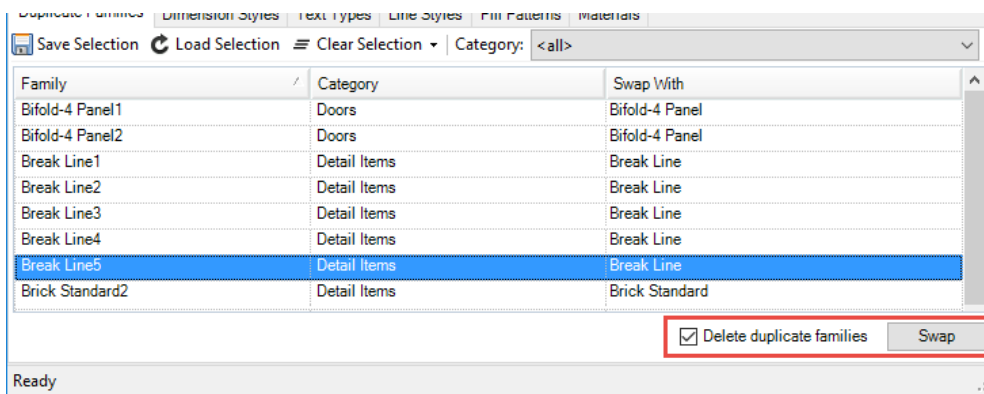


If a promising candidate for swapping can be found, it is selected in the “Swap With” column automatically. In the example above, “Single-Flush” is a promising candidate for the “Single-Flush1” family that was found.

To prevent an unwanted swap, simply select the “<No Change>” option from the dropdown for each family.

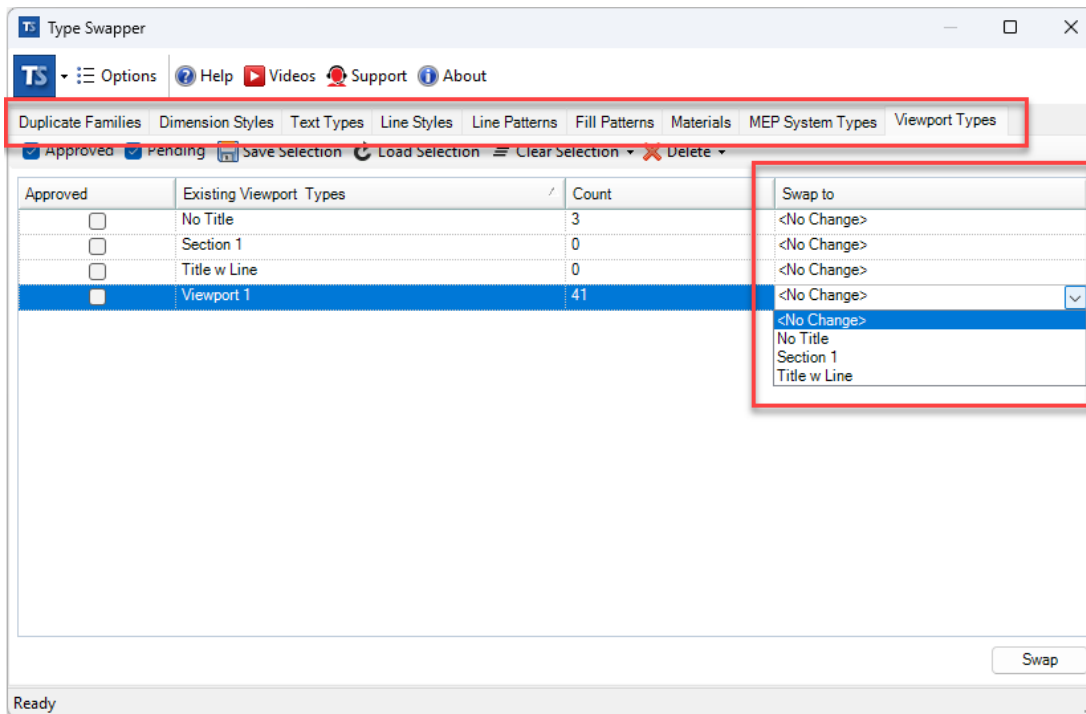


Once all families have been configured with the desired “Swap With” options, click the “Swap” button at the bottom of the window to swap the types used on the instances of the families in the project. The “Delete duplicate families” option will remove the duplicate family once all instances have been swapped for the mapped type.

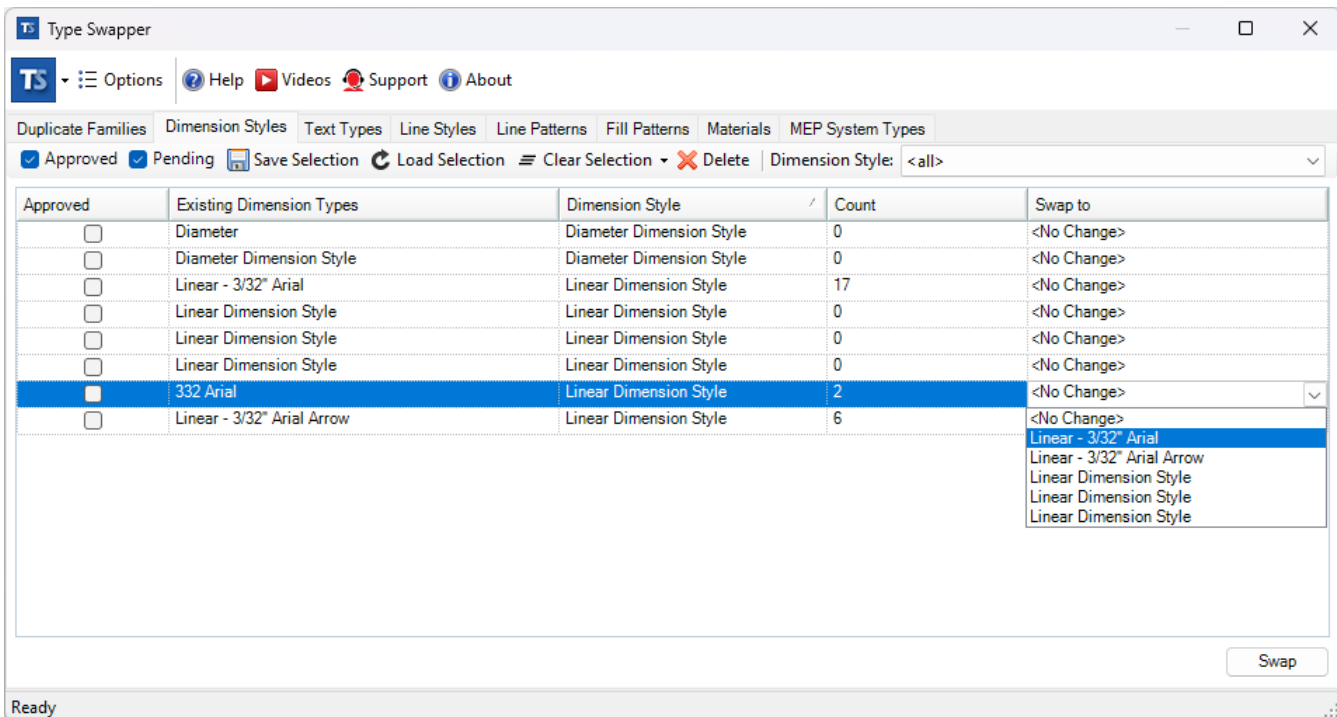


Swapping Elements

The “Text Types”, “Dimension Styles”, “Line Styles”, “Line Patterns”, “Fill Patterns”, “Materials”, “MEP System Types” and “Viewport Types” interfaces work in a similar way to the “Duplicate Families” tab, however no mappings will be suggested by default.



To map a change, select an option from the “Swap to” dropdown menu for each text type. In this classic example 332 *Arial* is being swapped for the 3/32” *Arial* text style.



Approved Styles and Types

Administrators can specify by name which text types are approved for use by checking the “Approved” checkbox for each type or style. This provides clarification to ensure users are swapping unwanted types for the company standard types. Either check the boxes individually or use the right-click menu to check/uncheck several at a time.

☒ Approved ☒ Pending Save Selection Load Selection Clear Selection Delete | Dimension Style: <all>

Approved	Existing Dimension Types	Dimension Style	Count	Swap to
☐	Diameter	Diameter Dimension Style	0	<No Change>
☒	Diameter Dimension Style	Diameter Dimension Style	0	<No Change>
☒	Linear Dimension Style	Linear Dimension Style	17	<No Change>
☒	Linear Dimension Style	Linear Dimension Style	0	<No Change>
☒	Linear Dimension Style	Linear Dimension Style	0	<No Change>
☒	Linear Dimension Style	Linear Dimension Style	0	<No Change>
☒	3/32 Arial	Linear Dimension Style	2	<No Change>
☒	Linear - 3/32" Arial Arrow	Linear Dimension Style	6	<No Change>

Delete selected

Clear selection

Invert Selection

Set approved

Check selected

Uncheck selected

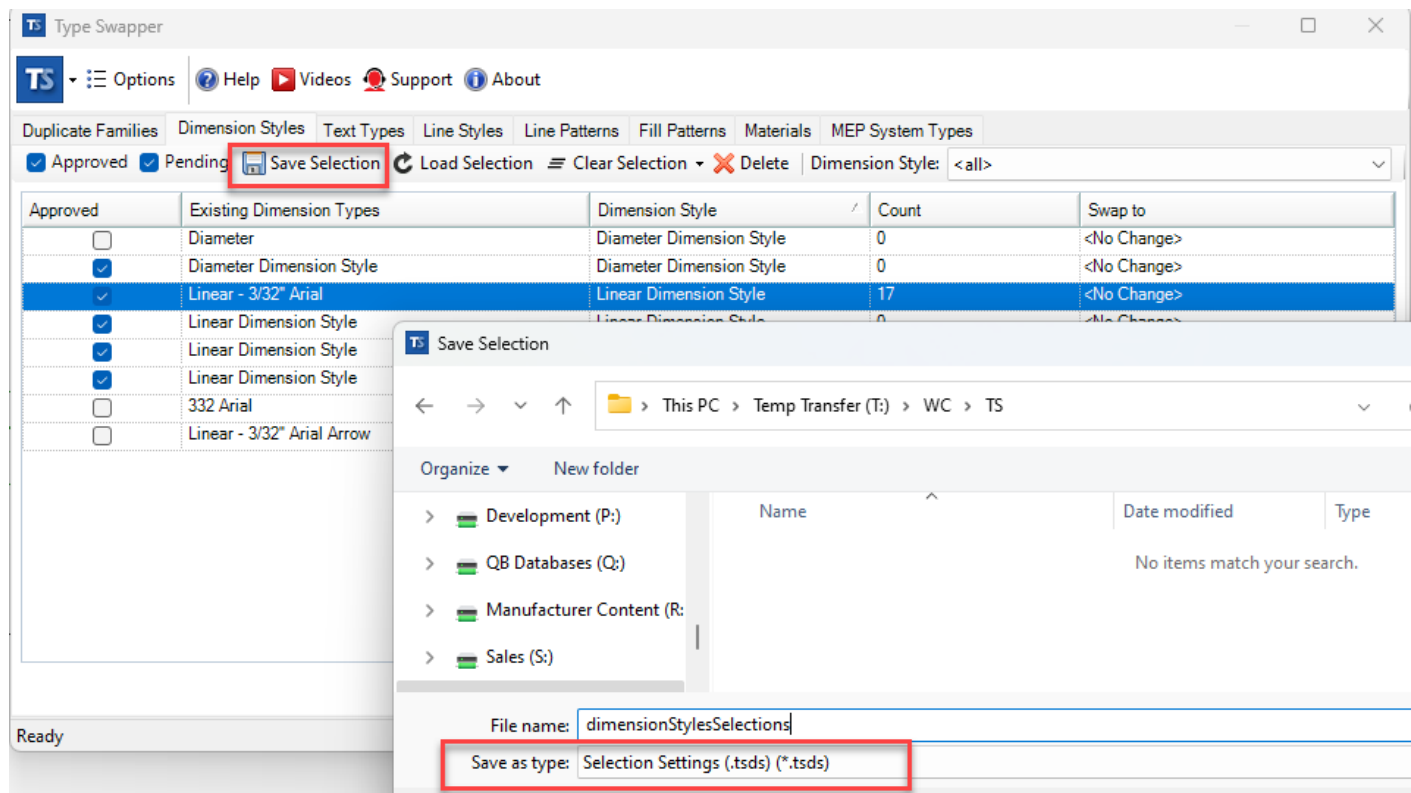
Mark the selected items as approved

Swap

Note: The list of approved types and styles can be both locked and deployed, preventing users from editing which items are approved or not. For more information about securing these settings, please consult the *CTC Suites Installation and Configuration* guide.

Saving and Loading Selections

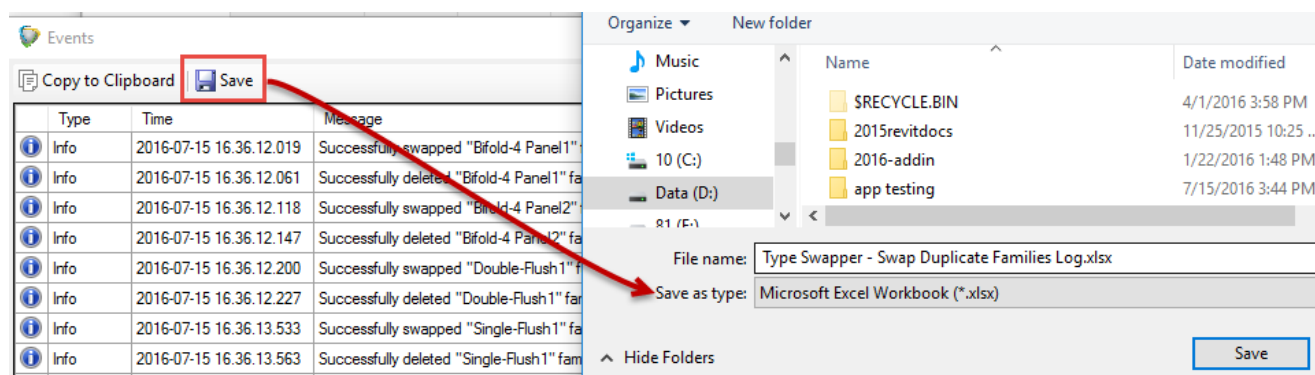
Each of the tabs contain a 'Save Selection' button. This can be extremely useful to recall swap selections that are often needed on multiple projects. Each tab creates a file type corresponding to it's function. For example, saving a selection set from the Duplicate Families tab creates a .tsdf file. Other tabs save to extensions which follow a similar convention.



To load a previously saved selection set, simply click 'Load Selection' and browse to the specific file. If a style or type from the saved selection does not exist in the current project, it will be ignored and omitted from the list.

Process Logs

After each swap operation, a log of the swapped elements and their status is displayed. This log can then be saved to a file which is readable by most common spreadsheet applications.



Appendix

Family Checker Rating Conventions

Properties

HIVE Rating - Average of all 'Global Review' scores

Organization Rating - Average of all 'Corporate Review' scores

FilePath - The path to the Revit family file

FileName - FamilyName.rfa from file being reviewed

FamilyType - "Model" or "Annotation"

Category - Family Category Value

ReviewDate - Date the Family Check was run in MM/DD/YYYY format

ReviewNumber - GUID generated at time of Run

Scoring

IdentityData

Score 5 if URL, Manufacturer and Model values are used

Score 1 if one of the parameters do not have a value

Null or no value if family is Annotation or Category is Detail Component, Mass or Profile

DetailLevel

Score of 0 until all check is completed

5 if each detail level has something different showing in plan view

3 if Coarse is different from Medium and Fine but Medium and Fine are the same

1 if no change is detected for any detail level

NULL (Empty in Excel) if Family type is Annotation or family category is a Mass or Profile

Detail_Level3D

Score 5 if Coarse, Medium, and Fine show different levels of detail in the family while in a 3D view

- Solids and model lines should not have the same settings to not show or show at varying levels of detail

- There should be at least one solid or model line that shows and doesn't show at each detail level
- Solid X doesn't show at medium and coarse
- Solid Y doesn't show at Coarse
- Model Line Z shows at all detail levels
- Model Line A doesn't show at medium and fine

Score 3 if Medium and Fine are the same but Coarse is different

Score 1 if all levels show no change in the family

NULL or no value if Annotation, Profile or Detail Component

VisibilityPlan

Score 0 until further evaluation

Score 5 if All Solid Geometry is off in RefLevel Floor Plan or RefLevel Ceiling Plan views and a detail Item, generic annotation, detail lines or filled region is visible in plan view (Ref Level)

Score 3 if any solid is visible in plan at any detail level, but 2D components also exist in plan... See Optimal rules to determine if 2D content exists in plan

Score 1 if only solid geometry is visible in plan view at any detail level

NULL or no score if Annotation, Detail Item, Mass or Profile

VisibilityGeneral

Score 5 if the family is visible in all views including sections

Score 1 if geometry is not showing in any of the views

NULL or no score if Annotation, Detail Item, or Profile

ImportedContent

Score 5 if no trace of imported content is left behind. (Materials, Sub-Object Styles, etc..)

Score 1 if: Traces of Imported geometry remains in the model

GeometryFlex

Score 5 if the geometry in family is constrained

- Solids must have sketch locked to reference planes and non-sketched faces locked to reference planes
- Detail/Model Lines must have ends soft constrained to other linework and position locked to a reference plane
- Detail Items must have sketch locked to reference planes

- Nested model families must follow same rules for internal geometry and have placed instances locked to a single reference plane in X, Y and Z directions
- Nested Detail/Annotation families must follow same rules for internal geometry and have placed instances locked to a single reference plane in X and Y directions
- Any arcs in families may be directly dimensioned
- No geometry should be locked to any geometry other than reference lines or reference planes

Score 4 if the family should be reviewed by a person

- If any of the 'Optimal' criteria is not able to be validated for a specific piece of geometry the related _Comments field should state "MANUAL REVIEW RECOMMENDED: " and list any element ID of the component that is being questioned.
- If the component is in a nested family, list the name of the nested family

Score 1 if the family has geometry that is not constrained per rules in Optimal settings

- If Action required is used the related _Comments field should state "MANUAL REVIEW REQUIRED: " and list any element ID of the component that is being questioned.
- If the component is in a nested family, it will list the name of the nested family

NULL or no score if Family_Type is Annotation Symbol

TypeFlex

Score 5 if No error show when loading a family into a project and family is generating all available types without error

Score 1 if Errors appear when loading or if when the type is changed the model flexes with errors

HostFlex

Score 5 if family is able to be placed in host and host can flex 30% larger and smaller with no warnings

Score 1 if optimal rules are not met

Null or no score if Family is un-hosted or is line based, Annotation, Profile or Detail component

MEPConnectors

Score 5 if connections exist in the family

Score 1 if 'Category' is MEP related based on discipline association settings but no connectors exist in family

Null or no score if 'Category' is not MEP related based on discipline association settings and no connectors exist in family

MEPConnectorDescriptions

Score 5 if (a) Connector Description field is populated and linked to a parameter in the family

Score 4 if description is not populated

Score 3 if Description is populated but no parameter is linked

Score 1 if Description is not populated and no parameter is linked

Null or empty value if 'Category' is not MEP related based on discipline association settings

MEPConnectorMapping

Score 5 if all linkable Connector parameters are linked to parameters in the main family

Score 4 if:

- not all the important parameters are linked to parameters in the family
- Important connector parameters are parameters not in the 'Identity Data' group in the connector properties
- Currently Utility and Connector Description are the only parameters in the Identity Data group
- In related _Comments, "Action Recommended: " and List element ID values for each connector where action is recommended

Score 3 if Important parameters are linked to parameters in the family

- Important connector parameters are parameters not in the 'Identity Data' group in the connector properties
- Currently Utility and Connector Description are the only parameters in the Identity Data group

Score 1 if no connector parameters are linked to parameters in the family

Null or empty if 'Category' is not MEP related based on discipline association settings

MEPConnectorDirection

Null or empty if 'Category' is not MEP related based on discipline association settings and no connectors exist in the family

Also NULL if all connectors in the family are electrical connectors

Score 5 if Duct, Pipe, Conduit or Cable Tray connectors have the arrow (Connector Direction) pointing away from the solid on which they are hosted

Score 1 if Value 5 and NULL rules are not met

MEPConnectorLinking

Null or empty if 'Category' is not MEP related based on discipline association settings

Score 5 if the system type is set to “Global” or “Fitting” and there is more than one connector in the family of the matching system type, then there is a link between 2 connectors of the type fitting or of the type global

Score 3 if connectors are linked but are not of type fitting or global

Score 1 if more than one connector of type fitting or global exists but there is no link

MaterialApplication

Score 5 if all solid geometry has the ‘Material’ parameter linked to a material parameter in the family and material is not ‘By Category’

Score 4 if all solid geometry has the ‘Material’ parameter linked to a material parameter in the family and any material is ‘By Category’

Score 3 if any solid geometry has material assigned but not linked to a parameter

Score 1 if any geometry doesn’t have a material assigned to it and is not linked to a parameter

Null or empty if FamilyType is Annotation, Profile or Detail Component

Score 1 If Structural Material value exists and is NOT filled with a non-‘Default’ Material

Null or empty If Structural Material Value does not exist or is not using Structural Categories

MaterialPhysicalProperties

For Categories Structural Columns, Structural Framing, Structural Foundations, Structural Connections,

Score 5 If all materials referenced by types in the family have physical properties

Score 3 If more than 50% of materials referenced by types in the family have physical properties

Score 1 If no materials referenced by types in the family do not have physical properties

Null or empty if family is not using Structural Categories

MaterialThermalProperties

For categories Doors, Windows, Curtain Wall components and Structural elements:

Score 5 If all materials referenced by types in the family have thermal properties

Score 3 If more than 50% of materials referenced by types in the family have thermal properties

Score 1 If no materials referenced by types in the family do not have thermal properties

Null or empty if family is not using Arch Categories Categories

TypeCatalogUsage

Null or empty if FamilyType is Annotation

Score 5 if a type catalog exists in the same directory as the family and the family has fewer than 2 types OR (no type catalog exists AND the number of types in the family is equal to or fewer than 5)

Score 4 if a type catalog exists, but the types in the family are the same name as the types in the type catalog

Score 3 if the number of family types in the family is equal to or fewer than 10 and no type catalog exists

Score 2 if the number of family types is equal to or fewer than 15 and no type catalog exists

Score 1 if the number of types is greater than 15 and no type catalog exists

OmniClassNumber

Null or empty if FamilyType is Annotation

If FamilyCategory is Detail Items or Mass:

Score 5 if NULL Rules do not apply and OmniClass Number has value

Score 1 if NULL Rules do not apply and OmniClass Number has no value

AssemblyCode

Null or empty if FamilyType is Annotation

If FamilyCategory is Profile, Detail Items or Mass:

Score 5 if NULL Rules do not apply and OmniClass Number has value

Score 1 if NULL Rules do not apply and OmniClass Number has no value

Warnings

Score 5 if no warnings are found in the family

Score 1 if any warnings are found in the family

Corporate Review Information

MasterSharedParamater

Score 0 at start until one of the following values update it

Score 5 if the Shared Parameter is found in the Master shared parameter files and

- Shared parameter name matches
- Shared parameter GUID matches
- Shared parameter data type matches

Score 3 if:

- the parameter is a family parameter (not a shared parameter) and
- the parameter name is not found in the Master shared parameter file

Score 1 if a parameter is a Shared Parameter and is NOT from the master list

Null or no value if Family type is Annotation or Family Category is Profile

CustomParameter

Score 5 if the parameter:

- Is a Family parameter
- Does not use any of the values found in the invalid name parts list on the Name Rules tab in Options
- Is grouped properly per the valid groups tab in Options
- Is prefixed with a valid name part
- Is group in the 'Other' parameter group

Score 4 if the parameter

- Is a family parameter
- Does not use values found on the Invalid Name Parts
- Is Grouped in 'Other' parameter group

Score 3 if the parameter:

- Is a Family parameter
- Does not contain any of the values found in the invalid name parts list on the Name Rules tab in Options

Or

- Is not grouped properly per the valid groups tab in Options and is not prefixed with a valid name part

- Is prefixed with a valid name part and is not Grouped in the 'Other' parameter group

Score 1 if Parameter

- Is a shared parameter but is not found in the Master shared parameter file
- Is a shared or family parameter and a similar parameter exists in the master list but one of the following conditions apply
 - Same Name / different GUID
 - Same GUID / Different name
 - Same Name / Different Data Type
- Is a shared or family parameter and contains any of the values found in the invalid name parts list on the Name Rules tab in Options

Null or no value if Family type is Annotation or Family Category is Profile

ParameterGrouping

Score 5 if all parameters are grouped appropriately and appropriate groupings determined by the settings on the Valid Groups tab in options

Score 1 if parameters are not group appropriately per settings in Valid Groups tab in options

FileSize (KB)

Score 5 File Size less than or equal too setting by category

Score 1 file size is greater than setting

SubcategoryStandard

Score 5 If no sub-categories exist in families not available from the Sub-Categories Settings and no custom subcategories are empty/unused (Company Specific)

Score 3 if no sub-categories exist in families not available from the Sub-Categories Settings but at least one custom subcategories is empty/unused

Score 1 Sub-Category is custom (Not built in) and is not in the Sub-Categories Settings list

SubcategoryUnused

Score 5 if Each custom Sub-Category has geometry assigned

Score 3 if Sub-Category is listed in the Sub-Categories Settings list, but has no geometry assigned

Score 1 if Sub-Category is custom (Not built in), not listed in the Sub-Categories Settings list and has no geometry assigned

ApprovedParameter

Score 5 if more than 50% of custom parameters match shared parameters or if there are no custom parameters

Score 3 if more than 0, but less than or equal to 50% of custom parameters match shared parameters

Score 1 if custom parameters exist and no parameters match the shared parameter file

Null or no value if:

- Family_Type = Annotation
- Family Category = Profile

ParameterName

Score 5 if

- parameter name has no special characters: + - / \ * () " ' < > | ^ \$ { } [] ,
- Has no other parts from the 'Invalid name parts' list

Score 1 if any of the above rules are broken

Preview

Score 5 if family preview settings match HIVE Preview Generator settings

Score 1 if any of the above rules are not met

Score NA if family is not sourced from HIVE

ReferencePlaneName

Score 5 if every reference plane has a value in the name parameter

Score 4 if less than 25% of the reference planes are not named

Element ID of unnamed reference planes recorded in related comments field

Score 3 if less than 50% of the reference planes are not named

Element ID of unnamed reference planes recorded in related comments field

Score 1 if greater than 25% of the reference planes are not named

Element ID of unnamed reference planes recorded in related comments field

Null or no value if FamilyType is Annotation