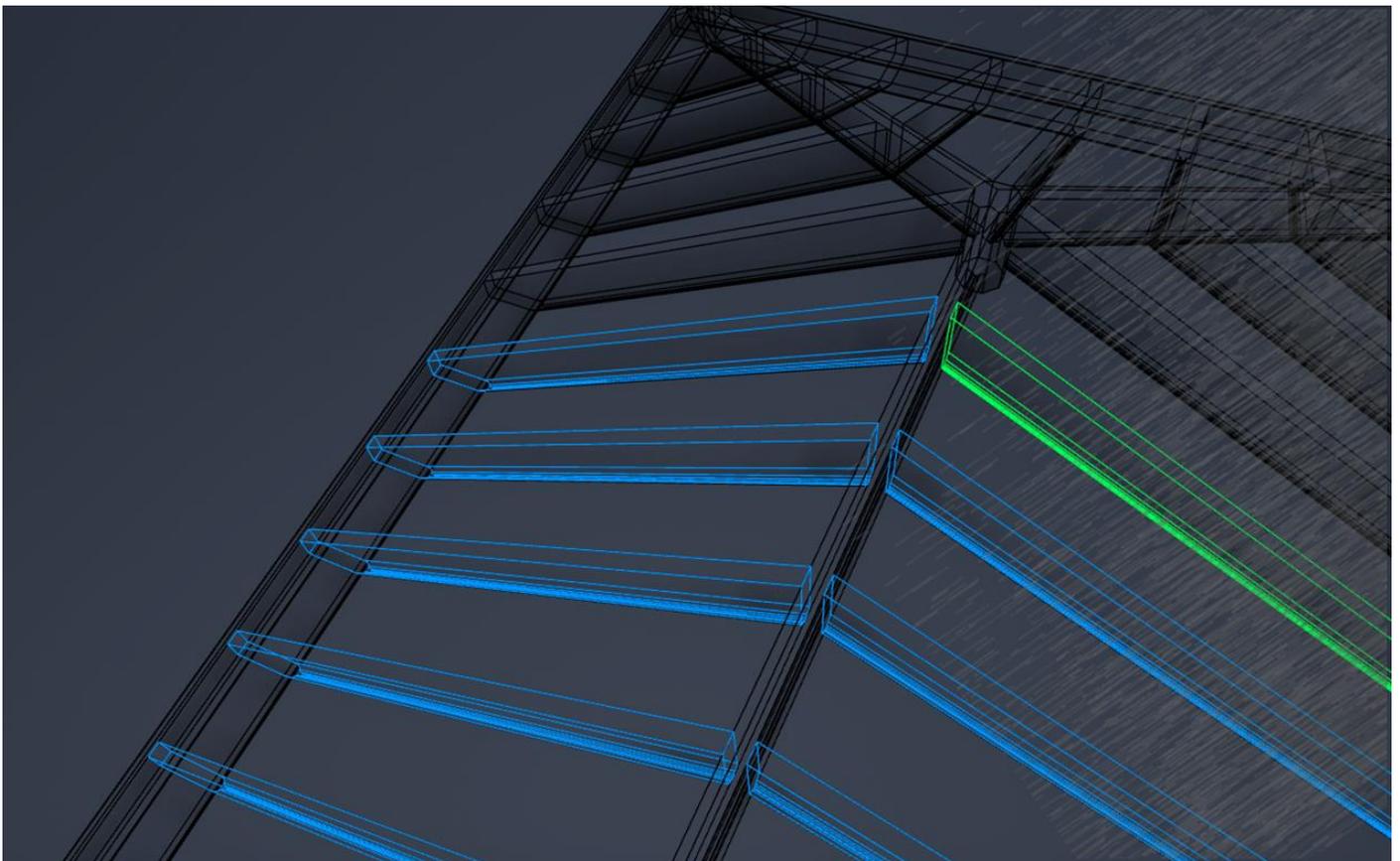


# THE DUPLICATE REPLACER APP

FOR AUTODESK® INVENTOR®

# HELP PDF



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# OTHER RESOURCES

[Walkthrough Video](#)

[New Features for Autumn / Fall 2022 Video](#)

## WHAT ARE DUPLICATES?

The **Duplicate Replacer** addin for Autodesk Inventor solves the problem of duplicate part files in an assembly, without the use of Vault. It allows [auto-replacement of duplicate components](#) or [auto-merging of the Part Number iProperty for duplicate components](#).

What do we mean by 'duplicates'? We mean that two or more **part files** contained in the assembly have geometry that is exactly the same as each other, and if the solid geometry of the parts were rotated and laid on top of each other, they would match perfectly. We're not talking about multiple instances of the same part file (like a component pattern for instance), we're talking about an assembly containing multiple .ipt part files that are identical.

Why is this a problem? Let's look at an example.

### TYPICAL SCENARIO:

You've created an assembly and you're ready for manufacture, but you suspect (or know) it contains duplicate parts. Below are some common workflows for handling these. (Spoiler - we prefer the last option).

#### 1) IGNORE IT

This means you will issue a parts list/cut list with potentially many more rows than are required, and potentially create multiple drawings and manage multiple files when you only actually need to create and manage one file (per group of duplicates). This can create a large amount of extra work, and further duplication of effort for all downstream consumers of the CAD data.

#### 2) PLACE AND CONSTRAIN MANUALLY

Attempt to predict which parts will be duplicates, and only use the 'Make Components' tool on ONE of the group of duplicates, and either pattern or manually place and constrain additional copies of it around the assembly as required. This can be a **lot** of work. Also it is not always clear and sometimes impossible to see which parts will be duplicates once handling, orientation, small drillings etc. are considered.

#### 3) PART NUMBER IPROPERTY OVERRIDE

Attempt to merge identical items by giving them an identical Part Number iProperty either by assuming that parts with identical volume in the BOM are the same (this is dangerous and will lead to all kinds of mistakes!) and giving them the same Part Number, or attempting to merge the Part Number iProperty using concatenated parameter values with iLogic or similar - this works in some cases, but it is difficult to cover all possible variations of a part with iLogic. Also this is not relevant for bespoke items.

#### 4) USE THE VAULT SEARCH DUPLICATES TOOL

[This tool](#) was added to paid versions of Vault starting with release 2020.2. It searches for duplicates against files already in the Vault only. Therefore with the Vault tool you would need this long workflow:

- 1) Check the entire assembly into Vault.
- 2) **Wait** for the Vault Job Processor to index the parts for duplicates....
- 3) Run the Vault Duplicates tool inside Inventor.
- 4) Right click one-by-one on **each** part file in the duplicates list to replace it from Vault.
- 5) **Clean up** the Vault to remove the redundant parts that have been replaced.

## 5) OUR FAVOURITE - USE THE DUPLICATE REPLACER APP

The app quickly scans the active assembly, shows you all the groups of duplicates and allow them **all** to be replaced (with any member of each group) in one operation.

Note – Also - if you are a Vault Duplicate Search user, now you've cleaned up the assembly with respect to *itself*, you could perform a check of your cleaned-up assembly against the Vault and replace from the Vault also. Beautiful.

## SUGGESTED USE-CASES

Consider using The Duplicate Replacer to solve your duplicate part issues if any of the below apply:

- 1) **You don't have a paid version (Workgroup/Professional) of Autodesk Vault.**  
*The Duplicate Replacer only requires Autodesk Inventor, not Vault.*
- 2) **You wish to perform 'bulk' replacements of components in the active Inventor assembly.**  
*The Vault Search Duplicates tool does not allow bulk replacement of parts. Only one part file at a time, and only using parts that are already in Vault.*
- 3) **You do have a paid version of Vault, and you are creating bespoke designs.**  
This attractive workflow is suggested:
  - 1) Run **The Duplicate Replacer** on the finished assembly, replacing all duplicates **within** the assembly.
  - 2) Run the Vault Search Duplicates tool to check the remaining files against Vault, and replace any duplicates with the **Vaulted** files.
  - 3) Upload this 'cleaned-up' assembly into Vault.
- 4) **You wish to create an automatically merged BOM/cutting list at any stage of the design process.**  
*Part Number iProperty replacement is a powerful alternative included in the app, and allows you to reliably merge parts in the BOM automatically if they are recognised as being duplicates.*

*See FAQ 3 for more detail.*

## HOW DOES THE APP WORK?

The **Duplicate Replacer** scans the active assembly, identifies 'groups' of part files having identical geometry, and shows the user these in a simple tabular format. The user can then replace all the components in each 'group' of duplicates with one member of the group of duplicates, or alternatively, simply replace all the Part Number iProperties with an identical value for all the parts in each 'group', making them merge in the Inventor BOM.

The assembly structure is maintained when components are replaced. If a part originally in sub-assembly 'Cabinet\_2.iam' is replaced, the replacement component will also be placed in the same sub-assembly.

Replacement components are un-constrained, and grounded.

# SHOULD I REPLACE COMPONENTS, OR JUST IPROPERTIES?

Replacing iProperty values using **The Duplicate Replacer** will enable a merge of identical items in the Bill of Materials. Some Inventor users/companies may prefer to replace the components themselves for the below reasons:

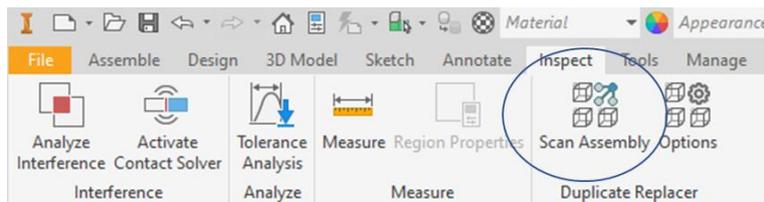
- 1) **Reduce part file count.** The replaced part files can be deleted on disk once the replacement is complete.
- 2) **Woodwork for Inventor BOM.** If you are using the Woodwork for Inventor addin, the Woodwork Bill of Materials does not currently allow row merge by Part Number iProperty, therefore you will need to replace the actual components using **The Duplicate Replacer**.

Also see FAQ #3 below.

## ACCESSING THE TOOL

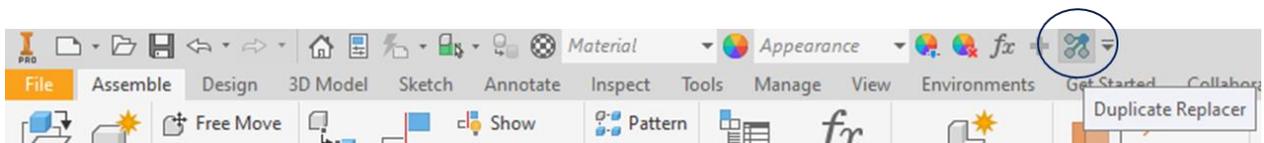
The tool is only used inside Inventor assembly files, not part files. There are 3 ways to access the tool:

- 1) Inspect Tab > Duplicate Replacer.



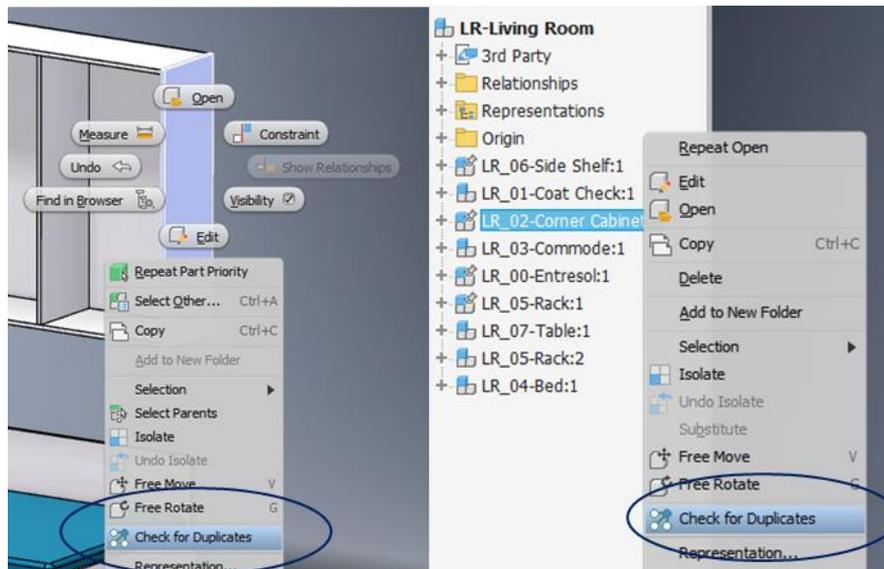
*Tip: You can pre-select components in the graphics window to scan for duplicates of **only the selected components** (including sub-components if a sub-assembly is selected). This also applies to the Quick Access Toolbar button below, and is useful for speed when working on large assemblies.*

- 2) Quick Access Toolbar



- 3) Right Click Menu

Select any component(s) in the graphics window *or* the assembly tree and right click > Check for Duplicates.



*Tip: As with the pre-selection methods above, this will then scan the entire assembly for any duplicates of the selected components.*

## BEFORE STARTING

Before using **The Duplicate Replacer** to replace duplicates in an assembly file, consider whether the assembly model is finished or not. If it is, then you can proceed with using the tool. But if not (or if it might be copied and modified for a future design), it is advisable to first take a copy of the assembly, and then use **The Duplicate Replacer** in the copied assembly\*. Why?

*\*This advice (and the below advice) only applies when using the app to replace **components**, and doesn't apply for [replacing iProperties](#)*

- 1) The app deletes constraints. Any assembly constraints or joints that exist will be silently deleted if the constrained part is replaced using **The Duplicate Replacer**.
- 2) Future modifications to replaced components. After **The Duplicate Replacer** is used, later modifications to any of the replaced duplicate parts will be reflected across ALL the duplicate parts in that particular group, which is unlikely to be the design intent.
- 3) There is currently no 'update all duplicate replacements' tool in **The Duplicate Replacer**. This is likely to be a future enhancement. Currently the tool is designed to be run once only, on completed assemblies.

If you decide to copy the assembly before using **The Duplicate Replacer**, we suggest using the Vault Copy Design tool, or the [iLogic Design Copy](#) tool, or perform an Inventor 'Pack and Go' of the assembly into a new location.

## TYPICAL REPLACE COMPONENTS WORKFLOW

The top-level steps to replace components in an assembly are super simple:

- Run Scan.
- Replace Components.
- Accept Replacements.

However, there are more options if you want them. Below is a more detailed walk-through of this workflow, with additional optional steps mentioned:

- 1) **Run Scan.** Start the tool. The assembly will be scanned for duplicates within seconds. Note you can pre-select components to perform a faster scan for duplicates of only the selected components.



- 2) **View Scan Results.** The table of duplicates will be displayed as a docked window at the bottom of the screen.

Group	File Name	Part Number	Volume (cm <sup>3</sup> )	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Source Part	
+ 1	Varies	Varies	1.10	20.00	9.00	8.00	3	1.0	✓
+ 2	Varies	Varies	13.70	400.00	24.00	9.00	2	2.0	✓
+ 3	Varies	Varies	20.40	381.60	34.40	9.50	2	3.0	✓
+ 4	Varies	Varies	22.00	398.00	45.00	10.00	2	4.0	✓
+ 5	Varies	Varies	868.50	440.00	111.00	18.00	2	5.0	✓
+ 6	Varies	Varies	881.10	696.00	422.00	3.00	2	6.0	✓
+ 7	Varies	Varies	1438.70	440.00	183.00	18.00	2	7.0	✓
+ 8	Varies	Varies	1554.30	771.00	672.00	3.00	2	8.0	✓
+ 9	Varies	Varies	2694.10	1874.00	80.00	18.00	2	9.0	✓

1 Group(s) / 3 Part(s) / 20 Occurrence(s) Selected.



- 3) **(Optional) Review.** Use one of the included tools to review the duplicates that have been found in the assembly. See the [Group View Tools](#) and [Detail View Tools](#) sections.

#### 4) Replace Parts.

Once you are happy to proceed, select all the groups you wish to replace duplicates for, and right click  Replace Parts

Group	File Name	Part Number	Volume (cm <sup>3</sup> )	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Source Part	
+ 1	Varies	Varies	1.10	20.00	9.00	8.00	3	1.0	✓
+ 2	Varies	Varies	13.70	400.00	24.00	9.00	2	2.0	✓
+ 3	Varies	Varies	20.40	381.60	34.40	9.50	2	3.0	✓
+ 4	Varies	Varies	22.00	398.00	45.00	10.00	2	4.0	✓
+ 5	Varies	Varies	868.50	440.00	111.00	18.00	2	5.0	✓
+ 6	Varies	Varies	881.10	696.00	422.00	3.00	2	6.0	✓
+ 7	Varies	Varies	1438.70	440.00	183.00	18.00	2	7.0	✓
+ 8	Varies	Varies	1554.30	771.00	672.00	3.00	2	8.0	✓
+ 9	Varies	Varies	2694.10	1874.00	80.00	18.00	2	9.0	✓

25 Group(s) / 54 Part(s) / 139 Occurrence(s) Selected.

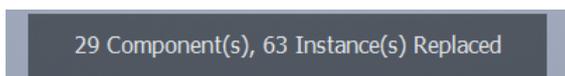
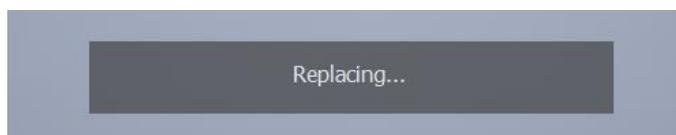
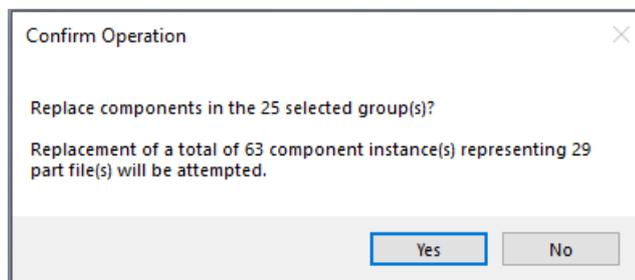
Replace Parts (25 Group(s) Selected)

Replace Part Number Properties (25 Group(s) Selected)

Create An... Add a replacement component on top of each existing duplicate component in the selected group(s). The part file specified as the 'Source Part' will be used as the replacement component for each group.

Select All

Note - after running this command the replacement components AND the original components will exist in the assembly. Use the right click options to review, then to delete the originals when ready.



This will add a replacement component on top of each existing duplicate component in the selected group(s) of components. The part file specified as the 'Source Part' is used as the replacement component for each group.

The icon will show for all the groups with replacements.

+ 3		Un-committed replacement part(s) for this group have been placed in the assembly.									
+ 4		Use the right click options to either accept the replacement part(s) and delete the original(s), or to discard the proposed replacement part(s)									
+ 5		Varies	Solid1004.ipt	421.30	383.30	30.00	22.00	32	3.0		

### 5) (Optional) Review Replacements.

Ok, the replacement parts are added. You now have the option of reviewing the replacement components before accepting (or discarding) them.

Use the [Group View Tools](#) and [Detail View Tools](#) if desired. **Important Note** - At this point the assembly contains **both** the original parts **and** the replacement parts, so this will be reflected when using the tools.

### 6) Accept Replacements.

When ready, select and right click on the relevant rows in the table and hit Accept Replacement Parts.

Duplicate Replacer X +										
Group	File Name	Part Number	Volume (cm^3)	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Replacement		
								Source Part		
+ 52		Varies	Solid705.ipt	1917.30	774.70	275.00	9.00	4	52.0	✓
+ 1		Varies	Solid310.ipt	20.40	360.30	23.00	9.40	5	1.0	✓
+ 43		Varies	Solid818.ipt	1568.40	309.00	282.00	18.00	6	43.0	✓
+ 31		Varies	Solid688.ipt	378.30	378.30	275.00	9.00	6	31.0	✓
+ 42		Varies	Solid1291.ipt					6	42.0	✓
+ 34		Varies	Solid695.ipt					6	34.0	✓
+ 60		Varies	Solid1176.ipt							
+ 56		Varies	Solid163.ipt							
+ 24		Varies	Solid698.ipt							
+ 17		Varies	Solid1029.ipt	605.00	550.00	50.00	22.00	8	17.0	✓

Accept Replacement Parts (10 Group(s) Selected)

Discard Replacement Parts (10 Group(s) Selected)

Isolate

Create

Confirm the replacement parts for each selected group of duplicate files. This will delete all the original duplicate parts in their respective containing assemblies, leaving only the replacement parts.

Note - each original component will only be deleted if a replacement part exists.  
Note - the original part files will not be deleted from disk, only from this assembly file.

Deleting Originals...

29 Occurrence, 63 Instance Replacement(s) Accepted

Job done! The assembly will not look visually different, but your Bill of Materials will now be perfectly merged.

Groups that you have accepted the replacements for will be marked complete.

+ 43		Varies	Solid818.ipt	1568.40	309.00	282.00	18.00	6	43.0	✓	
+ 31		All duplicate parts have been replaced for this group									
+ 42		Varies	Solid1291.ipt	1477.40	378.30	275.00	9.00	6	42.0	✓	

### 7) OR ..... Discard Replacements.

You can cancel the replacement operation by right clicking as shown below.

Duplicate Replacer									
Group	File Name	Part Number	Volume (cm <sup>3</sup> )	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Replacement	
								Source Part	
+ 1	Varies	Varies	226.70						✓
+ 2	Varies	Solid1077.ipt	226.80						✓
+ 3	Varies	Solid1001.ipt	268.40						✓
+ 4	Varies	Solid1076.ipt	344.90						✓
+ 5	Varies	Solid1004.ipt	421.50						✓
+ 6	Varies	Solid1029.ipt	605.00	550.00	50.00	22.00	8	6.0	✓
+ 7	Varies	Solid1239.ipt	692.50	285.00	270.00	9.00	18	7.0	✓
+ 8	Varies	Solid1080.ipt	706.00	784.50	50.00	18.00	18	8.0	✓
+ 9	Varies	Solid1243.ipt	753.30	310.00	270.00	9.00	14	9.0	✓
+ 10	Varies	Solid1000.ipt	862.90	784.50	50.00	22.00	34	10.0	✓

# TYPICAL REPLACE IPROPERTIES WORKFLOW

If you don't need to replace all the duplicate components themselves in the assembly, you may prefer to simply auto-merge all the Part Number iProperties for each group of duplicate components.

The top-level steps to replace iProperties in an assembly are simple:

- 1) Run Scan.
- 2) Select Groups and Right Click  Replace Part Number iProperties.

There are a few other options you may find useful. Here's the detailed steps:

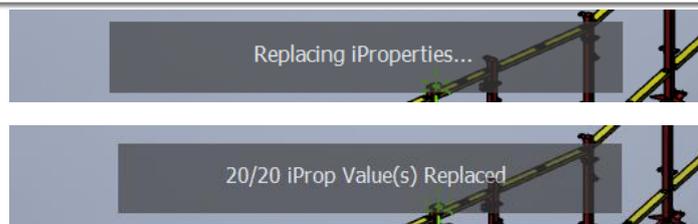
- 1) Follow [steps 1-3 above](#).
- 2) (Optional) [Specify Source Part](#).
- 3) (Optional) [Set the Part Number format](#).
- 4) Replace Part Number iProperties.

Just select any groups in the list, and right click  Replace Part Number iProperties.

Duplicate Replacer									
Group	File Name	Part Number	Volume (cm <sup>3</sup> )	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Replacement	
								Source Part	
+ 1	Varies	TOP_CAP	37.40	114.00	114.00	3.00	8	1.0	✓
+ 2	Varies	Varies	50.30	110.00	100.00	75.00	5	2.0	✓
+ 3									✓
+ 4					5.20	10.00	5	3.0	✓
+ 5					7.80	10.00	2	4.0	✓
+ 6					30.00	16.00	2	5.0	✓
+ 7									✓

Replace all the Part Number iProperties for each selected group of duplicate files. This will ensure that all the duplicate parts in each group have the same Part Number iProperty. The Inventor Bill of Materials will then automatically merge each group of duplicate parts into a single row.

Note - the iProperty value that is written to each duplicate part is that of the 'Source Part' for each group of duplicates (defaults to the first part). This can be edited by changing the 'Source Part' drop-down to SELECT and using the select arrow to pick the desired component.



You can then confirm the Part Number iProperty that has been assigned to any group by checking the Part Number column. See below – all the part files in group 2 now have an identical Part Number and so they will be merged in the BOM.

Duplicate Replacer X +									
Group	File Name	Part Number	Volume (cm^3)	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Replacement	
								Source Part	
+ 1	Varies	TOP_CAP	37.40	114.00	114.00	3.00	8	1.0	✓
+ 2	Varies	95262-STD-Purlin-Cleat-(Roof)-01	50.30	110.00	100.00	75.00	5	2.0	✓
+ 3	Varies	95262-Gusset-DOOR-POST-(ROOF)-01	145.90	287.90	96.20	10.00	5	3.0	✓
+ 4	Varies	95262-Gusset-CNTR-POST-(Roof)-01	153.00	287.90	97.80	10.00	2	4.0	✓
+ 5	Varies	95262-BasePlate-DOOR-POST-(Roof)-01	2775.40	760.00	230.00	16.00	2	5.0	✓
+ 6	Varies	95262-BasePlate-CRNR-POST-(Roof)-01	2775.40	760.00	230.00	16.00	2	6.0	✓
+ 7	Varies	95262-Post_Section-CNTR-POST-(Roof)-01	7406.90	2709.00	120.00	120.00	3	7.0	✓

Duplicate Replacer X +						
File No.	File Name	Part Number	Occ.	QTY		
2.0	C:\Dropbox\Dropbox\...\95262-STD-Purlin-Cleat-(Roof)-01.ipt	95262-STD-Purlin-Cleat-(Roof)-01	168	168	← Source Part	
2.1	C:\Dropbox\Dropb...\95262-STD-Purlin-Cleat-(Floor 9)-01.ipt	95262-STD-Purlin-Cleat-(Roof)-01	72	72		
2.2	C:\Dropbox\Dropbo...\95262-STD-Purlin-Cleat-(ROOF)-0001.ipt	95262-STD-Purlin-Cleat-(Roof)-01	96	96		
2.3	C:\Dropbox\Dropbox...\95262-STD-Purlin-Cleat-(Roof)-001.ipt	95262-STD-Purlin-Cleat-(Roof)-01	86	86		
2.4	C:\Dropbox\Dropbox\...\95262-STD-Purlin-Cleat-(Roof)-02.ipt	95262-STD-Purlin-Cleat-(Roof)-01	24	24		

## 'GROUP VIEW' TOOLS

These are the tools that are available when looking at the table showing all the groups of duplicate parts.

### FILTER GROUPS

These 3 toggle buttons can be used to show or hide the rows (groups) in the table depending on their status.



 Toggle groups that have not been edited (no changes).

 Toggle groups with edits.

 Toggle groups that are completed.

### ISOLATE PARTS

There are 4 filter buttons at the top of the form to isolate different parts:



 Show ALL the parts in the assembly, whether they are a duplicate part or not.

 Show only parts that have been identified as duplicates for the *selected groups only*.

 Show only the 'Source' parts for the *selected groups only*.

 Show only the 'Replaceable' parts for the *selected groups only*.

These tools are useful to review the replace operation before running it.

### COMPARE IPROPERTIES

This powerful tool allows iProperties to be included as criteria for grouping the duplicate parts.

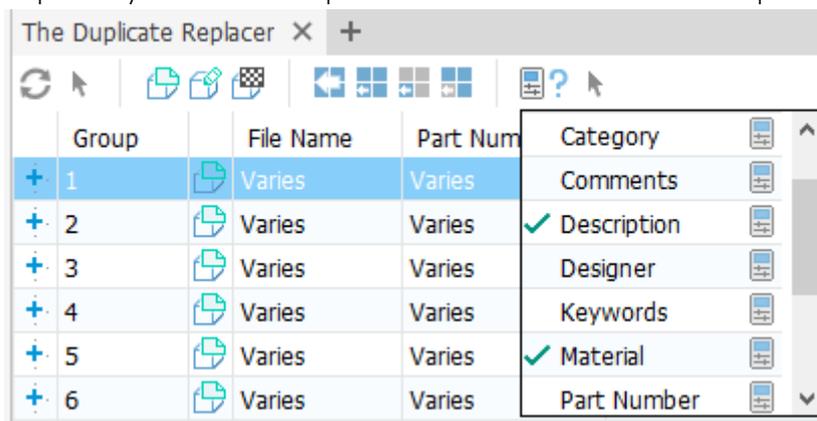


See [this YouTube video](#) for detailed instructions on using this tool.

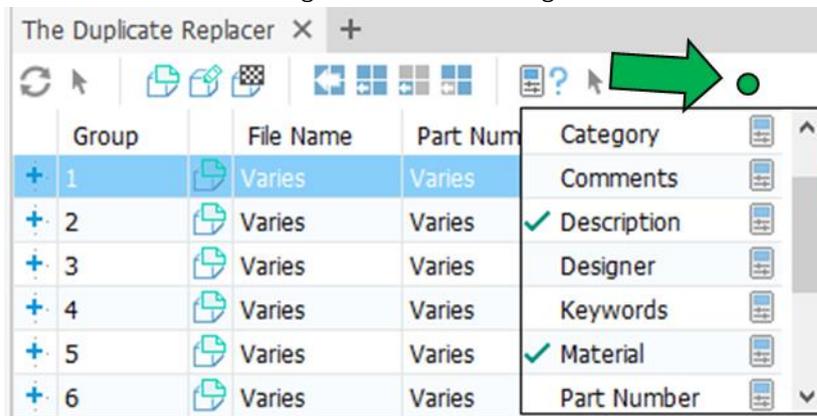
This tool allows you to group the parts not just by *geometry*, but also by iProperty values, for as many different iProperties as you like. For example, if several parts in your assembly have exactly the same geometry, but *different material*, or a different value for a custom iProperty called 'Finish', you can add 'Material' or 'Finish' as a new criteria, and split the group of duplicate parts into new groups based on their assigned material, or 'Finish' value.

### How to Use:

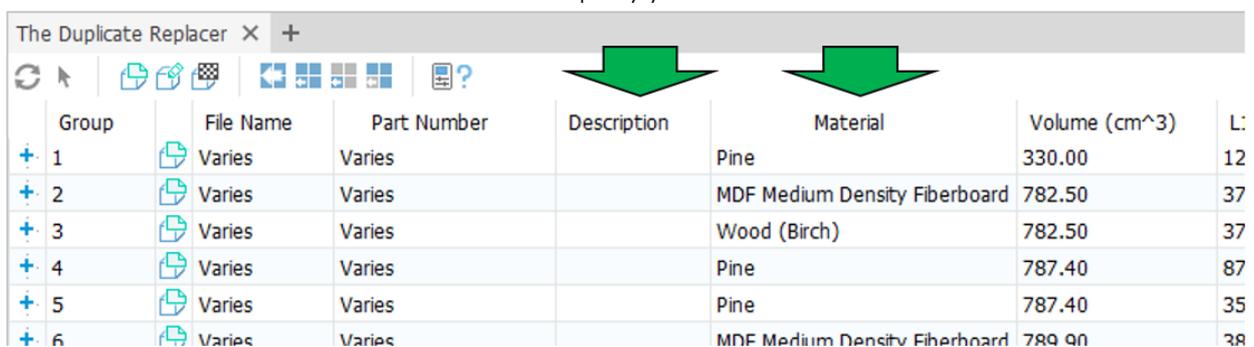
- 1) Hit the  button.
- 2) Select (tick) all the iProperties you want to compare. Below we have selected Description and Material.



- 3) When finished, click somewhere close to the green dot in the image below to exit the selection.



- 4) A new column is added to the table for each iProperty you selected.

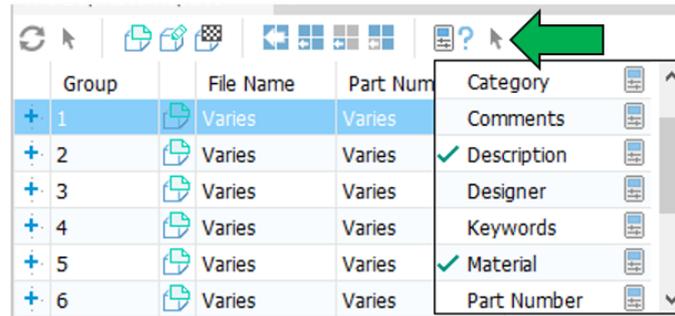


Group	File Name	Part Number	Description	Material	Volume (cm^3)	L:
+ 1	Varies	Varies		Pine	330.00	12
+ 2	Varies	Varies		MDF Medium Density Fiberboard	782.50	37
+ 3	Varies	Varies		Wood (Birch)	782.50	37
+ 4	Varies	Varies		Pine	787.40	87
+ 5	Varies	Varies		Pine	787.40	35
+ 6	Varies	Varies		MDF Medium Density Fiberboard	789.90	38

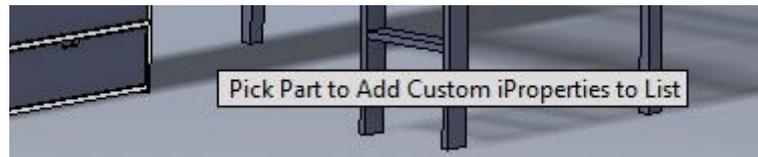
- 5) If any of the original groups contained parts with varying values for the iProperties you selected, there will now be more groups listed in the table, as the groups will be split.
- 6) You can now perform component replace and iProperty replace operations as usual on the (split) groups.
- 7) You can hit the  button to tick or un-tick more iProperties at any time.

## How to add Custom iProperties.

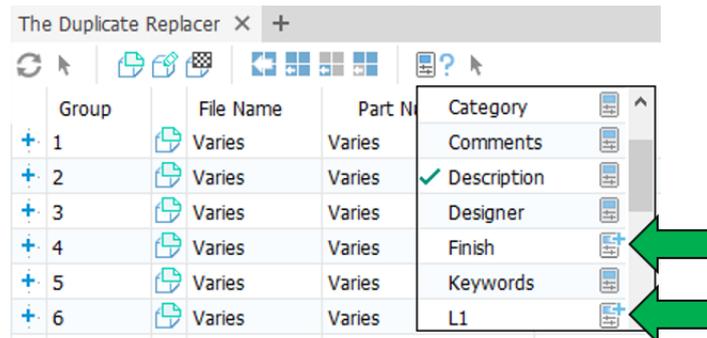
- 1) Hit the  button.
- 2) Hit the cursor icon here:



- 3) Select any part in the model window (or the assembly model tree) that contains the custom iProperty you want to compare.

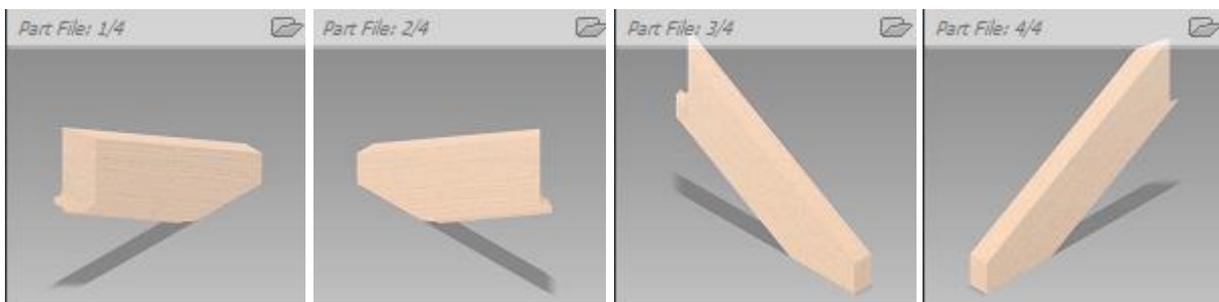


- 4) Any custom iProperties in the selected part will be added to the list with a  icon. Below, 2 custom iProperties called Finish and L1 have been added to the list, available for selection.



## SKIP THROUGH THUMBNAIL IMAGES

Quickly view an image of each part file in a duplicates group by hovering over the thumbnail image and clicking on it. This is useful for a visual confirmation.



Part(s) can be opened directly using the  icon in the top left of the thumbnail image. Several parts can be opened by clicking through if desired.

## ISOLATE GROUP(S)

Select any row(s) in the table and right click to Isolate only the selected group(s) of duplicate components. All other components will be hidden.

Duplicate Replacer X +

Group	File Name	Part Number	Volume (cm^3)	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Replacement	
								Source Part	
+ 7	Varies	Varies	1438.70	440.00	183.00	18.00	2	7.0	✓
+ 8	Varies	Varies	1554.30	771.00	672.00	3.00	2	8.0	✓
+ 9	Varies	Varies	2504.10	1074.00	80.00	18.00	2	9.0	✓
+ 10	Varies	Varies	340.00	18.00	2	10.0	2	10.0	✓
+ 11	Varies	Varies	175.00	18.00	2	11.0	2	11.0	✓
+ 12	Varies	Varies	450.00	18.00	2	12.0	2	12.0	✓

7 Group(s) / 14 Parts

- Replace Parts (7 Group(s) Selected)
- Replace Part Number iProperties (7 Group(s) Selected)
- Isolate All (7 Group(s) Selected)
- Create Arrangement (7 Group(s) Selected)

Isolate only the selected group(s) of duplicate part files. All other components will be made invisible. Note this operation can be reversed by using the right click 'Undo Isolate' option, or by exiting this tool

Right click and hit Undo Isolate to reset the component visibilities.

## CREATE ARRANGEMENT

This creates a new layout assembly in which all the duplicate part files in each group are laid in a separate row. This is a diagnostic / review tool to allow convenient checking of the groups of parts before later replacing them if desired.

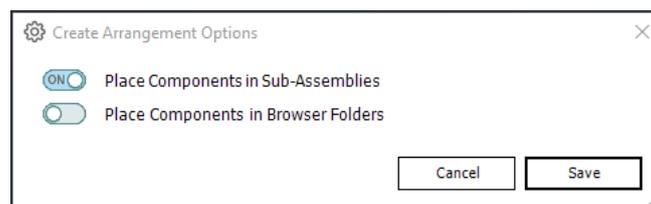
Duplicate Replacer X +

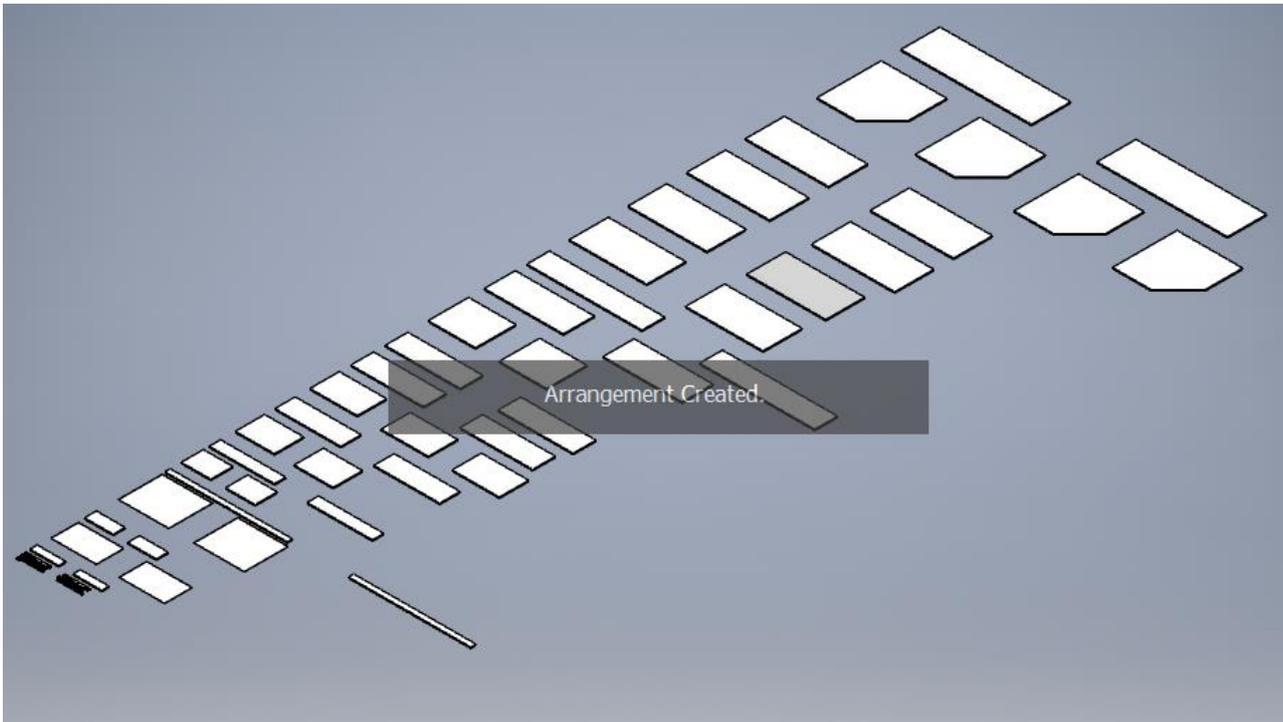
Group	File Name	Part Number	Volume (cm^3)	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Source Part	
+ 6	Varies	Varies	881.10	696.00	422.00	3.00	2	6.0	✓
+ 7	Varies	Varies	1000.00	18.00	2	7.0	2	7.0	✓
+ 8	Varies	Varies	1000.00	3.00	2	8.0	2	8.0	✓
+ 9	Varies	Varies	1000.00	18.00	2	9.0	2	9.0	✓
+ 10	Varies	Varies	1000.00	18.00	2	10.0	2	10.0	✓
+ 11	Varies	Varies	3125.90	1000.00	175.00	18.00	2	11.0	✓
+ 12	Varies	Varies	1000.00	18.00	2	12.0	2	12.0	✓
+ 13	Varies	Varies	1000.00	18.00	2	13.0	2	13.0	✓
+ 14	Varies	Varies	1000.00	18.00	2	14.0	2	14.0	✓
+ 15	Varies	Varies	17017.20	1114.00	1350.00	18.00	2	15.0	✓

- Replace Parts (25 Group(s) Selected)
- Replace Part Number iProperties (25 Group(s) Selected)
- Isolate All (25 Group(s) Selected)
- Create Arrangement (25 Group(s) Selected)

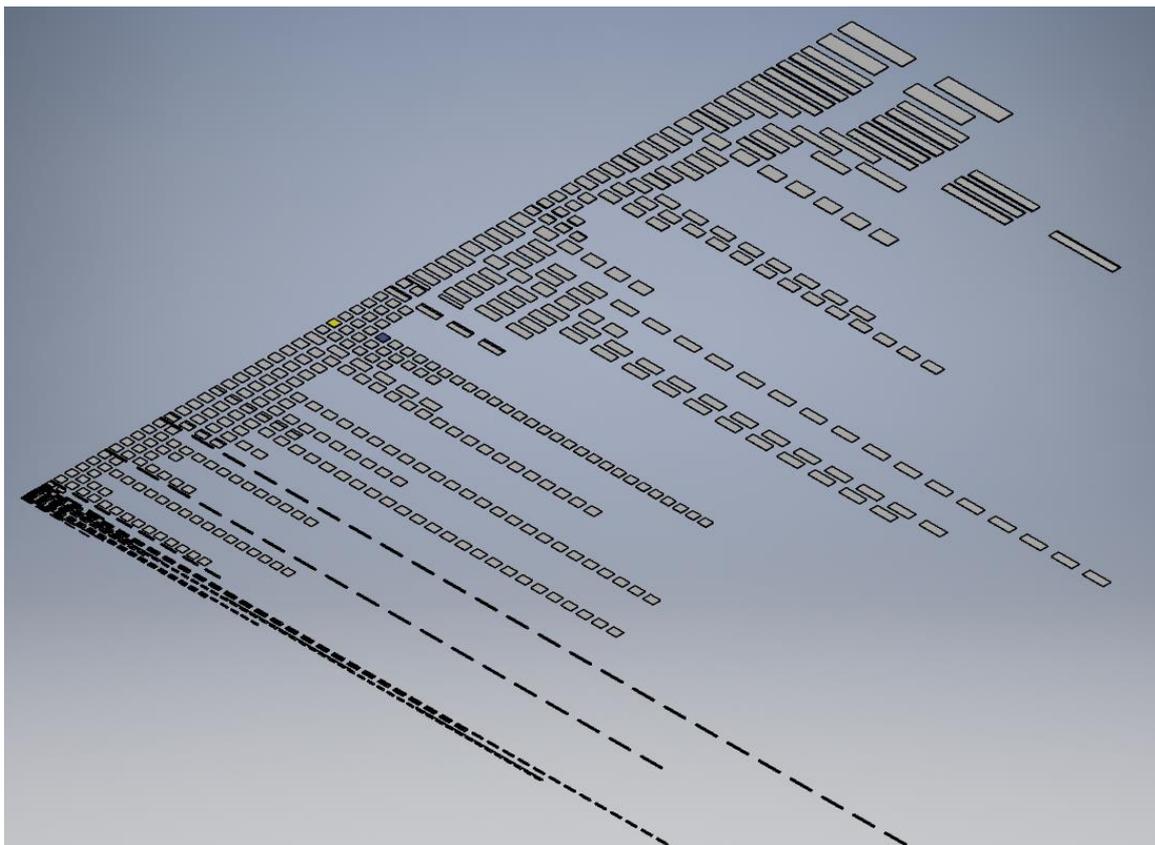
Automatically create a new assembly file and lay out all the selected groups of duplicate part files in rows. One instance of each duplicate part file will be placed. This tool allows all the duplicates to be visually reviewed in a convenient manner. The assembly can be discarded when necessary.

Different sub-options can be accessed by right clicking on the 'Create Arrangement' option in the list, with a choice between placing each group of duplicate parts in its own sub-assembly (a new .iam file is created for each group), or its own browser folder.





*Example screenshot of duplicate files arrangement for a larger assembly*



## WRITE 'EXTENTS' TO CUSTOM IPROPERTIES

The app automatically collects the lengths of a 'rotated' cuboid covering each part. These values can be viewed in the L1, L2 and L3 columns. These values are accurate regardless of the geometry orientation. These values can be written as custom iProperties into each part in any selected group(s) by right clicking as shown below. The iProperties will have 2 decimal places (where applicable) and will be in mm units.

Duplicate Replacer × +

Group	File Name	Part Number	Volume (cm <sup>3</sup> )	L1 (mm)	L2 (mm)	L3 (mm)	File QTY	Source Part
+ 2	Varies	Varies	302.60	747.00	70.00	70.00	2	2.0
+ 3	Varies	Varies	810.40	2000.00	70.00	70.00	8	3.0
+ 4	Varies	Varies	1368.40	2000.00	163.00	70.00	8	4.0
+ 5	Varies	Varies	2244.80	5540.00	70.00	70.00	10	5.0
+ 6	Varies	Varies	2727.80	6732.10	70.00	70.00	8	
+ 7	Varies	Varies	3555.70	5196.80	163.00	70.00	8	
+ 8	Varies	L Channel Bottom Horizontal 1	3790.40	5540.00	163.00	70.00	8	
+ 9	Varies	Varies	4060.60	4540.00	168.00	70.00	8	
+ 10	Varies	External Ceiling Angle Top Horizontal	8892.80	5540.00	270.00	270.00	5	
+ 11	Varies	Varies	56739.90	2837.00	250.00	80.00	8	11.0

Replace Parts (5 Group(s) Selected)  
 Replace Part Number iProperties (5 Group(s) Selected)  
 Create Arrangement (5 Group(s) Selected)  
 Write 'Extents' iProperties (5 Group(s) Selected)  
 Select All Rows

Copy the 'extents' lengths into custom iProperties for each part file in the selected groups.

'Extents' iProperties: 33 Succeeded. 0 Failed

L Channel Vertical 1\_1234\_8.ipt iProperties

General Summary Project Status Custom Save Physical

Name: L3 Modify

Type: Number Delete

Value: 163

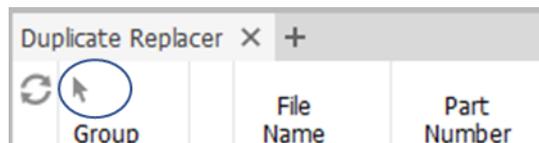
Name	Value	Type
L1	2000	Number
L2	70	Number
L3	163	Number

## FIND IN BROWSER

Right click Similar to the standard Inventor right click 'Find in Browser' option. This will select all the instances of all the components in the group in the assembly tree allowing easy identification. *Note – this option is only available when a single group is selected.*

## 'FIND IN TABLE' TOOL

You may wish to know whether a specific part in the assembly contains a duplicate (after the scan has already been performed). This is the fastest way to find a specific part in the duplicates table. To check this, hit the icon in the top left.



Then select the component of interest in the assembly.

Please select component in assembly to 'Find in Table'

If the component DOES have a duplicate, then a message will be shown, and the group will be selected and highlighted.

You Selected Part in Group 15 (Item 11)

If the component does NOT have a duplicate, the user is notified.

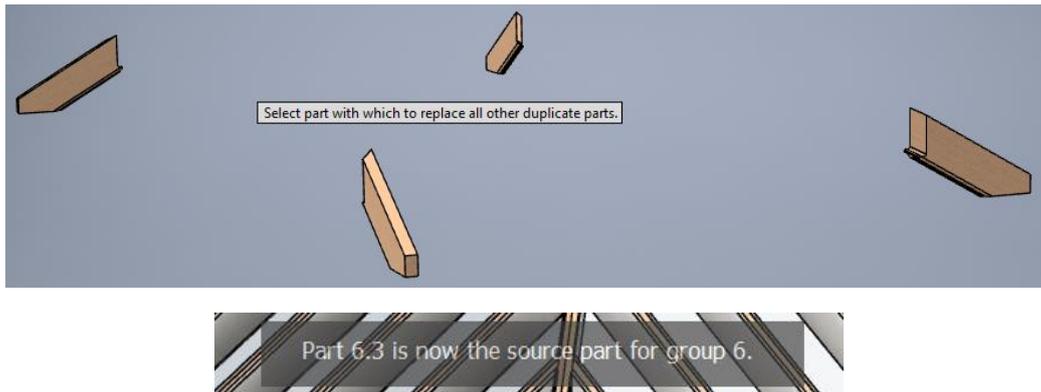
Part is not in any duplicate groups.

Note: this tool is also available in the Detail view.

## SPECIFY SOURCE PART FOR REPLACEMENTS *(OPTIONAL)*

By default, the app will automatically choose the first part in each group of duplicates as the 'Source' part. This is the part file that will be used to replace the component occurrences or iProperty values of all the other part files in that group.

If you wish to specify a different part in any group(s) to be the Source Part, just select the row, then move the cursor over the last column in the table  and the icon will change to . Pick this. You can then visually select the 'Source' component in the graphics window.



## SEE A 'DETAIL VIEW' FOR ANY GROUP *(OPTIONAL)*

To review a detailed list of the part files contained in a particular group of duplicates, click on the  button, or double click on the group row.

# 'DETAIL VIEW' TOOLS

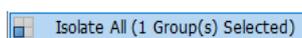


File No.	File Name	Part Number	Occ. QTY	
1.0	C:\Dropbox\Dropbox\DATASETS\Stair Cladding\...\Solid314.ipt	Solid310.ipt	1	 Source Part
1.1	C:\Dropbox\Dropbox\DATASETS\Stair Cladding\...\Solid312.ipt	Solid310.ipt	1	
1.2	C:\Dropbox\Dropbox\DATASETS\Stair Cladding\...\Solid313.ipt	Solid310.ipt	1	
1.3	C:\Dropbox\Dropbox\DATASETS\Stair Cladding\...\Solid311.ipt	Solid310.ipt	1	
1.4	C:\Dropbox\Dropbox\DATASETS\Stair Cladding\...\Solid310.ipt	Solid310.ipt	1	

The Detail View is entered by double clicking on a group row, or hitting the  button. It shows all the part files in a group of duplicate parts, with one part file per row. Each part file may have multiple occurrences in the entire assembly, and this count is given in the 'Occ. QTY' column.

## ISOLATE PART(S)

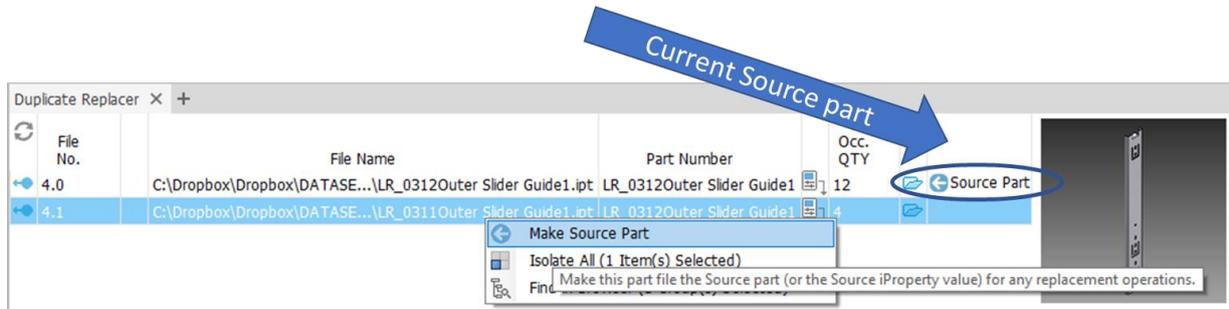
Select row(s) then right click to isolate part file(s). All the occurrences of that part file will be isolated.



## SPECIFY THE SOURCE PART

Right click on any row to make that part file the 'Source Part' for replacements. (see item c. above for an explanation of this).

Below we switch the Source part from the first part in the group (default) to the second.

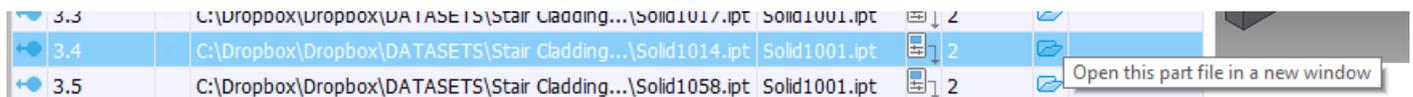


Part 4.1 Specified as Source Part.



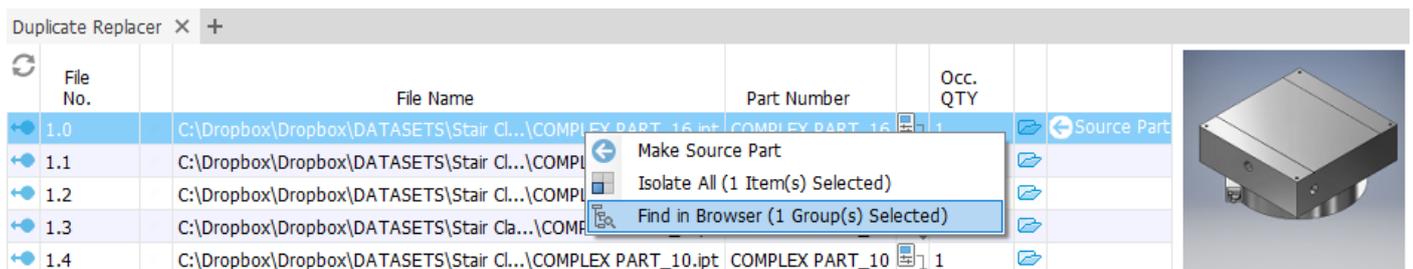
## OPEN FILE

Click on the  button to open the part file in another Inventor window.



## FIND IN BROWSER

Right click  Similar to the standard Inventor right click 'Find in Browser' option. This will select all the instances of the component in the assembly tree allowing easy identification. *Note – this option is only available when a single row is selected.*



## IPROPERTY COPY TOOL

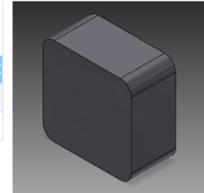
You can use this  tool to make the Part Number iProperty the same value in all the part files in the current group. *Note – this is an alternative to replacing the components themselves with **The Duplicate Replacer**.* Inventor will then merge all the parts into a single row in the Bill of Materials, and give an accurate count quantity of the number of parts.

*Tip: you can do this for all the groups in a single operation from the group view if desired. See [here](#).*

### How to use the iProperty Copy Tool in Detail View

1. Enter the detail view by double clicking on a group or hitting 

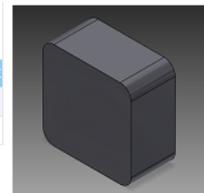
File No.	File Name	Part Number	Occ. QTY	
4.0	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-025-04.ipt	75550-025-04	2	Source Part
4.1	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-031-01.ipt	75550-031-01	1	
4.2	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-030-13.ipt	75550-030-13	1	



- (Optional) – Enter a new Part Number iProperty for any part file in the list. Below a new Part Number has been entered for file 4.1.

*Tip: the new Part Number is not written to the part yet.*

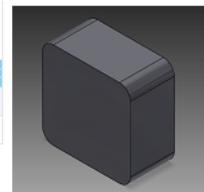
File No.	File Name	Part Number	Occ. QTY	
4.0	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-025-04.ipt	75550-025-04	2	Source Part
4.1	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-...	10001-25	1	
4.2	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-030-13.ipt	75550-030-13	1	



- When ready, copy the desired Part Number to all the other parts in the group by hitting the  icon.

3 PNs Updated

File No.	File Name	Part Number	Occ. QTY	
4.0	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-025-04.ipt	10001-25	2	Source Part
4.1	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-031-01.ipt	10001-25	1	
4.2	C:\Dropbox\Dropbox\DATASETS\OSGOOD DATA...\75550-030-13.ipt	10001-25	1	

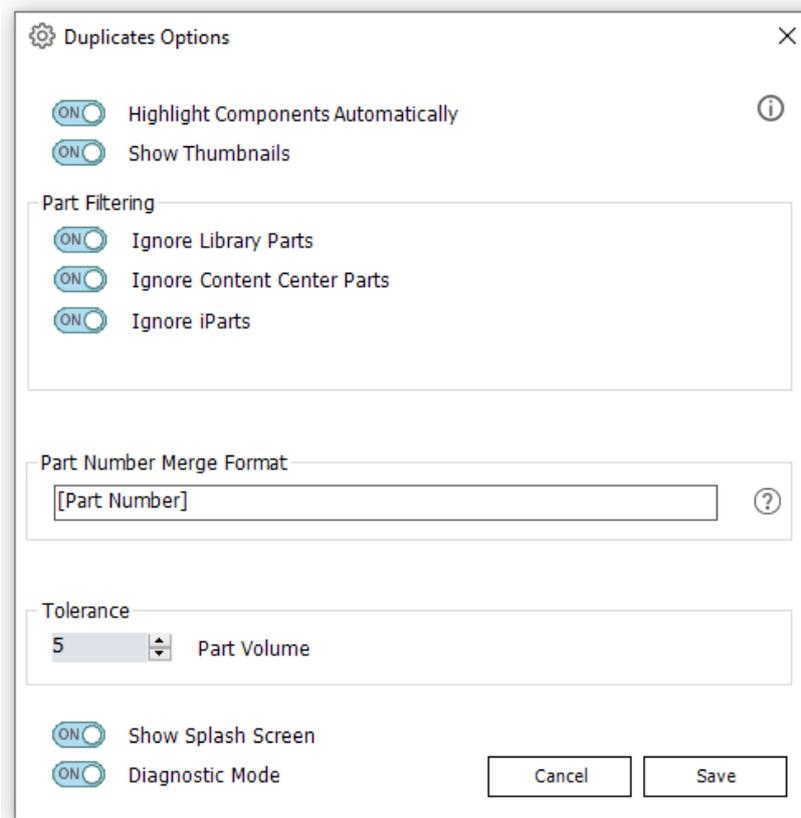


## EXIT DETAIL VIEW

Hit the  icon or double click any row to return to Group View.

# OPTIONS

The options are accessible with the  button in the top right.



#### Highlight Components Automatically.

When activated, selecting any group or detail view items will also highlight them in the Inventor graphics window. This is handy for identification, but on large assemblies of more than 1000 parts you may want to switch this off to improve performance.

#### Show Thumbnails.

When activated, a thumbnail image will display whenever a single row is selected in either group or detail view. Thumbnails can be 'clicked through' and parts can be opened by clicking below the thumbnail.

#### Ignore Library Parts.

Parts in a library folder as defined by the Inventor Project file will be ignored when scanning for duplicates.

#### Ignore Content Center Parts.

Parts in the Content Center folder as defined by the Inventor Project file will be ignored when scanning for duplicates.

#### Ignore iParts.

iPart members will be ignored when scanning for duplicates.

#### Part Number Merge Format

Define the format to be used for the Part Number iProperty, when using the 'Replace Part Number iProperties' tool.

The default value for this is simply [Part Number] – which will set the Part Number iProperty value for all the parts in each group to the same value as the [Source Part](#) Part Number iProperty.

However, you may wish to build a Part Number value from different iProperties in the source part, or even from the file name, or the duplicate group number.

Let's look at some examples.

#### **Example format 1:** [Part Number]

This will use the Part Number iProperty value only.

**Example format 2:** [Part Number]-[Group#]

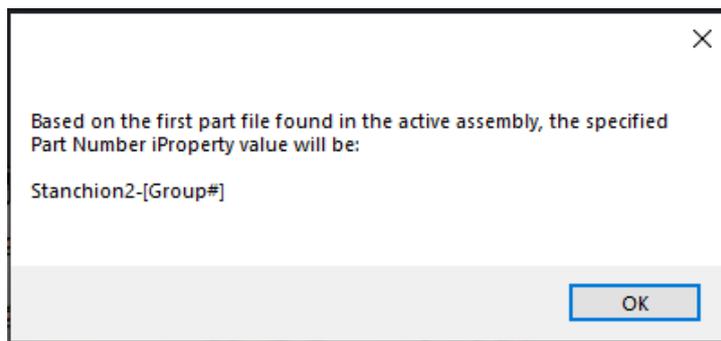
This will include the Part Number and also the duplicate group number (to ensure uniqueness)

**Example format 3:** [Filename]\_GRP\_[Group#]

This will include the filename, free text, and then the duplicate group number.

*Tips: Standard or custom iProperties can be used. Note that the standard iProperties will be searched first, therefore any custom properties you wish to use should not be identically named to any standard Inventor iProperties. Also note that iProperty names are case-sensitive.*

*Tip: Use the  button to see a preview of how the Part Number is specified.*



### Tolerance

Adjust the tolerance used for checking whether parts are identical or not. This value is entered as a volume in cubic mm. A sensible default value is 5 or 10 cubic mm. Using a value of 0 is not recommended as this will apply zero tolerance and may lead to some duplicate parts not being recognised properly.

### Show Splash Screen.

Switch this off to turn off the image that appears when Inventor starts up. If you use the Task Scheduler to automate Inventor tasks you will probably want to switch this off to avoid the splash screen showing when background tasks are running.

### Diagnostic Mode.

This shows more information while scanning the assembly to enable easy identification of potential issues. It should normally be switched off for performance.

## FAQ

### Question 1:

What happens to assembly constraints/joints when the component(s) are replaced?

### Answer 1:

Any constraints or joints on the components will be silently deleted when the components themselves are replaced. For this reason, **The Duplicate Replacer** should be used once the assembly model is complete and the component positions no longer need to be parametrically updated with successive design iterations.

### Question 2:

Can I analyse a *part* file for duplicate solid bodies?

### Answer 2:

Yes, with some pre-work. **The Duplicate Replacer** is only available inside assembly files, but you can use the normal Inventor 'Make Components' tool to turn a multi-solid part file into an assembly file, and then run **The Duplicate Replacer** to analyse and replace. (*This is actually a workflow **The Duplicate Replacer** is specifically designed to address*).

### Question 3:

Why do I need to replace the actual part files? Can't I just merge the Part Number iProperties for identical parts so the parts merge in the Inventor Bill of Materials? And can't I do this using the normal Inventor Bill of Materials?

### Answer 3:

**The Duplicate Replacer** supports both scenarios – replacement of *components*, and replacement of *iProperty values*. In some cases, simply editing the Part Number iProperty values is sufficient, but this can have downsides – you will still be managing multiple .ipt files on your system where you only need to manage one.

In other cases, Part Number iProperty merging is not suitable at all. As an example, for companies using the Woodwork for Inventor (W4I) addin the W4I Bill of Materials does not merge by Part Number iProperty, so component replacement is required.

As an aside, yes, it is possible to attempt to manually merge identical parts in the normal Inventor BOM (without **The Duplicate Replacer**) – however this is risky and error-prone. The oft-suggested method is to sort the Inventor BOM by Volume, then make the Part Number iProperty identical for all parts with the same volume. Of course, this method doesn't allow for mirrored/handed parts, differently positioned drillings, coincidental identical volumes, or user error. The user is also highly likely to forget to re-do this (time-consuming) process if the assembly is modified for any reason, leading to parts being incorrectly identified as identical, and expensive mistakes. **The Duplicate Replacer** prevents these problems. It can be run with a few clicks at any time in the design process to **re-apply** correctly merged Part Numbers.

### Question 4:

Does **The Duplicate Replacer** work with large assemblies?

### Answer 4:

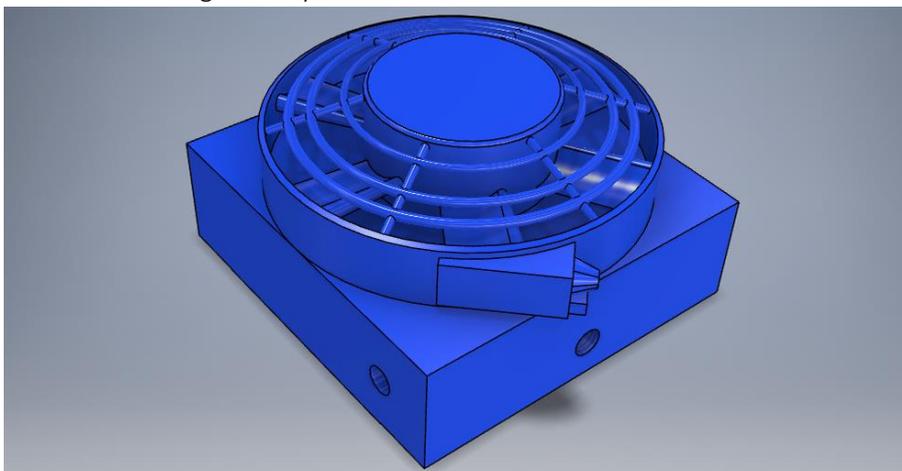
Yes. The scan can take a few minutes on large assemblies (>5000 parts), however you can use the [filtering tools](#) to improve performance. These will enable a filtered scan for *only certain types of parts* in an assembly.

### Question 5:

Does **The Duplicate Replacer** recognise duplicates for very complex part geometry?

### Answer 5:

Yes. Any complex machined / cast / shaped geometry is supported (such as the below). Boolean operations are used to determine whether there is a true geometry match or not.



**Question 6:**

Are there any limitations for the type of geometry that is supported by **The Duplicate Replacer**?

**Answer 6:**

Yes, there are some current limitations. These are:

- 1) Only parts with a single solid body can be scanned as duplicates.
- 2) Only parts with at least one flat face and straight edge can be scanned as duplicates.

**Question 7:**

Can I undo the replacement of duplicates?

**Answer 7:**

The app does not save the top-level assembly, or any sub-assemblies in which replacements are made, so you can simply close the open assembly without saving if you wish to undo your changes. See the **Before Starting** section.

**Question 8:**

How do I locate a specific part in the duplicates table?

**Answer 8:**

Two options:

- 1) Run a scan with the specific part pre-selected. The scan will find duplicates of only the selected part.
- 2) If the scan is already run, use the ['Find in Table'](#) tool.

**Question 9:**

Can I use a different value to replace the Part Number iProperties? (Other than Part Number of the [Source Part](#))?

**Answer 9:**

Yes. See the Part Number Merge Format option [here](#).