MFG324048
All You Do In One Platform –

CAD to Nesting to CAM in Inventor

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Autodesk

Learning Objectives

- Learn how to prepare your models for nesting and machining using Inventor, Inventor Nesting, and Inventor CAM
- Learn how to set up a nesting environment to successfully bring the models in Inventor Nesting
- Learn how to generate a 3D nesting model to be used for Inventor CAM
- Learn how to produce a toolpath for machining in Inventor CAM

Description

As a manufacturer of any product, you may like to turn your ideas into machined parts using a familiar interface. Manufacturing sheet metal models no longer has to be a difficult and challenging process involving multiple platforms. Using Inventor software as a single system, as part of the Product Design & Manufacturing Collection, you can complete the whole process with Inventor Nesting and Inventor CAM. With Inventor Nesting, you can optimize yield from flat raw material. Nesting studies also can be used to create and then update to reflect any changes to the design to optimize efficiency and reduce costs. After nesting, you can use Inventor CAM to create a computer numerical control (CNC) code that will ultimately turn Inventor designs into excellent finished parts. This class will share best practices for preparing your model, for using nesting to lay out cutting patterns and minimize raw material waste, and for generating a toolpath for machining.

Speaker

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Experience primarily in manufacturing and design. Began AutoCAD use in high school. Majored in Computer Science at Western Oregon University and transferred to Arizona State University to study Architecture, finishing with a degree in Design Studies. Began drafting iron doors, gates, spiral staircases, and fire & water features. Became an engineer at Aerospace Contacts. Managed drawings for 53 screw machines, designed custom fixtures, multi-step drill bits, and specialty tooling. Worked for First Impression Ironworks transferring them from AutoCAD to Inventor with parametric modeling and Vault revision management. Using Vault Copy Design led to streamlining of manufacturing, limited errors in plasma cutting, ensured proper fitment, and allowed customers to visualize with 3-D renderings. Took a position as Research & Development Designer at U-Haul International. Joined Autodesk in June, 2017 working out of Portland, Oregon. Starting role of Inventor Community Forum Specialist and currently Inventor Technical Support.

Introduction
This class is a supplement to the excellent documentation here:
Get started with Inventor Nesting
You should complete the entire readthrough, it is clear and concise.

If you find there are limitations within Inventor Nesting Utility that you need, do not fret. There is another program with more in-depth options and capabilities called TruNest.

Rather than create that wheel, we will walk through a typical workflow with an assembly that you can test with yourself.
For this class we will be using components of the master assembly called Arcade4GD.iam.

Pre-requisites:
1. Inventor 2020
2. Inventor Nesting Utility Add-in
3. Inventor CAM Add-in

Chapter 1: Create A Nest Document
The creation of a nest is a two-step process:
1. Shape extraction.
2. Nest study creation.

Shape extraction is the process that recognizes 2D closed loops in source files.
•   Only one shape is extracted per source file.
•   A shape can contain multiple internal or external loops but all are treated as atomic in the nesting process.

Nest results are stored in an .inest document, which is Nesting Utility's own file format. There are multiple ways to create such an inest file and we will explore each of these:
▪   Method 1: create a nest from the Nesting ribbon
▪   Method 2: create a nest from the context menu of IPT/ IAM
▪   Method 3: create a nest from the New menu + template (default or custom)
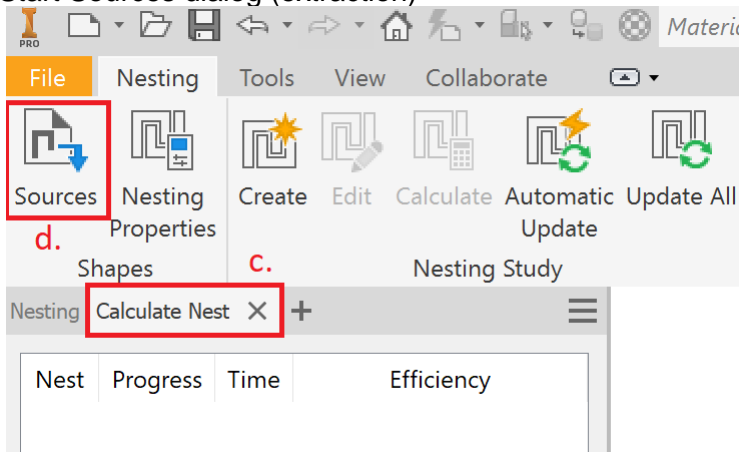
Method 1: Create nests from ribbon
Step 1: Shape extraction

a.   In case you have any documents open, close all documents
b.   Start Nesting from the Nesting Ribbon. This will automatically use the default .inest template, no questions asked.
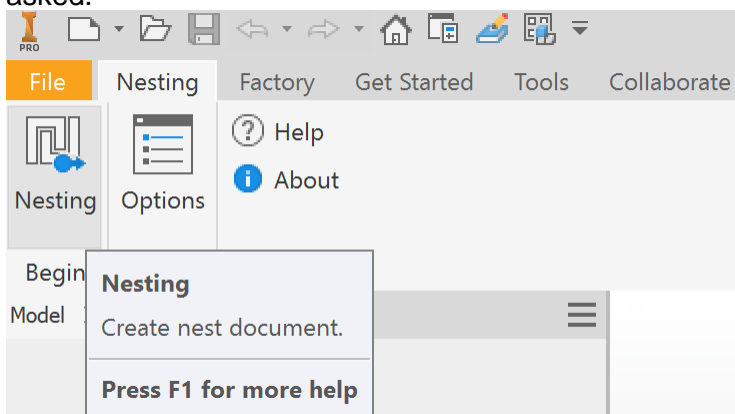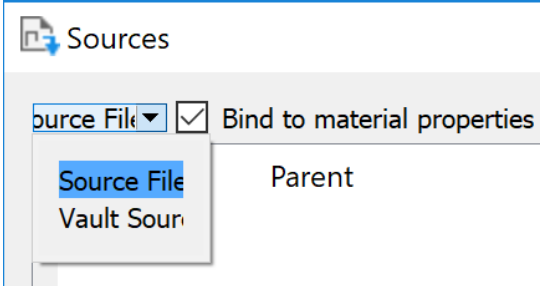

c.   Make sure the Calculate Nest panel is docked under the Browser.

d. Start Sources dialog (extraction)


e. Use Source Files dropdown.

f. Select Arcade4GD.iam.
g. It will load and ask if you want to do Material Mapping. Select Yes, this will automatically get the linked Sheet Metal materials already setup and create Material_ID.# in the Source List. The extract progress bar will show the progress.
h. Source Provider column will show Sheet Metal parts that we want, the remaining other types we do not need nested. Remove by Shift/Ctrl selecting > RMB > Delete. (If you want to see what happens by leaving them in it is interesting but distracting.)
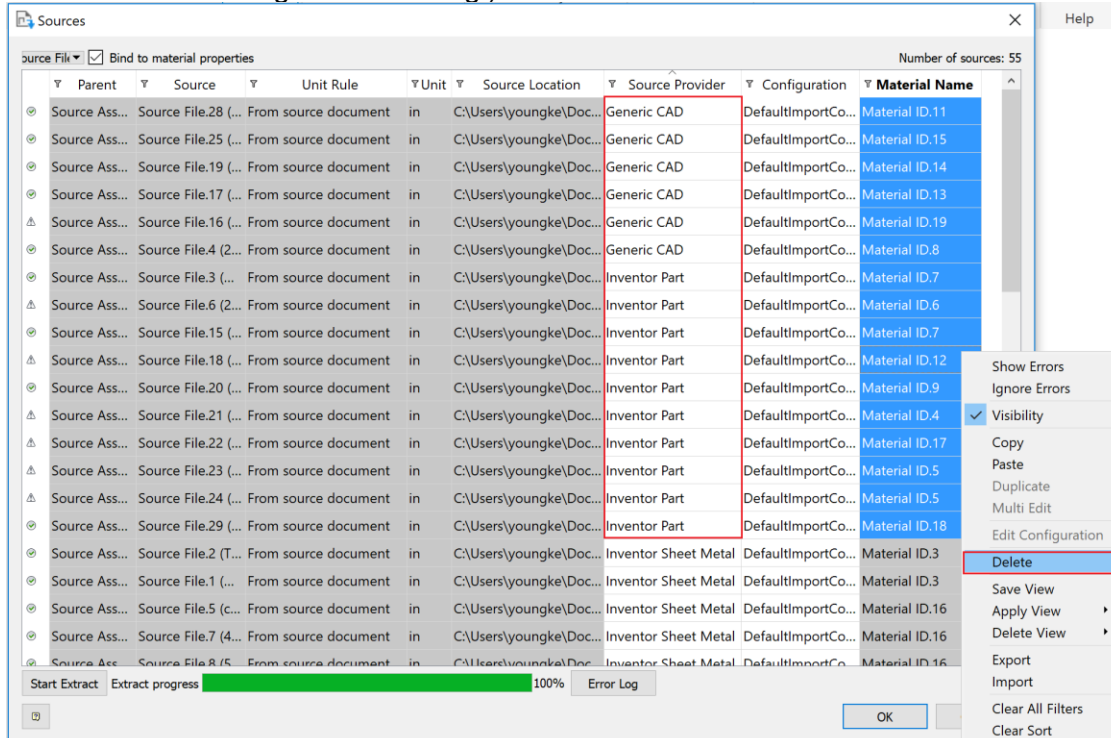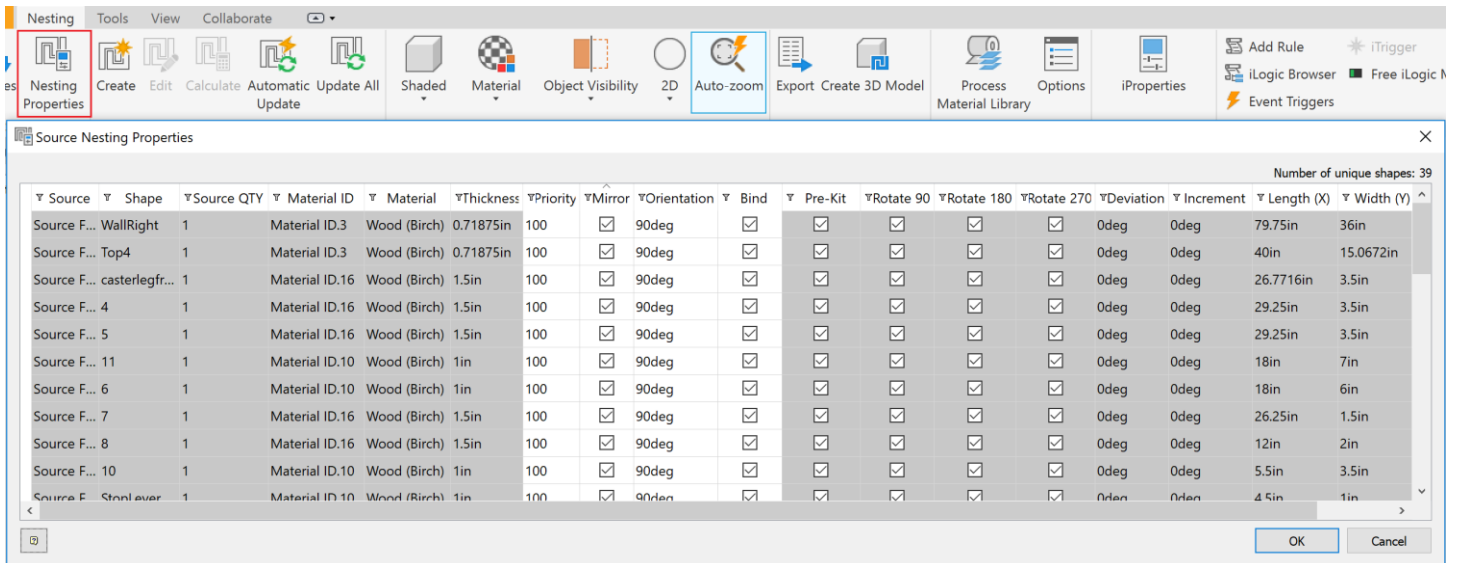
i. Hit OK. This will display the shapes in graphics and populates the shape nodes in the browser.

j. Open the Options dialog and check the Sources arranged by material checkbox
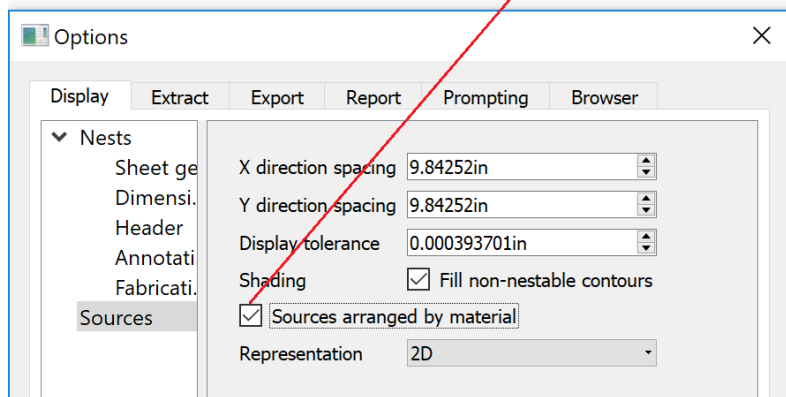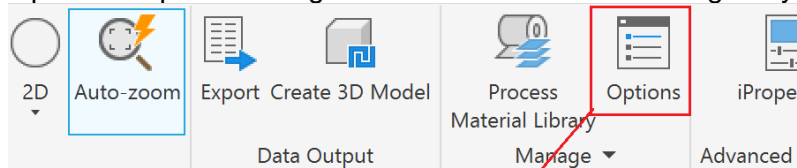
k. Set the Color display in the ribbon to Material.
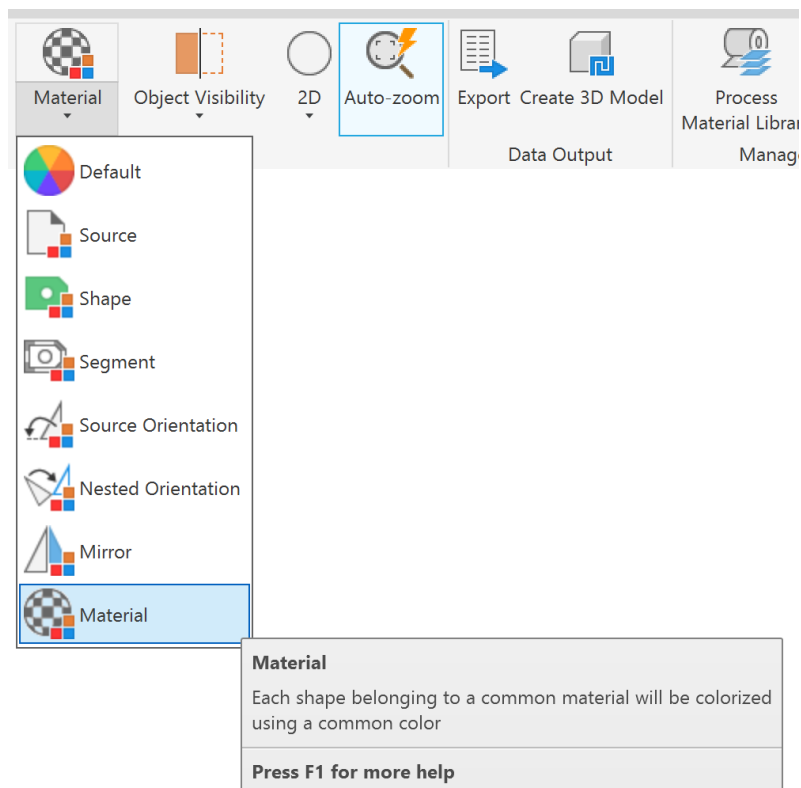
l. Use the Nesting Properties command in the ribbon to get overview of all shapes. Verify the different material and the QTY of the parts.

m. Select any shape on screen with RMB to bring up the marking menu and use the Properties command to verify QTY and material on an individual shape

n. Open the Process Material Library and delete any unneeded Material ID's that were automatically created, not necessary but cleans it up. This removes the packing but also all remaining shapes that use that material from the nest, if you didn't do earlier.
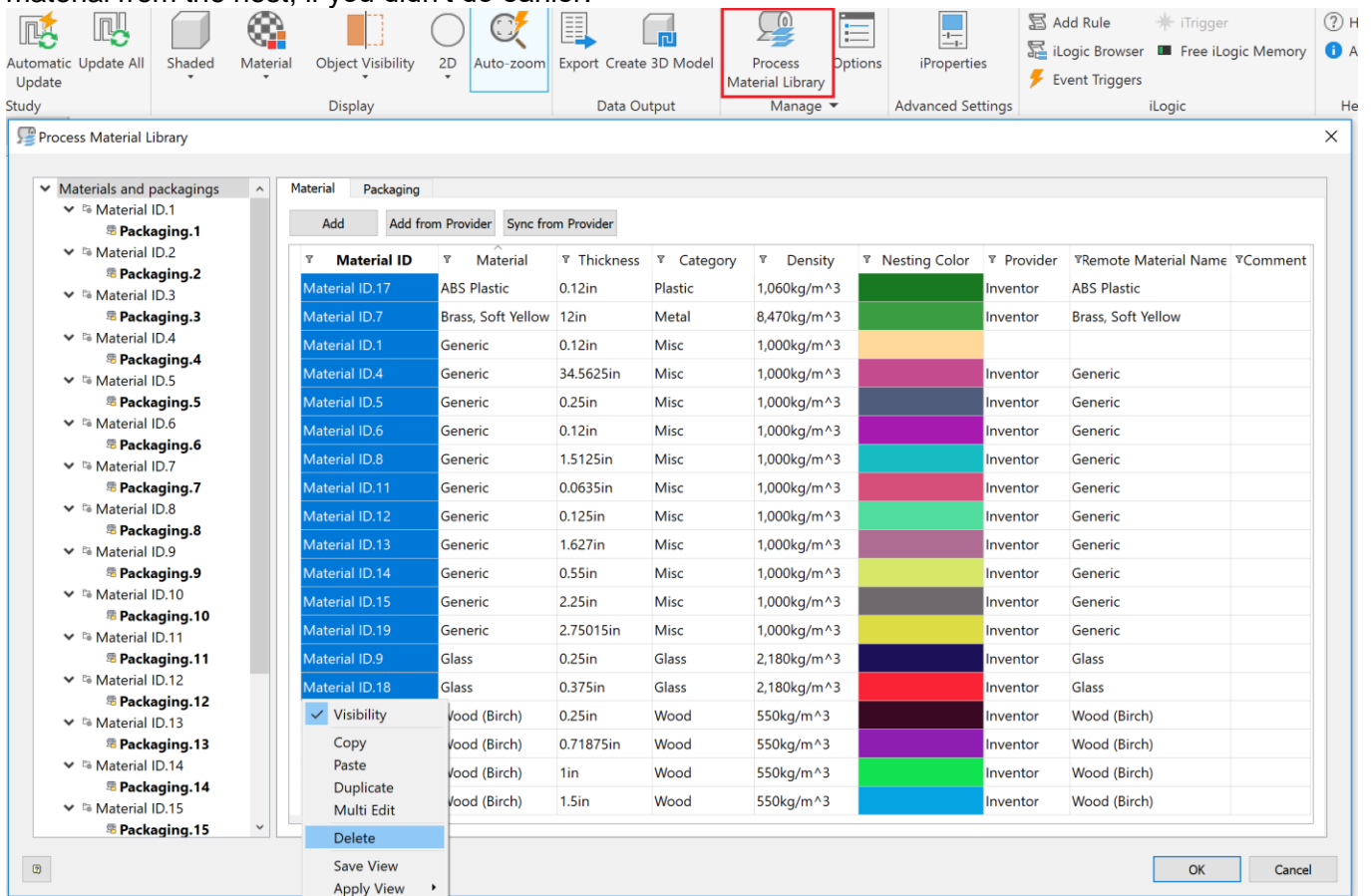
Tip: Use Add From Provider in your models when setup within Inventor Material Library if materials are not brought in automatically.

o. For the newly added materials, set following Packaging parameters:

	Material	Name	Length	Width	Form	Cost	Comment
	Material ID.10	Packaging.10	60in	36in	Rectangular	1.85	
	Material ID.16	Packaging.16	96in	3.5in	Rectangular	2.49	
	Material ID.2	Packaging.2	96in	4in	Rectangular	8.55	
	Material ID.3	Packaging.3	96in	48in	Rectangular	41.01	

Step 2: Nesting study
Use the **Create** command to create a nest study.
Note that Multiple nest studies are possible per .inest document.

a. Change Job QTY to a single value of 4. The Job QTY is the multiplier that determines the total QTY.
Total QTY = Source QTY X Job QTY The Multi-value option is useful when you want to nest multiple assemblies and want each assembly to use a different Job QTY.

b. Leave **Bind all shapes to sources** checked (not to be confused with bind to material)
The Bind check ON guarantees that the nest updates when shape properties change.
Turn this check off if you want to override/freeze nest properties on a per nest basis.
Unbound cells are shown with Orange background.

c. Hit OK to generate the nest.

d. Save the file as Arcade.inest

Chapter 2: Terminology & browser & display & UI behavior

- Add-in uses client graphics which means minimal selection capability.
- Marking menu and cross-referencing between graphics and browser works as expected but there is no measuring capability unless you create a 3D Model from the nest (see later).
- All shapes are represented as flat faces without thickness (rotate the viewcube to verify).
- Dialogs are multi-threaded. This means you can start a new command while for instance a complex nest is being calculated.

Task1: Explore AutoZoom
Autozoom allows you to zoom in fast to a particular node.
a. Toggle off AutoZoom and select a node in the browser.
b. Toggle on AutoZoom and select the same node in the browser and note the difference.
c. Open the Sources dialog and make it as small as possible. What happens when you select a row in the Sources dialog?
d. Some ribbon commands (Edit, Calculate, Export, 3D Model) are only enabled for relevant browser nodes.

Task2: Explore different command access methods

a. Select any nest and then selected Edit in the ribbon.
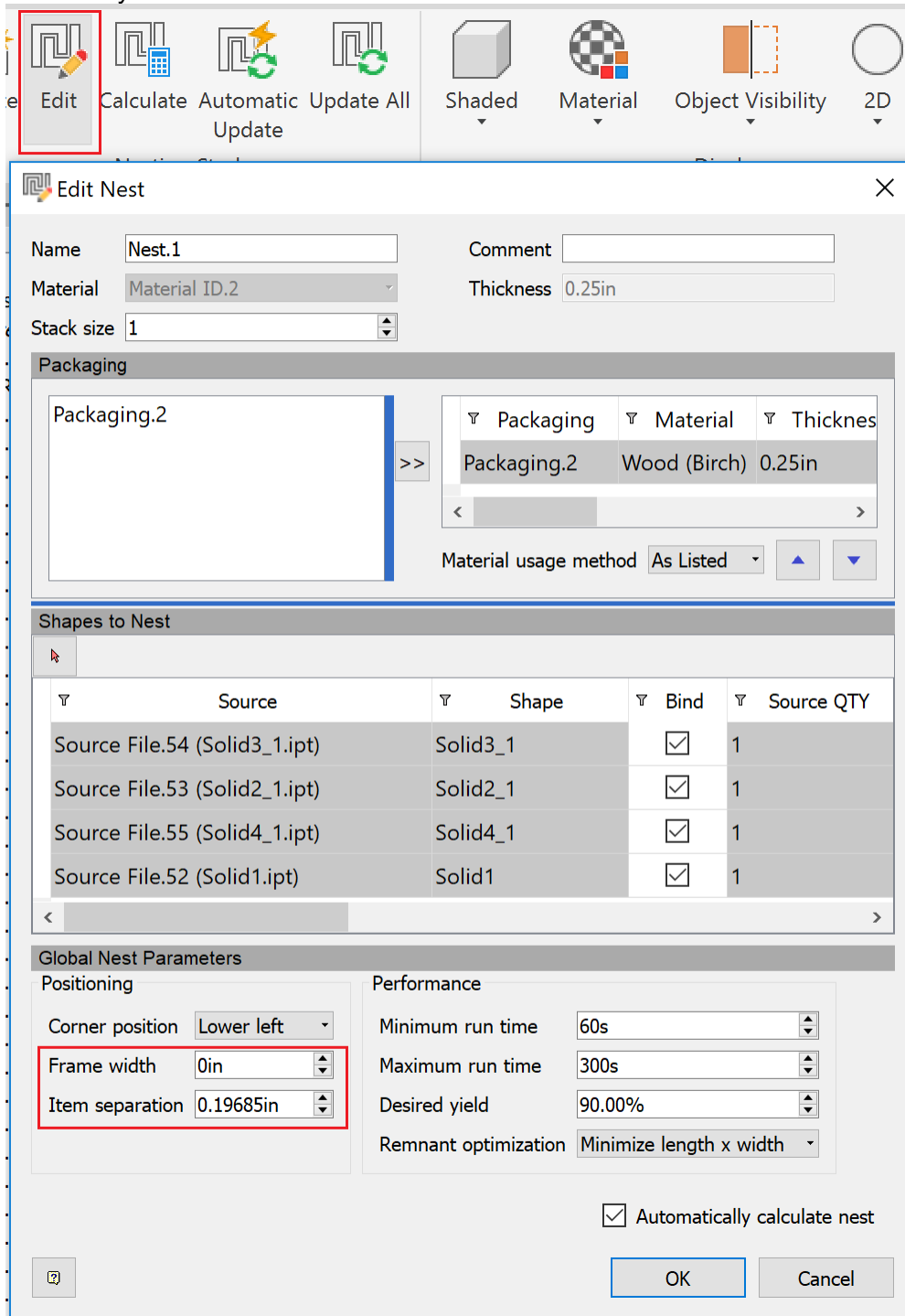
b. The Frame Width and Item Separation are key to placement and spacing.
c. Close the dialog, select the same nest, RMB > Properties in the context menu.
d. Close the dialog and double click on the same nest. All three tasks should bring up the Edit Nest dialog. You decide which one you prefer.

Chapter 3: Control the nest display
Task 1: Control display from ribbon
a. Toggle Shaded to Wireframe in the ribbon Wireframe is useful to relate the shape label to the legend as the shape label is positioned very close to the shape boundary.
b. Toggle back to Shaded.
c. Colors Toggle between Material and Source and inspect the color change.
The other color options allow visualization of which shapes are mirrored or rotated on the nest. *Note that the Nesting utility material color is unrelated to the Inventor Appearance of the material used in the source part.*
d. Object visibility Turn off the Dimensions, Header, Annotations, Fabrication info.
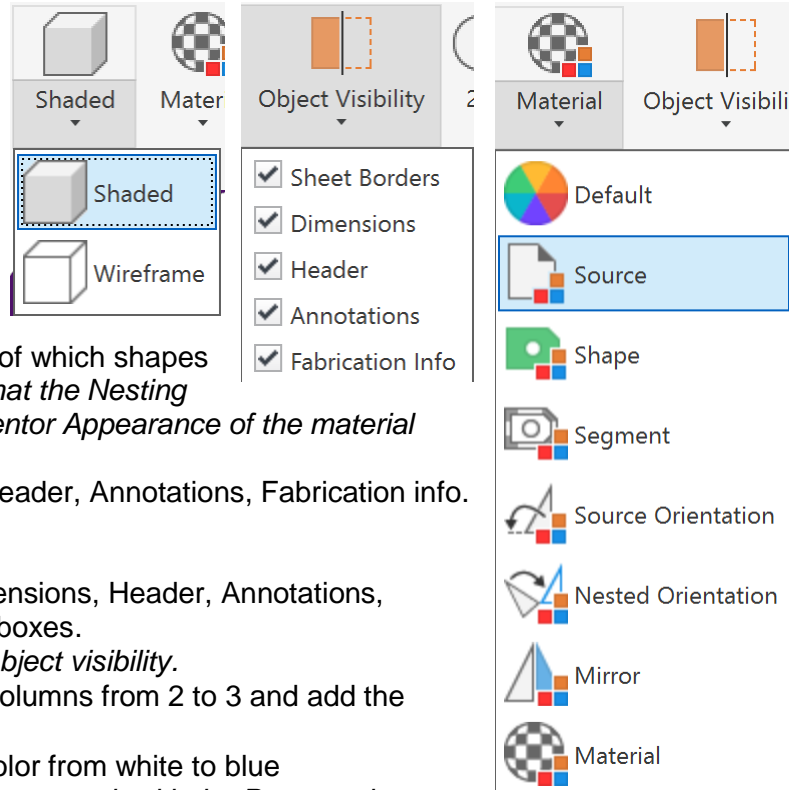
Task 2: Options dialog
a. Options > Display tab > Nests Re-enable Dimensions, Header, Annotations, Fabrication info by checking the Enable checkboxes.
Note that these options work in tandem with Object visibility.
b. Options >Nests > header Change number of columns from 2 to 3 and add the Thickness to the display.
c. Options > Nests Change the Property name color from white to blue
Note that this is a necessary change if you want to work with the Presentation color scheme.

Chapter 4:
Method 2: Create nests from context menu
This is the most comfortable method to use when you have already an Inventor part or assembly open in your session. The same technique can be used for both .iam and individual .ipt.

When dealing with Inventor .ipt and .iam files you need to be aware of the following:
 1. Sheet metal .ipt requires a flat pattern to be present.
 2. Shape extraction rules for .ipt:
    a. Extrusions and sketches can be extracted. Implicit extraction process automatically recognizes:
      i. Last unconsumed visible sketch then,
          ii. First non-suppressed extrusion and uses the extrusion height as nest thickness
    b. A more explicit extraction process is possible by setting the **Use for nesting** flag and **NestingThickness** parameter (allowing associative nest updates with model changes).
    c. An .ipt file containing STL meshes or "dumb" bodies with at least one flat face can also be extracted.
  d. No attempt is made to indirectly extract shapes from the parent of a derived part, so extract the parent directly.
3. Shape extraction rules for .iam.
 a. BOM QTY dictates source QTY.
 b. BOM QTY overrides accepted.
 c. Excluding parts from nest.
   i. Not effective: Toggling visibility or using LOD.
   ii. Effective methods are:
     • Setting QTY = 0 in assembly BOM.
     • Disabling source in Nesting Utility.
     • Deleting source in Sources dialog/browser. This is only temporary until you refresh.
   4. Providers

a. Source Providers are used to apply automatic extraction rules.
b. Each file type has a provider.
c. Order of providers matters.
5. Log file and log messages.
a. Non-closed shapes.
b. Sheet metal files with missing flat pattern etc.

Task 1: Use Create Nest command
a. This assembly contains a mix of sheet metal and regular ipt files.
b. From the Model browser, use Create Nest command from the context menu.
c. Select the Default template.
d. Hit OK A new .inest doc is opened and the Sources dialog automatically comes up.
e. This is where you can change the Source provider to Inventor Sheet Metal.
   *Tip: you might need to move or add the Source Provider column to see it.*
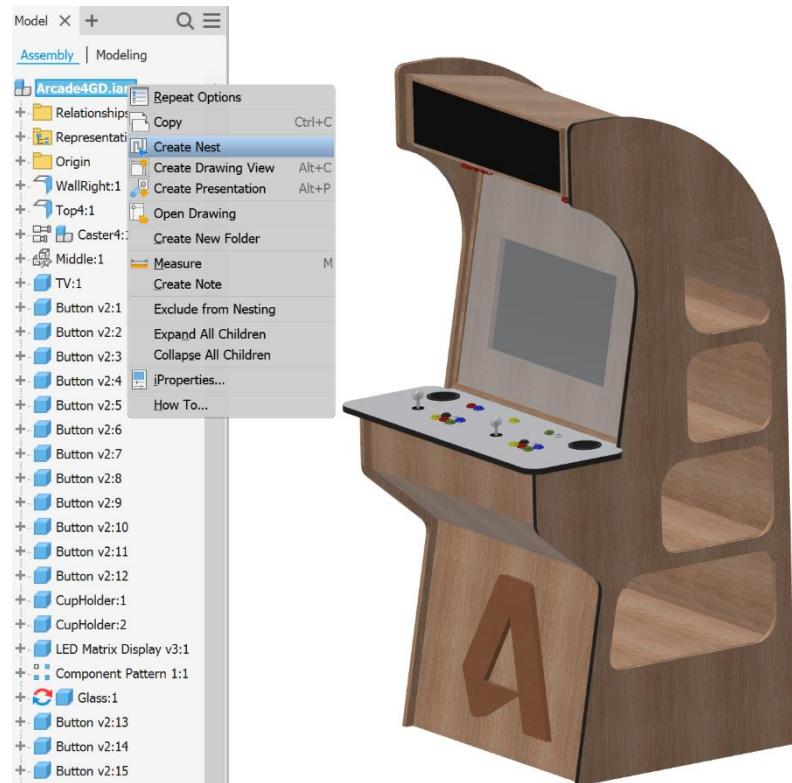
Task 2: Error correction (N/A for this model)
a. While the Sources dialog is up and when progress is at 100%, note that there may be errors. Check the error(s) by hovering over the row or by opening the Error log and identify the name of the error part.
b. Hit OK to preserve the extracted shapes.
c. Open the error .ipt by using context menu.
d. Create the flat pattern and save the file.
   Return to the .inest document and you will see a blue refresh icon on the part.
e. Use the Start Extract context menu to extract the correct shape.

Task 3: Recognize extrusions, sketches explicitly
a. Open the CabinetGussetNest.ipt in a separate document.
b. Flag the sketch as "Use for nesting" by using the context menu.
c. Measure and copy the length of the part in a direction perpendicular to the sketch. In this instance the Extrusion parameter is named Thickness.
d. Use the NestingThickness on the root node and paste in the Thickness in the dialog.

This will create an Inventor model parameter with NestingThickness = 23/32".
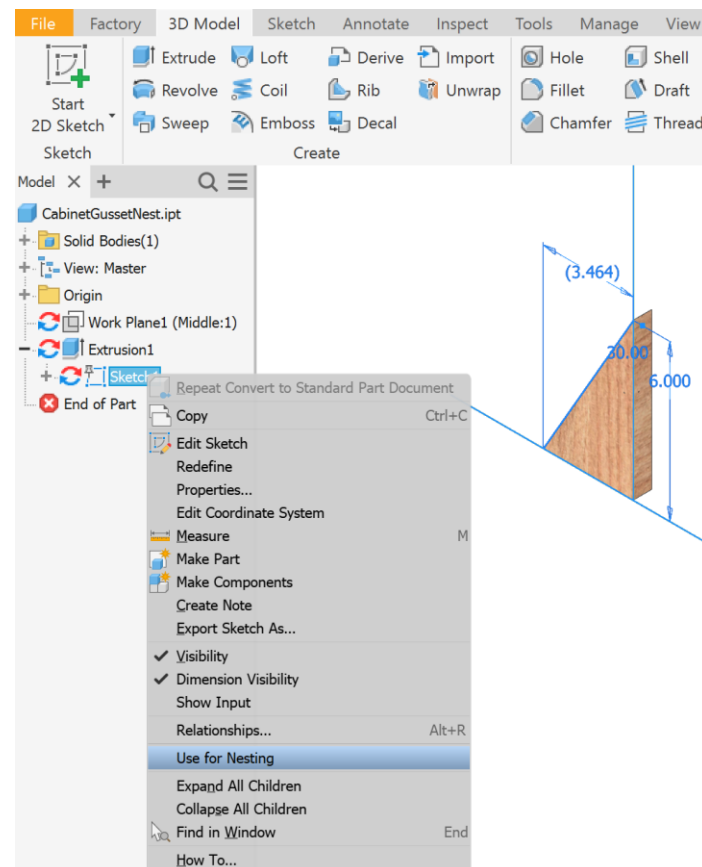
If you want the thickness to be associative with model changes, it is better to assign the NestingThickness as a formula. For instance NestingThickness = Thickness.

e. Verify that NestingThicknest exists in the Parameters dialog. You can check in Nest Authoring also.

f. Save the file and return to the inest document.

g. Use Start Extract on the modified CabinetGussetNest.ipt node. Verify in the shape Properties that the material with the correct thickness and the correct shape is now extracted. It may help to use Update.
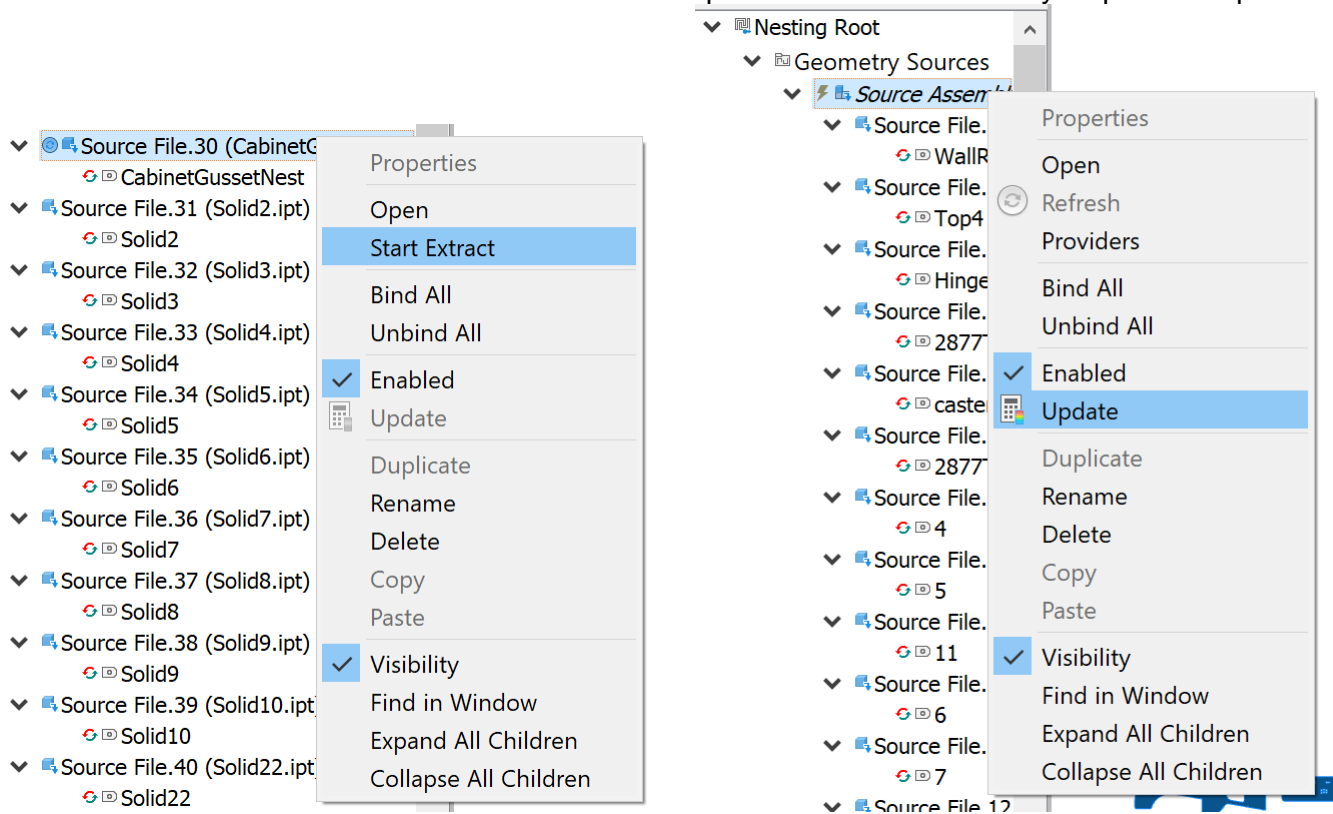
Task 4: Exclude parts

a. Identify and Open part TV.ipt. This is not a part suitable for nesting or it might even be a purchased part. We will eliminate it from the nesting process either by setting its BOM QTY in the assembly to 0 or better by disabling it in the nest itself.

b. In the .inest document, uncheck the Enabled flag on the node TV.ipt.
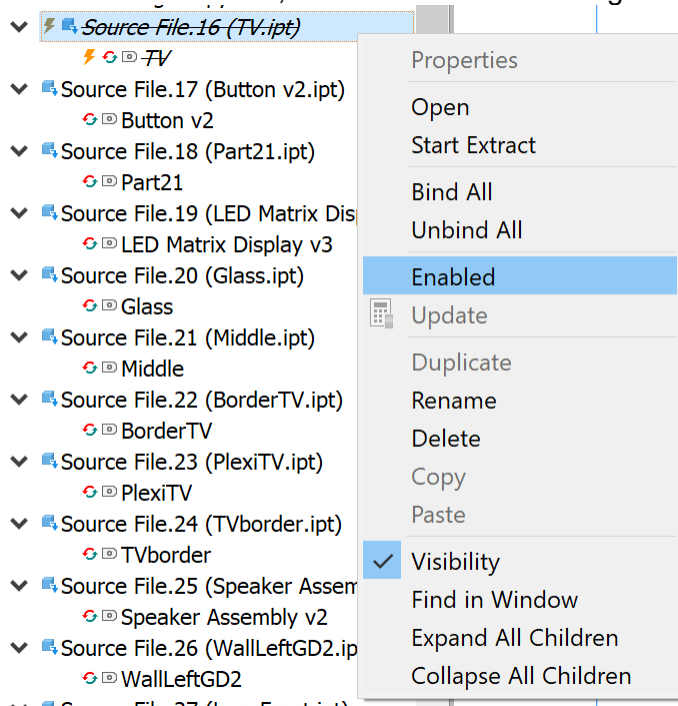
c. Create a new nest study with the default settings and verify that part Open part TV.ipt is not included.
    Tip: If you used filters previously, you might need to Clear filters in the Nesting Study to see all selected shapes.

Chapter 5: Custom Templates & Materials & Packaging
Nesting parameters are set on the material but can be modified on-the-fly in the nest dialog during nest creation and nest edit.

Material: material, thickness, orientation parameters (rotate, deviation, increment), grain, frame, separation.
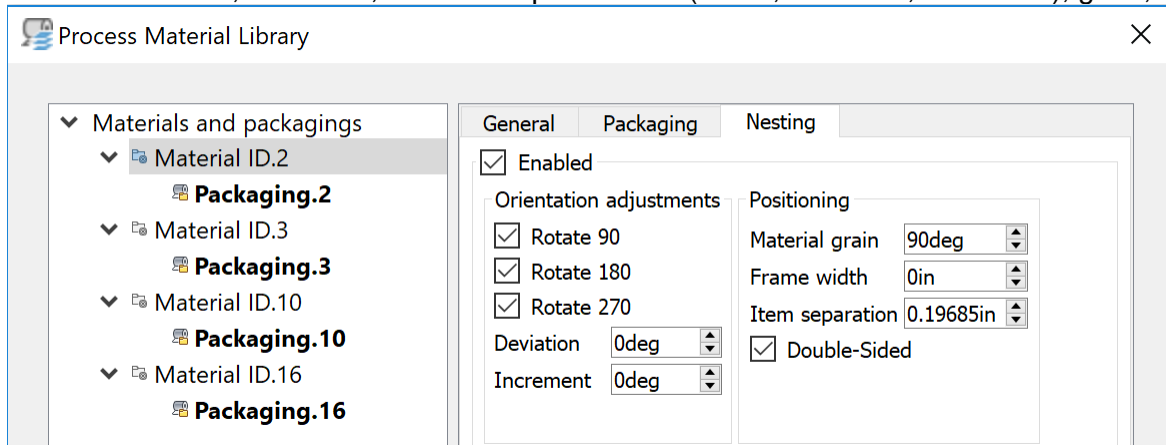
Packaging: length, /width, form, cost, trim.
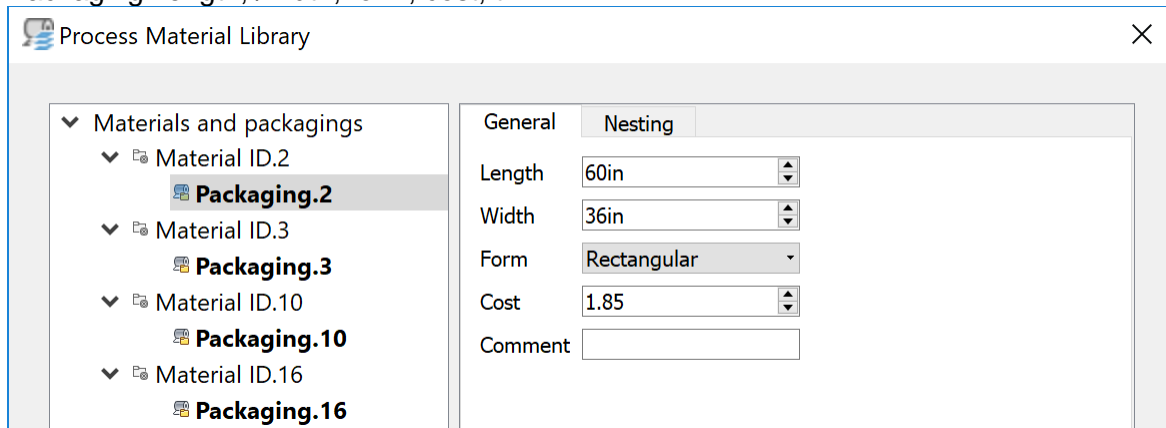
Nest dialogs: corner position, performance parameters
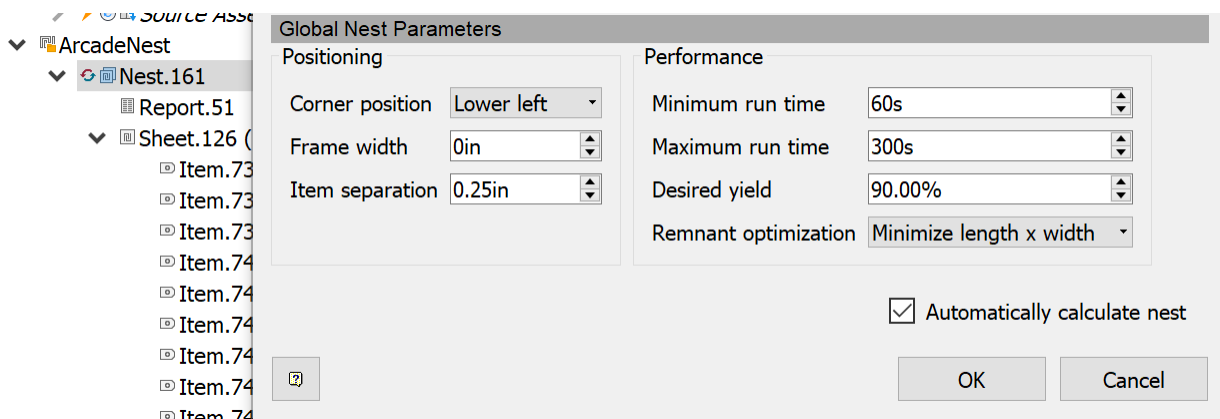
Very Important: All Nesting Utility dialogs remember the last used parameter values and filter settings (blessing + curse). To increase predictability, we advise to store materials, packaging and provider choices in a custom template.

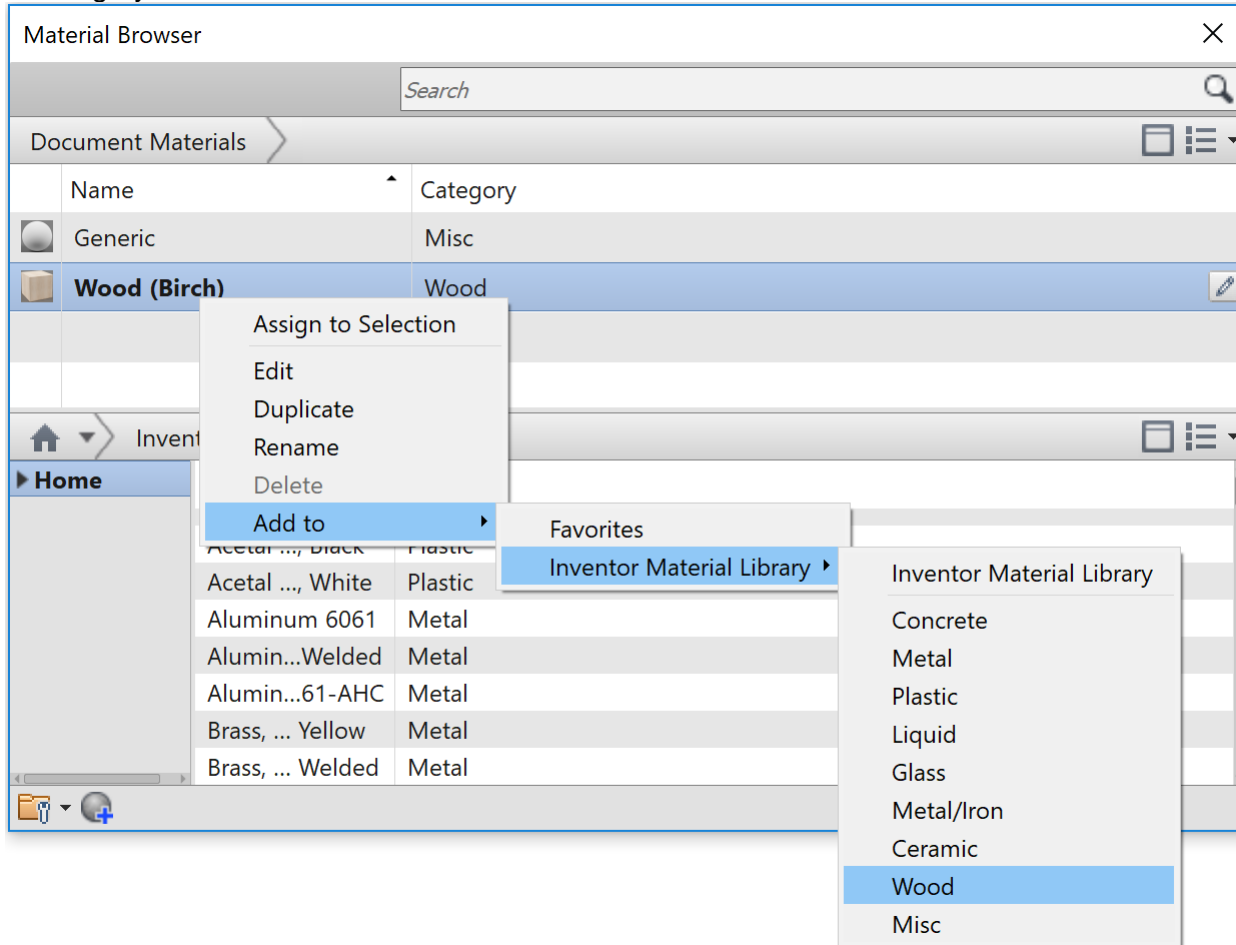**Task 1: Move material from cache to Inventor material library**

a. You may find that a component uses material that is in the Autodesk Material Library but not in the Inventor Material Library.

b. Open the Inventor Material Library and add the cached material to the Inventor library in the Material Category.

c. Close and restart Inventor so that this Inventor library change can take effect.

Task 2: Synchronize to existing materials
First, we want to populate our template with existing Inventor materials that we frequently use.

a. New and use the Standard.inest template.
b. Process Material library
• Verify that one default Generic material with thickness 0.12 in (=3 mm) exists and that it contains one packaging with width x length = 196.85x196.85 in^2 (=5x5 m^2)
c. On the root node in this dialog, Add from provider and add the materials set from Inventor.
• You can add even more or add all but we don't want to bloat the template.
d. Add thickness of to materials (Inventor has no notion of thickness) and leave the Grain =0

14

e. Uncheck all orientation related checkboxes and set
- Orientation= 0 deg
- Increment= 0 deg
- Material grain = 0 deg

These particular settings give the shapes few degrees of freedom but they will increase nesting speed of course. More importantly, this guarantees that the nested parts will come out with a zero   degree grain.

f. Each material can have multiple packagings. On the packaging of the material:
- Set Length
- Width
- Form
- Cost

g. The active packaging is shown in bold and used by default for new nests.

Task 3: Providers
You can decide which providers to use and in which order. Provider choices are also remembered in template.
  a. Open the Providers dialog from the expanded Management panel.
  b. For .ipt file type, you might want to leave only the Sheet Metal provider checked.
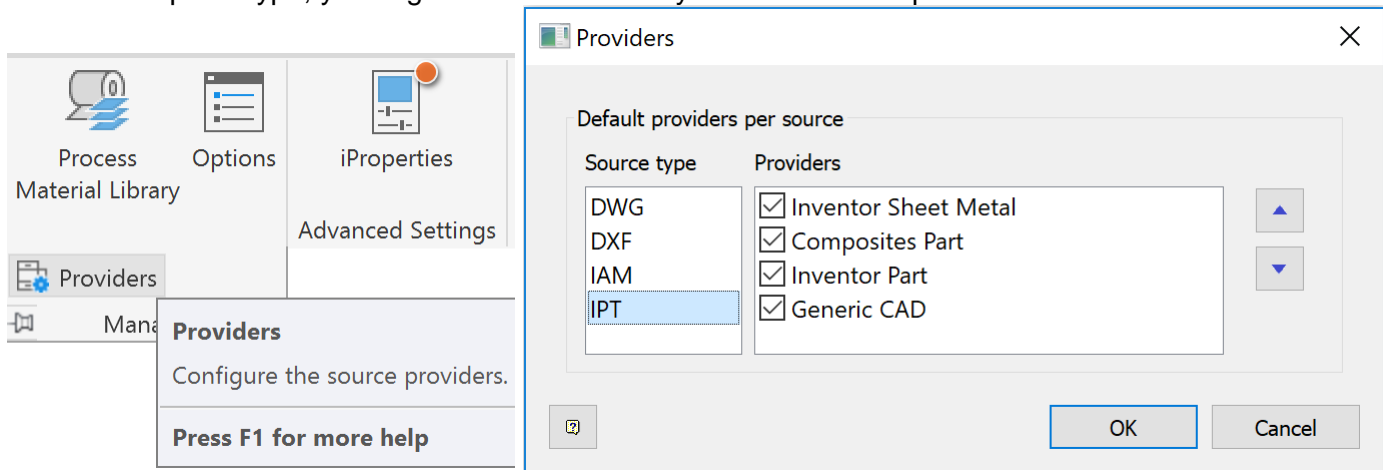
Task 4: Create a custom template
a. Save as new Custom .inest template file with name SheetMetalOnly.inest. We will use this template next.

Chapter 6: Create advanced nests (method 3): from New
Task 1: Extract sheet metal only
  a. Use New. This access often used when hand picking individual files to nest (files do not have to be part of the active Inventor project!).
  b. Select the custom .inest template called SheetMetalOnly.inest
  c. Open the Arcade4GD.iam file.
  d. Create nest and use the Add to open document option.
- Note that there is no longer a need to create materials as they already exist in the template.
  e. Verify in the Source Provider column that only sheet metal files are extracted.
  f. Examine error log or use tooltip by hovering over the error.
  g. Hit OK to save the extracted shapes.

Task 2: Modify geometry in a source part
Material or BOM QTY changes only require a **refresh** of the assembly node. However, geometry changes in the source require a re-extract of the shapes. All above changes of course will affect existing nests.
a. Locate the shape in the Sources.
b. Use the marking menu to Open the source file.
c. Make any changes.
d. Use Refresh on the assembly node

e. Use Start Extract from the context menu
• Note that the error is corrected and new geometry is taken into account (also in any existing nests).

Task 2: Filter out even more parts
a. Start the Nesting Study dialog.
b. In the table Clear all filters (Tip: select in a random cell to refresh the display and see the result)
c. Deselect all selected shapes.
d. Use column Filters to filter out all shapes except the shapes with desired Material and Thickness.
e. Add these shapes to the selection by checking the Selected checkboxes or by using the "Add to selection" context menu.
f. Hit OK to create the nest This will generate an error which we solve in the next chapter.

Chapter 7: Edit a nest: increase efficiency
The Nesting study itself cannot be edited but a nest can be edited to increase the nesting efficiency or simply make the nest work. A common way to increase efficiency is to change the packaging size, increase the (Job) QTY or add extra shapes to a nest.
Task 1: Change packaging
The most common mistake is to use shapes that are too large to fit on the sheet resulting in error dialogs. The solution is to increase the packaging size.
a. Show the Source Properties.
b. Move the Length (X) and Width (Y) columns to the left.
c. Add Area column by using Display Column context menu on column headers.
d. Sort the Length (X) and/or Width(Y) columns to find the shapes with the biggest size and compare this to the packaging size being used for those shapes.
• Use source nesting properties to locate X,Y dimensions and compare to packaging dimensions In this sorted and filtered.
e. From the table context menu, use Save View to store this view with name "FindArea" for later debugging use.
f. Edit the nest.
g. Add the larger packaging to the nest for the parts that use material.
h. Material library and Packaging changes as well as geometry changes in the source file, force the nest to be out-of-date and this requires a **manual** recalculation of existing nests. Use the Start all button in the Calculate panel or start individual nest calculations with Calculate context menu to update the nest.
Task 2: Change QTY
a. Change the QTY of all shapes.
b. Hit OK to proceed with the nest recalculation.
c. Observe that the Efficiency has increased
• Note: Source QTY and Job QTY are not accessible on an existing nest but Total QTY (in the QTY column) can be edited.
Task 3: Add a Shape to a nest
You can mix and match external .ipt/.dwg or .ipt, unrelated to the current assembly to increase efficiency.
a. Open the Sources dialog.
b. Add a .DXF file from a folder.
c. In the Sources dialog assign the Material ID to the material desired.
d. Change the Unit rule to Custom. This enables edits in the Unit column.
e. Change the unit from in to cm if needed.
• Note that the original unit was *in* (indicated by the underscore). This means that we effectively will scale down the DXF files with a factor 2.54.
f. Start Extract and hit OK to save the shape.
g. Edit the nest.
h. Hit the selection arrow in the Shapes to nest section of the dialog.
i. Select the sample bracket shape node in the browser.
• Note that nodes with the wrong material cannot be selected, which is signaled by the STOP cursor.

j. Change the QTY.
k. Hit OK to calculate the nest and note the efficiency increase.

Chapter 8: Edit a nest: Source properties
By default the Source file properties are bound to the material.
The bound (or read-only) cells are marked in a grey background.
If Bind is unchecked, all source nesting properties are available for edit (cell background is white). Once an edit is made, the overridden cell background is marked in orange.
**Task 1: Change the degrees of freedom of the nest**
Use of filtering/sorting/multi-edit to identify and unbind multiple shapes and change the orientation, rotate, mirror and flip values.
a. Verify the efficiency in the nest summary on the graphic screen.
b. Use Unbind all from the context menu of a nest or a nest study.
c. Edit the nest.
d. Check Flip/mirror/Rotate 90/Rotate180/Rotate 270.
e. Change the initial Orientation to 45 and allow a Deviation of 45 deg with incremental steps of 5 deg. This allows the shape to rotate from -90 to +90 with 5 deg increments.
f. Increase QTY.
g. Hit OK and the nest will automatically update.
h. Verify new efficiency in the nest summary (or during nest calculation in the Calculation panel).
i. Verify that the shape now is used on the sheet with various orientations.
j. Change the Color display in the ribbon to Nested Orientation to better distinguish the various shape orientations.

Chapter 9 : Advanced nest optimization techniques
Task 1: Tweak global nest parameters
  a. Set the Positioning & Performance parameters according to this image and verify you obtain the expected results.
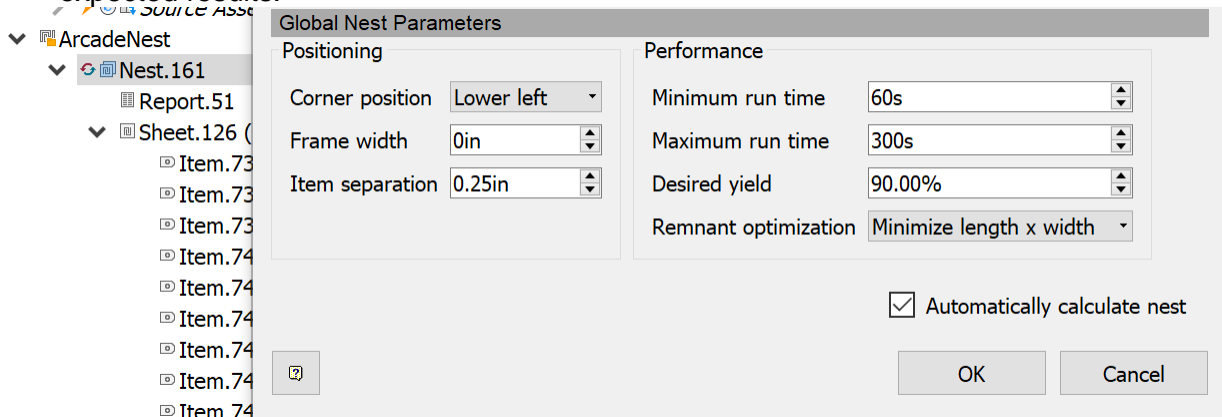
Tip: use the tooltips on the dropdown fields to understand the behavior.

Task 2: Material usage method and inventory
  a. Edit the nest.
  b. Make sure the smaller packaging is in pole position and both packagings have an infinite Inventory QTY.
  c. Set the Material usage method = As listed.
  d. Hit OK to Calculate the nest.
  e. Edit the nest and the Inventory QTY of the small packaging to 1.
  f. Hit Ok to generate the nest.
  g. Set the Material usage method = Best Mix (or Best size).
  h. Hit Ok to generate the nest.

Task 3: Priority
Determines which shapes will be cut first
a. Edit the nest
b. Set the priority to 100.
   - Note that the selected part is nested first.

Task 4: Sheet count
Nesting utility does not replicate the display of identical sheets but only shows one of the identical sheets and subtly changes the way the sheet borders are displayed.
a. Edit the nest.
b. Delete the small packaging.
c. Set QTY on all rows to a high number like 300.
d. Set Stack size = 2.
e. Verify the high efficiency and the double borders around the sheet.

Double borders close to each other = multiple stacks.
Double borders further apart from each other = multiple identical sheets.

Chapter 10: Export nest as Inventor file
Create 3D model command creates a multi-body .ipt
- Tip: use the Make components command to obtain .iam

Task 1: Create 3D Model
a. Create a second nest study in the same file and use the defaults.
b. Select a sheet (NOT a nest!).
c. Use Create 3D Model from the ribbon (or from the context menu).
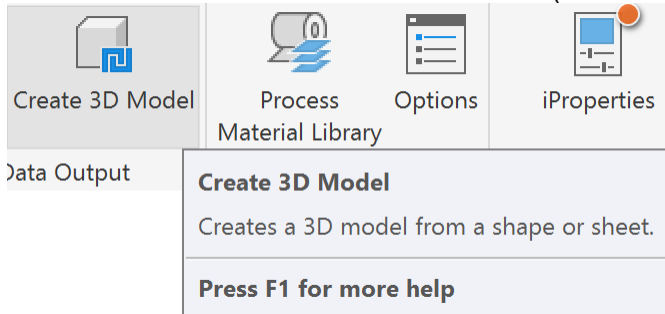
d. Verify that you obtain a single .ipt file with multiple bodies with the correct thickness and the correct material and appearance, identical to the original source file.
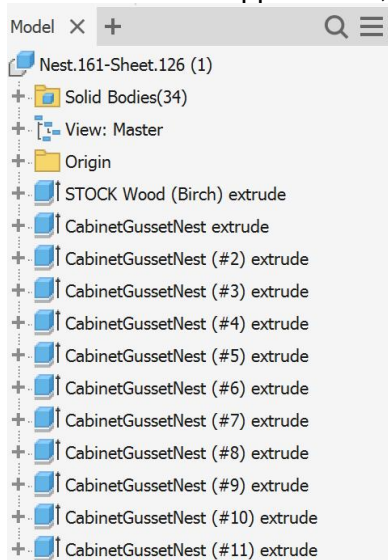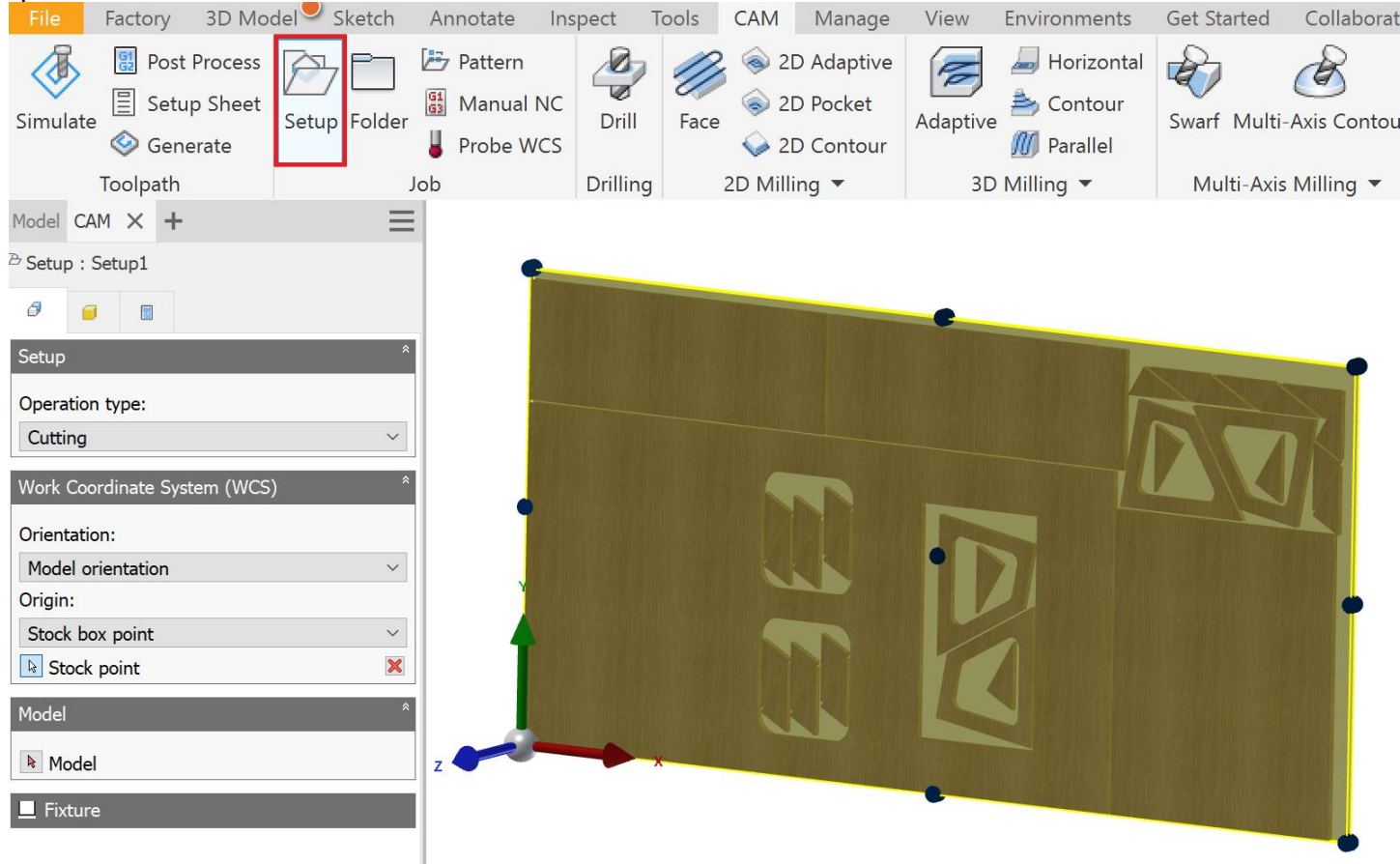

e. Save the .ipt.

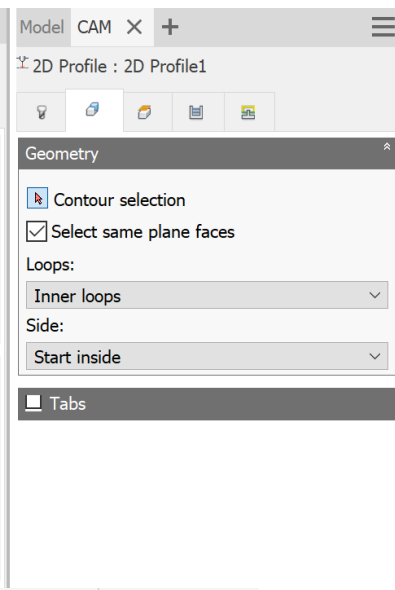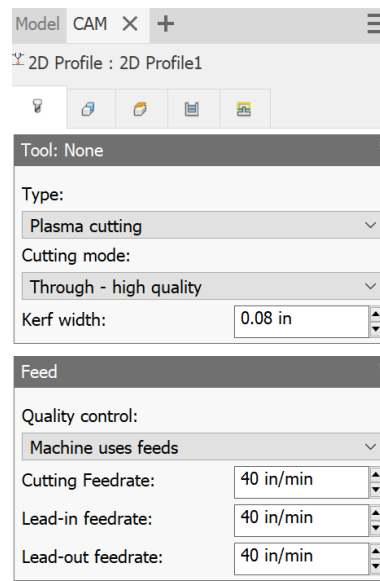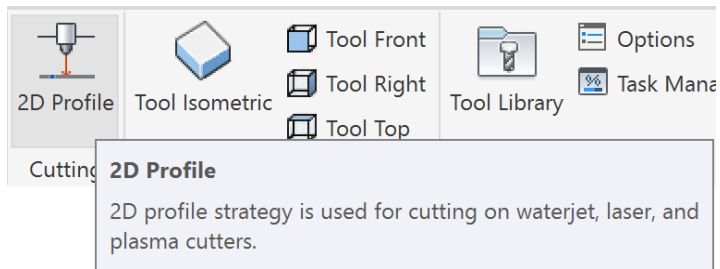# Chapter 11: Toolpath generation

We will now generate NC toolpath using Inventor CAM Add-in.

Task 1: Produce CAM files

a. Use the .ipt you just created
b. Setup.

c. Use Operation type = Cutting and hit OK.
d. Create a 2DProfile operation.

e. In the 2DProfile > Tool tab, set.
- Type = Plasma cutting.
- Make sure Kerf width < Separation value used in the nest.
f. In the 2DProfile > Geometry tab.
- Check Select same plane faces.
- Loops = Inner loops.
- Side = Start inside.
- Select the FACE of one of the closed contours.
g. Duplicate the 2DProfile via the context menu.
- Loops = Outer loops.
- Side = Start outside.
- Check Tabs.

h. Select both 2D Profile operations (or the Setup node).
i. Simulate.

Nest.161-Sheet.126 (1) Operation(s)
Setup1
2D Profile1
2D Profile3
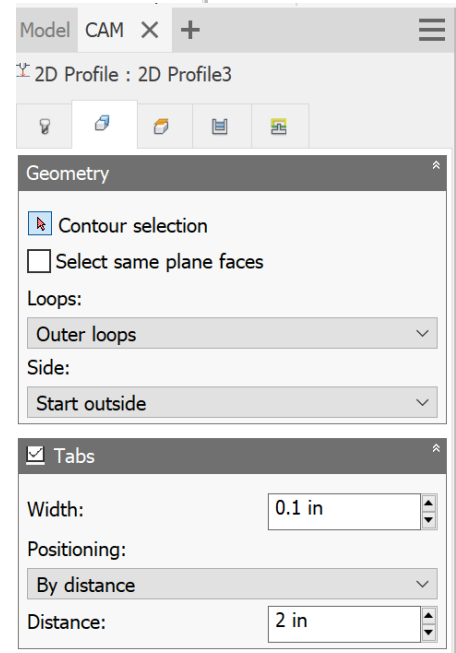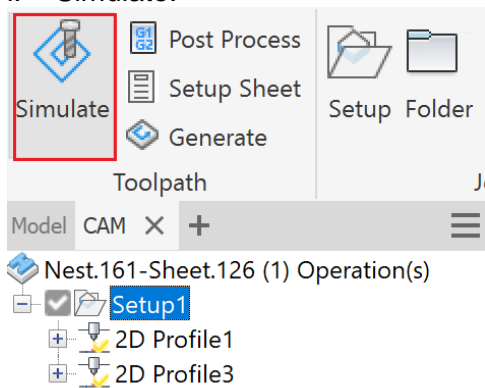
j. Select Setup and Post-process.
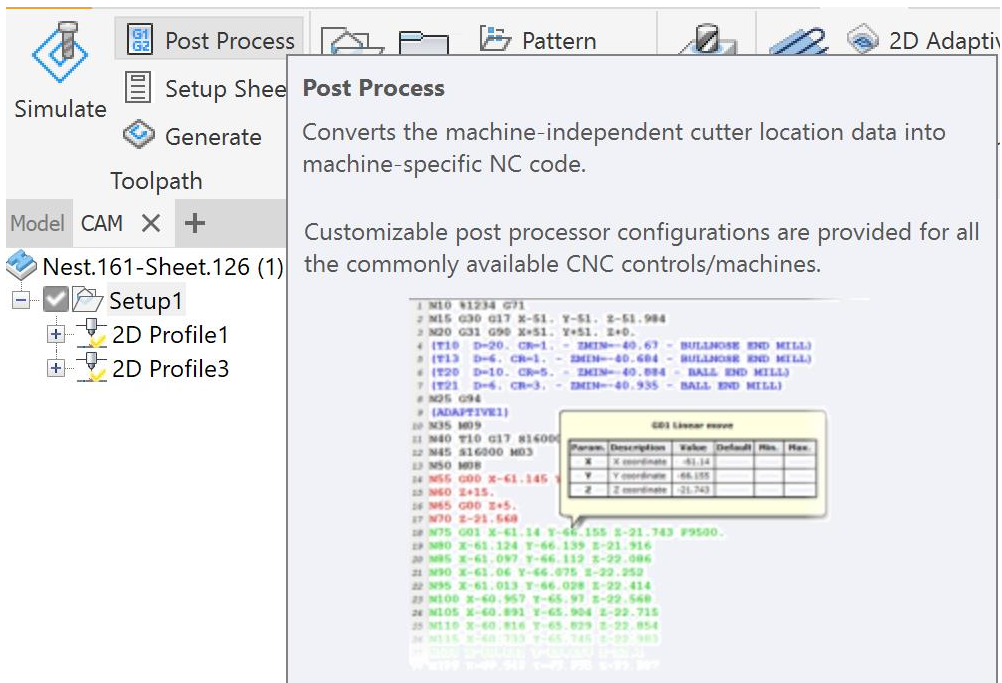
k. Hit the Setup button in the dialog and choose "Use personal post library".
l. Browse to the Post-processors folder.
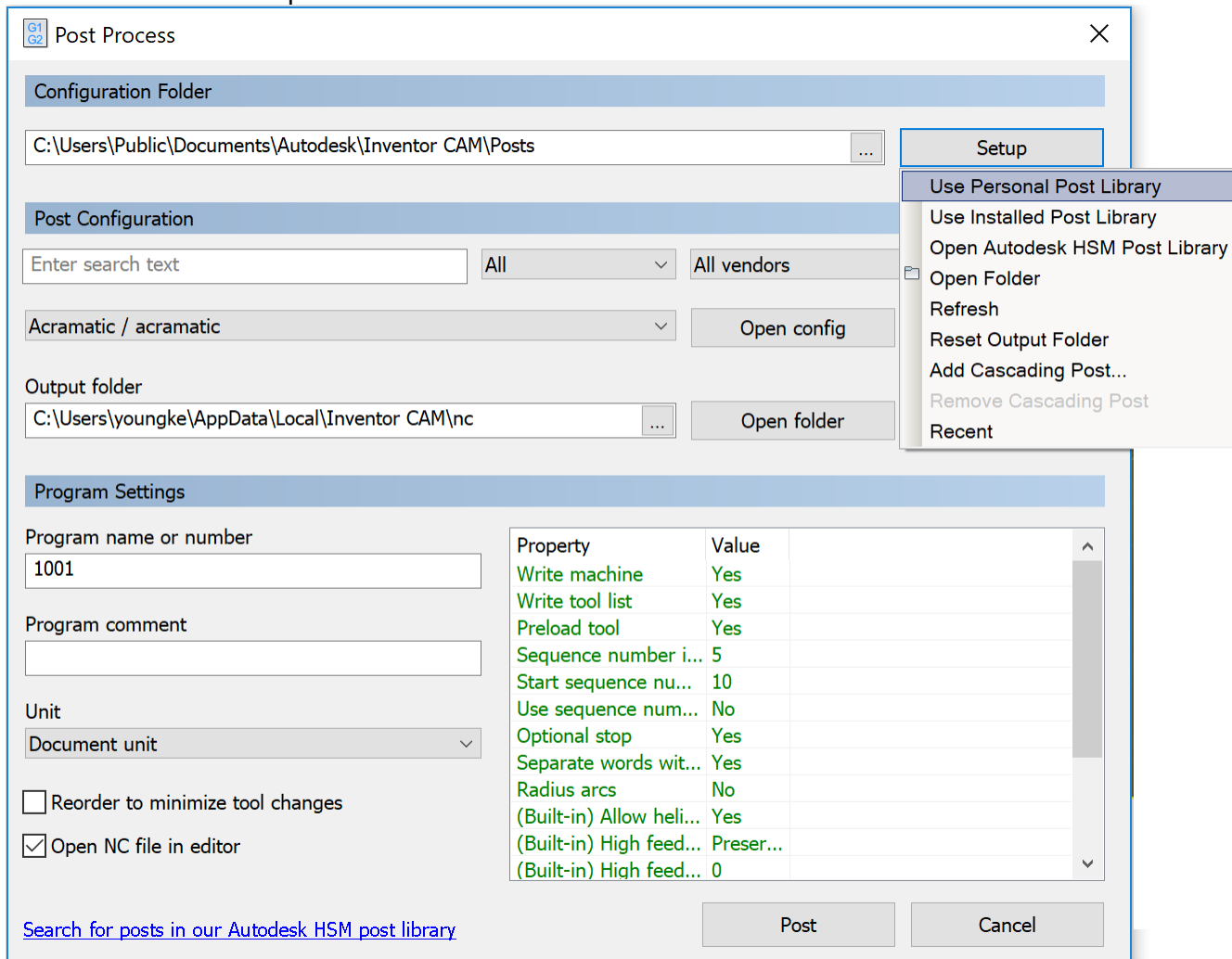
m. Use the post processor for your machine and generate the NC code.

- Make sure to check Open NC file editor if you want to inspect the generated code.

Chapter 12: Nest reports
Task 1: Generate the default report
a. Double click on any Report node under any nest node This opens the default report that contains a maximum of information.
b. Explore the report contents (sorting, Show vs. Hide).
c. Print the report as PDF and open the PDF to verify.
d. Save the report to disk as a self-contained HTML file. This file can be sent to other machines or to colleagues without losing image information.

Task 2: Customize the report
a. Options > Report.
b. Change the Report template directory to C:\Users\Public\Documents\Autodesk\Nesting Utility 2019\Samples\Report Templates.
c. Navigate in Windows Explorer to the file C:\Users\Public\Documents\Autodesk\Nesting Utility 2019\Samples\Report Templates\example-template-full.html.
d. Edit the file in Notepad or any other text editor.
   i. Comment out the entire pie chart <div> section.
   ii. In the nesting properties section
   - Change the data-column-count from 3 to 1.
   - Make the section visible by default by setting data-start-visible = "true".
   - Hide some properties by adding a data-hidden-properties line.

e. Re-Open the report by double clicking in the browser.
f. Change the Report Template in the dropdown to example-template-full to see the resulting report.

Chapter 13: Nest AutoCAD files
Nesting utility can also extract shapes from DWG and DXF files.
The difference with IPT files is that DXG/DXF files have no notion of material or thickness and the unit can be chosen freely. So it is the operator's diligence to provide these.
Task 1: Configure and nest DXF files
a. Start a new nest file.
b. Start the Sources dialog.
c. Add DXF files from AutoCAD files.
d. Start the Process Material Library and add a new material unrelated to any Inventor material.
- Example: Material = Kevlar
- Thickness = 0.1 in
- Category = Composites
- If no Sync to provider is used, such material and material category remains independent from the Inventor material library. This gives you more flexibility but the downside is that the end result will not use the correct appearance. Here is an example where Cork and Kevlar are defined.

Material ID	Material	Category	Thickness	Nesting Color	Density	Remote Material Name	Provider
Material ID.1	Cork	Exotic	1in		7,850kg/m^3		
Material ID.2	Kevlar	Composite	0.1in		7,850kg/m^3		

e. Start the Nesting properties dialog and assign the Kevlar material to the DXF files by selecting the material in the Material Name column Note that the Material name is not read-only for DXF and DWG.
f. Set the Source QTY for the .dxf to 20.
g. Return to the Sources dialog and set the Configuration for both files to DefaultImportConfiguration.cfg.
h. Assign both parts a custom unit = cm.
i. Hit Start Extract followed by OK to extract the shapes.
j. Create Nest Study.

- Note that the small parts may be nested outside the larger part.
k. Open Options > Extract.
l. Hit "…" to edit the active configuration file in the Configuration Editor. We offer Configuration files for both **extract** and **export**. They allow to pre-set the layer maps for nestable and non-nestable entities, etch data, grain markers, junk and other parameters.
m. Hit the + sign to make a copy of the default configuration file Call the new file CustomConfiguration1.cfg.
n. Set the new configuration as the active configuration via the context menu or simply double click on the name.
o. Hit the Source file "…" button and load the .dxf file.
p. Hit preview.
q. Change the map for layer 5 from Non-nestable entities to Nestable contours.
r. Hit Ok to save the configuration.
s. Sources and the Configuration for both files to CustomConfiguration1.cfg.
t. Re-extract and hit OK.
u. Re-calculate the nest Note that the small bracket is now nested inside the holes of the larger part.

Chapter 14: Export nest as AutoCAD file
Individual or a series of sheets can be exported to DXF files. The export settings can also be pre-defined in configuration files.
Task 1: Export sheets as DXF
a. Open Options > Export to verify the active configuration file.
b. Select one or more nested sheets in the browser.
c. Use the Export command from the ribbon.
d. Enter any DXF file name.
e. This brings up the Export Configuration Editor dialog.
f. Add a new configuration and make it active.
g. Map Automatic to layer 25.
h. Hit the Preview button Note that the shape/file labels are ALWAYS preserved in the DXF output.
i. Hit OK to proceed with the DXF file creation.
j. Open the DXF in AutoCAD Note that the outside contours sit on layer 25.

Chapter 15: Nest AnyCAD files
Closed shapes can be extracted from bodies inside STEP, ProE , Solidworks files etc. if there is at least one flat face in the file that allows us to construct a 2D silhouette. However the AnyCAD file must first be imported and saved in Inventor IPT format. The same holds true for STL meshes that need to placed first inside ipt files. Silhouette recognition from AnyCAD bodies is triggered by the **Generic CAD** provider.

Table of contents