NEST Quick Start Guide VisualCAD/CAM 2024

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Quick Start

VisualCAD/CAM 2024

	VisualCAD/CAM Best value CAD/CAM for your shop
	Prefer Printed Documentation? Click Here!
Quick Sta Refer to	art Guides for each VisualCAD/CAM module are available in both PDF and Video format. the following information to access these resources:
	What's New!
	What's New in VisualCAD/CAM 2024
	Watch the What's New in 2024 Webinar!
	The Complete Quick Start Video Play List
	Here is a link to the complete 2024 Video Play List

How to Access the Quick Start Guide Documents

To help you quickly get started in working with each module, select one of the Help buttons located on the VisualCAD/CAM Learning Resources dialog.

You will find:

- Quick Start Guides
- What's New documents
- Online Help links

The Quick Start Guides will help you step through an example tutorial which will illustrate how to use the module. To access the Learning Resources dialog:

1. From the VisualCAD Home Ribbon Bar, drop down the Main menu and select Learn ...

• (Q) • P · P · P · P · P · P · P · P · P · P	MILLQuickStartTutorial-in-process.vcp
Home Display Modeling Aids Curve Modeling Surface Modeling	Solid Modeling Mesh Modeling
Import Import <td>Translator Manager Plug</td>	Translator Manager Plug
VisualCAM - Machining Browser MILL V Program Simulate A A C O O	Profile-NEST MESH
Image: Stock and Stock a	NEST ART
Options Simulate Machining Job Machine - 3 Axis Post - Haas Stock - Box Stock Fixtures - None K Setup 1	NC-EDIT Check for Updates . Check for Updates . Check for Updates . Check for Updates . Veb-site Check for Updates . Help About

- To access the Learning Resources dilog in VisualCAM
- 2. Select a document from the Learning Resources dialog to get started using the module of your choice.

You can also select the Open Quick Start Files Folder button located at the bottom of the dialog to open the Quick Start folder where the source files (start and completed versions) are located.

7



Learning Resources Dialog

Resource Guide

8

Download this PDF Guide for a list of the available VisualCAD/CAM Resources.

2024 VisualCAD/CAM Resource Guide



The 2024 VisualCAD/CAM Resource Guide!

18 Pages

Lists PDF downloads and Online resources including Quick Start Guides, Reference Guides, Exercise Guides, Tutorials and More.

Prefer Printed Documentation? Click Here!

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About This Guide

3.1 Useful Tips

Here are some useful tips that will help you use this guide effectively.

- 1. Copy the tutorial part files in a location other than the installation folder to make sure you have read/write privileges to the files.
- 2. Once you start working with the tutorial file, save your work periodically!
- 3. Don't stress out too much if you are having trouble with the tutorial. Call us or send us email and we can help you out.
- 4. Most of all have fun!

3.2 About VisualCAD/CAM

VisualCAD/CAM is MecSoft's cost effective solution for optimally arranging and fitting geometric shapes onto sheets of stock material. It provides two primary nesting capabilities: Rectangular Nesting and True Shape Nesting. For both solutions, individual 2D CAD shapes can be arranged on sheets according to user-defined quantities, spacing, and with orientation control, including material grain restrictions.



VisualNEST Quick Start Guide

3.3 Using this Guide

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Welcome to the Quick Start Guide for Rectangular & True Shape Nesting using VisualCAD/CAM brought to you by MecSoft Corporation. In this guide we will be creating both a Rectangular and a True Shape Nest containing multiple quantities of six individually shaped parts using two multiple sheets of material. We will also specify the Grain Direction for one of our parts to maintain its orientation during the nesting process. We will also be Committing the nest to CAD geometry.

This guide has two associated VisualCAD files each for both the Rectangular and the True Shape nesting sections that you can find located in the QuickStart folder under the VisualCAD/CAM installation folder. The first file is a completed file that contains the committed nest CAD geometry. It represents the file that you should end up with after working through the tutorial. The second file is a starter file that contains only the staged part geometry to be nested. Use the completed file as a reference. Copy the starter file and use it to begin each tutorial.



Rectangular Nest Quick Start Tutorial.vcp



RectangularNestQuickStartTutorial_Completed.vcp



TrueShapeNestQuickStartTutorial.vcp



TrueShapeNestQuickStartTutorial_Completed.vcp

3.4 Watch the Video!

Want to see a video demonstration of this quick start guide? Just click on the play list below and watch the NEST Quick Start Guide video.

About This Oulde Th

Here is a link to the complete 2023 Video Play List

About VisualCADCAM

4.1 Running VisualCADCAM

Locate the VisualCAD/CAM 2023 shortcut on your desktop and double click to launch the application.

Alternatively you can also click on the Windows Start button and select All Programs. Go to the program group containing VisualCAD/CAM 2023. (The name of this program group will usually be called VisualCAD/CAM 2023, unless you specified otherwise during setup.)

Once you locate the program group, select it and then select VisualCAD/CAM 2023 to launch the application.

If the installation was successful, upon launching of VisualCAD/CAM 2023 you should observe a menu entry called VisualCAM 2023 on the Home Ribbon Bar menu of VisualCAD.

4.2 About the VisualCAD Display

Before we begin, let's talk a bit about the VisualCAD display. When you run VisualCAD for the very first time, your screen may look this.



These windows on the left belong to plug-in modules that are currently loaded. For now, let's close all of them.

ser	🕂 🔆 VisualCAM - Machii
🗟 - 🎸 - 🔅	Close Tools

With all plug-in modules closed your screen will look like this:



4.3 Launching the NEST Module

Now, let's begin by launching the VisualCAD/CAM module.

- 1. From the Plugins pane of VisualCAD's Home Ribbon Bar, you will see the VisualCAM 2023 main menu item.
- 2. Drop-down the menu and pick NEST to load the NEST module.



3. Docked on the left you will see the Nesting Browser. Notice that it is organized into tabs representing each step in the nesting process.



4. You can re-size the width of the browser making sure that all of the command icons and menus are easily accessible.

	Ð	0
Velect Type of Nesting		
Type of Nesting		^
True Shape Nesting Rectangular Nesting		
Select Sheet(s) to Nest Parts in	4lt	×
Select Part(s) to Nest		
Choose Nesting Parameters		
Preview And Commit Nest		

Rectangular Nesting

5.1 Getting Ready

5.1.1 Load the Part File

Now, let's load the Part file containing the geometry for nesting.

1. From VisualCAD's Main Menu, select Open.

► 🖾 🖨 + 🐇 🐁 ► + A + <u>A</u> (Q) =				
Click here for				
New Main menu t Documents				
	<u>1</u> RectangularNESTQuickStartTutorial.vcp			
Open	2 ARTQuickStartTutorial_Completed.vcp			
Browse Open (C	Ctrl+O) pleted.vcp			
Open al	n existing document			
Import 5 MILLQuickStartTutorial_Completed.vcp				
Save				
The second				

- From the Open dialog box, select the RectangularNestQuickStartTutorial.vcp file from the C:\ProgramData\MecSoft Corporation\VisualCAM 2023\QuickStart\ folder. As mentioned before, it is advisable to make a copy of this part at a suitable alternative folder so that you have write privileges to modify the part.
 - By default, the ProgramData folder is "hidden" from view. Here are the steps to Show hidden files and folders:
 - For Windows 8 users: Go to Control Panel > Appearance and Personalization > Folder Options.

For Windows10 users: Go to Control Panel > Appearance and Personalization > File Explorer Options.

- 2. Select View tab and under advanced settings select Show Hidden files and folders, clear the check boxes for:
 - Hide extensions for known file types
 - Hide protected operating system files (Recommended)

Diselau file isee on thumberile	
Display file icon on thumbhails	_
Display file size information in folder tips	
Display simple folder view in Navigation pane	-
Display the full path in the title bar (Classic folders only)	=
Hidden files and folders	
Do not show hidden files and folders	_
Show hidden files and folders	
Hide extensions for known file types	
Hide protected operating system files (Recommended)	
Launch folder windows in a separate process	
Remember each folder's view settings	Ŧ

The part appears as shown below.

<u>,</u> ∽©

5.1.2 Basic Steps

The following basic steps are included in the nesting process:

- 1. First, we load the VisualNEST module and define the Nesting Type to be performed.
- 2. Then we open the VisualCAD drawing where the stock material and production parts are staged.
- 3. Then we select the Sheets to Nest our parts in and then select the Parts to Nest.

- 4. We choose our desired Nesting parameters.
- 5. Then we Preview the Nest making any final adjustments.
- 6. Finally, we Commit the Nest, creating the actual nested sheet geometry.

5.1.3 Staging your Parts

Let's take a look at what we've done in VisualCAD to prepare for nesting. You can refer to this as the Staging Process. We have brought together and located on the screen, the geometry that we want in the nesting process.



As you can see, we have one or more shapes that represent the stock or the remnant material. We also have one of more shapes that represent the production parts that we want to nest within the stock material.

Here are two tips to consider when staging your parts.

First, when you stage your parts, stage them around the outside of the stock material, not within the stock material. The Nesting software will place the parts in the stock for you.

Secondly, do not place parts inside the cutouts of larger parts as this may confuse the Nesting software into thinking that it is a detail of the larger part.
 Keep all of your parts separated.

5.2 Creating a Rectangular Nest

5.2.1 Choose Nesting Type

1. Now, from the nesting browser, choose the Select Type of Nesting tab.

Velect Type of Nesting	
Type of Nesting	- 1
True Shape Nesting Rectangular Nesting	
Help	
and the second	اسم

- 2. In this section we will be demonstrating Rectangular Nesting so we will select that option. In Rectangular Nesting, a rectangular bounding box around each part is used to place and orient each part on each sheet.
- 3. You will notice a Help button located on the right of each tab of the Nesting Browser. Selecting it will display documentation for each option on the active tab. Optionally, you can simply press F1 on your keyboard to display help.

	© (0)
Velect Type of Nesting	I Help
Type of Nesting	Display help for current task
True Shape Nesting	
warden and the second	a section descent and the section of the
Locate the Help ic	on

V

18

5.2.2 Define Your Sheet Geometry

1. From the Select Sheets tab, pick Select Curves.

I,	F Select Sheet(s) to Nest Parts in							
	Select Curves to be used as Sheets Total # selected: 0							
#	Name	Count	Priority	Thickn	Grain Direction			
	Add/Edit Sheet(s)	Select Curv	ve(s) Remove A	I Rem	ove Active			

2. Now, we select the shapes that represent the stock material and right-click or press Enter to end the selection.



3. Notice that an entry is made into the table. A default name is generated as well as the count and we'll get back to the Grain Direction is just a little bit.

	Content Select Sheet(s) to Nest Parts in						
	Select Curves to be used as Sheets Total # selected: 1						
#	Name	Count	Priority	Thic	Grain Direction		
1	Sheet 1	1	-	0.000	None 💌		
	Add/Edit Sheet(s)	Select Cur	ve(s) Remove	e All	Remove Active		

4. Let's change the Count to 2. This means that there are two identical Sheets used to nest the part.

Content Select Sheet(s) to Nest Parts in							
	Select Curves to be used as Sheets Total # selected: 1						
#	Name	Count	Priority	Thic	Grain Direction		
1	Sheet 1	2	-	0.000	None 💌		
		3					
_	Add/Edit Sheet(s)	Select Cur	ve(s) Remove	All	Remove Active		

In the future, you can select additional shapes for stock but all of them must be rectangular.

5.2.3 Define Your Parts to Nest

Next, we'll select our Parts to be Nested.

1. Pick the Select Parts tab of the Nesting Browser and then pick Select Curves.

Select Part(s) to Nest								
Select Curves to be	used as Par	rts ——						
Thickness Filter: All	~	·	Total # Selecte	ed: 0	_			
Name	Count	Priority	Orientation	Grain Direction				
					l			
					l			
•								
V V	6							
Select P	art(s)	Remove	e All Rem	ove Active				
Part Options								
Orientation Step Angle 90								
Mirror Parts for nesting								
Allow Part in:	side other p	oarts						
Use for engr	Use for engraving & sign making							

2. Then we will window select all of our part geometry and then right-click or press Enter to add each part to the Parts List of the Nesting Browser.



IMPORTANT NOTE: When parts are added to the NEST Parts List they are assigned an arbitrary number (i.e., Part 1, Part 2, etc.) depending on how they are selected. It is important to note that the part numbers you see on your screen may not be the same numbers you see in this guide. Please keep this in mind when you are instructed to select a part from the parts list.

Select Part(s) to Nest							
Select Curves to be used as Parts							
Thickness Filter: A		Ť	TOTAL # SELE	cted: 10			
Name	Count	Priority	Orientation	Grain Direction	^		
다 🖸 Parts							
Part 2	1	1	Fixed	None 💌			
- O Hole 1							
Part 3	1	1	Fixed	None 💌			
O Hole 2							
			- ·		×		
Select P	art(s)	Remo	ove All R	lemove Active			
Part Options							

The Nesting software determines the exterior and interior of each selected part. Note that the exact sequence numbering that you see may differ from the image above.

As we can see in the Parts List, each exterior closed curve is defined as one Part. Any interior closed curves are defined as Holes within each Part.

3. If we select a part from the parts list we see that it is highlighted in the graphics window.

Select Part(s) to Nest Select Curves to be Thickness Filter:	used as P	arts —	Total # Sel	ected: 10	-	
Name	Count	Priority	Orientation	Grain Direc	tion	^
Parts	1	1	Fixed	None	¥	
O Hole 1			_			
Part 3 O Hole 2	1	1	Fixed	None	•	
					-	~
Select	Part(s)	Rem	ove All F	Remove Active	e	
Part Options					-	
Orientation Ste	p Angle	90	0			
Mirror Parts for nesting						
Allow Part in	nside othe	r parts				
Use for eng	raving & s	ign making	2			

4. If a part has multiple interior cutouts, each is listed in the Parts List, under its associated part.

Select Part(s) to Nest Select Curves to be Thidmess Filter:	t used as F	Parts	Total # Sel	ected: 10		
Name	Count	Priority	Orientation	Grain Direction	^	
🕀 🗌 Part 6	1	1	Fixed	None	1	
- O Hole 3						
- O Hole 4						
Part 9	1	1	Fixed	None		
Part 10	1	1	Fixed	None		
Part 10 1 1 Fixed None						
Allow Part in	nside othe	r parts				
Use for eng	raving & s	sign making	,			

5. Now we'll enter the Count for each of the parts that are needed in the nest. Select the Count field for Part 1 and enter 50 and then press enter.

Select Part(s) to Nest							
Select Curves to be used as Parts							
Thickness	Filter: All	\sim	Total # Selected: 10)			
Name	Count	Priority	Orientation	Grain Direction			
다 🖸 Parts							
Part 1	50	-	Fixed	None 👤			
Part 2	1 43	-	Fixed	None 🔽			
Part 3	1	-	Fixed	None 🔽			
O Hole 1							
			- ·				
	Select Part(s)	Remove	All Remove Ad	tive			
Part Opti	ons						
Orien	tation Step Angle	90					
Mi	Mirror Parts for nesting						
Allow Part inside other parts							
Use for engraving & sign making							

6. Now right-click on 50 and select Make All the Same.

Select Part(s) to Nest							
Select Cur Thickness	ves to be used a	as Parts	Total # Selected: 10)			
Name	Count	Priority	Orientation	Grain Direction	<u> </u>		
Parts	50		— ,	Nena			
Part 2	1 Ma	ake all the sam	e	None			
Part 3	1	-	Fixed	None 👤			
					1		
Image: Second	Select Part(s)	Remove	All Remove A	ctive			
Part Optio	ons						
Orient	Orientation Step Angle 90						
Mirror Parts for nesting							
Allow Part inside other parts							
Us	e for engraving	& sign making					
man man man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			

You now see that all parts have the same count of 50.

Select Curves to be used as Parts						
Thickr	ness Filter: All	\sim	Total # Selected:	10		
Name	Count	Priority	Orientation	Grain Direction		
무 🚺 Parts						
—— 🦲 Part 1	50	-	Fixed	None 💌		
Part 2	50	-	Fixed	None 💌		
- 🗗 📃 Part 3	50	-	Fixed	None 💌		
O Hole 1						
	Select Part(s) Remo	ve All Remove	Active		
Part C	Options					
0	rientation Step Ang	gle 90	▲ ▼			
Mirror Parts for nesting						
Allow Part inside other parts						
Use for engraving & sign making						

5.2.4 Choose Nesting Parameters

Now, we'll select the Choose Nesting Parameters tab of the Nesting Browser to set two final parameters.

- 1. The first one sets the Distance Part to Part. We'll enter 0.15 there.
- 2. The second is the Distance Part to Sheet (i.e., the distance between the outer-most parts and the outer edge of the stock material). We'll set that to 0.25.

There are also options to automatically Tag each nested part and layout options for arranging your nested sheets.

26

🏹 Choose Nesting Param	浸 Choose Nesting Parameters					
Nesting Options						
Distance Part to Part	0					
Distance Part to Sheet	0					
Overflow Minimum Utilizat	ion %					
Low Accuracy						
con Accuracy	high Accuracy					
Auto Tag Options						
Tag nested curves au	tomatically					
Auto-tag Output						
Annotation	◯ Geometry					
lag text height	5					
Nested Sheets Lavout						
Spacing betw	een sheets 1					
Remnants						
Remnant Type						
None O Clean	Cut ORectangular OStepped					
Clean Cut Type						
O Horizontal C	Cuts					
Remnant Size Control	Remnant Size Control					
None	O Width O Area					
Min. Width 34.5	Min. Area 681.37					
Estimate # of Sheets	Execute Nest					

3. Now we select Estimate # of Sheets to display the dialog.

Estimated # of Sheets ×						
#	Nested Sheet Sheet 1	Estimated # of Sheets 7				
		Sheet Count OK				

- 4. We see that 7 sheets will be needed so select the Update Sheet Count button and then pick OK. If you go back to the Select Sheet(s) tab you will see that the count was updated.
- 5. Now select the Execute Nest button and you are automatically moved to the Preview Nest tab where you can see the sheets listed.

Min. Width 34.5 🗭 Min. Ar	rea 681.37 🔹
Estimate # of Sheets Exe	ecute Nest

Q	Prev	view Nest			
	Lis	t of Nested	Sheets		
	#	Nested She	eet	% Utilization	^
	1	Sheet 1-1		86.85	
	2	Sheet 1-2		86.85	
	3	Sheet 1-3		86.85	
	4	Sheet 1-4		86.85	
	5	Sheet 1-5		86.85	
	6	Sheet 1-6		86.93	¥
	Lis	t of Unnest	ed Parts		
	#	Parts			
	Lis	t of Remnar	t Sheets		
	#	Remnant S	heet		
			Back	Report	

You can select each sheet to see its preview in the graphics screen.



6. Select the Report button to display the nest report.

Nested Sheet	% Utilization	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	
Sheet 1-1	86.85	2	2	7	9	0	0	
Sheet 1-2	86.85	2	2	7	9	0	0	
Sheet 1-3	86.85	2	2	7	9	0	0	
Sheet 1-4	86.85	2	2	7	9	0	0	
Sheet 1-5	86.85	2	2	7	9	0	0	
Sheet 1-6	86.93	1	7	10	5	7	12	
Sheet 1-7	82.82	5	6	5	0	43	14	

7. Pick OK to close the report dialog.

5.2.5 Grain Direction Control

The last thing I would like to do is to impose a Grain Direction control on this larger part to force it to be vertical. In order to do that I need to specify the Grain Direction on the sheet as well as that part.

1. First we'll go back to the Select Sheets(s) to Nest Part in tab and set the Grain Direction to Along X.

	Content Select Sheet(s) to Nest Parts in								
	Select Curves to be used as Sheets Total # selected: 1								
#	Name	Count	Priority	Thic	Grain Direction				
1	Sheet 1	7	-	0.000	None 🗸				
					None Along X Along Y				
	Add/Edit Sheet(s)	Select Cur	ve(s) Remove	e All	Remove Active				

2. Then on the Select Parts tab I will set the Grain Direction on this larger part to be Along Y.

Select Part(s) to Nest	:				
Select Curves to be u	sed as Pa	arts —			
Thickness Filter: All	`	~	Total # Se	lected: 10	
Name	Count	Prior	Orientation	Grain Direction	^
Part 4	50	-	Fixed	None 💌	
🕂 🗗 🔲 Part 5	50	-	Fixed	None 🗸 🗸 🗸	
└── ○ Hol				None	
Part 6	50	-	Fixed	Along X Along Y	~
Select Pa	rt(s)	Rem	ove All	Remove Active	
Part Options					
Orientation Step	Angle 9	90	A V		
Mirror Parts fo	or nesting	L	·	~~~~~	~~~

3. Then go back to the Choose Nesting Parameters tab and select Execute Nest again.

	when when and A	~
Min. Wid	th 34.5 Ain. Area 681.37	
	Estimate # of Sheets Execute Nest	
Q Preview Nest	2	
Commit Nest	t	

4. You are again taken to the Preview Nest tab.

Select a sheet from the Sheets list and you see that the part is aligned vertically now.



Each time the nest is generated, the system will calculate an Efficiency Factor referred to as % Utilization of the stock material. This tells you how well each sheet is consumed by nested parts.

	List of Nested She	ets	
#	Nested Sheet	% Utilization	^
1	Sheet 1-1	87.15	
2	Sheet 1-2	87.15	
3	Sheet 1-3	87.15	
4	Sheet 1-4	87.15	
5	Sheet 1-5	87.15	
6	Sheet 1-6	87.19	~
	List of Unnested P	arts	

5.2.6 Commit the Nest

After previewing and making adjustments to your nest it is time to commit it to your drawing. This writes the geometry of the individual sheets onto individual layers in your current CAD part file.

- 1. Select the Commit Nest tab.
- 2. For Nested Sheet Geometry Grouping we'll select the Separate Layer option. You can also Export the nest here.

📀 Commit Nest	
Commit Parameters	
Force all parts to lie on XY plane	
Nested Sheets Geometry Grouping	
• Create a separate Layer for each nested sheet	
○ Create a separate Group for each nested sheet	
○ None	
Remnants	
Add remnants to the sheet list	
Create separate layer for each remnant sheet	
Commit Nest	
Export Sheets to Files	
Export Path:	
Move every sheet's lower corner to origin	
Export	

3. When ready, select the Commit Nest button. Note: Selecting this button is a commitment to create the nested geometry in the part file.

Layers are created for each nested sheet:

Layers							
Layer Name	Active	Visible	Objects	Color	Locked		
Default			11				
New Layer			0				
New Laver(1)	Γ		0				
Sheet 1-1-30			70				
Sheet 1-2-30		V	120				
-							



The geometry can then be used for machining or any other application that you wish. This completes this portion of the quick start guide for Rectangular Nesting in VisualCAD/CAM. Please continue on to learn how to use True Shape nesting.

True Shape Nesting

6.1 Getting Ready

6.1.1 Load the Part File

Now, let's load the Part file containing the geometry for nesting.

1. From VisualCAD's Main Menu, select Open.

Men L 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2							
Click here Main mer	for u t Documents						
	1 RectangularNESTQuickStartTutorial.vcp						
Open 🔓	2 ARTQuickStartTutorial_Completed.vcp						
Browse Open (Cf	trl+O) ppleted.vcp						
Open an	existing document						
Import	<u>5</u> MILLQuickStartTutorial_Completed.vcp						
Save							
Read States	and a second and the second second						

- From the Open dialog box, select the TrueShapeNestQuickStartTutorial.vcp file from the C:\ProgramData\MecSoft Corporation\VisualCAM 2023\QuickStart\ folder. As mentioned before, it is advisable to make a copy of this part at a suitable alternative folder so that you have write privileges to modify the part.
 - By default, the ProgramData folder is "hidden" from view. Here are the steps to Show hidden files and folders:
 - For Windows 8 users: Go to Control Panel > Appearance and Personalization > Folder Options.

For Windows10 users: Go to Control Panel > Appearance and Personalization > File Explorer Options.

- 2. Select View tab and under advanced settings select Show Hidden files and folders, clear the check boxes for:
 - Hide extensions for known file types
 - Hide protected operating system files (Recommended)

Display file icon on thumbnails	_
Display file size information in folder tips	
Display simple folder view in Navigation pane	-
Display the full path in the title bar (Classic folders only) =
闄 Hidden files and folders	
Do not show hidden files and folders	
Show hidden files and folders	
Hide extensions for known file types	
Hide protected operating system files (Recommended)	
Launch folder windows in a separate process	
Remember each folder's view settings	-
 Hide protected operating system files (Recommended Launch folder windows in a separate process Remember each folder's view settings 	

The part appears as shown below.



TrueShapeNestQuickStartTutorial.vcp

6.1.2 Basic Steps

The following basic steps are included in the nesting process:

- 1. First, we load the VisualCAD/CAM module and define the Nesting Type to be performed.
- 2. Then we open the VisualCAD drawing where the stock material and production parts are staged.
- 3. Then we select the Sheets to Nest our parts in and then select the Parts to Nest.
- 4. We choose our desired Nesting Parameters.
- 5. Then we Preview the Nest making any final adjustments.

6. Finally, we Commit the Nest, creating the actual nested sheet geometry.

6.1.3 Staging your Parts

Let's take a look at what we've done in VisualCAD to prepare for nesting. You can refer to this as the Staging Process. We have brought together and located on the screen, the geometry that we want in the nesting process.



As you can see, we have one or more shapes that represent the stock or the remnant material. We also have one of more shapes that represent the production parts that we want to nest within the stock material.

Here are two tips to consider when staging your parts.

First, when you stage your parts, stage them around the outside of the stock material, not within the stock material. The Nesting software will place the parts in the stock for you.

Secondly, do not place parts inside the cutouts of larger parts as this may confuse the Nesting software into thinking that it is a detail of the larger part.
 Keep all of your parts separated.

6.2 Creating a True Shape Nest

6.2.1 Choose Nesting Type

1. Now, from the nesting browser, choose the Select Type of Nesting tab.

	� ?
Velect Type of Nesting	
Type of Nesting	
True Shape Nesting O Rectangular Nesting	
LA.	أمتسم

- 2. In this guide we will be demonstrating True Shape Nesting so we will select that option. In True Shape Nesting, the actual perimeter of each part is analyzed for orientation and placement on each sheet.
- 3. You will notice a Help icon located at the top-right of the Nesting Browser. Selecting it will display documentation for each option on the active tab.

6.2.2 Define Your Sheet Geometry

1. From the Select Sheets tab, pick Select Curves.

ta Se	Select Sheet(s) to Nest Parts in							
	Select Curves to be used as Sheets Total # selected: 0							
#	Name	Count	Priority	Thickness	Starting Corner	Nesting Direction	Grain Direction	
				¥				
		Add/Edit S	heet(s)	Select Curve(s) Remove All	Remove Active		

2. Now, we select the shapes that represent the stock material and right-click or press Enter to end the selection.



3. Notice that entries are made into the table for Sheet 1 and Sheet 2.

Grain Direction
None 💌
None 💌

4. For the Count column, let's enter 2 sheets of each of these for the sake of nesting..

🐻 s	Select Sheet(s) to Nest Parts in									
Select Curves to be used as Sheets Total # selected: 2										
#	Name	Count	Priority	Thickness	Starting Corr	ner	Nesting Dire	c	Grain Directio	n
1	Sheet 1	2	-	0.000	Lower left	-	Along X	-	None	-
2	Sheet 2	2	-	0.000	Lower left	-	Along X	-	None	•
	Add/Edit Sheet(s) Select Curve(s) Remove All Remove Active									

The Starting Corner and Nesting Direction columns allow you to control where the nesting should begin and in what direction it should proceed. This is good for remnant control.

We'll come back to the Grain Direction column is little bit later.

6.2.3 Define Your Parts to Nest

Next, we'll select our Parts to be Nested.

1. Pick the Select Part(s) to Nest tab of the Nesting Browser and then pick Select Part(s).

Select Part(s) to Nest				
Select Curv Thickness f	es to be used as Filter: All	Parts To	otal # Selected: 0	
Name	Count	Priority	Orientation	Grain Direction
	Select Part(s)	Remove A	I Remove Activ	'e
Part Option	ns 🖓 🚽			
Orienta	ation Step Angle	90		
M**	or Parts for nest		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

2. Then we will window select all of our part geometry and then right-click or press Enter to add each part to the Parts List of the Nesting Browser.



IMPORTANT NOTE: When parts are added to the NEST Parts List they are assigned an arbitrary number (i.e., Part 1, Hole 2, Part 3, Hole 1, Hole 2, etc.) depending on how they are selected. It is important to note that the part numbers you see on your screen may not be the same numbers you see in this guide. Please keep this in mind when you are instructed to select a part from the parts list.

Select Part(s) to Nest								
Select Cur	ves to be used a	as Parts	Total # Selected: 10					
			Total # Selected.					
Name	Count	Priority	Orientation	Grain Direction	<u></u>			
다 🖸 Parts								
Part 1	1	-	Fixed	None	1			
Part 2	1	-	Fixed	None				
Part 3	1	-	Fixed	None	1			
O Hole 1								
					1 *			
	Select Part(s)	Remove	All Remove A	ctive				
Part Opti	ons							
Orien	Orientation Step Angle 90							
Mi	Mirror Parts for nesting							
Al	Allow Part inside other parts							
Use for engraving & sign making								
and the second	mm ~	mm	~ ~~~~	man a ma				

The Nesting software determines the exterior and interior of each selected part.

Note that the exact sequence numbering that you see may differ from the image above.

As we can see in the Parts List, each exterior closed curve is defined as one Part. Any interior closed curves are defined as Holes within each Part.

3. If we select a Part from the Parts List we see that the Part is highlighted in the graphics window.



Note that the exact sequence numbering that you see may differ from the image above.

- 4. Selecting a Hole under a part in he Parts List highlights the associated interior curve of that part in the graphics window. As you can see, when a part has multiple interior cutouts, each is listed in the Parts List as Hole #, Hole #, etc., under its associated Part.
- 5. Now we'll enter the Count for each of the parts that are needed in the nest. Select the Count field for Part 1 and enter 50 and then press enter.

Select Part(s) to Nest					
Select Cu	rves to be used a	as Parts ———			
Thicknes	s Filter: All	\sim	Total # Selected: 10)	
Name	Count	Priority	Orientation	Grain Direction	^
무 🚺 Parts					
Part 1	50	-	Fixed	None	-
Part 2	1 3	-	Fixed	None	•
	1	-	Fixed	None	-
O Hole 1					
					-1
	Select Part(s)	Remove	e All Remove A	ctive	
Part Opt	ions				
Orien	tation Step Angle	e 90			
. M	irror Parts for ne	sting			
A [llow Part inside o	ther parts			
🗌 U	se for engraving	& sign making			
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm	

6. Now right-click on 50 and select Make All the Same.

Select Part(s) to Nest						
Select Cur Thickness	ves to be used a Filter: All	as Parts	Total # Selected: 10	)		
Name	Count	Priority	Orientation	Grain Direction	^	
Parts Part 1 Part 2 Part 3	50 Ma 1 1	ake all the sam	e Fixed	None None None		
Hole 1				–	~	
	Select Part(s)	Remove	All Remove A	ctive		
Part Optio	ons					
Orient	tation Step Angle	90				
Mi	rror Parts for ne	sting				
Allow Part inside other parts						
Us	e for engraving	& sign making				
man management	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	w	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~_~~	

You now see that all parts have the same count of 50.

Select Part(s) to Nest							
Select Cur	Select Curves to be used as Parts						
Thickness	s Filter: All	$\sim$	Total # Selected: 10	)			
Name	Count	Priority	Orientation	Grain Direction			
다 🖸 Parts							
Part 1	50	-	Fixed	None 👤			
Part 2	50	-	Fixed	None 💌			
- 🗗 📃 Part 3	50	-	Fixed	None 💌			
O Hole 1							
	50 C						
Image: Second	Select Part(s)	Remove	e All Remove A	ctive			
Part Opti	ons						
Orien	tation Step Angle	e 90	L F				
M	rror Parts for ne	sting					
🗌 Al	Allow Part inside other parts						
Use for engraving & sign making							
	~~~~.	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				

6. There are Part Options below the table that will apply to all of the parts.

Select Part(s) to Nest					
Select Cu	irves to be used a	as Parts ——			
Thicknes	ss Filter: All	\sim	Total # Selected: 10	0	
Name	Count	Priority	Orientation	Grain Direction	
🗗 🚺 Parts					
Part 1	50	-	Fixed	None 👤	
Part 2	50	-	Fixed	None 💌	
- 🗗 📒 Part 3	50	-	Fixed	None 💌	
O Hole 1					
			- ·		
Image: Second	Select Part(s)	Remov	re All Remove A	ctive	
Part Op	tions				
Orie	ntation Step Angl	e 45			
M	/irror Parts for ne	sting			
Allow Part inside other parts					
_ u	Jse for engraving	& sign making			
n	· ·····	·	himan		

- 7. Let's change the Orientation Step Angle to 45 degrees. This means that Nesting software will attempt to rotate any of the parts in 45 degree increments to achieve a better fit.
- 8. Let's enable the Mirroring Parts for nesting option.
- 9. Also enable the Allow Part inside other parts option. This will allow smaller parts to be nested within the cutouts of larger parts.
- 10. If you have a part that you do not want rotated or mirrored, such as the one shown below, you can check the box next to Fixed in the Orientation column of the Part List.

The orientation of this part will be maintained in the exact orientation that it is staged throughout the nesting process.

Your dialog should now look similar to this:



6.2.4 Choose Nesting Parameters

Now, we'll select the Choose Nesting Parameters tab of the Nesting Browser to set two final parameters.

- 1. The first one sets the Distance Part to Part. We'll enter 0.15 there.
- 2. The second is the Distance Part to Sheet (i.e., the distance between the outer-most parts and the outer edge of the stock material). We'll set that to 0.25.

There are also options to automatically Tag each nested part and layout options for arranging your nested sheets.

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🎲 Choose Nesting Paramet	ers
Nesting Options	
Distance Part to Part	0
Distance Part to Sheet	0
Overflow Minimum Utilization	1%
Low Accuracy	
Auto Tag Options	
Tag nested curves autor	matically
Auto-tag Output	
Annotation	◯ Geometry
Tag tout beight	
rag text height	5
Nested Sheets Lavout	
	Along Y
() histogra	
Spacing betwee	n sheets 1
Remnants	
Remnant Type	
None Clean Cu	t 🔿 Rectangular 🔿 Stepped
Clean Cut Type	
O Horizontal Cut	ts Overtical Cuts
Remnant Size Control	
() None	o width O Area
Min. Width 34.5	Min. Area 681.37
Estimate # of Sheets	Execute Nest

3. Now we select Estimate # of Sheets to display the dialog.

Estin	Estimated # of Sheets						
# 1 2	Nested Sheet Sheet 1 Sheet 2	Estimated # of Sheets 10 11					
		Sheet Count OK					

- 4. We see that 10 of Sheet 1 and 11 of Sheet 2 will be needed so select the Update Sheet Count button and then pick OK. If you go back to the Select Sheet(s) tab you will see that the count was updated.
- 5. Now select the Execute Nest button and you are automatically moved to the Preview Nest tab where you can see the sheets listed.

Min. Width 34.5 🗭 Min. Area 681.37 束	
Estimate # of Sheets Execute Nest	

Pre	view Nest			
	List of N	Vested Sheets		
#	Nested Sheet	% Utilization		^
1	Sheet 1-1	76.83		
2	Sheet 1-2	76.83		
3	Sheet 1-3	76.83		
4	Sheet 1-4	75.88		
5	Sheet 1-5	66.37		
6	Sheet 1-6	65.75		× .
	List of U	Jnnested Parts		
#	Parts			
	List of F	Remnant Sheets		
#	Remnant Sheet			
		Back	Report	

You can select each sheet to see its preview in the graphics screen.



6. Select the Report button to display the nest report.

ŧ	Nested Sheet	% Utilization	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	-
	Sheet 1-1	75.44	12	6	5	1	6	20	
	Sheet 1-2	75.44	12	6	5	1	6	20	
	Sheet 1-3	74.18	26	6	5	1	6	10	
	Sheet 1-4	61.55	0	6	5	1	6	0	
	Sheet 1-5	61.55	0	6	5	1	6	0	
	Sheet 1-6	61.55	0	6	5	1	6	0	
	Sheet 1-7	61.55	0	6	5	1	6	0	
	Chast 1 0	61 66	0	6	c		e	0	

7. Pick OK to close the report dialog.

6.2.5 Grain Direction Control

The last thing we would like to do is to impose a Grain Direction control on the largest part to force it to be vertical. In order to do that we need to specify the Grain Direction on the stock material as well as that part.

1. First we'll go back to the Select Sheets(s) to Nest Part in tab and set the Grain Direction to Along X.

n s	Select Sheet(s) to Nest Parts in						
		Select Cur	ves to be use	d as Sheets	Total # sel	ected: 2	
#	Name	Count	Priority	Thickness	Starting Corner	Nesting Direc	Grain Direction
1	Sheet 1	10	-	0.000	Lower left 💽	Along X 💽	None 🗸
2	Sheet 2	9	-	0.000	Lower left 📃 💌	Along X 📃 💌	None
							Along X Along Y
		Add/Edit Sh	eet(s) Sele	ct Curve(s)	Remove All	Remove Active	

2. When the message displays warning you that all sheets must have the same Grain Direction, pick OK and the Grain Direction for both sheets will be changed. This is what we want.



3. Now, on the Select Parts to Nest tab we will set the Grain Direction on the part in question to be Along Y. Note that your actual Part # may differ from the dialog images shown here.

Select Part(s) to Nest								
Select Curves to be used as Parts Thickness Filter: All Total # Selected: 10								
Name	Count	Priority	Orientati	ion	Grain Direction	^		
무 🚺 Parts								
Part 1	50	-	Fixed	i	None 💌			
Part 2	50	-	Fixed	i	None 💌			
- 🗗 📃 Part 3	50	-	Fixed	ł	None 🗸 🗸			
O Hole 1					None			
					Along X	Ľ.		
	Select Part(s)	Remove	All	Remove Ac	tive			
Part Optio	ons							
Orientation Step Angle 45								
Mi	Mirror Parts for nesting							
	ow Part inside o	ther parts						
Us	e for engraving	& sign making						

4. Then go back to the Choose Nesting Parameters tab and select Execute Nest again.

	vorie A.	~
Min. Wid	th 34.5 Amin. Area 681.37	
	Estimate # of Sheets Execute Nest	
Q Preview Nest	4	
Commit Nest	t	

5. You are again taken to the Preview Nest tab.

Select a sheet from the Sheets list and you see that the part is aligned vertically now.



While previewing each sheet you will also notice that the part we Fixed in its orientation is indeed maintained.



Each time the nest is generated, the system will calculate an Efficiency Factor referred to as % Utilization of the stock material. This tells you how well each sheet is consumed by nested parts.

	List of Nested She	ets	
#	Nested Sheet	% Utilization	^
1	Sheet 1-1	87.15	
2	Sheet 1-2	87.15	
3	Sheet 1-3	87.15	
4	Sheet 1-4	87.15	
5	Sheet 1-5	87.15	
6	Sheet 1-6	87.19	~
	List of Unnested P	arts	

6.2.6 Commit the Nest

After previewing and making adjustments to your nest it is time to commit it to your drawing. This writes the geometry of the individual sheets onto individual layers in your current CAD part file.

- 1. Select the Commit Nest tab.
- 2. For Nested Sheet Geometry Grouping we'll select the Separate Layer option. You can also Export the nest here.

📀 Commit Nest	
Commit Parameters	
Force all parts to lie on XY plane	
Nested Sheets Geometry Grouping	
Oreate a separate Layer for each nested sheet	
O Create a separate Group for each nested sheet	
○ None	
Remnants	
Add remnants to the sheet list	
Create separate layer for each remnant sheet	
Commit Nest	
Export Sheets to Files	
Export Path:	
Move every sheet's lower corner to origin	
Export	

3. When you are ready, select the Commit Nest button. Depending on your nest size this may take a minute to complete. Note: Selecting this button is a commitment to create the nested geometry in the part file.

Once completed, the layers are created for each nested sheet:

Layers 🗢 🛪							
Layer Name	Active	Visible	Objects	Color	Locked		
Default			12	-			
New Layer(1)	Γ		0				
Sheet 1-1-30		V	75				
Sheet 1-2-30			29				
Sheet 2-1-30			25				
Sheet 2-2-30	•		0				



The geometry can then be used for machining or any other application that you wish. This completes this portion of the quick start guide for True Shape Nesting in VisualCAD/CAM. Please be sure to visit the previous section to also learn about Rectangular Nesting.

Where to go for more help

Download this PDF Guide for a list of the available VisualCAD/CAM Resources.

2023 VisualCAD/CAM Resource Guide



The 2023 VisualCAD/CAM Resource Guide!

18 Pages

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