Router-CIM Automation

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AUTOMATED CAD/CAM SOLUTIONS

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by CIM-TECH, Inc.

We are pleased to announce the release of Router-CIM Automation Suite. This state-of-the-art programming software combines the latest advances in CNC machine tool programming with the industry-standard CAD features found only in AutoCAD®, the world's premier Computer Aided Design software

Router-CIM Automation

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Applied Topics Include:

Router-CIM
Automation Suite

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1 System Requirements and Installation

Hardware Requirements

The system requirements for Router-CIM 2011 are as follows:

Minimum Requirements	Recommended Requirements
Intel® or AMD® Dual Core processor, 1.7 GHz or greater	Intel® or AMD Dual Core processor 2.0 GHz or greater
2 GB RAM	3 GB of RAM or greater
750 MB free disk space for installation	2 GB of disk space available, not counting installation
1280x1024 VGA display with true color	1280x1024 32 bit color video display adapter (true color)
Microsoft® Internet Explorer 6.0 (SP1 or higher)	Microsoft® Internet Explorer 6.0 (SP1 or higher)
Microsoft® Windows® XP Professional (SP2 or higher), Windows Vista 32, or Windows 7 (32 bit).	128 MB or greater, OpenGL®-capable workstation class graphics card
DVD Drive to install Cam Companion	Microsoft® Windows® XP Professional (SP2 or higher), Windows Vista or Windows 7 (32 or 64 bit).

Supported Autocad Versions

Router-CIM 2011 supports the following Autodesk products:
AutoCAD 2009
AutoCAD 2010
AutoCAD 2011
AutoCAD Mechanical Desktop 2009
AutoCAD Mechanical 2010
AutoCAD Mechanical 2011

Additionally, we provide an Inventor Link to the following versions of Autodesk Inventor:
Autodesk Inventor 2009
Autodesk Inventor 2010
Autodesk Inventor 2011

You should check your hardware against the Autodesk Certified Hardware List to be sure of compatibility with your version of Autocad.
Click here to check Autodesk Certified Hardware List

Hardware Locks

In addition to the hardware requirements listed above, it is important to note that Router-CIM and AutoNEST require hardware locks (often called 'dongles') in order to function. These can be either a USB type or a Parallel Port (printer port) type. Since there are two hardware locks required if you are using the nest software, you should have two USB ports available. For the parallel port type, only one port is necessary since these locks can plug into each other.

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1.1 Product Overview

The main purpose of Router-CIM Automation is to provide a CAD/CAM solution for both single part machining and also to automate the programming task for quantities of parts. Router-CIM offers both nested based manufacturing technology, used to automatically produce NC Code for parts that are produced or imported into the AutoCAD environment, as well as any other single part that can be parametrically defined, or produced as a drawing or DXF file.

Parametric macros that are defined using Router-CIM's Parametric Macro Builder can be automatically sized and either nested or cut singly, and also from different materials.

With Router-CIM Automation, you can select macros, DXF files, and AutoCAD DWG files, associate a material and specify a quantity of them and Router-CIM will do the rest, automatically.

In Automation, typically, a job file is created that contains all the machining data necessary to perform the programming tasks. Each job contains the macro, drawing, or DXF file name, size, quantity, material, and other variables relevant to your cutting needs. Each part is analyzed, and a layer to knowledge association automatically creates the tooling paths. The part and tool paths are serialized and stored in the database as necessary. Once all parts are cut or cut and/or nested, then sorted NC Code is made. The parts or nests are printed, and external files, like a label file and also a machine schedule file are made.

Each job is stored in an independent folder for easy storage and retrieval. The locations of these folders can be specified either locally on your hard drive, a network drive, or even the machine tools drive if it is able to exist on the same network.

For new users of Router-CIM, there are a few concepts which need to be understood in order to use the product efficiently. These are:

- A basic understanding of the Microsoft Windows environment, and file handling with programs such as My Computer, or Windows Explorer.
- A working knowledge of the AutoCAD environment. How to create and name layers, and assign geometry to those layers.
- Some knowledge of the types of tools, cutting conditions, and materials you are likely to use on your parts.
- Knowing the difference between the file types Router-CIM uses such as DWG, DXF, and SCN.
- Understanding the Layer to Knowledge association feature in Router-CIM.

If you will be using primarily macros for your part definitions, then a solid understanding of Router-CIM's Parametric Macro Builder and how to create a macro is truly necessary. This takes practice and is best done on paper first!

Also solid understanding of the variable types, Global, Dynamic, Tagged, and Local, and how to use them on individual parts or assemblies of parts will be of primary importance in a truly parametric macro. You should know how to incorporate the variables into formulas to define parts or part features.

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1.2 Installation Quick Start

Installation Quick Start:

These installation notes assume that AutoCAD 2009 or higher is installed and functioning properly.

Make sure you are logged in with at least Local Administrator privileges on your system.

The Router-CIM 2011 program is installed in the following manner.

- Unplug any USB hardware locks previously installed.
- Insert the Router-CIM Installation CD and it will start automatically.
- If the Installation doesn't start automatically, pick Start, Run, D:\SETUP. EXE (where D: is the CD ROM drive letter).
- The Router-CIM installation serial number will determine the installation options of Router-CIM. The serial number is included on the CD that Router-CIM is installed from. If Nesting was purchased, the Router-CIM installation will automatically install the product.
- The Install will place the Router-CIM files in the default locations.
- The install procedure searches for AutoCAD on your hard disk, and uses this location to build icons to run the Router-CIM program.
- Once the install is finished, reboot the computer, plug in the USB hardware locks and you will be able to run the product.
- If any custom post processors are necessary, install them now. The procedure to install the post processors is to simply run the .exe file that contains the post processor, and answer a few default questions during the install.

1.3 Critical Issues

After Router-CIM is properly installed and configured for use, all pertinent folders should be backed up. A simple method is by copying them and placing them in a new folder. The proper way would be to make a CD, or back up to tape or another easy to restore method.

CIM-Tech will store a backup of your system if you burn it to a CD and mail it to us. We will archive that as an off-site backup in case you lose your own. This is NOT a substitute for your own backup, as you will likely make changes and edits on a more regular basis than the backup that is shipped to us.

CD recorders, DVD Recorders, External Hard Drives, and Tape backups are all valid ways to back these folders up. Floppy disks are not a good choice. It would take a large number of them to get each folder in its entirety. Typically all of the folders can fit on one CD. After using the system for a while, the backups that Router-CIM stores on your system could mean that more than one CD is necessary.

A Note on CD Recorders: Each file that is backed up in this fashion may become read-only. This means you can only look at the documents without altering or editing them. It will be necessary to change the properties of the files back from read-only after the folder is copied. The method of doing this varies depending on your operating system.

The folders to back up are as follows:

1. `C:\Router-CIM`
2. `C:\Rcim_work`
3. `C:\Anest`
4. `C:\Automation_code`

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(C: is assumed here to be the installation drive.)

CIM-Tech is NOT Responsible for your loss of productivity or data! If you do not back up your system completely and you lose data without a backup, your only option is to re-install the software and start over.

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1.4 Installation

Installation Guide

The Router-CIM program is installed in the following manner:

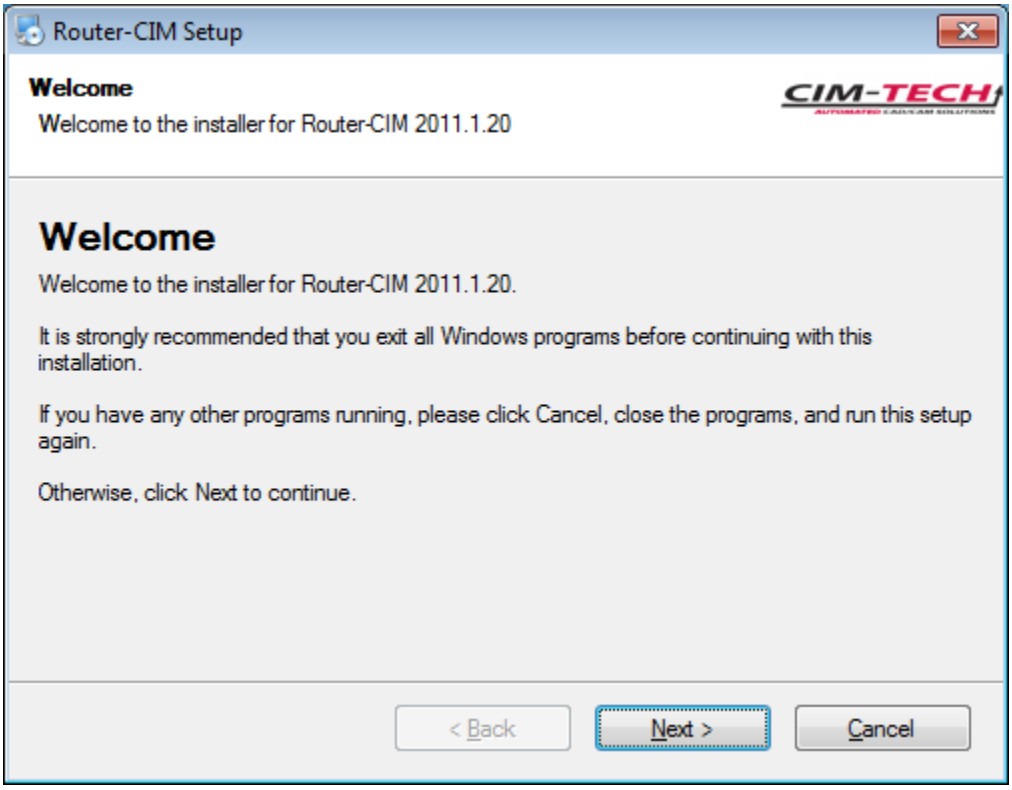
Insert the Router-CIM Installation DVD and it will start automatically. If it does not start automatically, pick Start > Run then pick or type D:\setup.exe (where D: is the DVD ROM drive letter).

The Router-CIM serial number will determine the installation options. If Nesting was purchased, it will be installed automatically.

The install will search for Router-CIM files in the default location. If your version of Router-CIM was installed to a drive other than C, you can re-direct the setup process to locate the folder in the proper drive by clicking on Browse and then selecting the correct drive location.

The install procedure searches for AutoCAD on your hard drive, and uses this location to build icons to run the Router-CIM program.

When the installation program starts, the following screen will appear:



From here, all of the default selections have been made for you. We recommend that you leave the defaults, as it will be simpler for you later if technical support is needed and you need to know the locations of the Router-CIM files.

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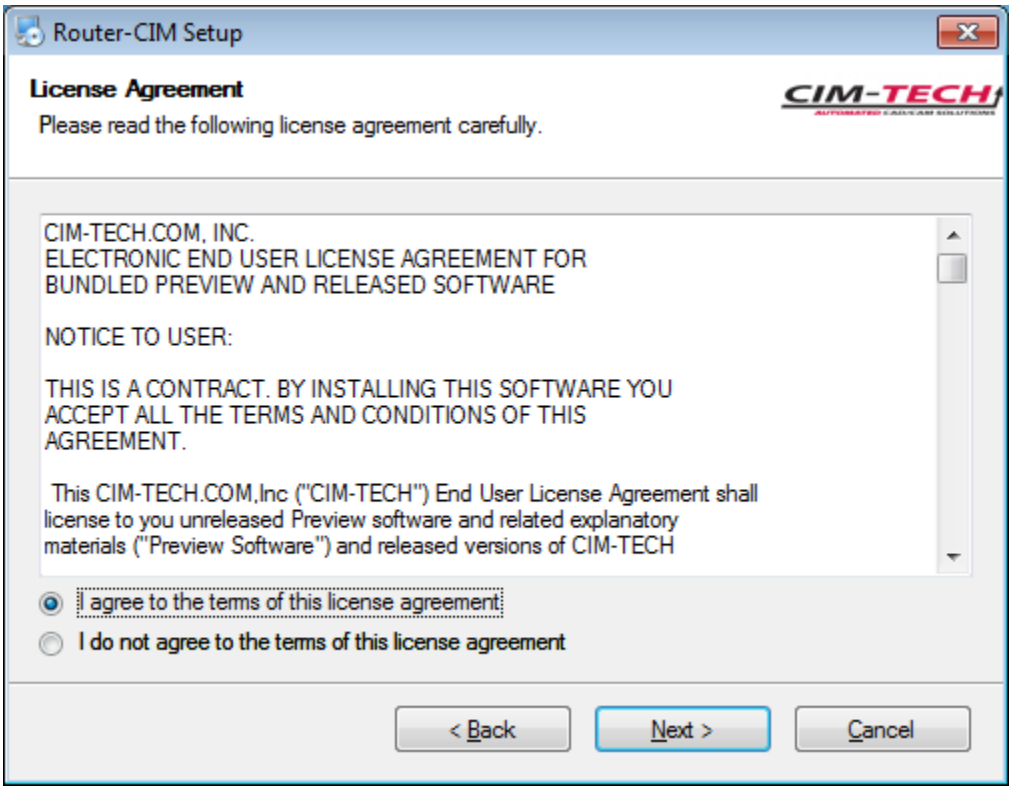
Select Next to continue.



This is the license agreement for Router-CIM. Be sure you read the agreement. Selecting ‘I do not agree’ will allow you to exit the program without installing it to your computer. Selecting Back will return you to the previous window. Select ‘I agree to the terms’ and Next to continue.

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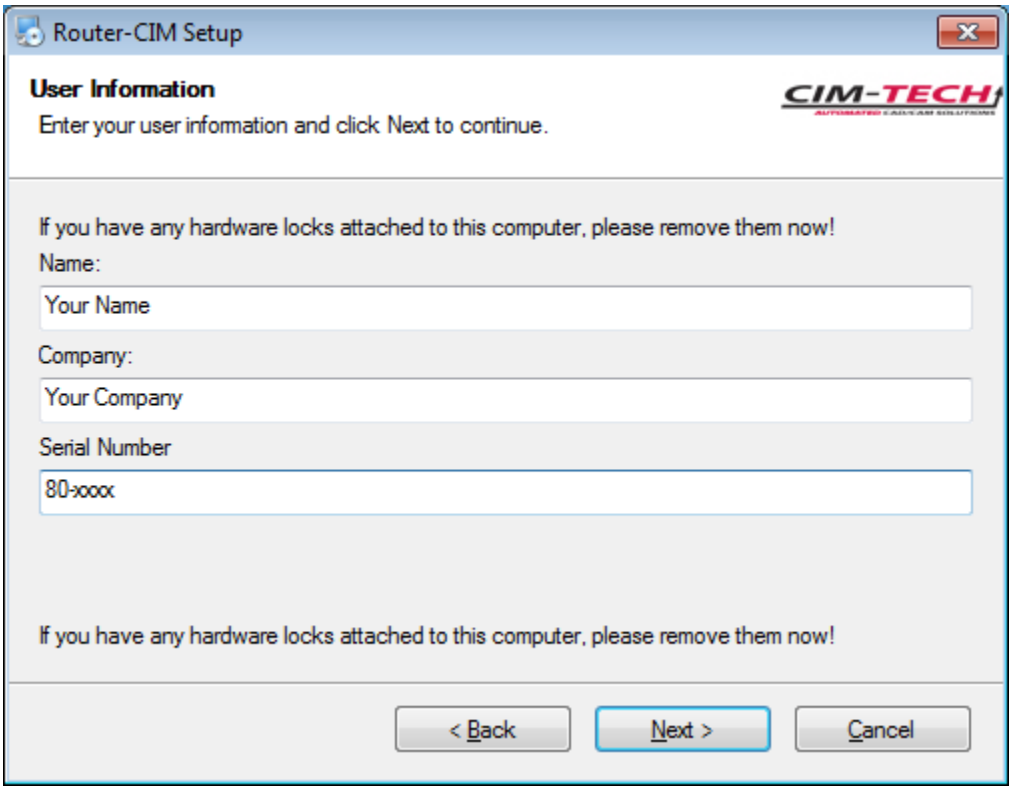
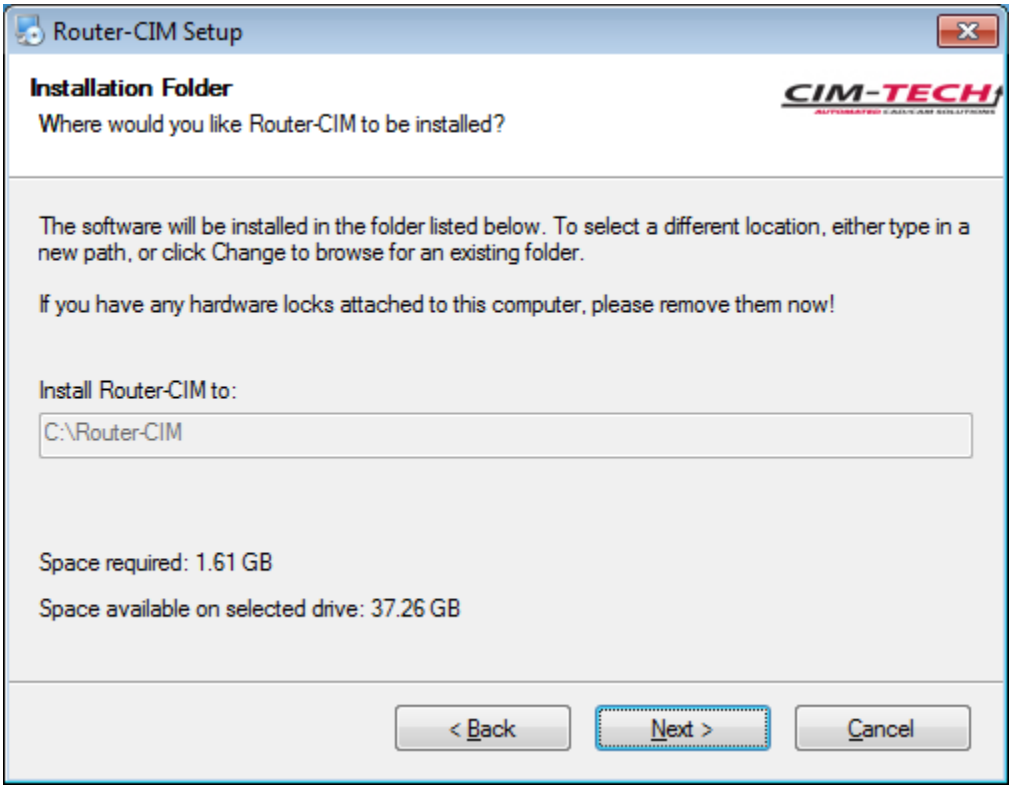


Enter your name, your company name, and the serial number that is supplied to you with the software. Select Next to continue.



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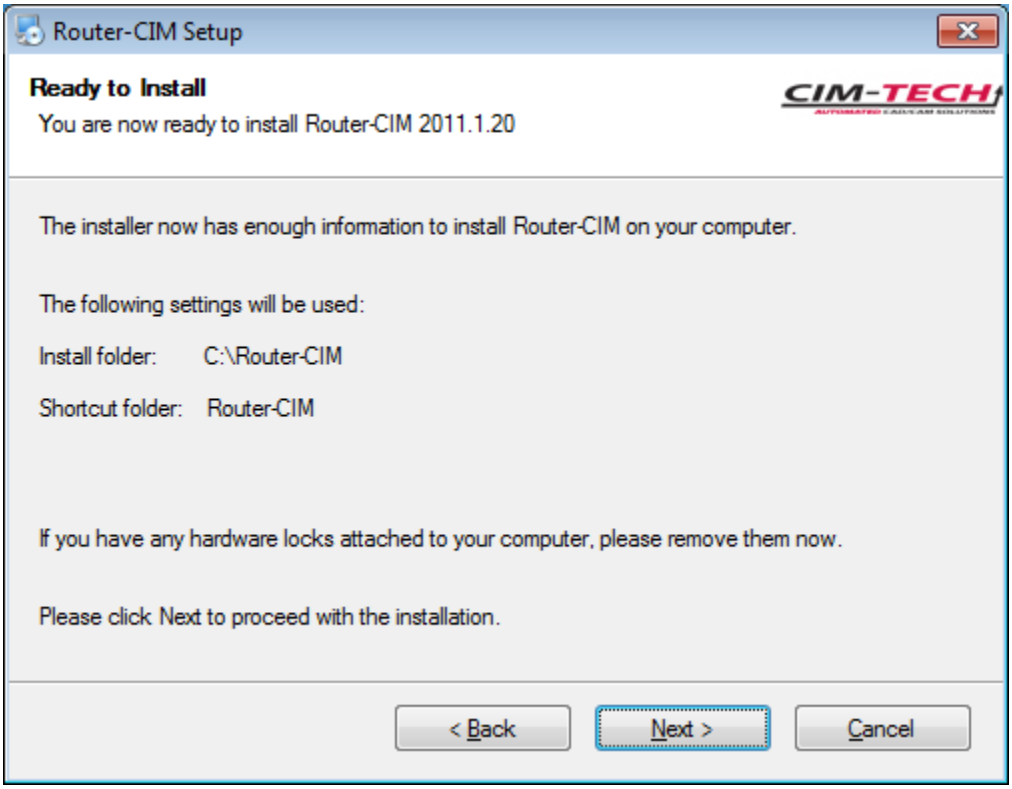
Router-CIM will specify the location for installation. You may select Next to continue, or either Back to go to the previous window or Cancel to exit from the install.

You should remove any hardware locks that have been plugged into the computer.



This screen will recap where Router-CIM is going to be installed to.

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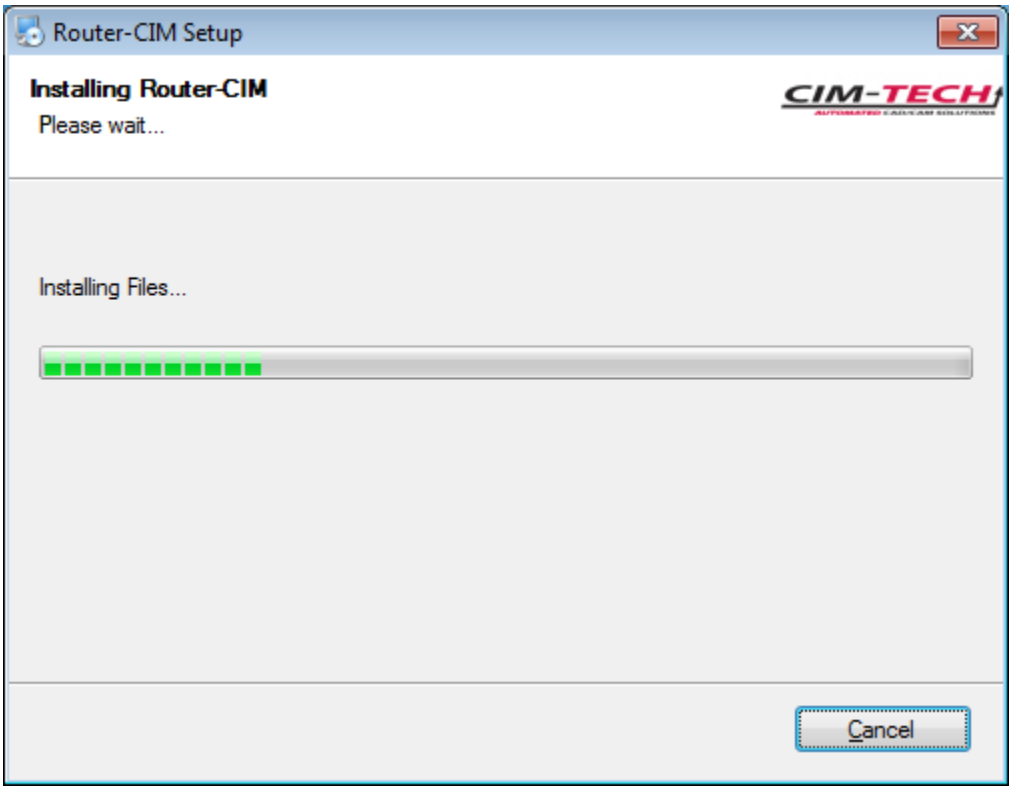
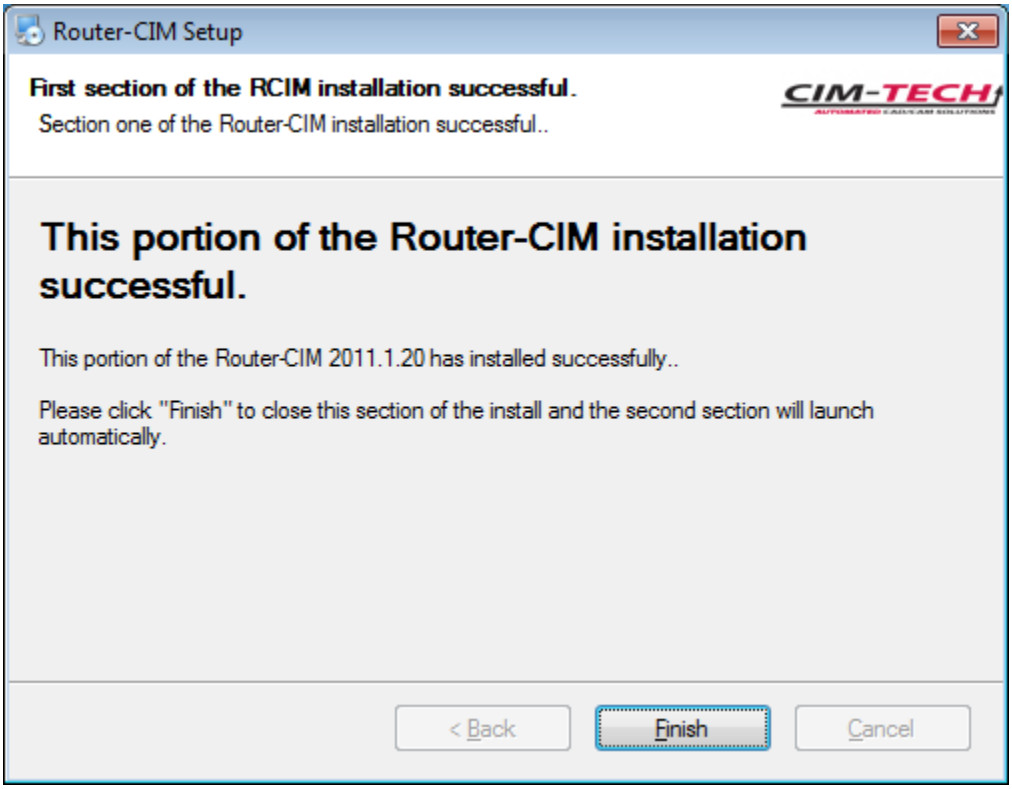


The installer will start copying files to the necessary locations in this section of the install. As soon as this is finished you will see the following screen:



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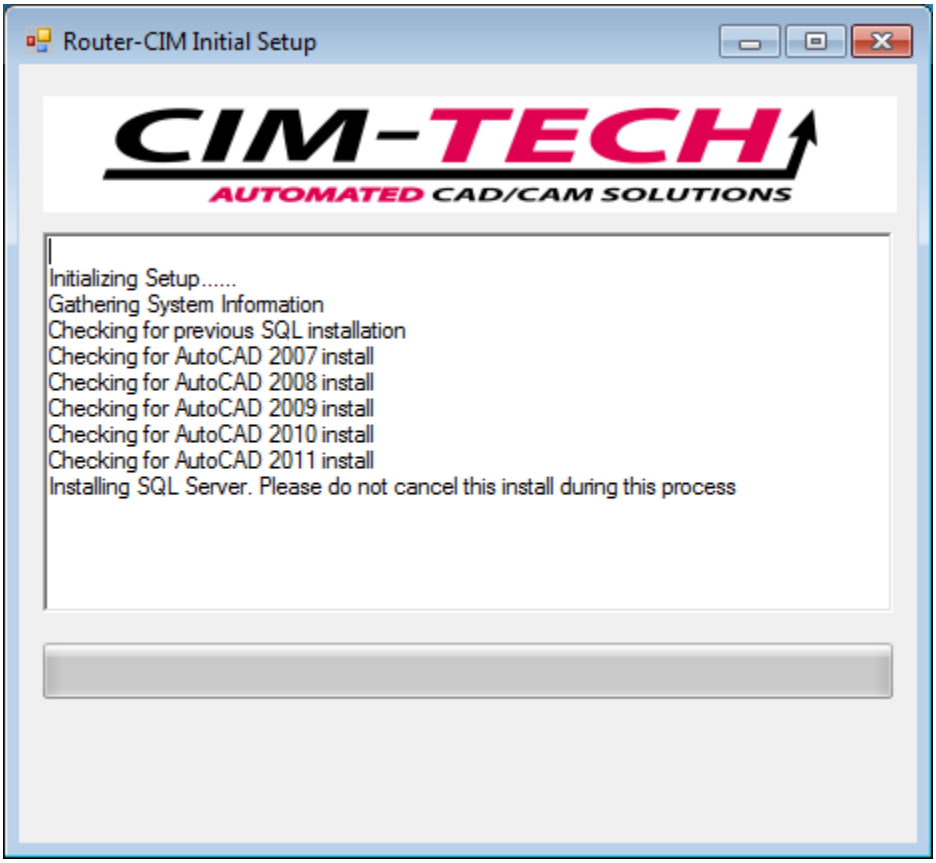
Click on Finish to start the next section of the installation.



This is the second section of the installation. The install will extract some more files and then check your computer for versions of AutoCAD, SQL Server and Microsoft .NET Framework versions.

This section may take a while, please be patient and allow the installer to finish.

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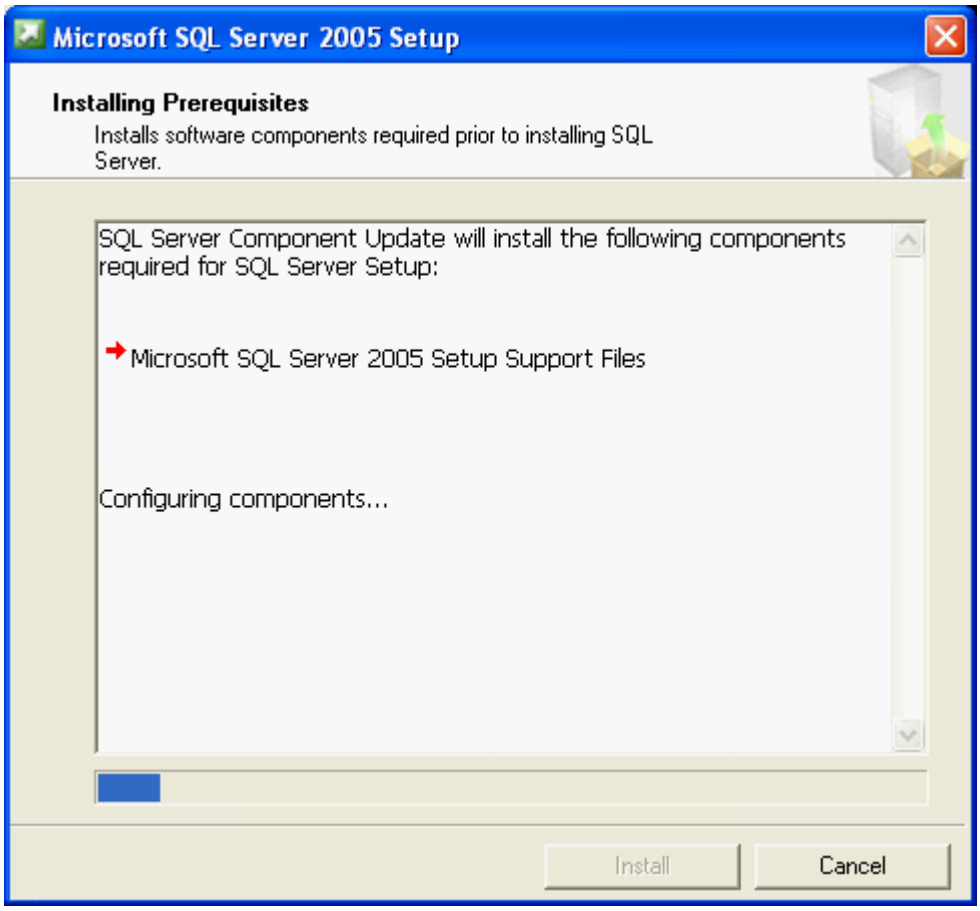

The next screen to appear will be the .NET Framework. If the proper version of the .NET Framework is not detected, then it will install.

There is no visible progress meter during this install, so just leave the window open and do not cancel the installation. The next step will appear when this is finished.

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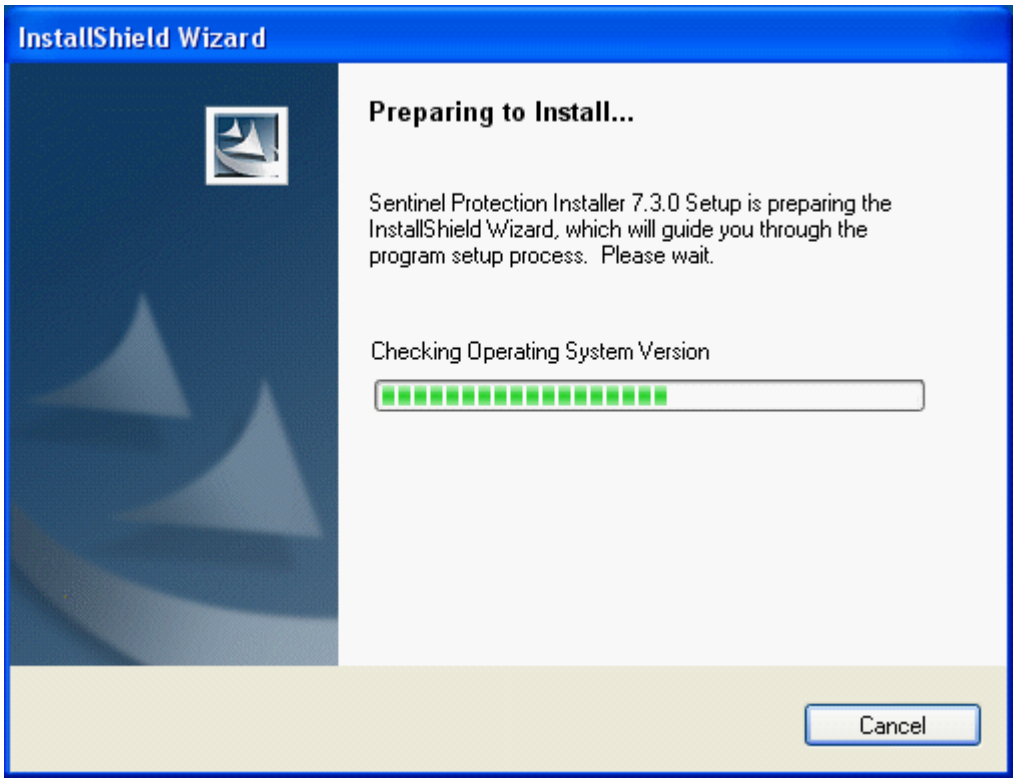

The Sentinel Protection Installer will run next to install the hardware lock drivers. This is usually pretty quick and you may see some windows open with a black background while this is installing.

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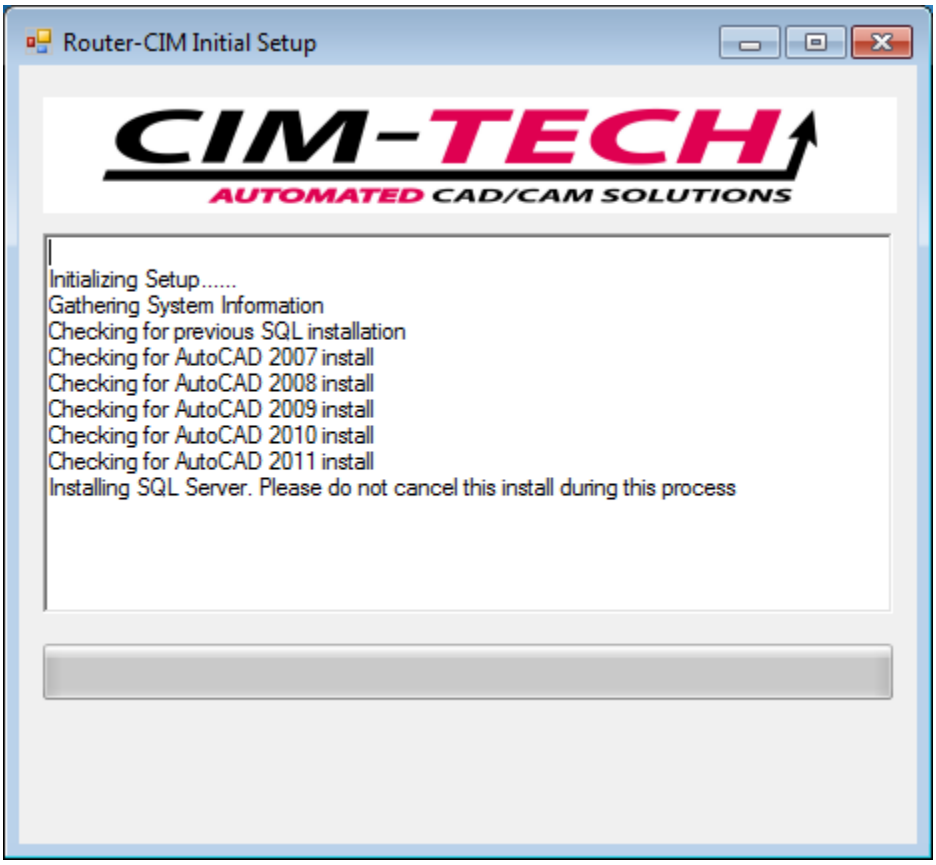
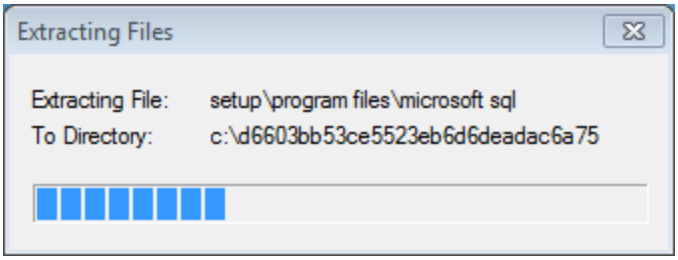


During the Sentinel install, the Router-CIM Progress screen will look like the one above.

After the Sentinel Protection Server is finished installing, the next section of the install is the SQL Server Express install.

During this install, you will likely see a small progress bar like this:



The progress will continue until the SQL Server is installed and configured.

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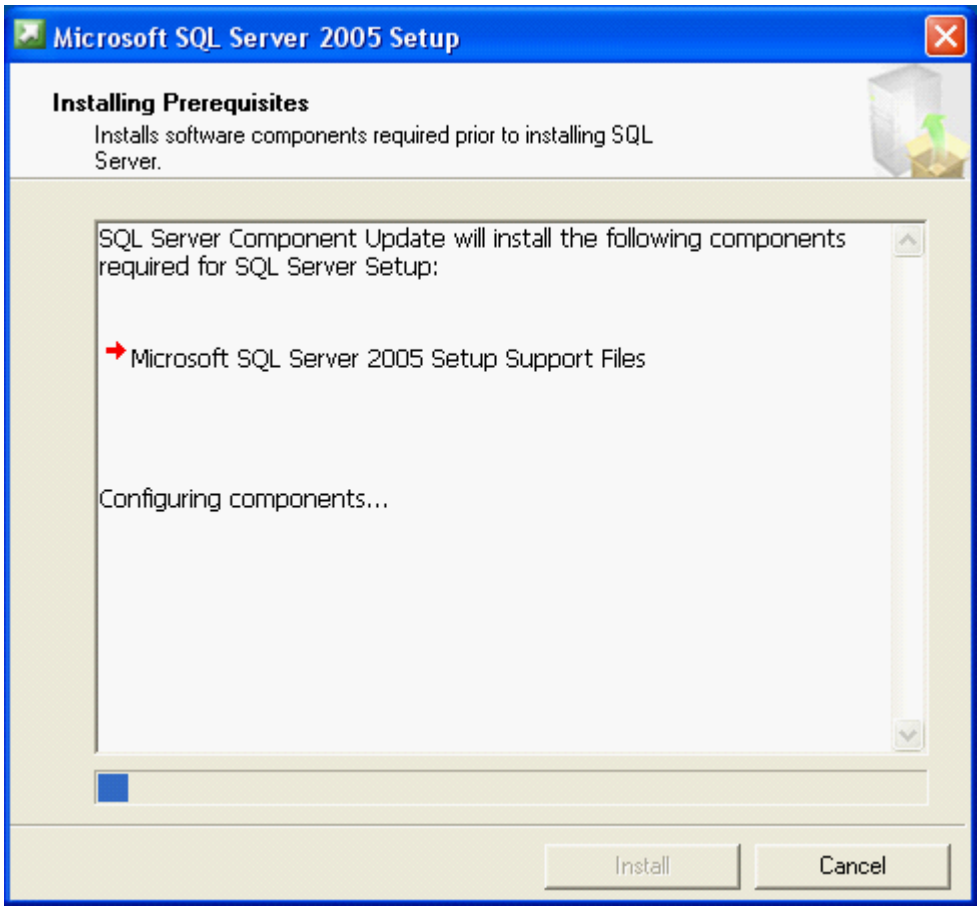

During the configuration of the SQL Server, the window above will appear. Do not hit Cancel, the SQL will continue to install and configure.

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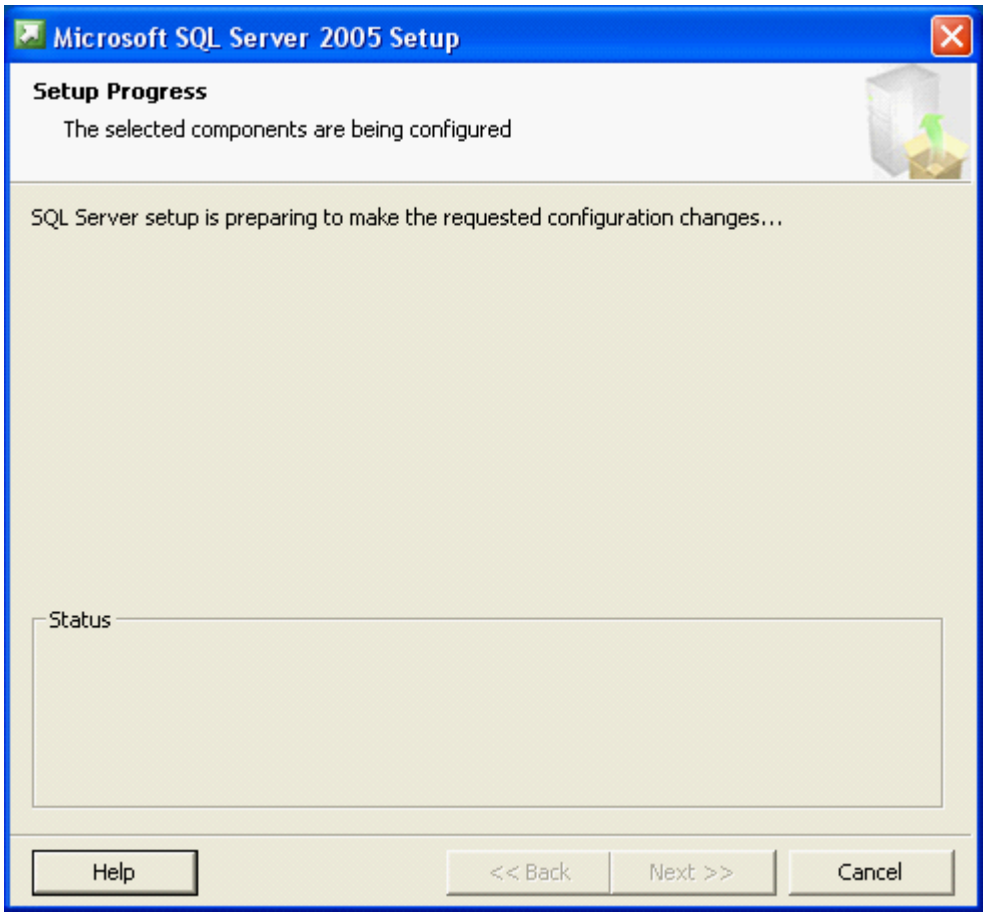

The SQL Server install screen will change slightly as it finishes its configuration.

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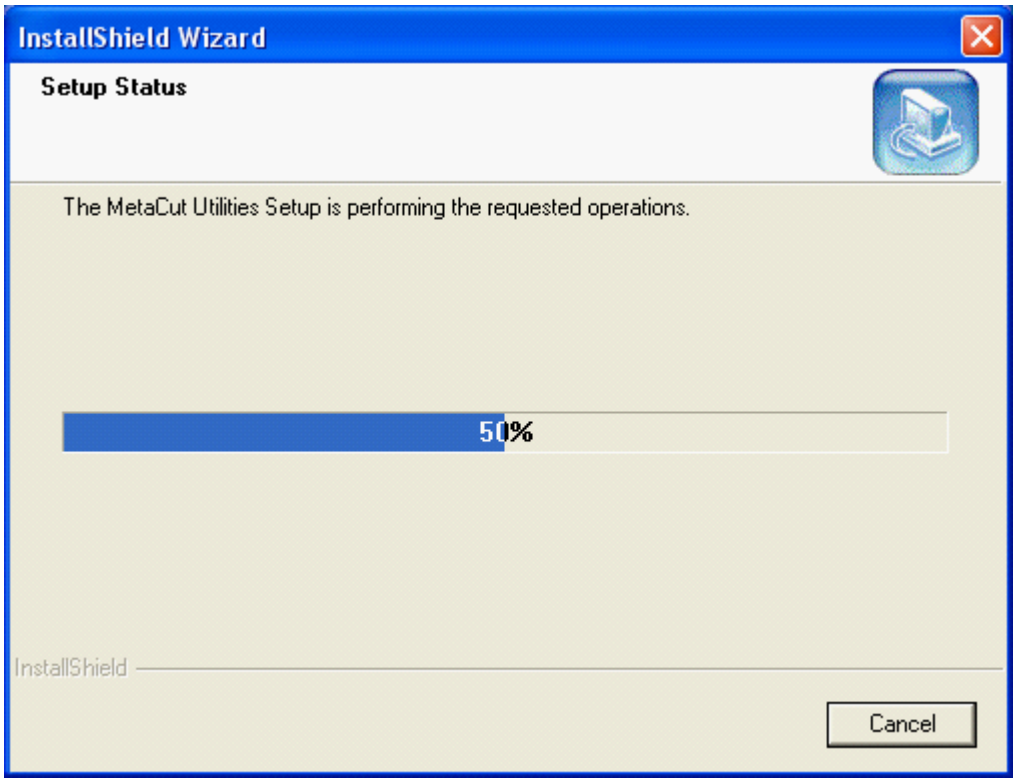

Tool Path Verification Software Install / Re-Install.

If the Tool Path Verification software (MCU) was purchased, the above screen will appear during the install.

Once MCU is done installing, the following screen will appear.

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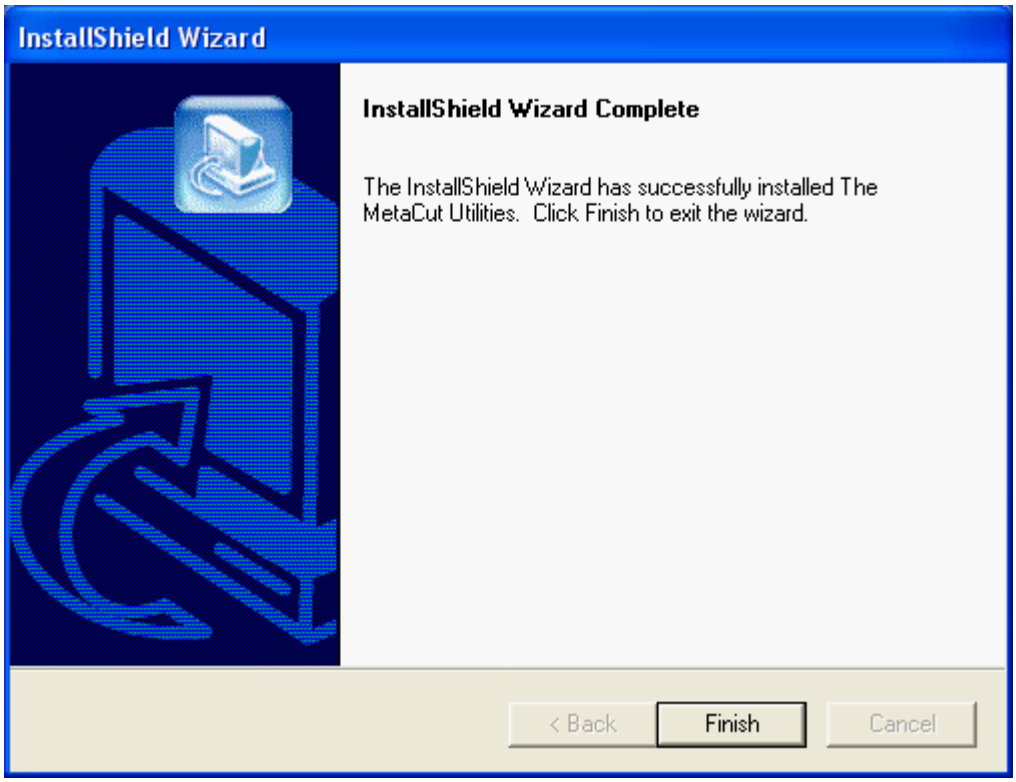

Select Finish to continue.

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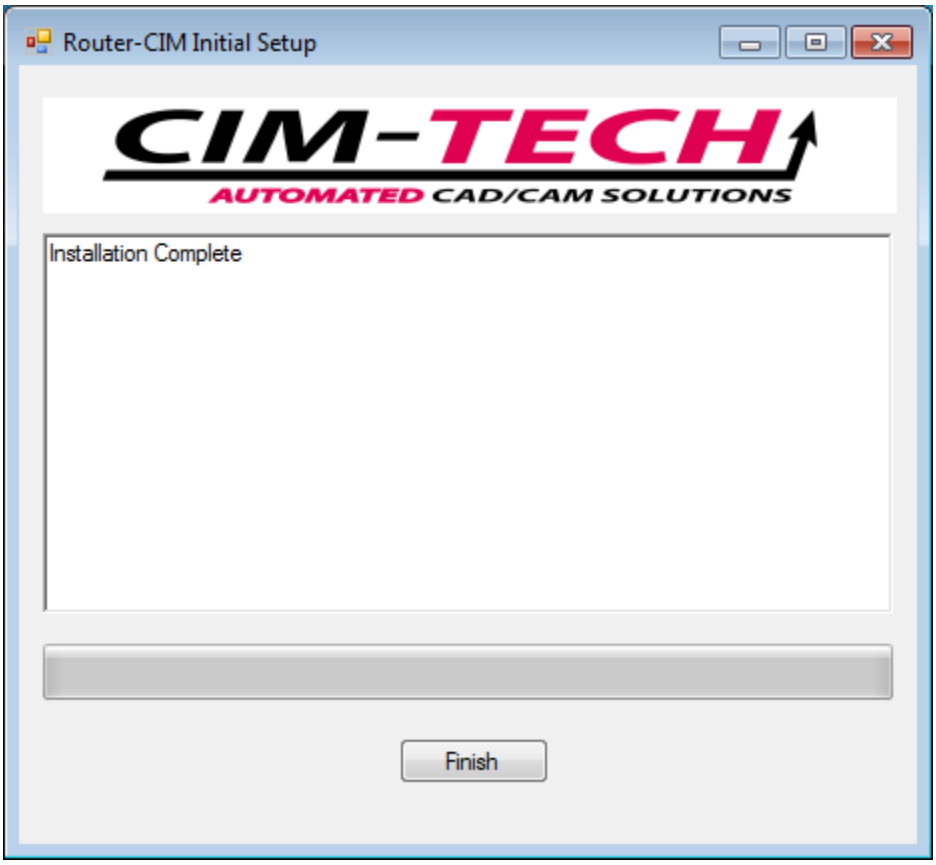
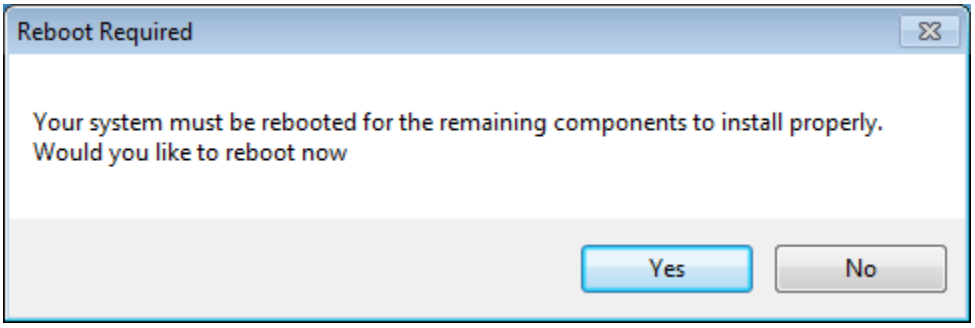


Once the rest of the Automation components are installed, the installation is finished. You will see a message requesting you to Reboot your computer. The installation is not finished until you reboot your computer.



After the Reboot is finished, plug the hardware lock into the computer. There is either a parallel port lock (25 pin device) or a USB lock for a USB port.

2 Router-CIM Automation Suite

Router-CIM Automation Suite

The Router-CIM Automation Suite is a comprehensive suite of tools that allow Router-CIM to process any number of parts without user intervention. The capabilities include (but are not limited to):

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- Cutting any number of parts
- Nesting
- Sorting
- Automatic NC Code Creation
- Common Line Cutting
- Tool Stay Down Cutting
- Labeling
- Reporting

The basic premise for the entire Automation Suite is Layer to Knowledge processing using the DOIT cycle. This provides for tool paths to be created in a standardized, regulated, and sortable manner for any type of part.

The following sections are broken up into the different areas of the Automation Suite program and are designed to give you as much information about the tools available as possible.

Admittedly, this does not make for enjoyable reading, but this section is meant to be a reference to the Automation Suite, and not a tutorial. Tutorials will be provided in other areas as they are created.

2.1 The Automation Interface

The Automation Interface

The Automation Interface is the link between you and Router-CIM. All the settings within Router-CIM are presented so that jobs can be made in either a completely repetitive manner, or a completely custom manner from job to job.

The interface is broken down into several parts. Each of these parts has a chapter describing its functionality. You can select on the items in the picture below for a link to each chapter.

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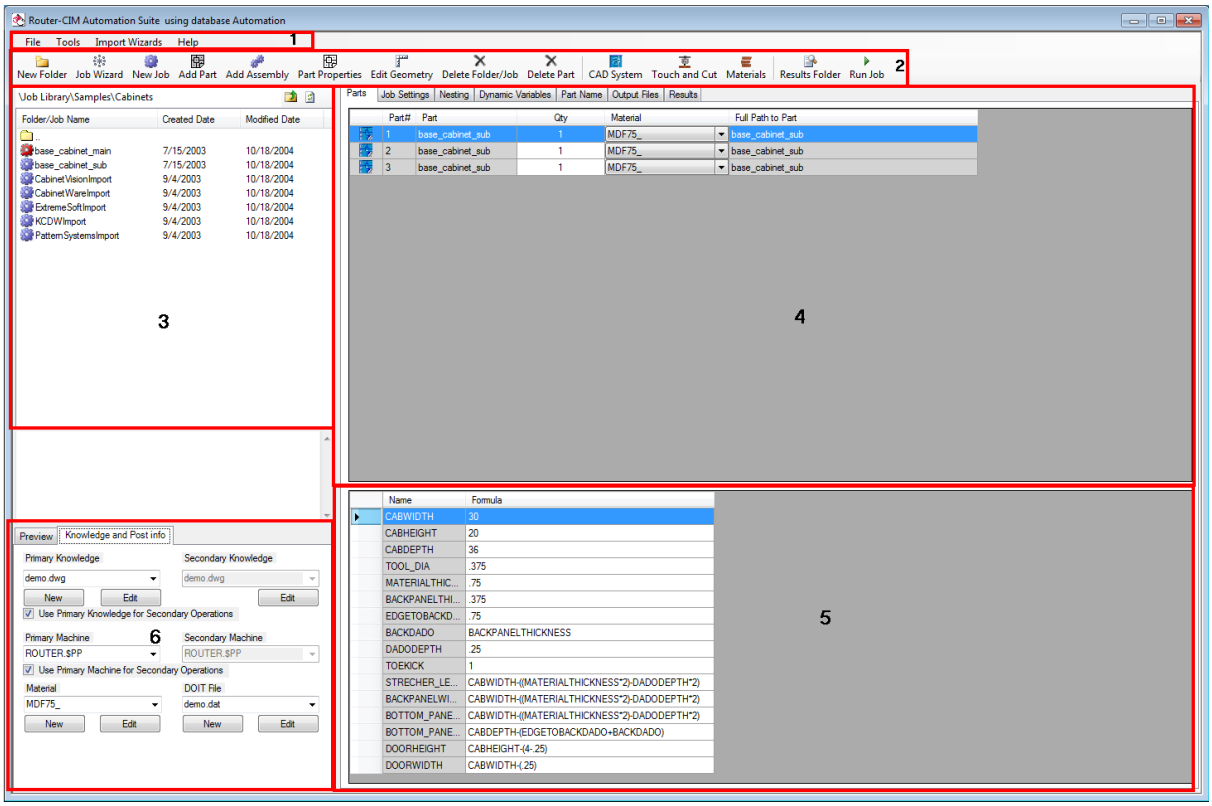

1 - Menu Area
2 - Toolbar
3 - Folder Tree
4 - Part Window
5 - Variables Window
6 - Knowledge Settings

2.1.1 Menu Area

Menu Area

The Menu Area of Router-CIM Automation Suite contains the following sections:

File
- New Database
- Open Existing Database
- Database Maintenance
- Settings
- Print Options
- Exit

Tools
- Automatic G-Code Scan

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- Pack and Go
- AutoNest System Preferences
- Clear AutoNest Task and Part Folders
- Restore Startup Drawing
- Create New Knowledge Drawing
- Save Current Settings as Job Defaults

Import Wizards
Cabnetware
CabinetVision
Comma Delimited
Excel Spreadsheet
Extreme Software
Pack and Go
Pattern Systems
KCDw

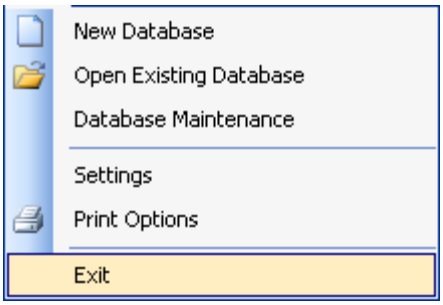
Help
Help
About

2.1.1.1 File

File Menu

There are several options available in the File menu. These options include database management, Automation Suite settings, and options for selecting your default printer for Automation.

Each of the items will be explained in detail in the following sections.



2.1.1.1.1 New Database

New Database Menu Option

This selection is used when you wish to create a new, blank database to work from.
To use this function, select File > New > Database from the menu and you will see the following window:

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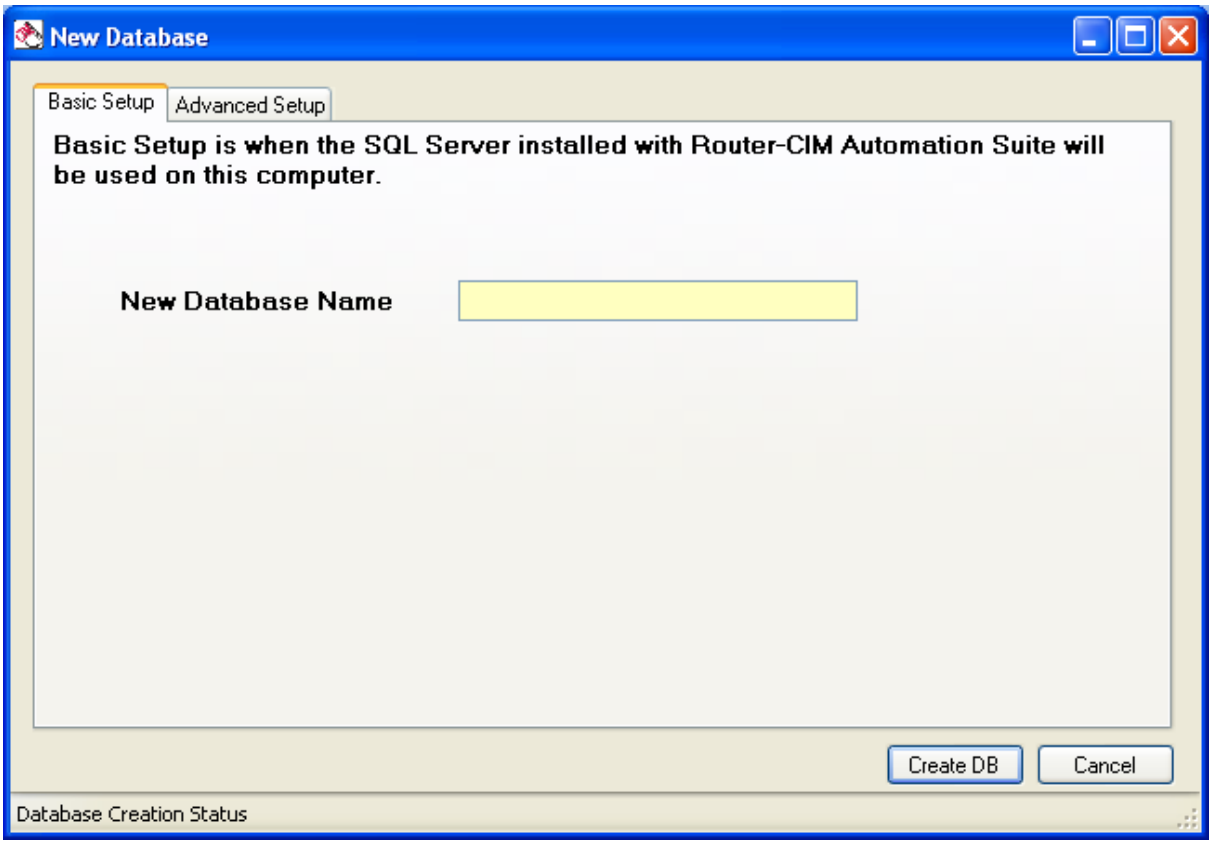

Make sure Basic Setup is selected at the top, and then type in a name for your new database:

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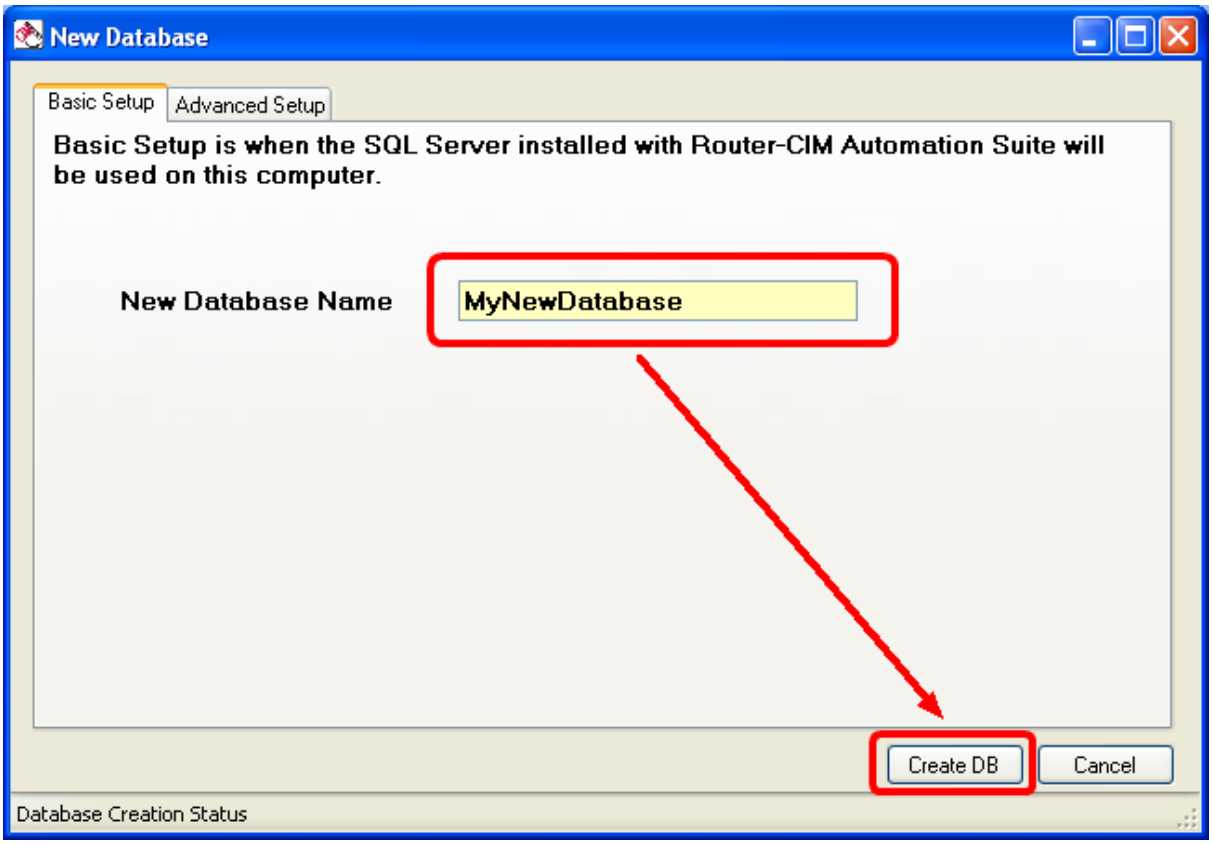
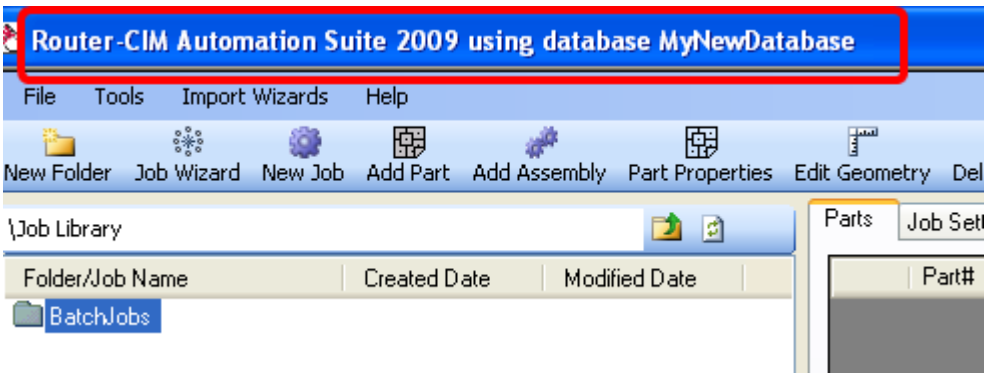


Then press Create DB.

You will then see your database in the interface and the banner at the top of the window will show you the path and name of your database.
Keep in mind that this is a NEW database so there are no jobs in it, there is only a BatchJobs folder there for running batch jobs from if they are created.



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2.1.1.1.1.1 Advanced Setup

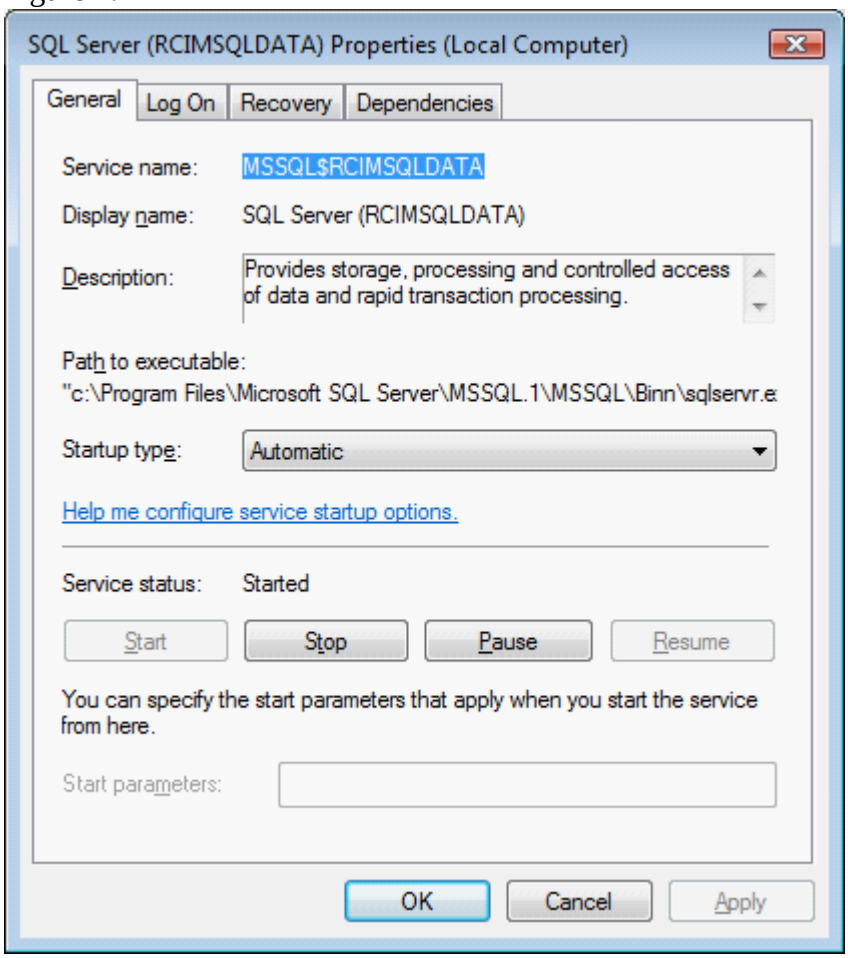
Advanced Setup

The advanced setup is for sharing a Router-CIM database with other network users.

Sharing a Router-CIM Automation Database to other Network Users

The default settings of Windows Vista and XP do not allow the database to be shared. These are the required steps to share the database:
Open the Control Panel (click Start -> Control Panel)
Open Administrative Tools
Open Services
Find the service named **SQL Server (RCIMSQLDATA)** and double-click to open its properties (see Figure 1)
The necessary information from this window is the highlighted Path to executable. In this situation it is:
C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Binn\sqlservr.exe
This path needs to be added to the Windows Firewall Exception list.

Figure 1:



Steps to add to the Windows Firewall Exception list

Open the Control Panel (click Start -> Control Panel)
Open Windows Firewall
Vista: Click **Allow a program through Windows Firewall**
XP: Click the **Exceptions** tab

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Click **Add Program**
Click **Browse** and navigate to the Path to executable found above
Click **OK**

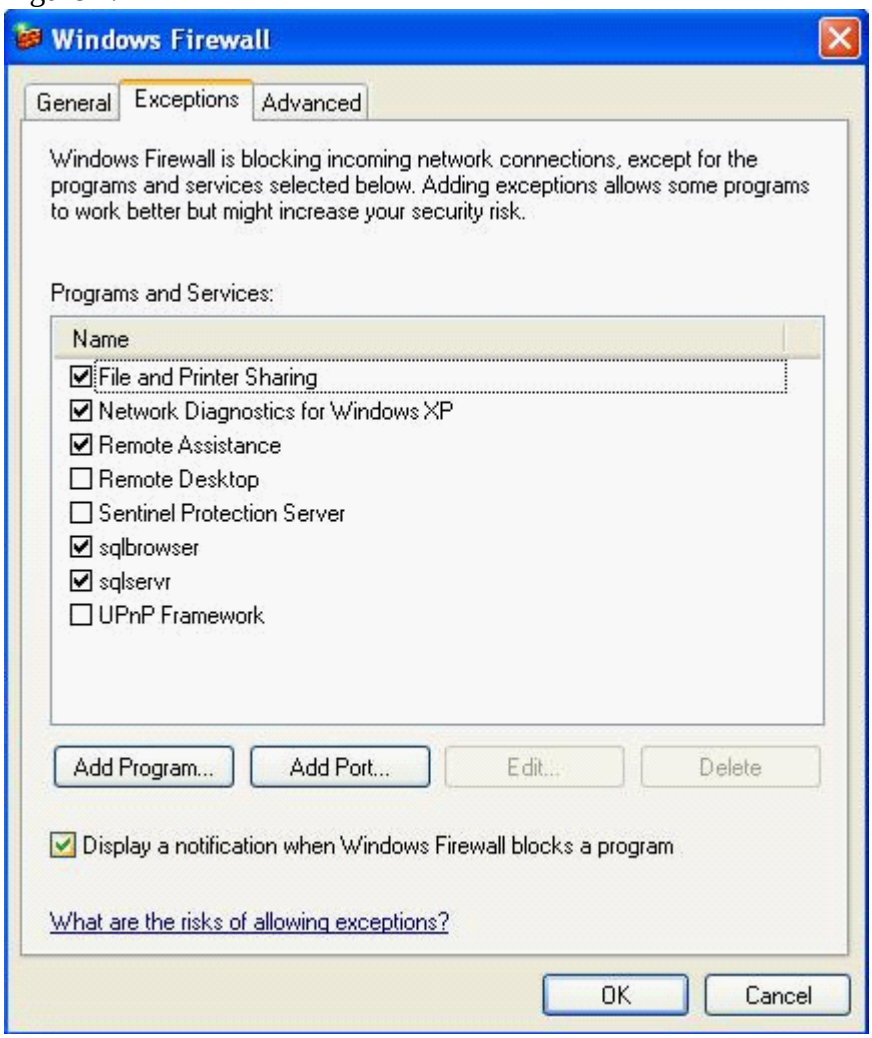
The SQL Browser executable also needs to be added to the Windows Firewall.
Click **Add Program**
Click **Browse**
Browse to: **C:\Program Files\Microsoft SQL Server\90\Shared\sqlbrowser.exe**
Click **OK**

In the Exception list, there is already an option for File and Printer Sharing. Be sure there is a check mark next to this option. Depending on your current settings, this may already be done.

When complete, the Windows Firewall should look similar to Figure 2.

Click **OK** to close the Windows Firewall

Figure 2:



Setting up Router-CIM Automation to use a Network Database

Once the required steps have been completed to share the database, you can use the database by

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following these steps:
Select File -> Open Existing Database (see Figure 3)
Click **Search for Network Databases** (see Figure 4)
Click a server from the list
Databases that are on a computer with Router-CIM Automation automatically populate the login id and password
Click **Search for Databases on Selected Server**
Click a database to use from the list
Click **Select**

Figure 3:

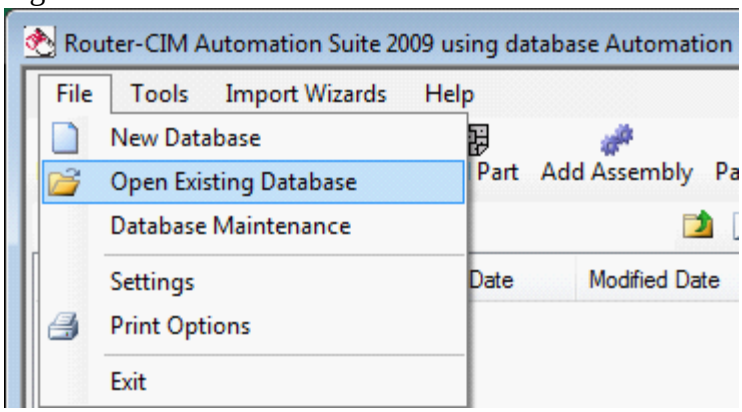

Figure 4:

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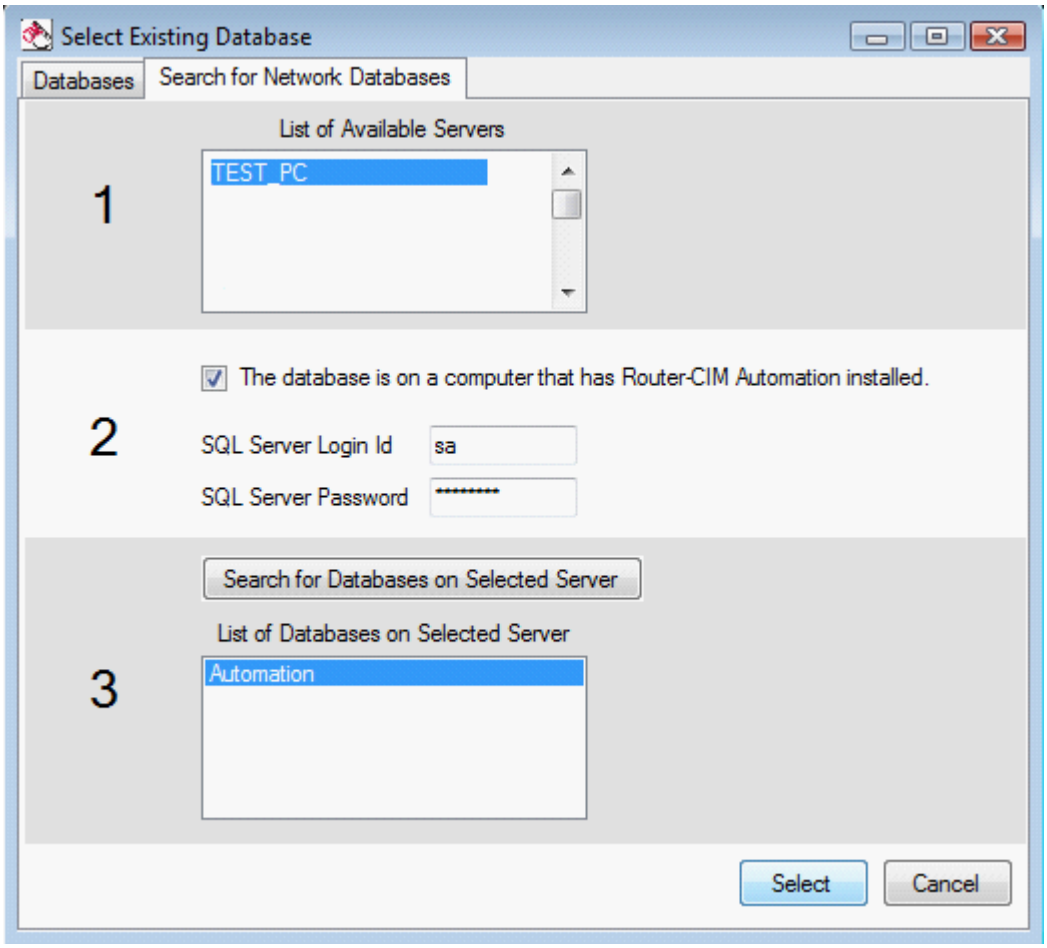


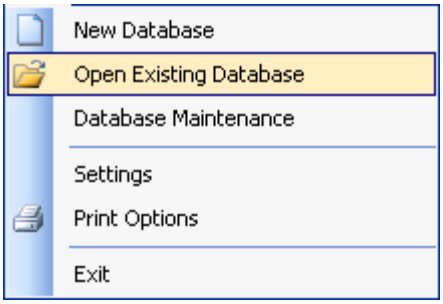
NOTE: database maintenance features such as creating, deleting, backing up, and restoring are not possible remotely. Those functions can only be done on the computer that is hosting the database.

2.1.1.1.2 Open Existing Database

Open Existing Database

This function is provided in order for you to open a different database than the one you are using in Router-CIM. When you select this option, you will be prompted to select a database and then Router-CIM will start using that database for its jobs from that point forward.

To use this function, select File > Open > Existing Database from the File Menu.



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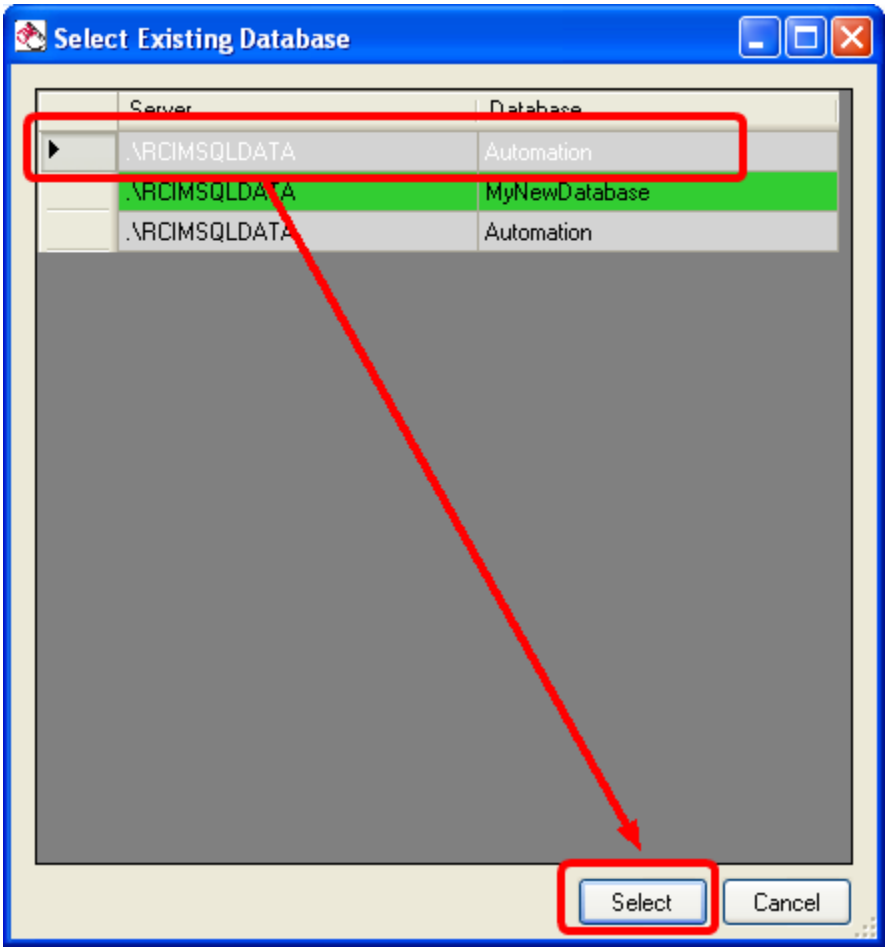
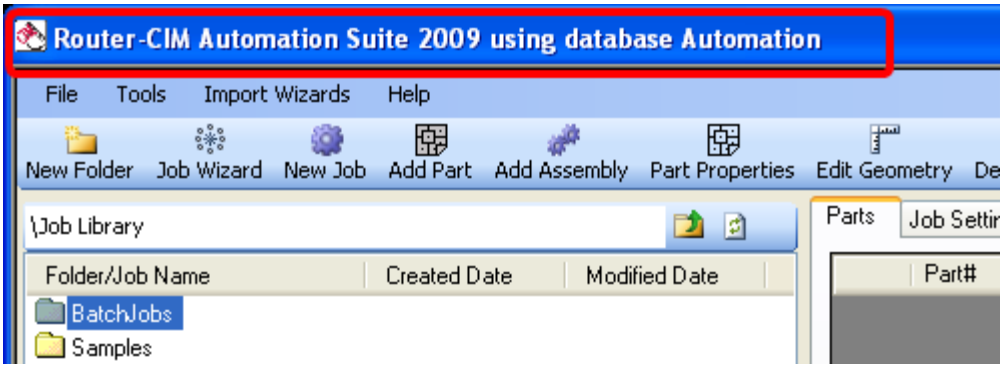
Select the database you wish to open, in this case the Automation database.
The press Select.
The green highlighted selection is the current database and the white one with the black arrow pointing towards it (on the left side) is the one currently selected.



Router-CIM will make the selected database current and you will see that reflected in the banner at the top of the window. The path and name of the database will show there and all jobs and other database settings will be changed in Router-CIM.



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2.1.1.1.3 Database Maintenance

Database Maintenance is a set of utilities for working with the databases in Router-CIM. From these menu choices you can back up, restore or even convert an old database to the new format.

The choices available are

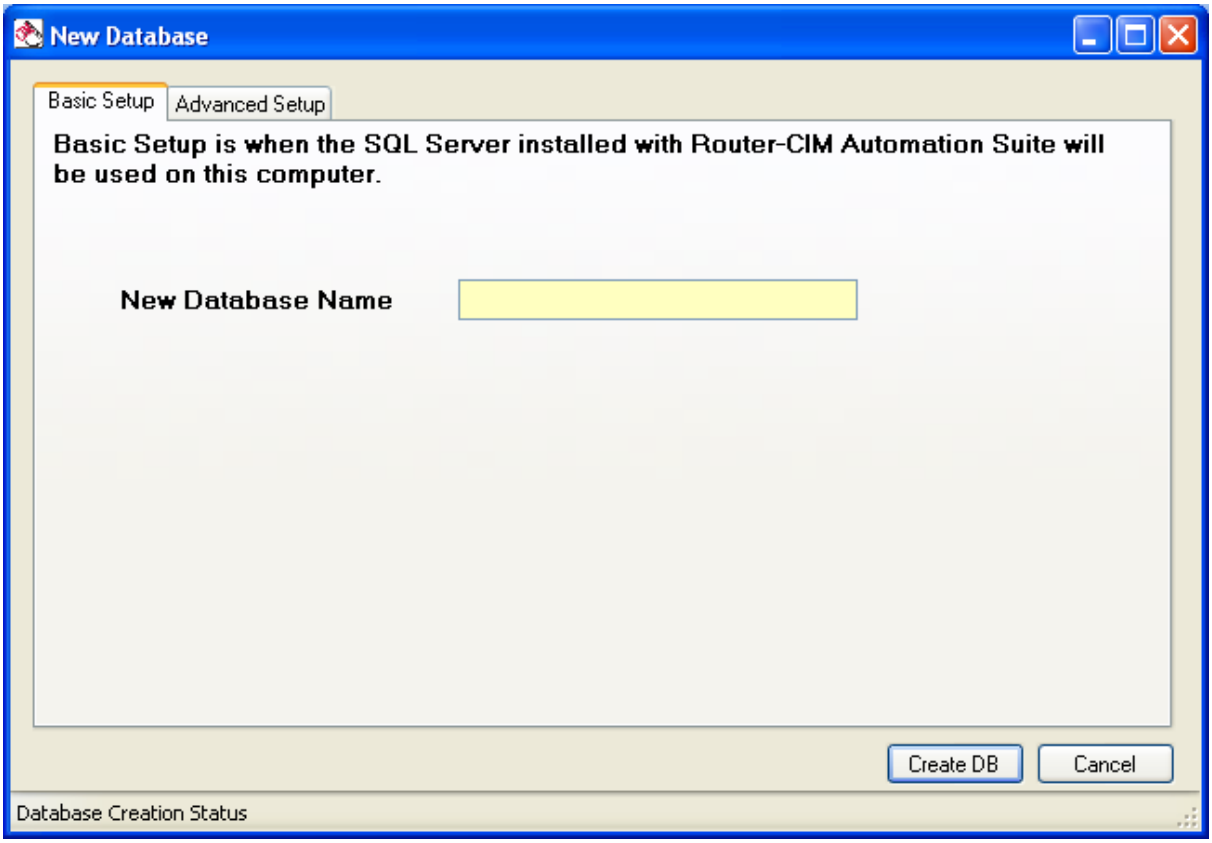
- New
- Set Default
- Backup
- Restore
- Delete
- Convert Access to SQL

2.1.1.1.3.1 New (Database)

New database

Selecting New from Database Maintenance will allow you to create a new database entry in the database list and will make that database current.

This selection is used when you wish to create a new, blank database to work from.



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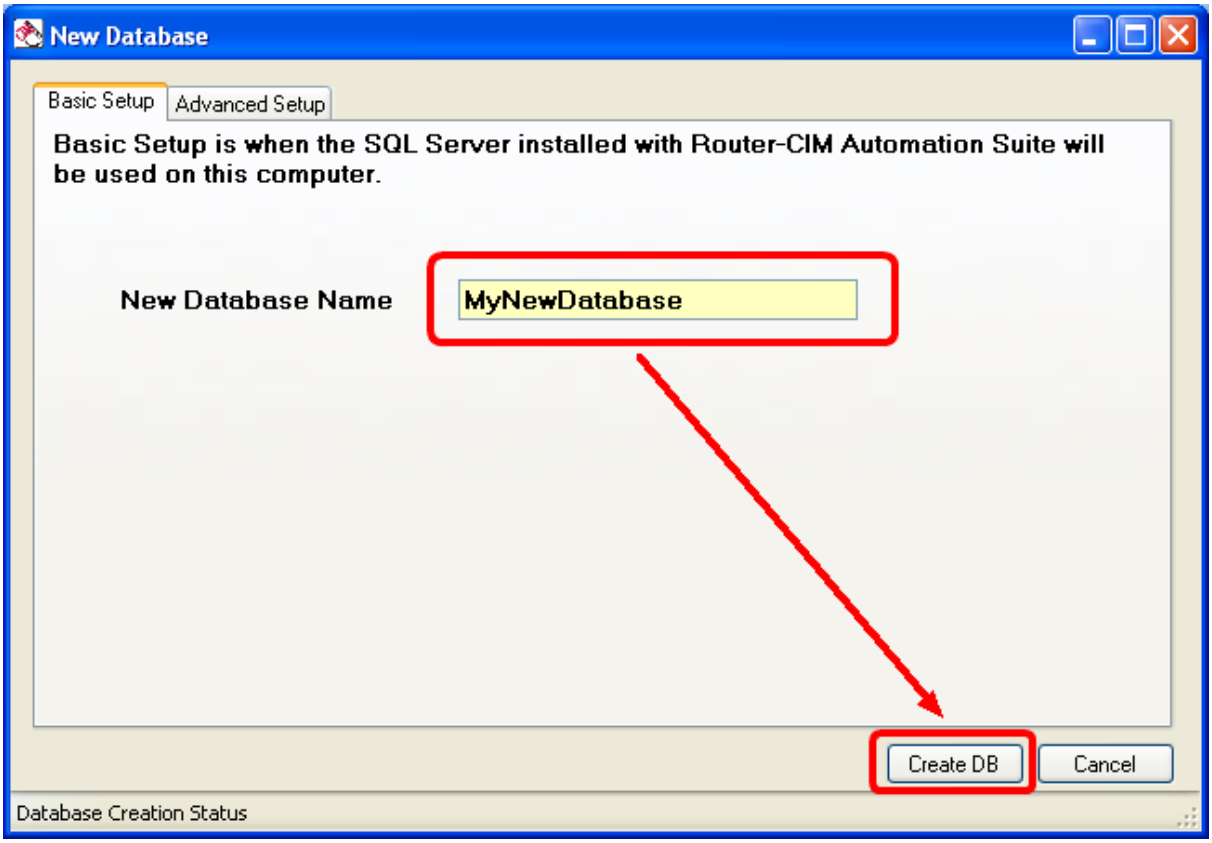
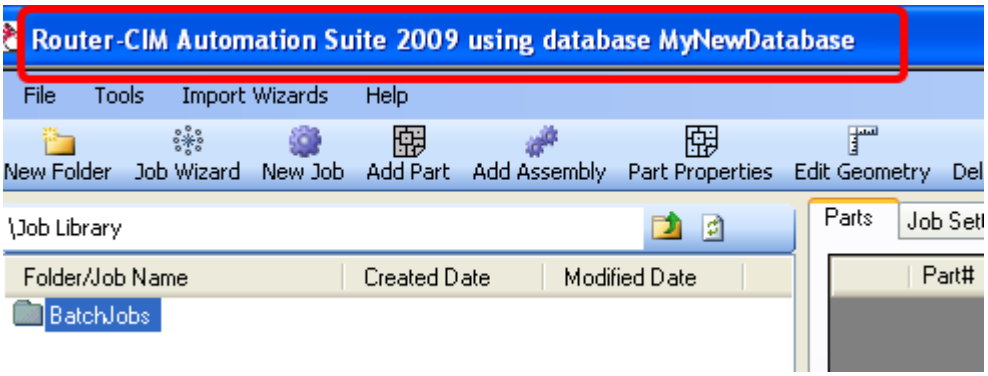
Make sure Basic Setup is selected at the top, and then type in a name for your new database:



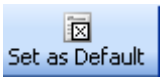
Then press Create DB.

You will then see your database in the interface and the banner at the top of the window will show you the path and name of your database.
Keep in mind that this is a NEW database so there are no jobs in it, there is only a BatchJobs folder there for running batch jobs from if they are created.



2.1.1.1.3.2 Set as Default

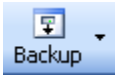
Set as Default



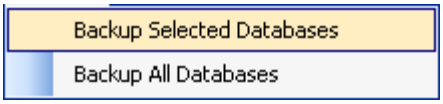
Using Set as Default will change the database Router-CIM is currently using to the database selected and make that database current.

2.1.1.1.3.3 Backup

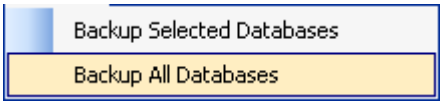
Backup Database



The Backup function can back up either selected databases or all database to a backup file format for later re-use with the Restore command.

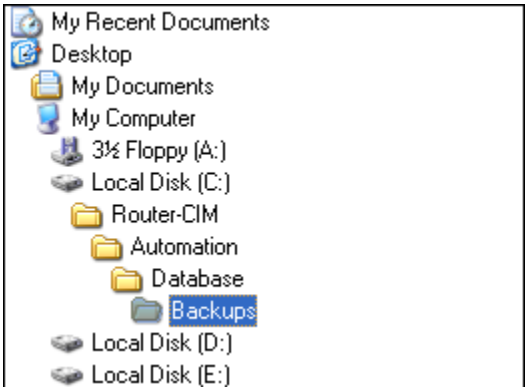


Backup Selected Databases will create a backup file for only the databases you choose (use Control + Select to pick multiple items).



Backup All Databases will create a backup file for all the databases in the current list.

once selected, you will have a backup folder named for the date and time in the Router-CIM >> Automation >> Database >> Backups folder.



This folder will have all the database backups you have created so far.

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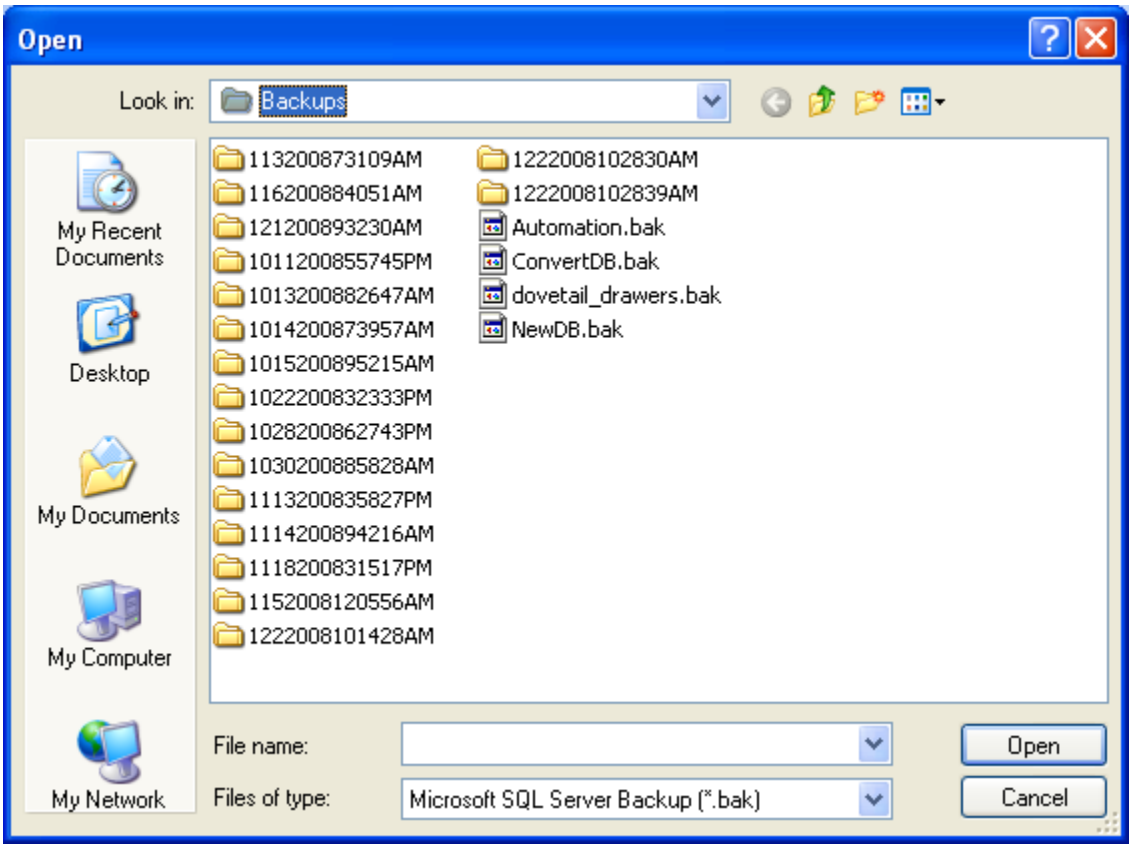

Each folder name is the date and time strung together, so the folder named 1222008102839AM was created on 12/2/2008 at 10:28:39 AM.

These folders will contain database files that can later be restored with the Database Restore option.

2.1.1.1.3.4 Restore

Restore Database

Using Restore will reconstruct a database that you had used previously and that was stored as a backup in the Router-CIM system.

Once selected, you will be shown a window with all the possible databases you can select to restore from.

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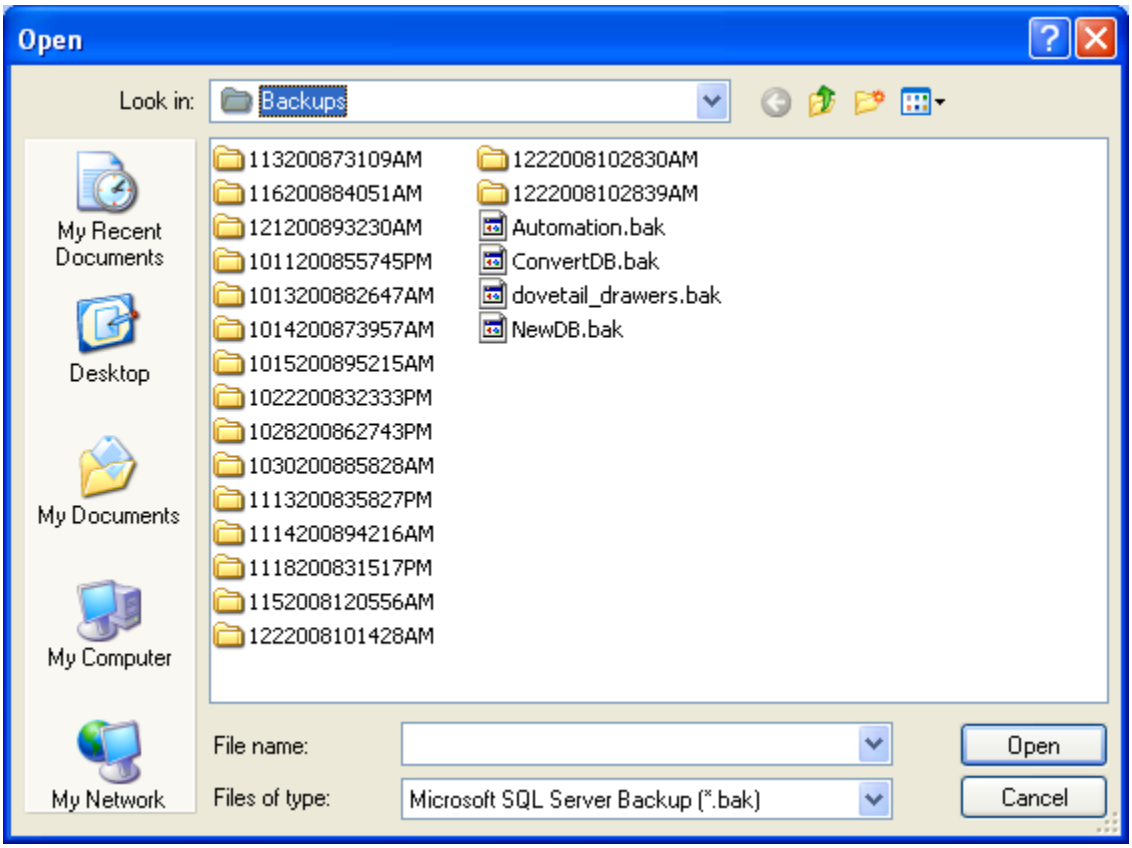

Choosing one, like 1222008102839AM shown above and then choosing OPEN will show the contents of the folder, which are all the databases that were backed up at that time.

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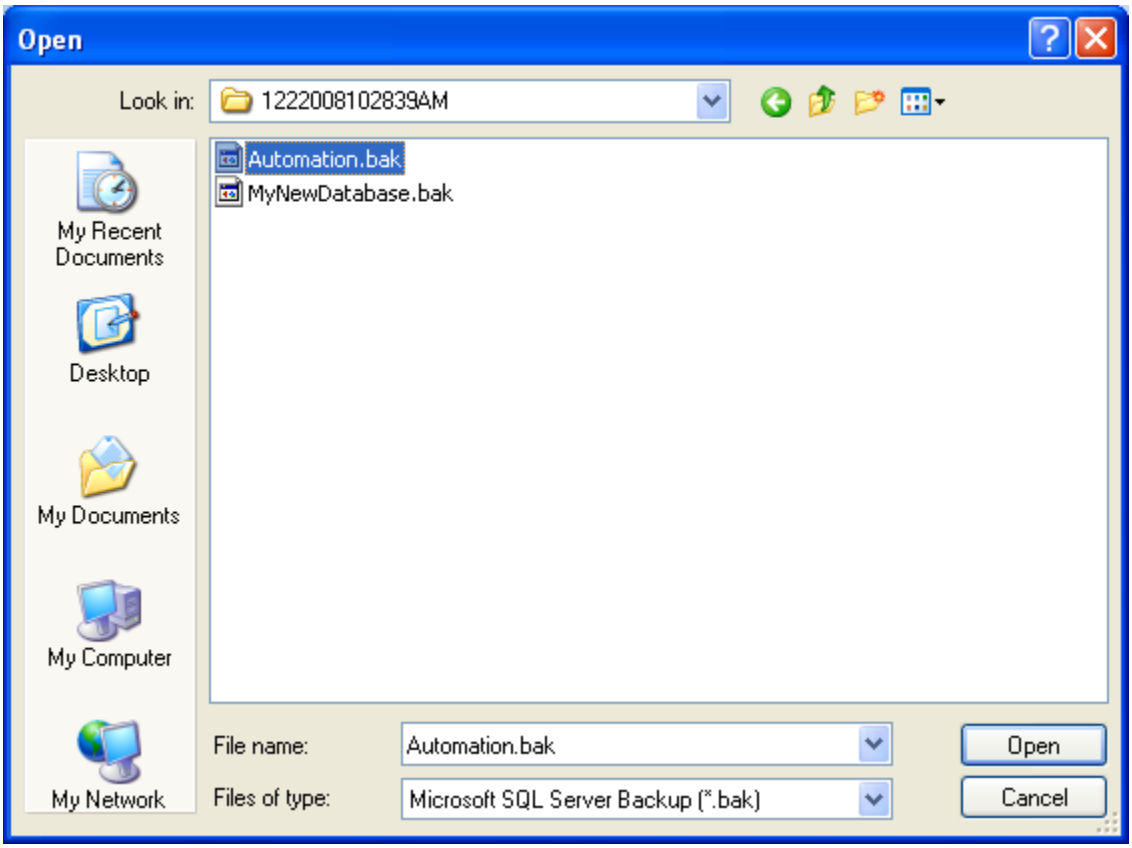


Selecting one from the list, in this case Automation.bak and then selecting Open, will place that database into the database list.

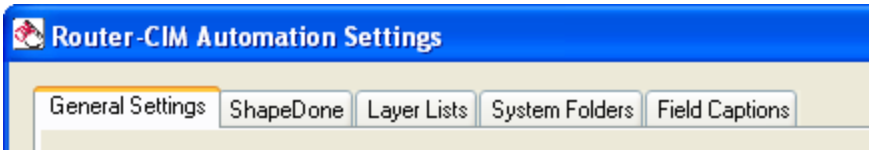
2.1.1.1.3.5 Delete

Delete Database

Delete a database from the current list of available Databases.

2.1.1.1.4 Settings

System Settings



There are several settings that affect the entire system. These settings are broken down into the following categories:

General Settings

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ShapeDone Settings

Layer List Settings

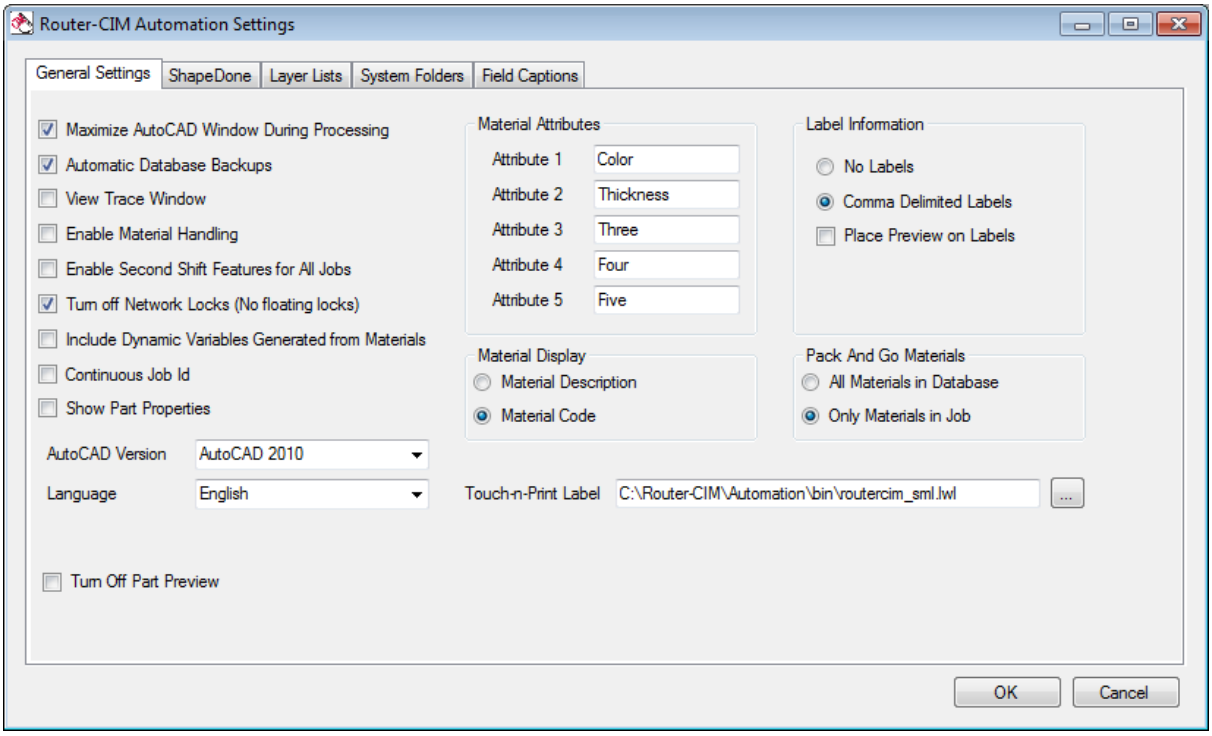
System Folder Settings

Field Caption Settings

2.1.1.1.4.1 General Settings

General Settings

The general settings are miscellaneous settings that affect how Router-CIM runs and looks, and do not fit into the other categories of settings. Each one will be documented, and you can click on the area of the picture to be taken to that sections' description.



Maximize AutoCAD Window During Processing

Checking this box will force Autocad to be maximized (take up the whole screen) while Router-CIM Automation is processing a job.
Removing the check from this box will allow Autocad to run at whatever the last saved size of the Autocad window was when last run.

Automatic Database Backups

Checking this box will force Router-CIM to back up the databases when Router-CIM is loaded for the first time each day. The databases will be stored in a folder on your C: drive for later restoration. The folder is C:\Router-CIM\Automation\Database\Backups. Inside that folder will be a other folders with the date and time stamp as a name. These contain the databases for your system that were present on that date..

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This back up happens once each day, on the first start of Router-CIM, so the database is backed up in the state it was in when last used.

These back up files can be large and if you do not clean out the Backups folder, you can have many, many large files in there. This could take considerable drive space. These files could be copied onto a CD or some other permanent storage frequently and this folder cleaned of old, out of date files.

Removing the check from this box will force Router-CIM to ignore the back up procedure. This is dangerous because if you make a mistake in your settings or jobs, there is no backup copy and no way to retrieve lost data or settings. CIM-Tech cannot get data back from the database once it is changed. The backup is your best solution to retrieving lost settings or materials, etc.

View Trace Window

Checking this option will turn on an additional section to the status window that runs when processing a job. This option is only for debugging procedures and will only be used when directed by CIM-Tech.

Enable Material Handling

Turning this option on will allow the creation of code to handle the Komo Material Handling Systems if your machine is equipped with one. See you post processor application notes for more information regarding the specific code for your material handling system.

Enable Second Shift Features for all jobs

This is an advanced option available when you have a special program enabled called Second Shift. This option will turn on those special features for any job created or run. For more information contact CIM-Tech.

Turn Off Network Locks (No Floating Locks)

If this option is checked, the Router-CIM hardware lock will need to be located on the computer that is running Router-CIM. If this option is not checked, the hardware lock could possibly be located on another computer, and if it is on the same TCP/IP network then Router-CIM should find it and use it, provided it is not in use by another computer running Router-CIM. Installing the lock on the computer running Router-CIM is by far the most reliable means of insuring that no hardware lock issues occur.

Include Dynamic Variables Generated from Materials

Checking this option will force a dynamic variable to be created for each material with the material thickness as the value in the dynamic variable.

Continuous Job ID

This option will set the job id in the nc code files to be continuous from job to job. The numbers start at 1 and run to 9999 and then will start over. You can force them to restart by un-checking this box and then running a job. Checking this box will force a continuous count to occur on each nc program until it reaches the top number (9999). Otherwise each job run starts with the first sheet as 001 and the second sheet as 002, etc.

Show Part Properties

Checking this box will make Router-CIM show the part properties window whenever you add a new part to a job (this was the version 2007 and older behavior). The default behavior is to add the part without showing the properties window.

AutoCAD Version

This setting will have an option to change the Autocad version for Automation if you have more than one version of Autocad installed on the computer that Router-CIM is running on. Currently the only supported versions are 2007, 2008, 2009.
Automation will set this for you if only 1 version is installed on your system, and no other choices will

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be available.

Language

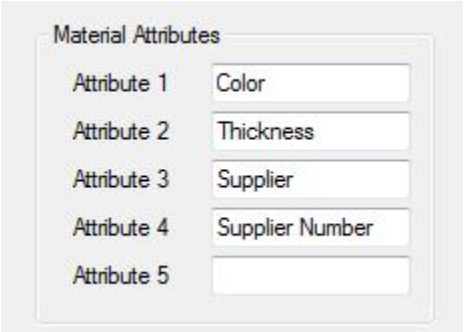
Selecting this pull down list will change the Router-CIM Automation interface to one of the supported languages. Currently that is English and Simplified Chinese. You must have the Chinese Language set installed in Windows to see the Chinese language screens. Other languages are pending and will be installed in later updates.

Turn off Part Preview

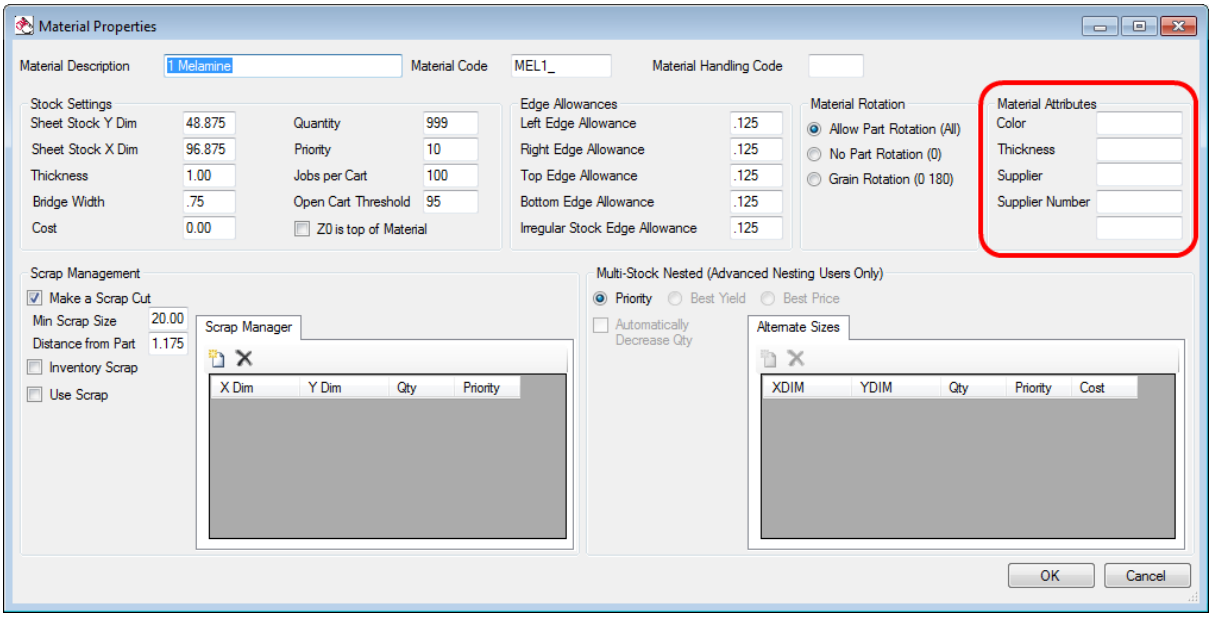
Turning on this option will disable the part preview window in Router-CIM so no parts will be shown when a part is selected. This could allow some slower systems or systems with unsupported graphics cards to move through parts faster.

Material Attributes

Changing the fields for the 5 material attributes listed will cause these attributes to be listed in the material database as they are listed in this window. For instance if you were to change these options to:



Then click on OK and open up any material in the material database, you would see the material attributes listed the same.



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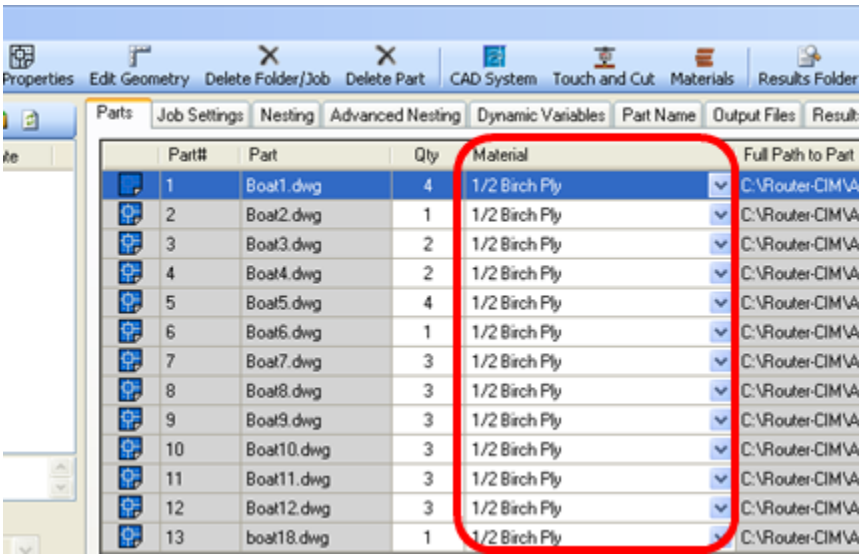
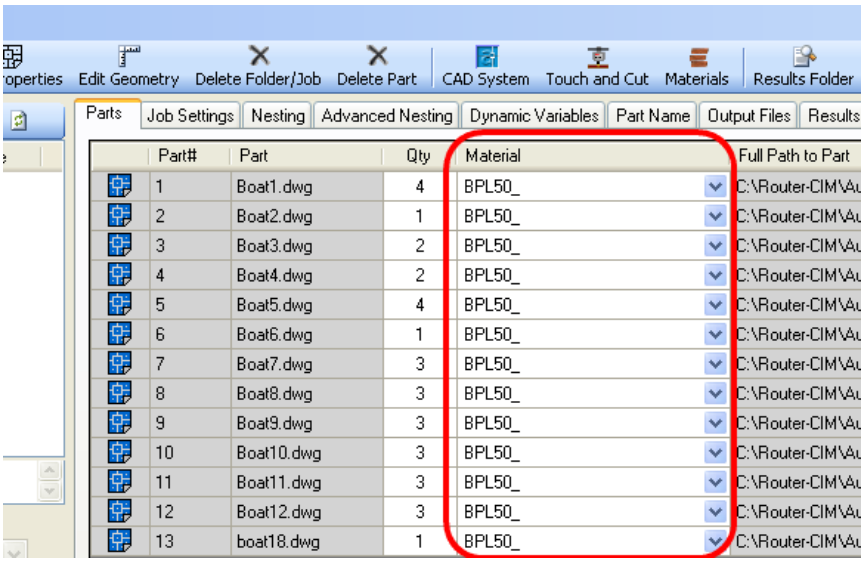
Material Display

The material display options of Material Code or Material Description relate to the way the materials are shown in the part window of a job.
Setting the option to Material Description will show the material as the text description listed for the material:



Where setting the option to Material Code will show that same material listed by the material code which is a max of 8 characters:



Label Information

These options are available as system settings and will affect each job. Setting this option to No Labels will suppress the generation of any label files by Router-CIM for any job run from that point. Setting the option to comma delimited labels will generate label files for each job in several formats. Selecting the option Place Preview on Labels will generate a small thumbnail image of the part and place it on the label.

Pack and Go Materials

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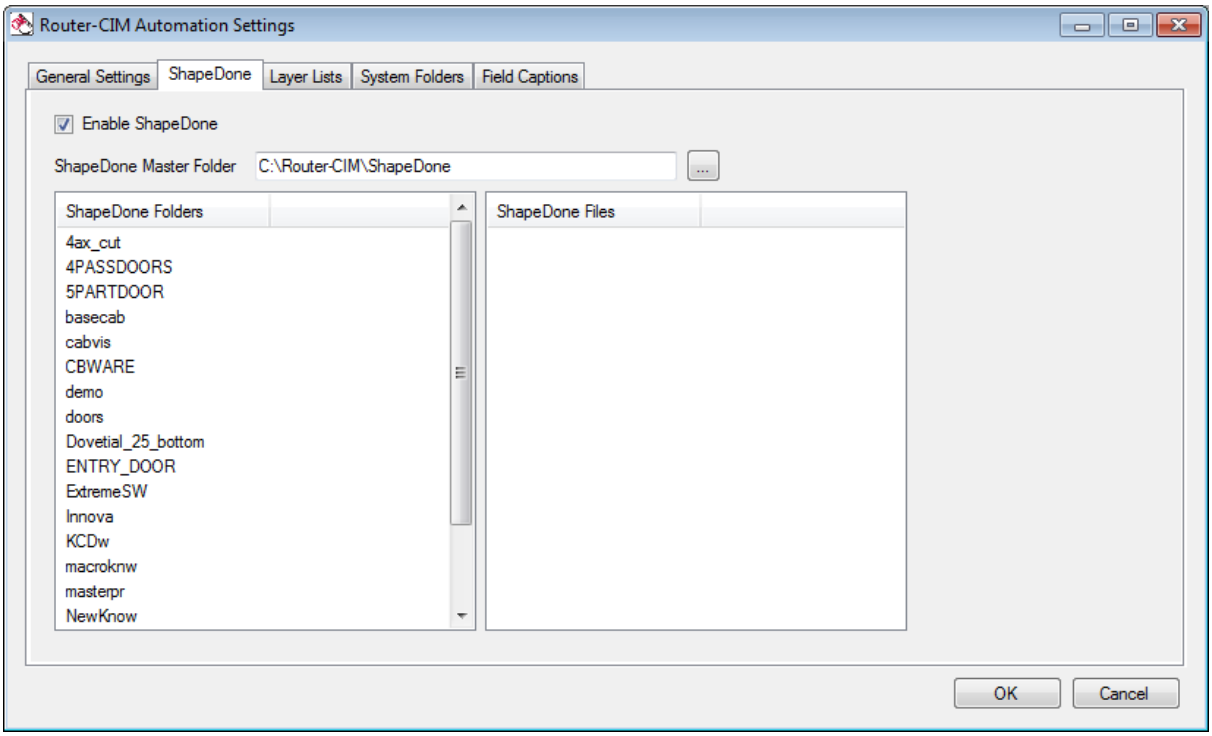
When making a Pack and Go file, you can have either ALL the materials in the whole database packaged into the Pack and Go file, or just the materials that relate to the job you are packing.

Touch and Print Label

This field shows the path and name of the Touch and Print Label file.

2.1.1.1.4.2 ShapeDone Settings

ShapeDone Settings



Enabling Shape Done will allow any parts that are used in a job, and have not been altered since they were last run to pass straight to nesting without having to be re-cut during the job run. This saves considerable time if you have jobs that re-use parts.

Enable ShapeDone

Checking this box turns on the Shape Done feature in the Router-CIM system.

ShapeDone Master Folder

Display and setting of the ShapeDone folder path and name.

ShapeDone Folders

This side of the window displays the ShapeDone folders. One folder is created automatically for each knowledge drawing in the Router-CIM knowledge drawing folder.

ShapeDone Files

This side of the window displays the ShapeDone files in each of the folders. If you select a folder on the left, the files in that folder will show on the right.

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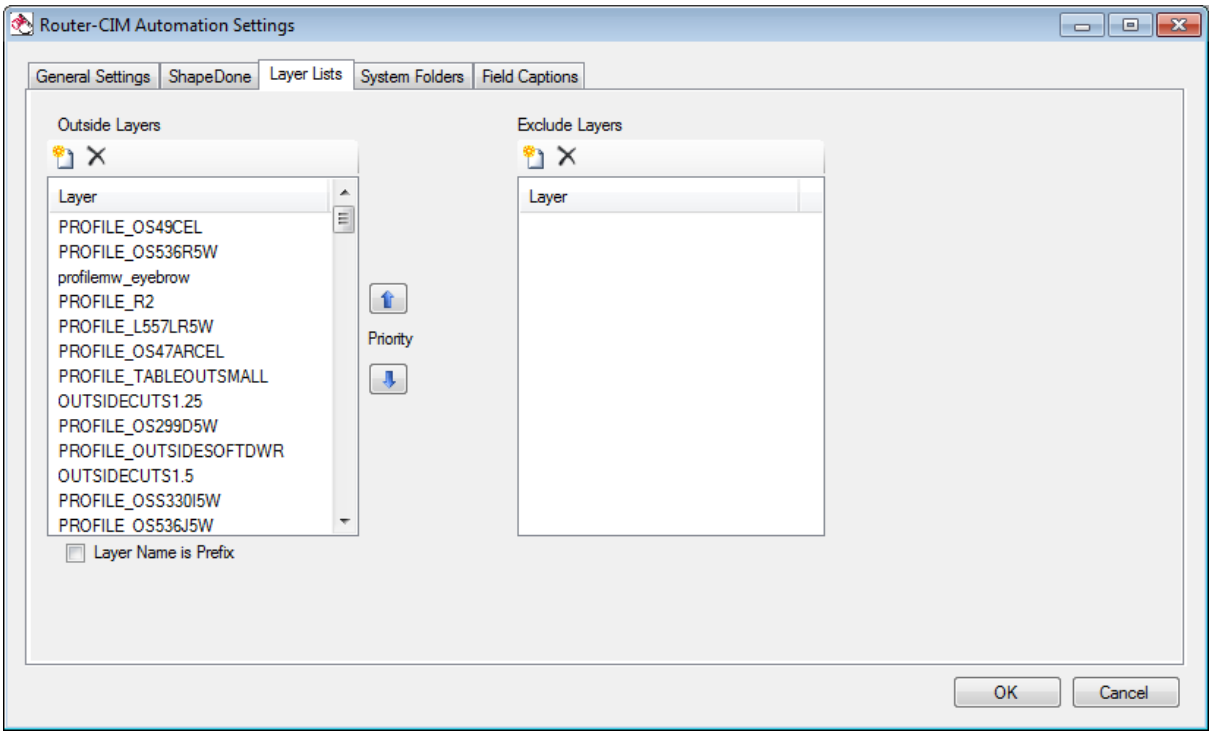
2.1.1.1.4.3 Layer List Settings

Layer List Settings

The Outside Layer lists are used by Router-CIM to associate which layers will contain the outside geometry used for nesting and which layers to exclude from a drawing when considering a part for nesting.



Outside Layers

In this list you should include any layer that will contain geometry that will be the outside of the part when the part will be nested. Router-CIM will check each part and when the geometry of the outside of the part is found, it is checked against this list and then the part is passed to the nest program.

A common cause of parts not showing up in a nest is that the parts outside layer was not included in this list. Another common mistake is to have an inside cut be on a layer that is in this list also, that can cause parts nesting on the top of other parts.

An important note is that Router-CIM looks at this list in order until it finds a match, and so moving a layer higher in the priority in the list will cause Router-CIM to find one layer before another.

Using the Layer Name is Prefix option will cause Router-CIM to look at the name given here as just the prefix of the whole layers name. For instance if you had geometry on both layer OutsideDoorBigTool and OutsideDoorSmallTool and put the layer name OutsideDoor in the list and checked Layer Name is prefix...than both those layers would be considered as outside geometry.

Exclude Layers

Any layers listed in this window will be ignored by Router-CIM for the purpose of cutting and nesting.

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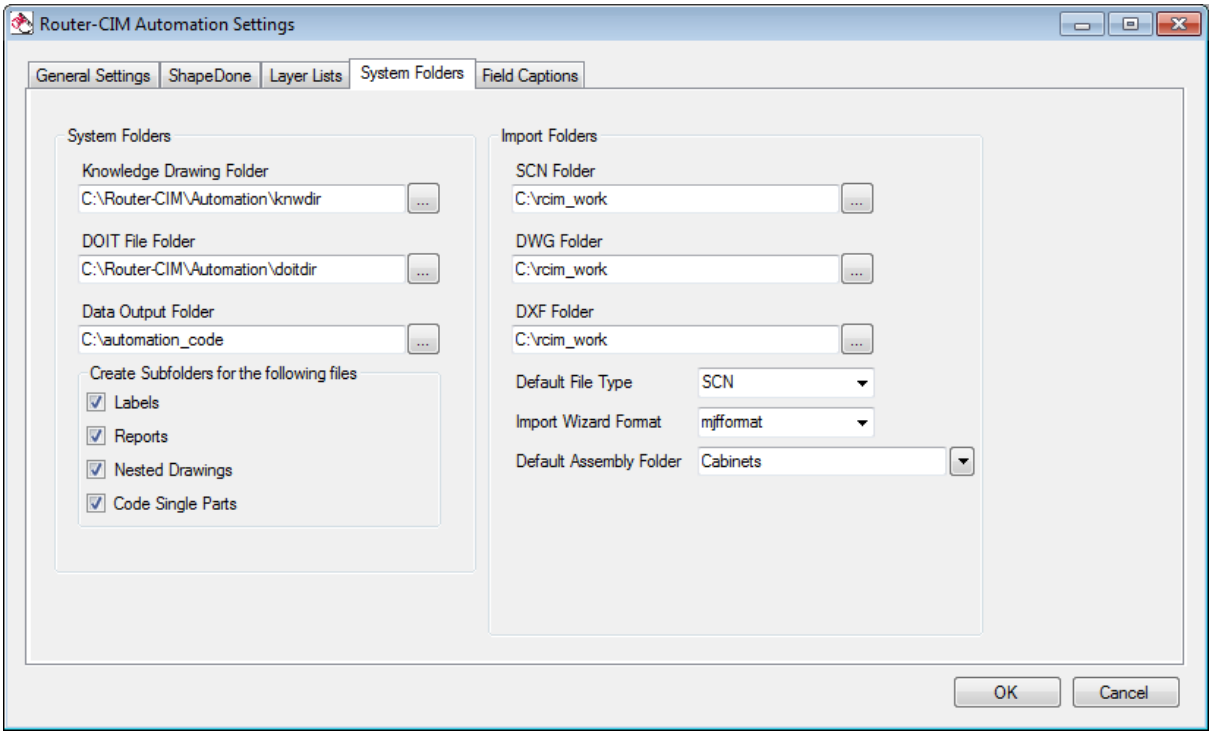
You can include dimension layers here for example as you might have them in a drawing but do not want to cut or nest them.

2.1.1.1.4.4 System Folder Settings

System Folder Settings

The system folders settings are where you can change the path and folder locations for Router-CIM to find certain files for Automation.



System Folders

Knowledge Drawing Folder:
This is the path to the folder where you store your knowledge drawings.
By default it is C:\Router-CIM\Automation\knwdir.

DOIT File Folder:
This is the path to the folder where you store your DOIT files.
By default it is C:\Router-CIM\Automation\doitdir.

Data Output Folder:
This is the path to the folder where all the job files and nc code will be saved when a job has run.
By default this is C:\automation_code.

Import Folders

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Scn Folder:
This is the path to the folder where Router-CIM will look for macros when importing them into a job if the path is not specified.
By default the path is set to C:\rcim_work

DWG Folder:
This is the path to the folder where Router-CIM will look for DWG files when importing them into a job if the path is not specified.
By default the path is set to C:\rcim_work

DXF Folder:
This is the path to the folder where Router-CIM will look for DXF files when importing them into a job if the path is not specified.
By default the path is set to C:\rcim_work

Create Folders for the following files

Labels:
Checking this box will create a separate folder in the result folder for all the label related files.

Reports:
Checking this box will create a separate folder in the result folder for all the report data related files.

Nested Drawings:
Checking this box will create a separate folder in the result folder for all the nested drawings.

Code Single Drawings:
Checking this box will create a separate folder in the result folder for the drawings of each part that was checked as code single part.

Default File Type

This will allow you to set SCN, DWG, or DXF files as the default file type for the import wizard to import if the files extensions are not provided in the import file.

Import Wizard Format

If you saved a wizard format it would show in this drop down. For example, If you import door_import.xls, then assign the columns, save the format and call it ‘doors’, it will show in this list. Then you can select ‘doors’ as the default wizard format. Also, if that is saved, then if you right-click an Excel file, and select cut with Router-CIM, ‘doors’ will be used to format the columns on import.

2.1.1.1.4.5 Field Caption Settings

Field Caption Settings

The Field Captions window displays the label captions that are shown in the Part Properties window. For instance these settings:

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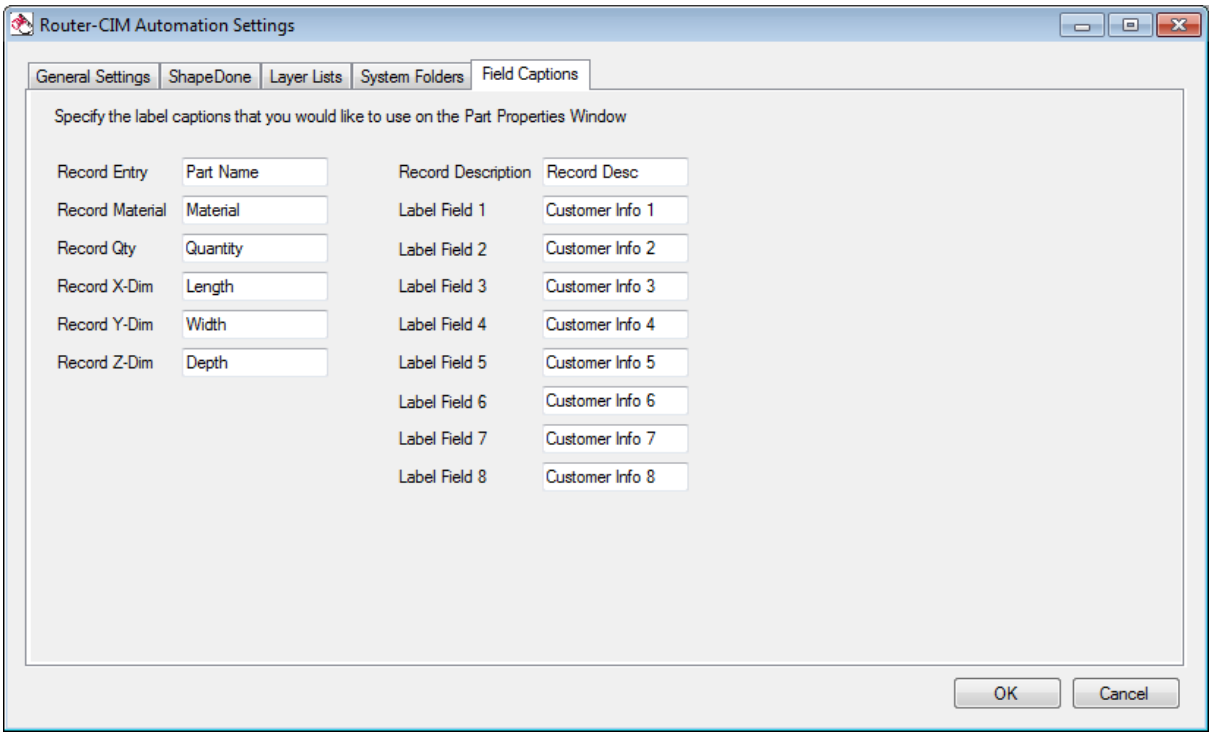
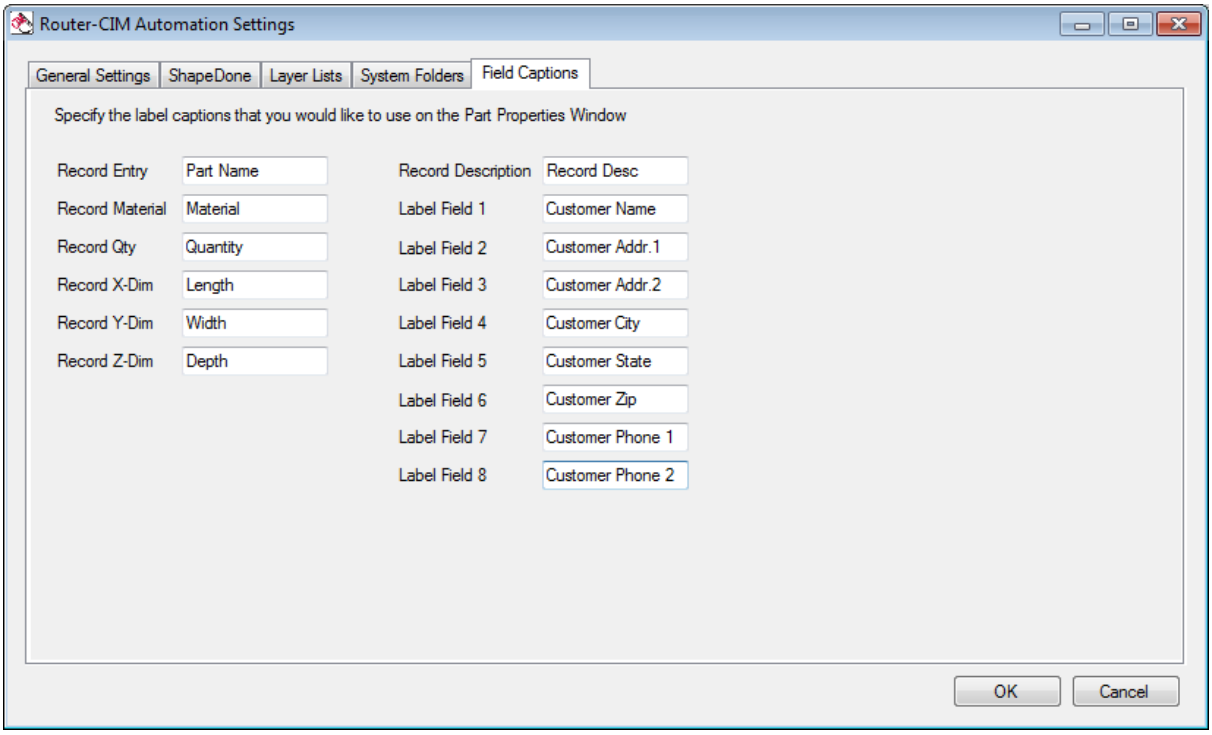


These settings will display like this on the Part Properties window of any part in a job once they are set. Select a part and then either double click on it or select Part Properties to see the changes.

For instance, changing the Label Fields 1-8 shown above from 'Customer Info 1-8' to more specific data like this:



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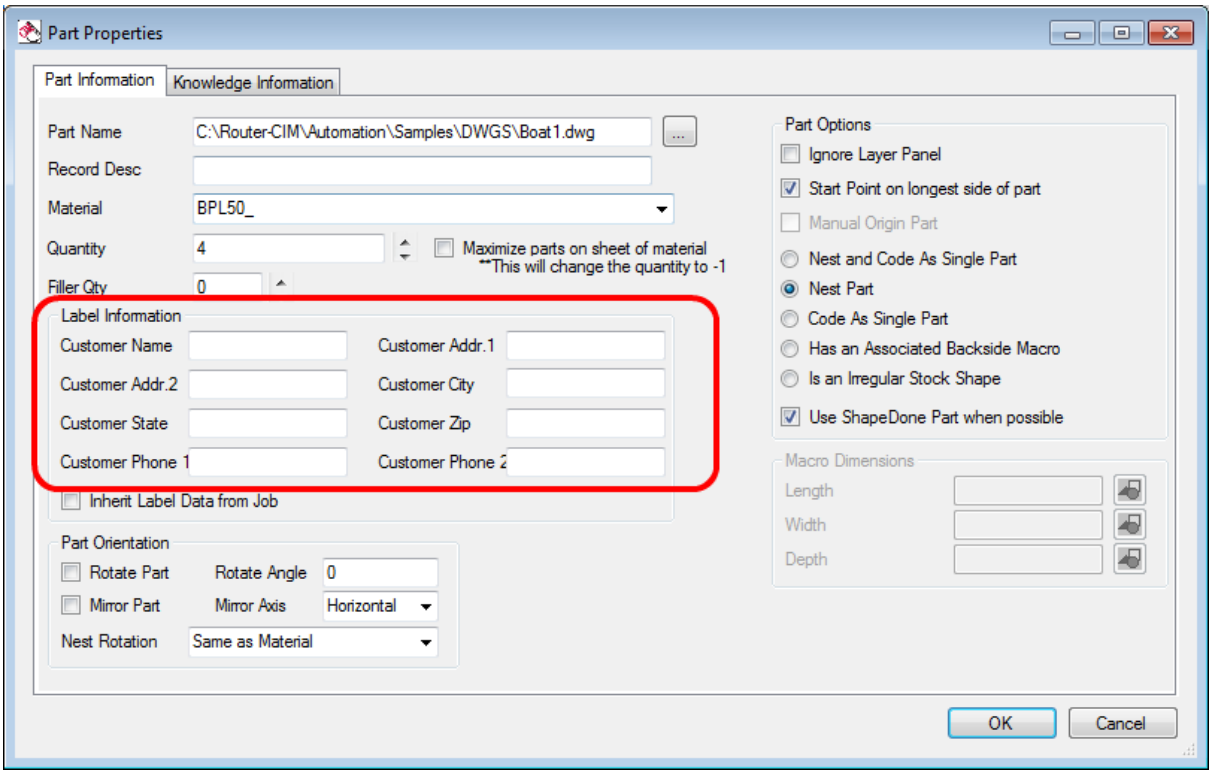
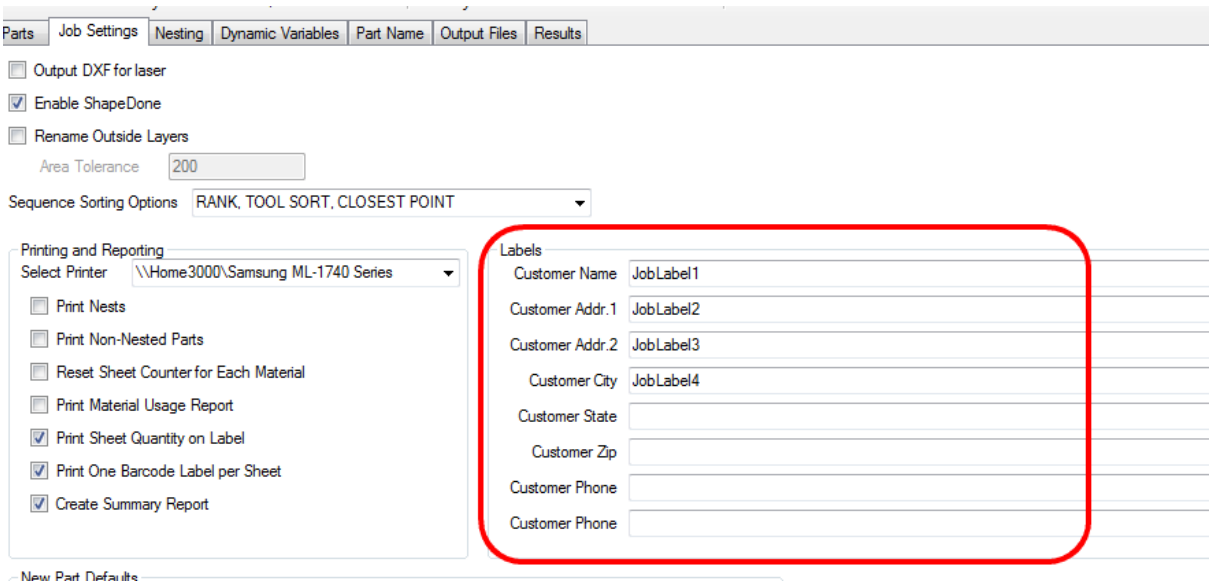
Would show up in the Part Properties like this:



And in the Job Settings like this:



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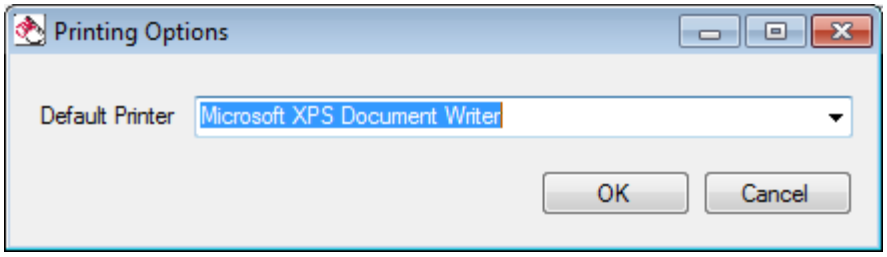
2.1.1.1.5 Print Options

Print Options



Print Options will allow you to select the default printer for Router-CIM to print the nested sheets or single part prints during a job run.
Any printer available to Windows in the Print Manager will be available in the list of printers selected here.

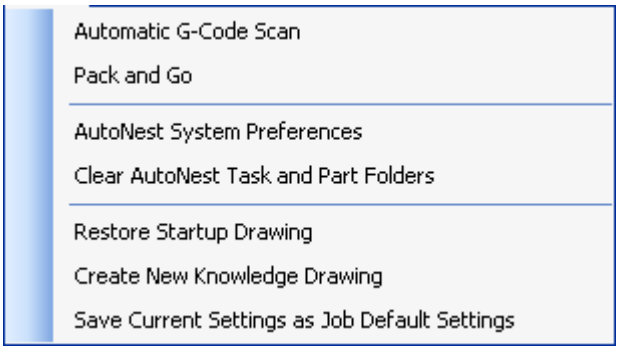
2.1.1.1.6 Exit

Exit

Choosing Exit, or using the 'X' in the upper right corner of the window will close the Router-CIM program, but before doing that a few internal functions are performed, such as saving all jobs and job related information, saving the screen size and position data, part preview window information, and saving the system defaults for use the next time Router-CIM is started.

2.1.1.2 Tools

Tools Menu



2.1.1.2.1 Automatic G-Code Scan

Automatic G-Code Scan

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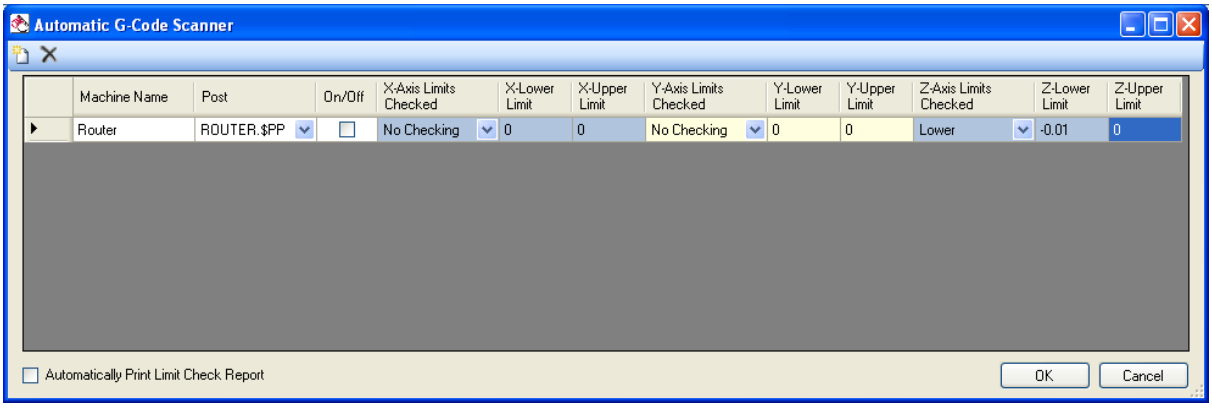
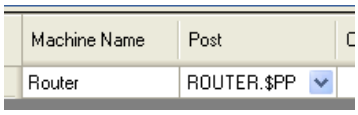
The Automatic G-Code Scanner will check each nc file generated by Router-CIM for a specific post processor and if the code contains a value outside the limits set in the scanner, then and error will be displayed when the job is run, and the code will be placed into a separate folder so that it is not run by mistake and the error can be fixed.



You can give each machine set-up an name, and then select the post processor to be used for that set-up and change the X, Y, and Z settings and whether or not to scan each axis for problems.



If after a job is run, there are values beyond the limits set you will see a warning in the Limit Check Results.

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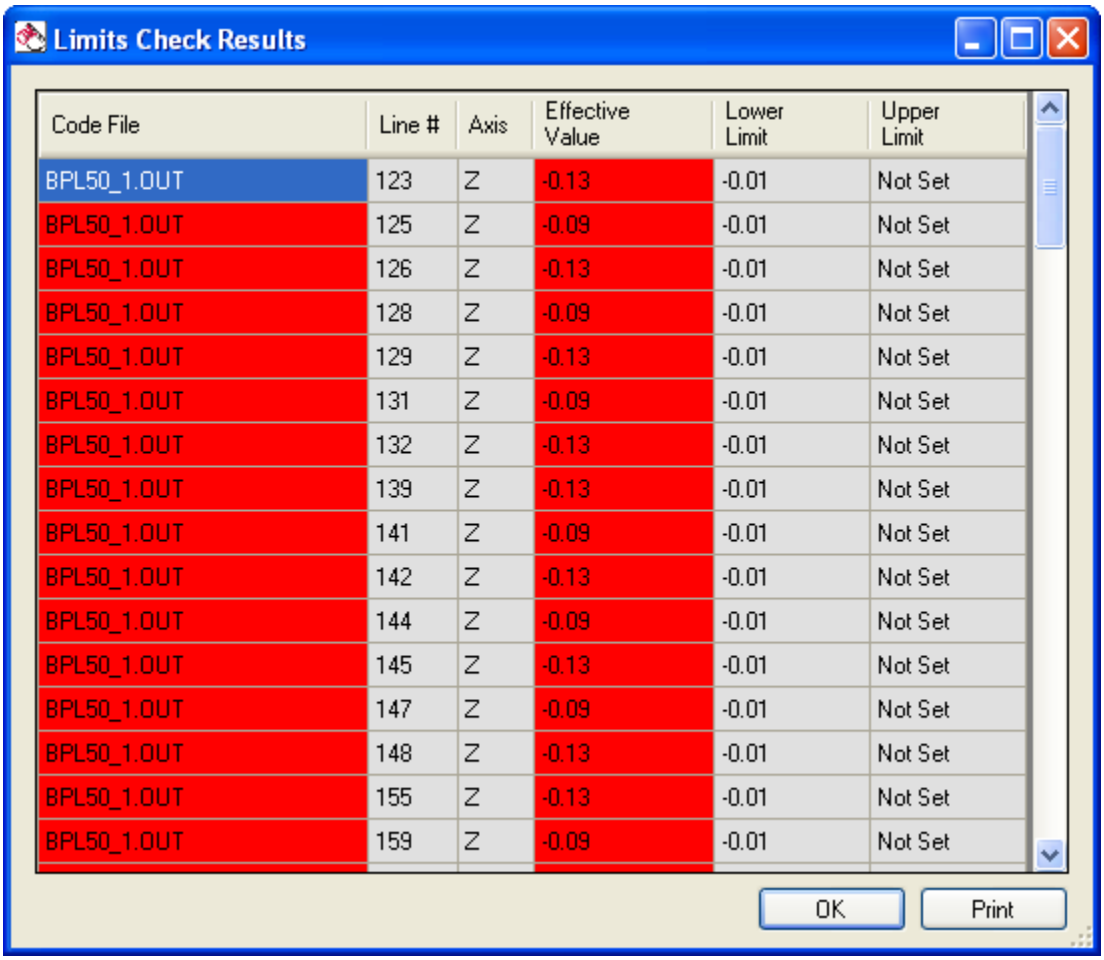

Code File	Line #	Axis	Effective Value	Lower Limit	Upper Limit
BPL50_1.OUT	123	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	125	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	126	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	128	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	129	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	131	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	132	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	139	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	141	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	142	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	144	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	145	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	147	Z	-0.09	-0.01	Not Set
BPL50_1.OUT	148	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	155	Z	-0.13	-0.01	Not Set
BPL50_1.OUT	159	Z	-0.09	-0.01	Not Set

In this case there were Z values more negative than the -0.01 value placed in the lower limit. All the files were flagged and the line number containing the error is shown along with its value. Once this window is acknowledged, the Results Folder can be opened and you will see a folder labeled Failed_GCodeScan and that will contain the bad nc code files.

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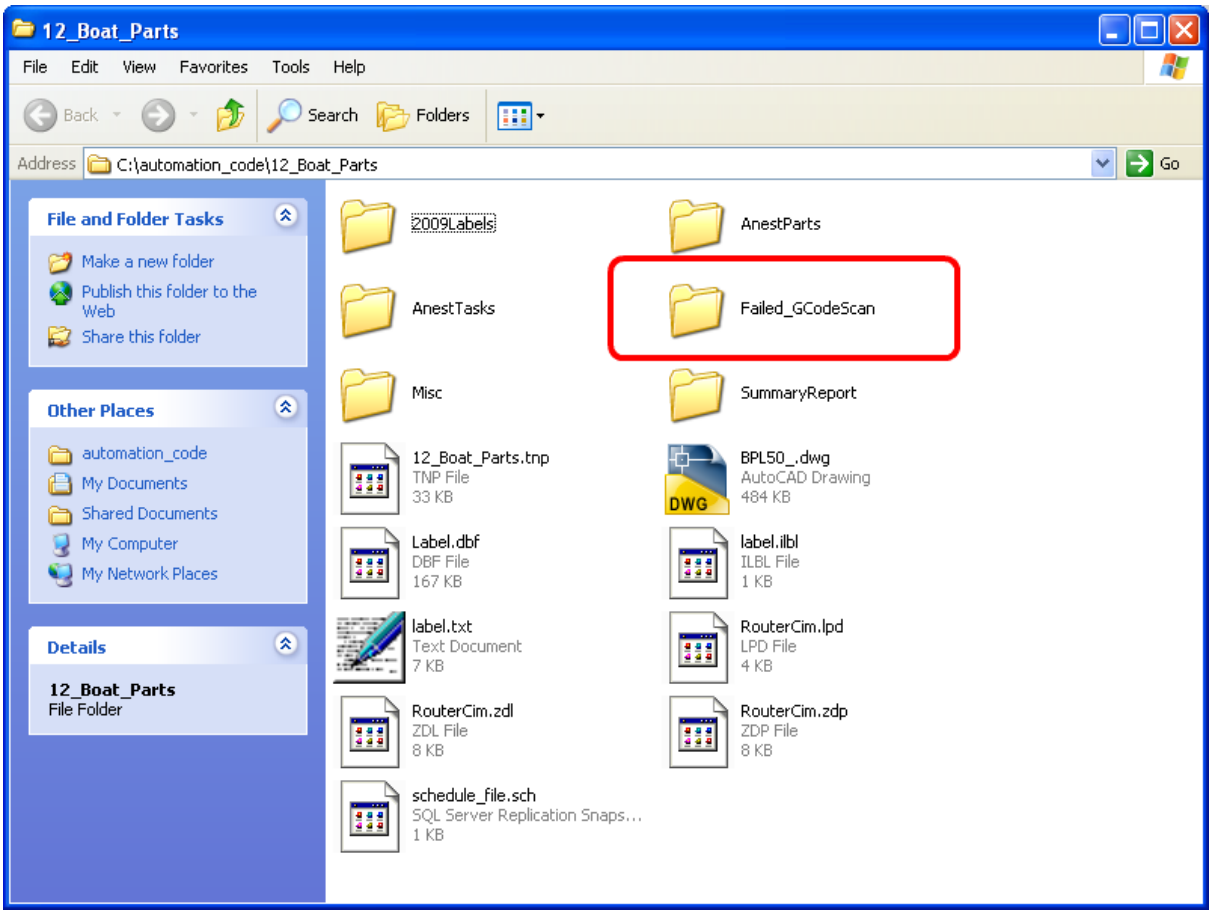


Automatically Print Limit Check Report

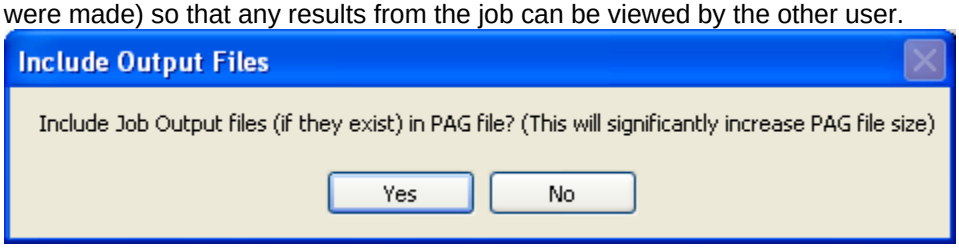
This option will send a limit check report to a printer when the job has completed. If there are errors, they will be shown on the report.

2.1.1.2.2 Pack and Go

Pack and Go

The Pack and Go function will allow you to package any job into just one file that can be sent to another user of Router-CIM who can then unpackage that job and have the same settings as you did on your Router-CIM system when the job was run.

The Pack and Go function will ask you if you want to place all the output files into the package (if any were made) so that any results from the job can be viewed by the other user.



Next you will be shown a message that confirms that the Pack and Go file has been created.

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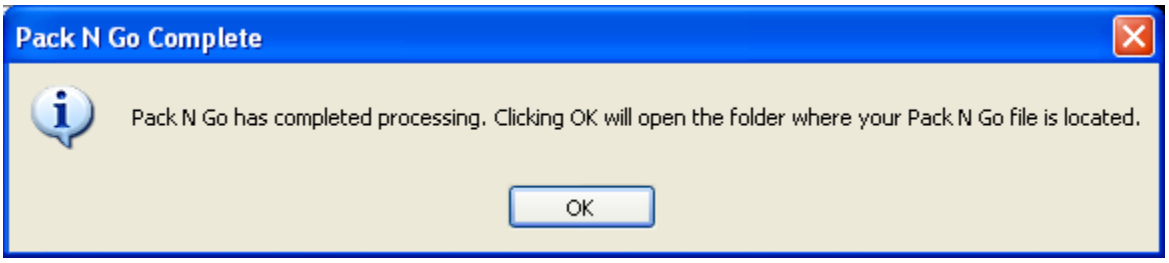
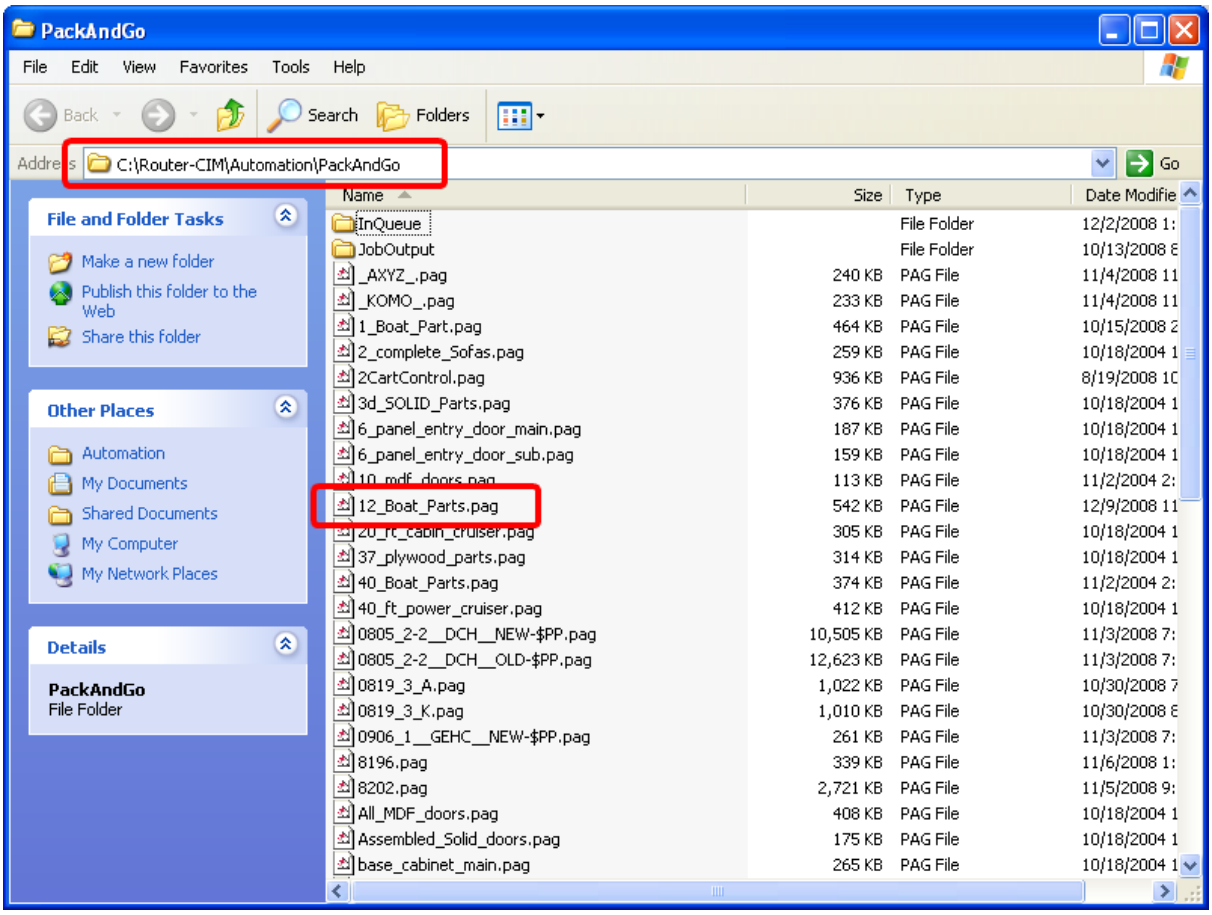


Once you acknowledge this window, a folder will open and you can then see the pack and go file, which can be attached to an email or transferred via some other means to the other user.



The folder, by default is C:\Router-CIM\Automation\PackAndGo.

Pack and Go as a Backup

Another use for the Pack and Go system is to create backups of jobs that have run, so that all the settings are stored in one location, regardless of the database. The pack and go function will place the following items into the PAG file.

- Any drawings, macros, or dxf files from the job, along with their path and folder if necessary.
- The Knoweldge drawing used for the job.
- The DOIT file used for the job.
- All post processor files used for the job.

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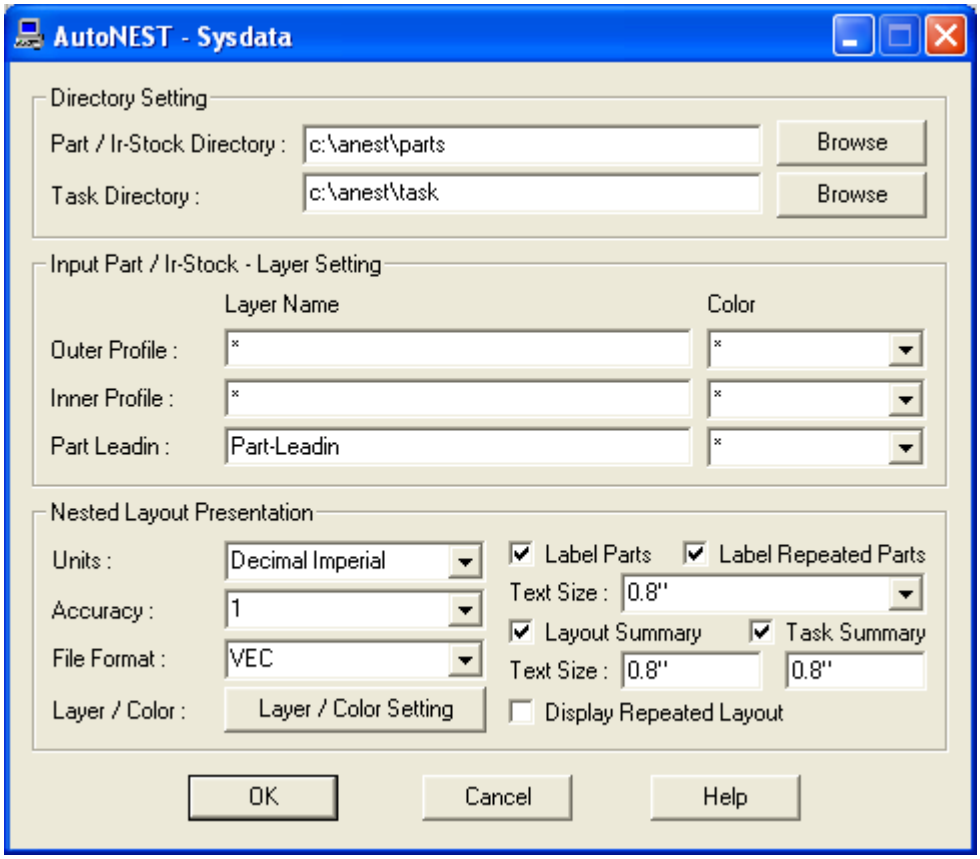
- All job related settings.
- The material used on the job.
- If specified, the entire results folder and contents.

2.1.1.2.3 AutoNest System Preferences

AutoNest System Preferences

These are the default settings that AutoNEST will use when running a job.



Part / Ir-Stock Directory

The folder where the Anest Parts are stored and accessed for each job run.
Irregular Stocks can also be stored in this folder.

Task Directory

The folder where the Anest Task (job) files are stored and accessed for each job run.

Outer Profile

Inner Profile

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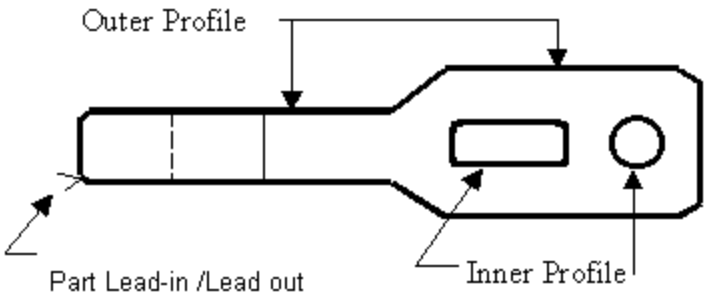
Part Leadin

These are the layer, color and part leadin/leadout "FILTER" settings that you can specify for both SavePART and DXF2VEC commands.These settings are especially helpful if the parts that you are saving or converting contain marking lines that touch or intersect the external /internal profiles of the shapes. By specifying the layer/color/part leadin filters, you will help SavePART and DXF2VEC commands to differentiate profiles that are crucial to nesting (outer and inner profiles of the part) against those that are not (markings or folding lines).You can specify more than ONE colors in the "Color" field by entering for example "1,3" for colors 1 and 3 (separated by a comma)



Units

The units setting of inputs and outputs. There are 4 choices to choose from :

- Metric
- Architectural Imperial (1' 3-1/4")
- Decimal Imperial (15.25")
- Engineering Imperial (1' 3.25")

Accuracy

The number of decimal places or the number of digits to the right of the decimal point (0 to 4).
If the unit chosen above is Architectural Imperial, Sysdata will prompt for the denominator of the fraction to which the accuracy is to be expressed. e.g. :

- 1 for full integers, no fractions
- 2 for 1/2" (half)
- 4 for 1/4" (quarter)
- 8 for 1/8" (eighth)
- 16 for 1/16' (sixteenth)

File Format

This option decides which Part file format is to be used when generating graphical nested layout on screen. Three choices are available as below:

- DWG
- VEC
- DXF

If you have chosen VEC format, please note the "Nested Layout - Layer Settings" (click the "Layer Setting" button) for defining the layers and colors of the nested layout.If you have chosen DXF or DWG format, the nested layouts will display the layers/colors of your parts as they were originally created.

Layer / Color

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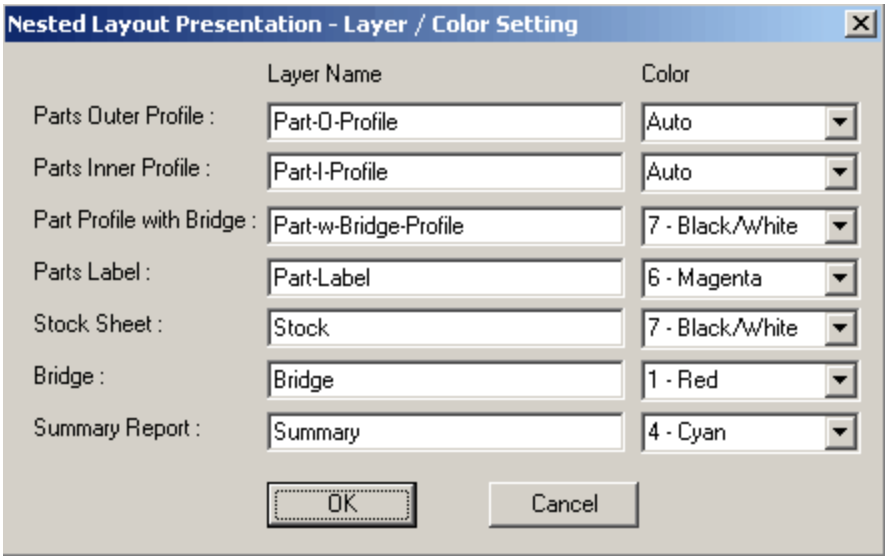
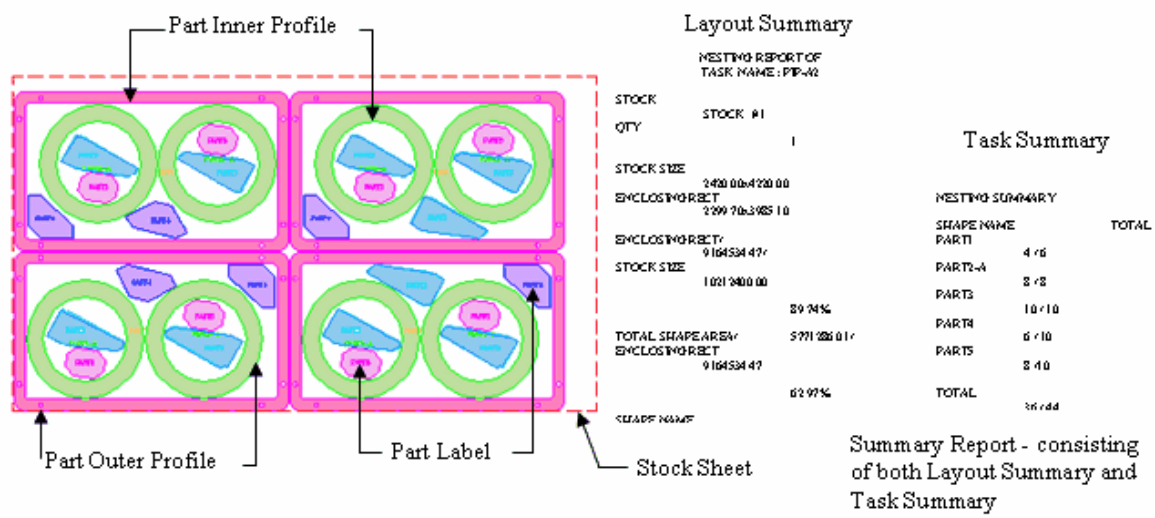
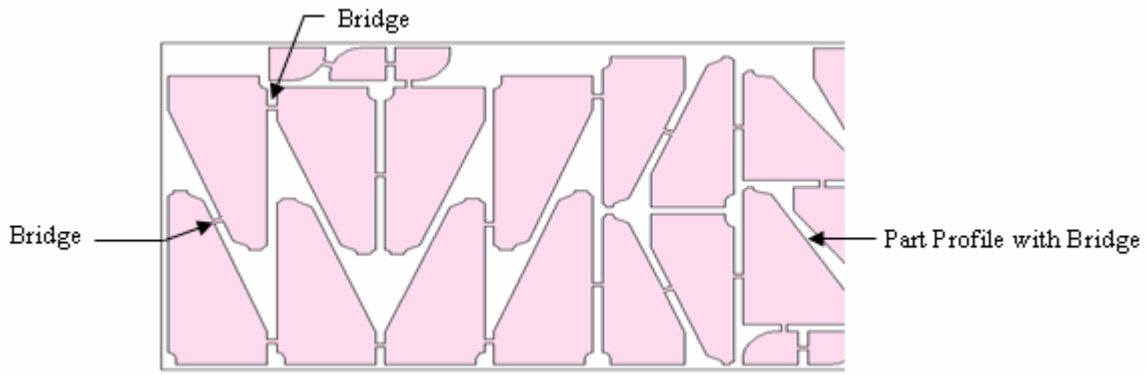
The following Dialog Box will appear when selecting this button: Layer / Color Setting



User can define the layer and color for Part Labels, Stock Sheet and Summary reports.
PARTS If the Sysdata “File Format” is VEC, the Parts displayed on the nested layout will follow the layer and color settings here.
If DWG or DXF “File Format” are chosen, the Parts’ layer and color settings will be exactly the same as they were originally saved.

See diagram below for explanation of each of the names.





Label Parts Text Size
Mark this checkbox if you wish to display Part Label. And set the Text size of the Part label when displayed on screen. To change the layer/color of the Part labels, click the “Layer/ Color Setting” button

Label Repeated Parts
Mark this checkbox if you wish to add a part Label on each and every part on the nested layout. When this checkbox is un-marked, if there are 10 parts of the same name nested, only ONE of the 10 will be labeled.

Layout Summary Text Size
Layout Summary – report on the nested results of a particular stock layout.

Task Summary Text Size
Task Summary – report summary on the nested results of a Task (.job).Mark the relevant checkboxes if you wish to display the reports and set the Text Size of the Reports when displayed on screen.See the above Illustration.

Display Repeated Layout
Mark this check box if you wish to display the same nested layout repeatedly, otherwise the Quantity in the Layout Summary will show how many sheets of the same nest are necessary.

2.1.1.2.4 Clear AutoNest Task and Part Folders

Clear AutoNest Task and Part Folders

This option will remove all the contents of the AutoNEST parts folder and the AutoNEST tasks folder. After running many jobs, these folders can become very large and may contain previous copies of a job or the parts in a job that may not be current.

It is a good practise to clean these folders out from time to time.

Once you select this option, you will have a momentary pause and then the following confirmation is shown.

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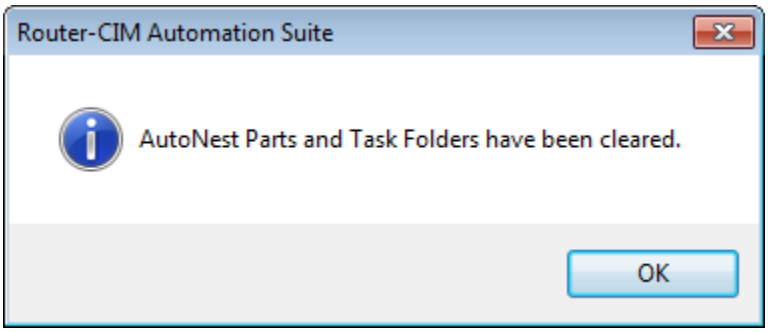
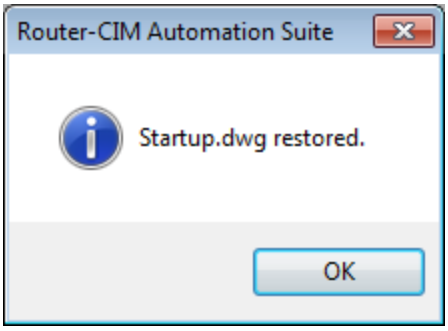


2.1.1.2.5 Restore Startup Drawing

Restore Startup Drawing

The startup drawing (Startup.dwg) contains various bits of data for Router-CIM to function. Occasionally that drawing can become corrupt due to an accidental save. If the drawing does become corrupt using this option will restore it to the default drawing status.

Once this option is selected, the following confirmation will appear.



2.1.1.2.6 Create New Knowledge Drawing

Create New Knowledge Drawing

A new knowledge drawing can be created with this option, even if you do not currently have a job selected. Once this option is selected, you will get the Router-CIM Configuration Wizard and can select your machine. Router-CIM will then start, and you can import or create new knowledges and save the drawing.
You must use the SaveAs option and give the drawing a different name. The system opens up a drawing called NewKnoweldgeDrawing by default and this is write protected (set as Read-Only), so that you must use the SaveAs option and give your knowledge drawing a different name.

2.1.1.2.7 Save Current Settings as Job Default Settings

Save Current Settings as Job Default Settings

Using this option will store whatever the current settings in the currently selected job are and make

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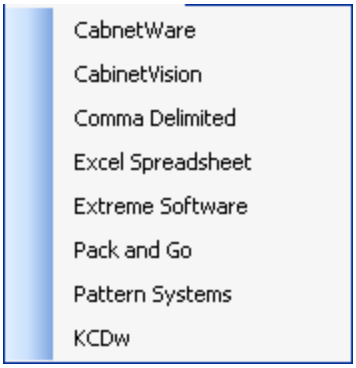
them the defaults for any new job that is created, or any new job that is made with the right click 'Cut with Router-CIM' option.

The settings that are used are:
Knowledge Drawing
DOIT file
Current Material
All Part related settings

2.1.1.3 Import Wizards

Import Wizards Menu



Router-CIM has several Import Wizards used to create jobs in just a few steps. There are several 3rd party packages that create geometry and job settings that Router-CIM can read and then create a job from those parts and/or settings.

In addition to the 3rd party imports, there are two generic imports for either a comma-delimited file or an Excel spreadsheet that can be handy to create jobs from. Additionally, there is the Pack and Go import to bring a job into Router-CIM that was packaged previously using the Pack and Go option.

The Import Wizards available are:
- Cabnetware
- Cabinet Vision
- Comma Delimited
- Excel Spreadsheet
- Extreme Software
- Pack and Go
- Pattern Systems
- KCDw

2.1.1.3.1 Cabnetware

Cabnetware

Cabnetware integrates room and cabinet design capabilities with manufacturing tools. Cabnetware is for residential and commercial manufacturers of casework; allowing them to generate detailed drawings for use with building contractors and architects. This program has

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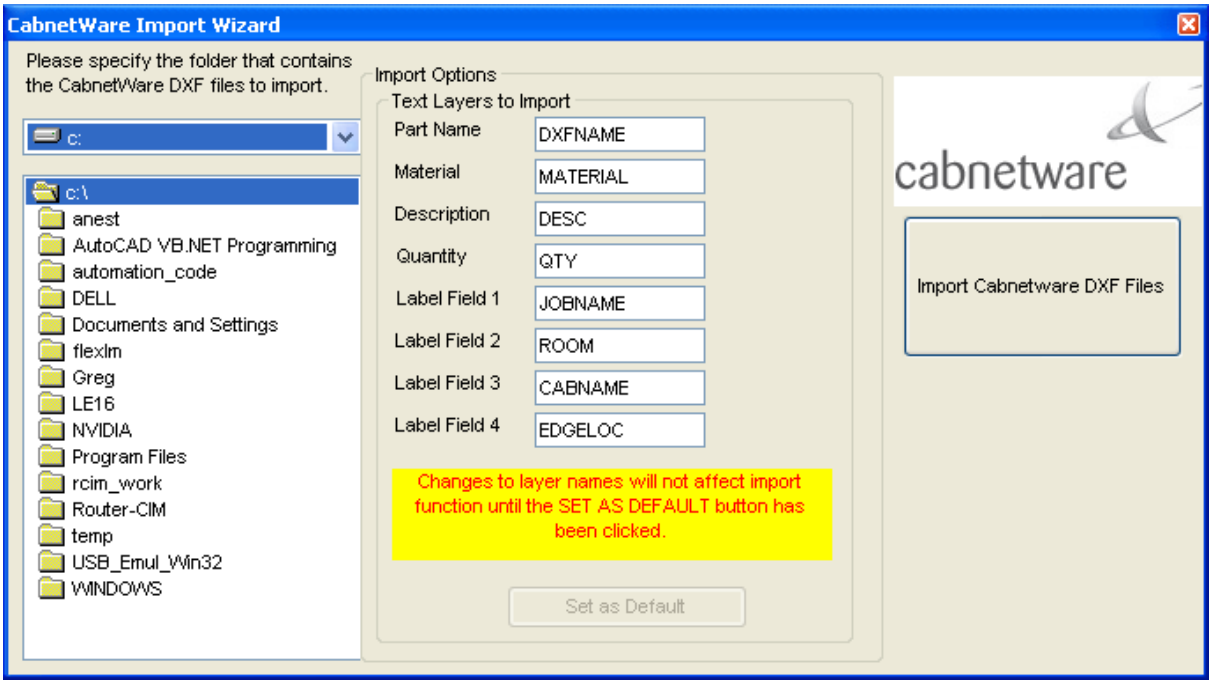
modules that allow it to export layered DXF files that can be imported into Router-CIM with the help of the Cabnetware import wizard.

Select the Cabnetware wizard from the list and you are presented with the following window.



Select the folder where the DXF files are located on the left side. In the middle column you may edit the layers that the Cabnetware software presents it data on. Normally this is only done once and then left alone, however the option exists to change it should this be necessary.

Once the folder containing the DXF files is selected, press the Import Cabnetware DXF Files button and a job will be added to the current folder.

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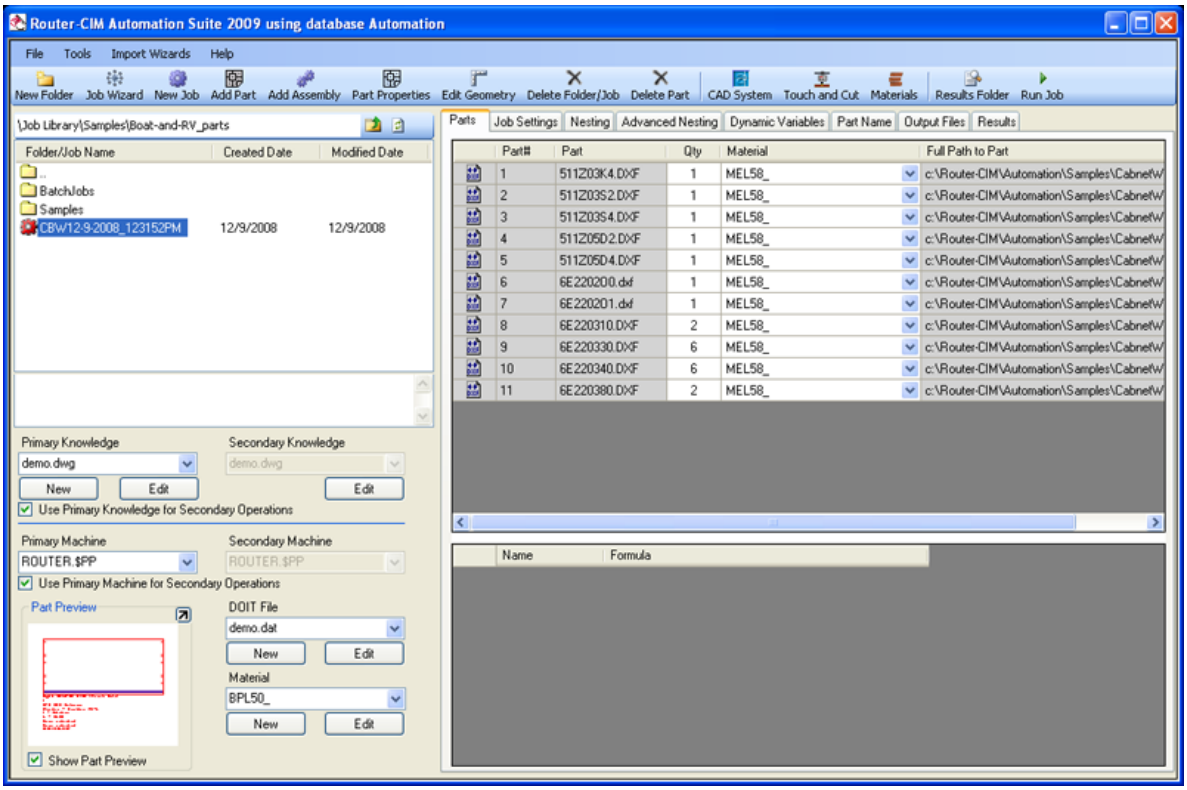

The Text Layers in Cabnetware DXF files contain information such as Material, Quantity, Job Name, DXF Name, etc... These are needed to process the parts through Router-CIM. The text is typically located in the lower left corner of the DXF.

Right DRAWER SIDE (Front Side)
1
5/8 G2S Melamine
Woodco - Boulder FS-A
1 - Kitchen
6 - BASE
None selected
None selected
511Z03K4.DXF

Settings in Cabnetware

The following are the default layer names that should be used in Cabnetware.

- The outside of the part should always be placed on a layer that begins with **BORDER**
- All vertical drill holes, regardless of size, should be placed on layer **VBORE**
- Dadoes and rabbet's with a width of .25 inch should be placed on layer **ROUTE 250**
- Dadoes and rabbet's with a width of .375 inch should be rectangles on layer **ROUTE 375**
- Dadoes and rabbet's with a width of .500 inch should be rectangles on layer **ROUTE 500**
- Dadoes and rabbet's with a width of .625 inch should be rectangles on layer **ROUTE 625**
- Dadoes and rabbet's with a width of .750 inch should be rectangles on layer **ROUTE 750**

The following layers are for the text in each dxf file (Text height should be .125 and Text spacing should be .130).

- Part description should be placed on a layer called **DESC**
- Part quantity should be placed on a layer called **QTY**
- Part material should be placed on a layer called **MATERIAL**
- Job name should be placed on a layer called **JOBNAME**
- Room name should be placed on a layer called **ROOM**
- Cabinet name should be placed on a layer called **CABNAME**
- Edge band location should be placed on a layer called **EDGELOC**
- Edge band material should be placed on a layer called **EDGEMAT**
- DXF file name should be placed on a layer called **DXNAME**

Layer	Knowledge	Tool	Spindle#
Border	Border	.5" Compression	1
Vbore	Vbore	Multi Spindle Gang Drill	Varies
Route250 Route375	Dado250	.25 Router Bit	2
Route500 Route625 Route750	Dado500	.5" Down Shear	3

Table 1. Layer to Knowledge Association for Cabnetware Router-CIM

Cabnetware Notes:
In the Cabnetware "CNCAPP.INI" file the following should be set:
Reverse Panel Reference = Y
Reverse Verticals Reference = Y
Output DXF Rects = Y

To access the "CNCAPP.INI," in the Cabnetware CNC Link, go to "Help" pull down menu and select "About Cabnetware CNC" and then click on the purple disk icon to edit the INI file.

All geometry that is to be cut in like fashion (same tool, spindle, feed rate etc.) should be placed on the same layer.
Typically, dadoes and rabbet's should be output as rectangles that overlap the edge of the material by one tool radius (if the cut is to extend to the edge of the part.

All geometry should be output with negative thickness indicating cut depth.

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Backside Parts with Cabnetware

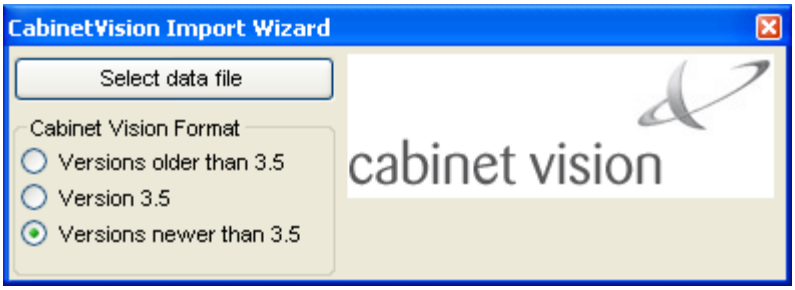
There is a provision in Cabnetware to identify the parts which have backside or secondary operations. Likewise in Router-CIM there is a similar provision.
The parts which have dxf names that end in 1, 3, 5 are all treated as backside parts. When Router-CIM reads them in, it determines that last character and sets the job up to cut that as a separate part from the nested parts. It is likely in these types of jobs to have the same part name, except for the last character. The one that ends in zero (0) for instance will be nested and the one that has a 1, 3 or 5 will be cut as a single operation.

2.1.1.3.2 CabinetVision

CabinetVision

Cabinet Vision is a Planit Solutions cabinet design and manufacturing program. This program has modules that allow it to export layered DXF files that can be imported into Router-CIM with the help of the Cabinet Vision import wizard.

After making a job in Cabinet Vision, select the Cabinet Vision Import Wizard. You can select the format that matches the version of your Cabinet Vision software.



A window will appear allowing you to select the data file that was produced along with the layered DXF files.

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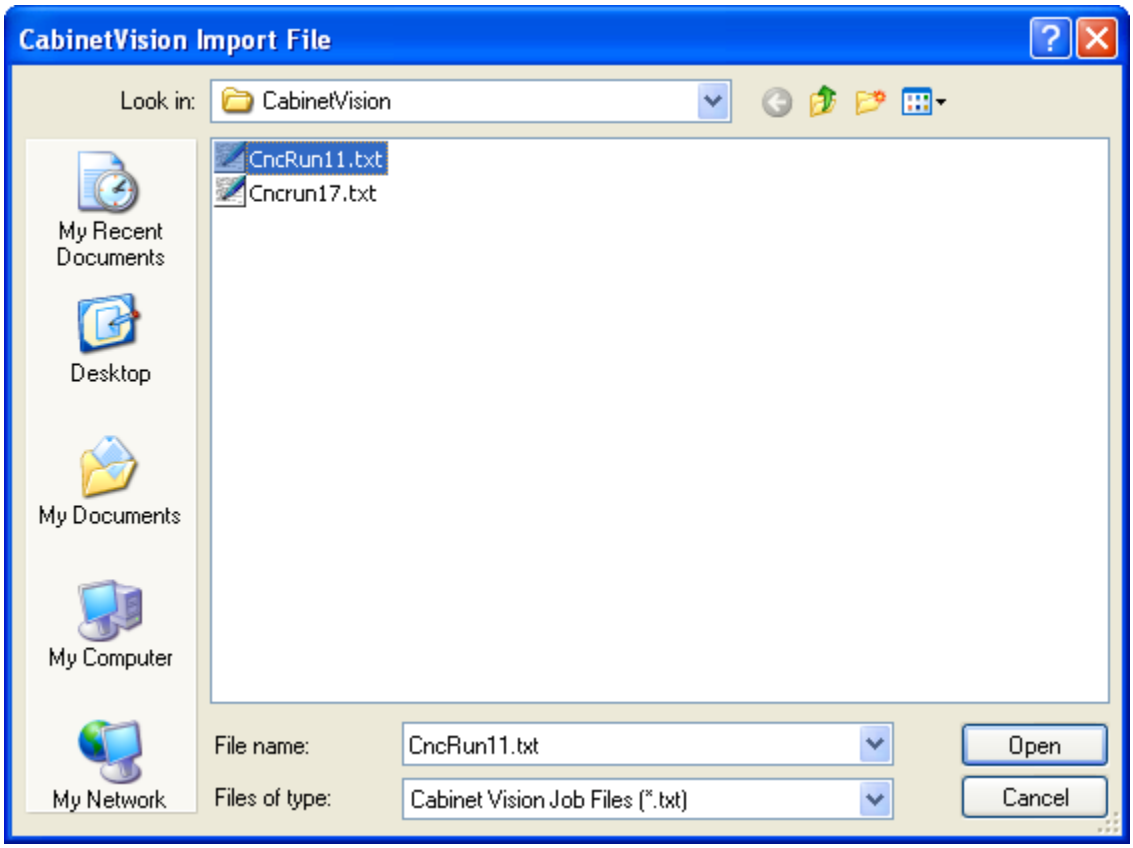

Select the Cncrun file for the job you wish to run and click Open. The files will be imported into Router-CIM in the current Jobs folder. The Cncrun file contains all the data for the job relating to the parts, materials, quantities and label information.

Settings for Cabinet Vision

The following are the default layer names that should be used in Cabinet Vision.

- The outside of a part should always be placed on a layer that begins with PANEL
- All vertical drill holes, regardless of size, should be placed on layer DRILL
- The Board layer should be placed on a layer that begins with BOARD
- Dadoes and rabbets with a width of .25 inch should be rectangles on layer ROUTE 250
- Dadoes and rabbets with a width of .375 inch should be rectangles on layer ROUTE 375
- Dadoes and rabbets with a width of .500 inch should be rectangles on layer ROUTE 500
- Dadoes and rabbets with a width of .625 inch should be rectangles on layer ROUTE 625
- Dadoes and rabbets with a width of .750 inch should be rectangles on layer ROUTE 750

Layer	Knowledge	Tool	Spindle#
Panel	Panel	.5" Compression	1
Drill	Drill	Multi Spindle Gang Drill	Varies
Route250 Route375	Dado 250	.25 Router Bit	2
Route500 Route625			

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Route750	Dado 500	.5" Down Shear	3

Table 1. Layer to Knowledge Associations for Cabinet Vision Router-CIM

Cabinet Vision Notes:
All geometry that is to be cut in a like fashion (same tool, spindle, feedrate, etc.) should be placed on the same layer.

Typically, dadoes and rabbets should be output as rectangles that overlap the edge of the material by one tool radius (if the cut is to extend to the edge of the part).

All geometry should be output with negative thickness indicating cut depth.

Backside Parts with Cabinet Vision:
There is a provision in Cabinet Vision to identify the parts which have backside or secondary operations. Likewise in Router-CIM there is a similar provision to cut them apart from the nested parts.
The parts which have dxf names that include an "F" as the fourth character are all entered as two parts automatically by the system, one which has the "F" in the fourth position, and one that has a "B" in the fourth position. When Router-CIM reads them in, it determines that identifying character and sets the job up to cut the "B" part as a seperate part from the nested parts. It is expected that the Job Editor will have both parts in it when the import is complete, but the "B" part will not appear in the cncrun.txt file. If you then select the "B" part, you will notice in its properties that it has the flag set to be cut as a single operation.
If the "B" part exists in the Cncrun file, then you will see three parts with similar names, as the system automatically loads the "B" part when the "F" part is present. If it encounters a "B" part in the list, Router-CIM will treat that as another part in the job, which likely will be incorrect.

2.1.1.3.3 Comma Delimited

Comma Delimited

The comma delimited import wizard allows you to import parts from a file with a comma-delimited format. This means that there is a comma separating each column of data and each column contains the same type of data. This is very similar to the Excel Spreadsheet format, as the files are very similar.

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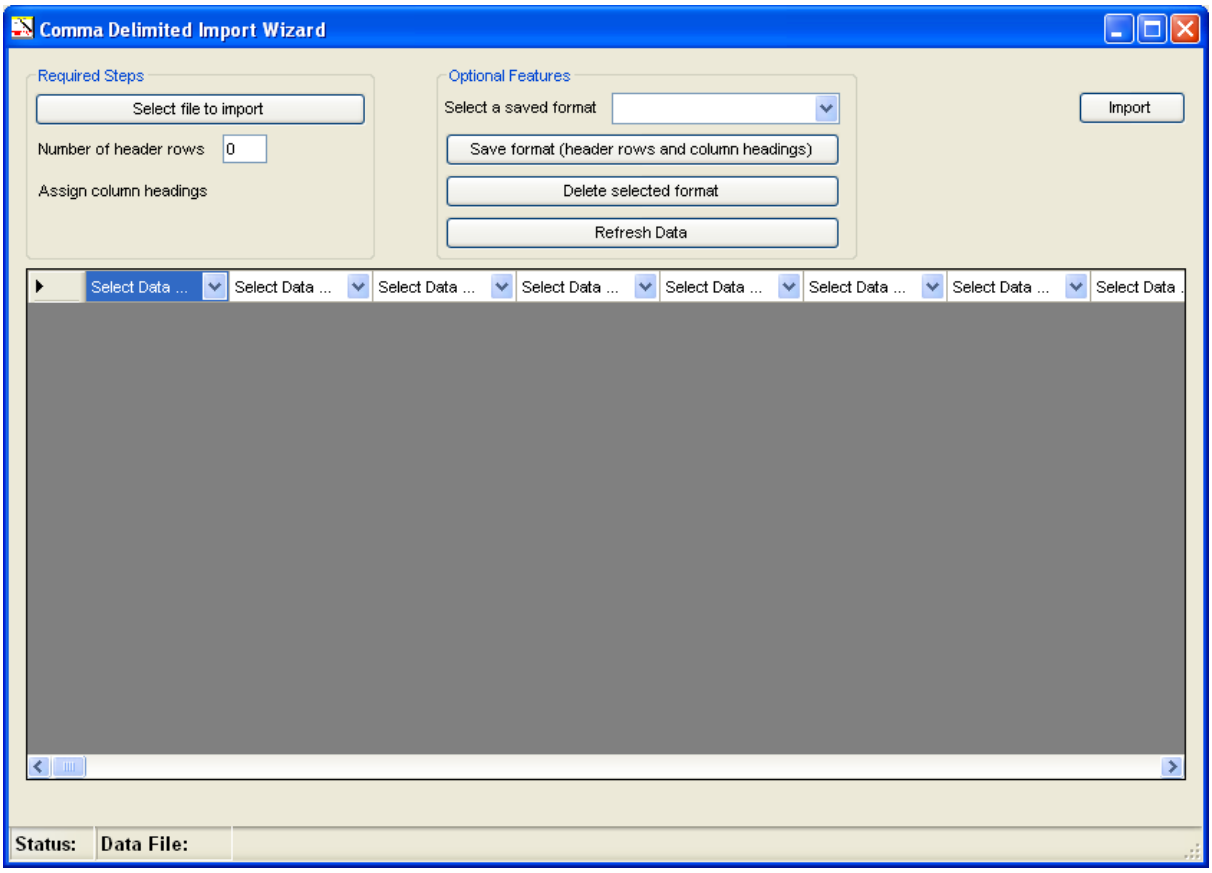

Select File to Import

Pressing this button shows a dialog where you can select a .CSV file to import into Router-CIM.

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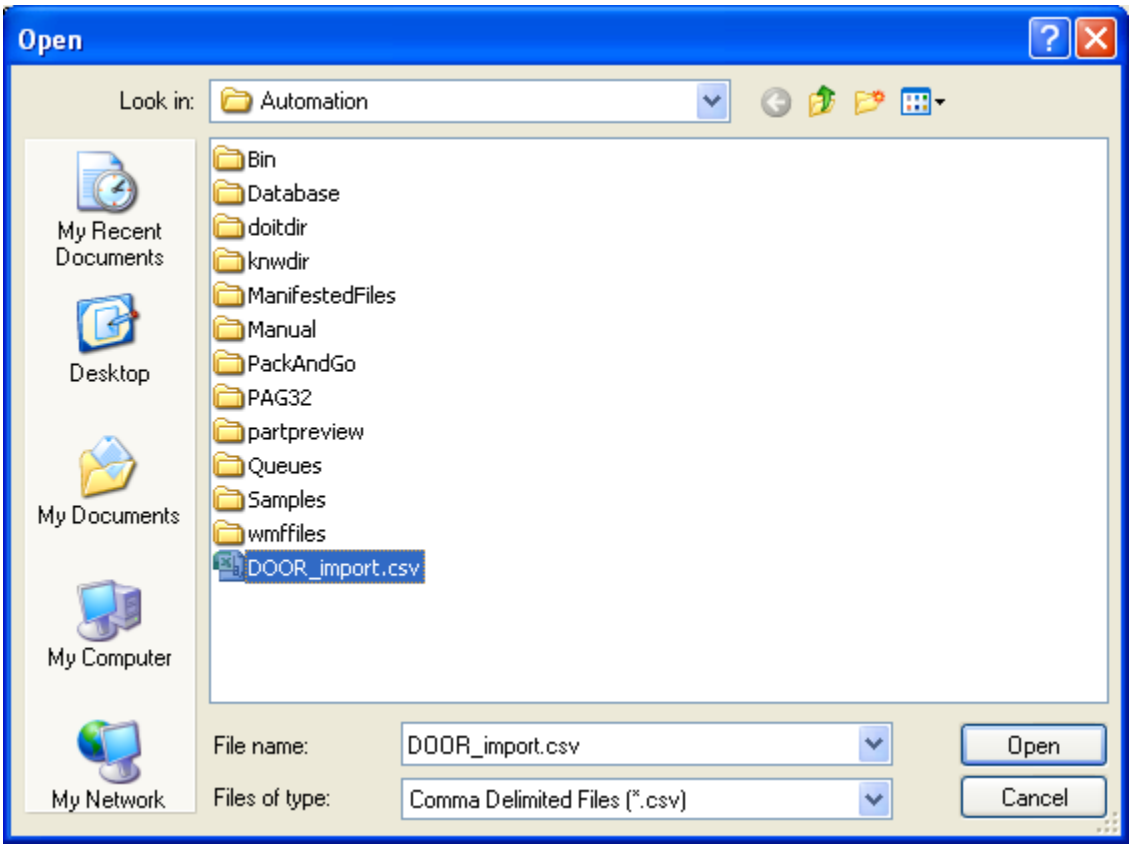

Number of Header Rows

If your comma delimited file has header rows in it for any reason, you can bypass those and get straight to the data by specifying how many header rows to skip.

Assign Column Headings

Assigning Column Headings will allow you to select the data for each column in the imported file. The choices available in the pulldown list are:

Ignore
Part Name
Part Material
Quantity
X Dim
Y Dim
Z Dim
Ignore Panel
Backside
Description
Label Info 1 - 8
Rotate Part
Rotate Angle
Knowledge Drawing
DOIT file
Print Nests
Print Single Part
Job Name
Filler Quantity
Start Point on Longest Side

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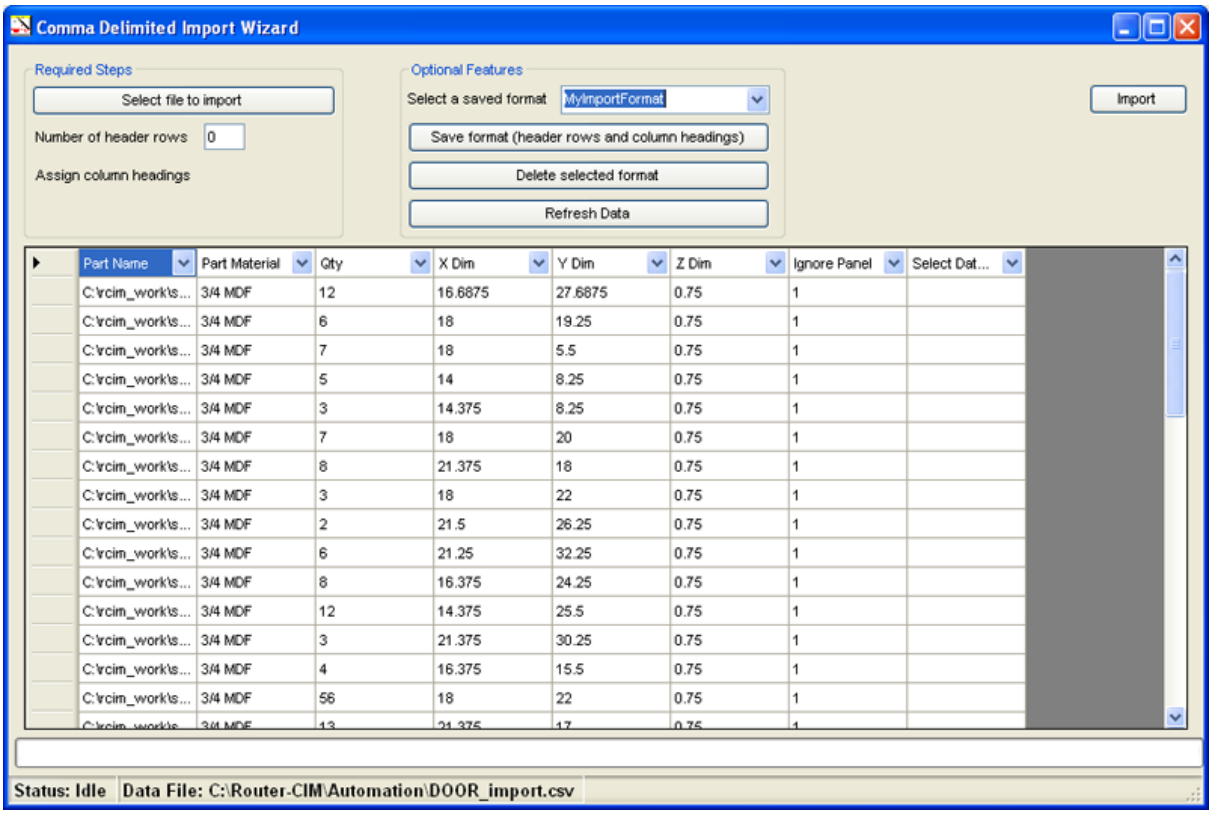
Nest Rotation
Mirror
Mirror Type
Variable

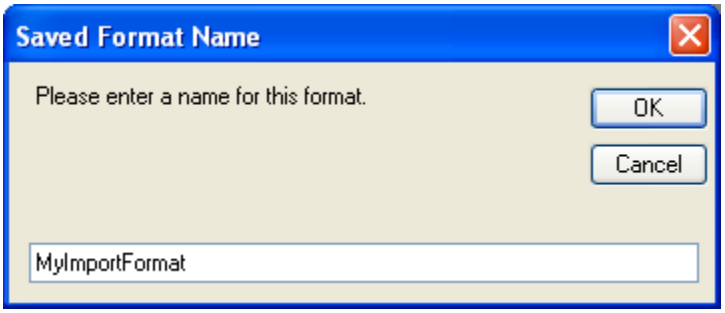
Changing Header Rows

To change any of the header rows, select the arrow next to the heading name and pick on the new heading desired.



Save Format

You are able to save the data that is set up for a job by selecting Save Format. You will be prompted for a name of the Saved Format:



Selecting OK will add this name to the Saved Format list so that you can select this format at a later time instead of re-selecting each column.

Delete Selected Format

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You may delete the saved selected format from the saved format list.

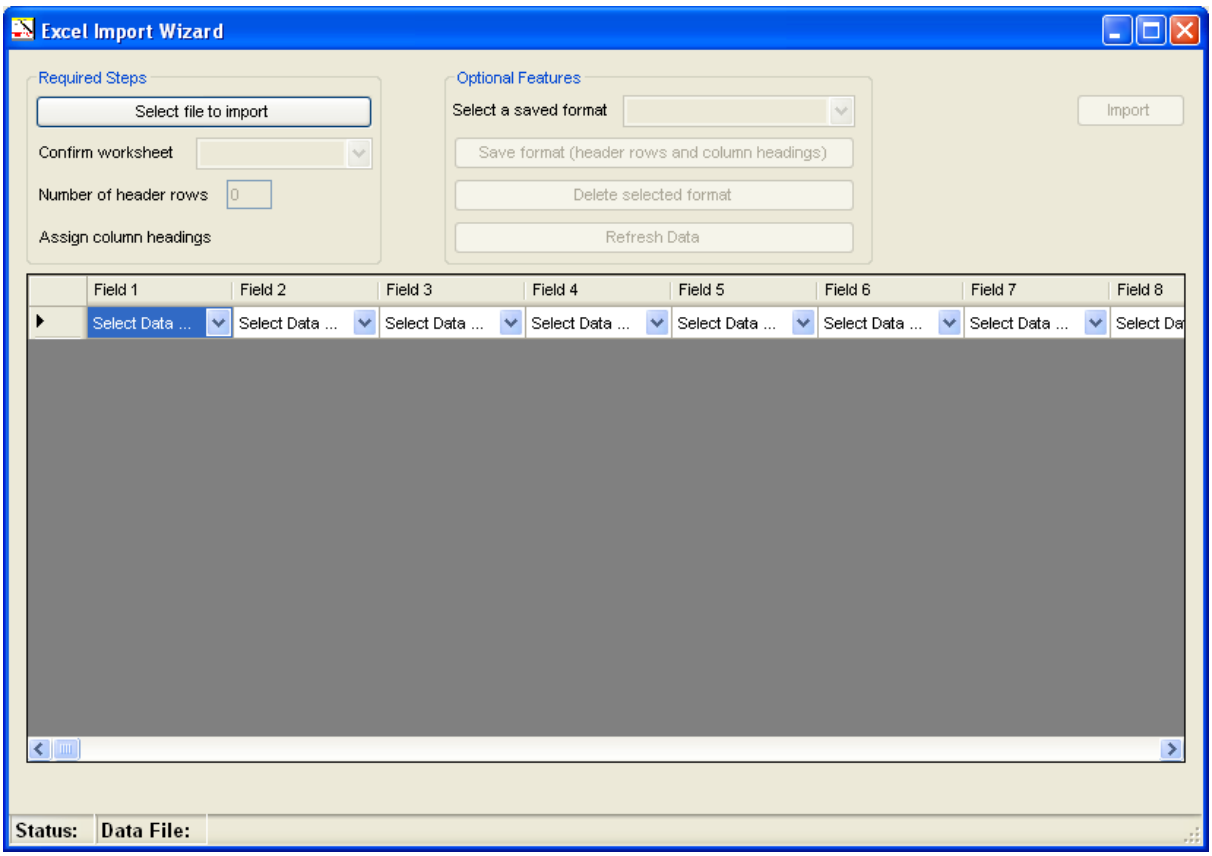
Refresh Data
This option refreshes the screen, displaying all column headings selected or imported.

Import
Finally when you are done selecting your file and headings, you can import the file into Router-CIM and it will build a job from the selected data

2.1.1.3.4 Excel Spreadsheet

Excel Spreadsheet

The Excel import wizard allows you to import parts from a file with a comma-delimited format. This means that there is a comma separating each column of data and each column contains the same type of data. This is very similar to the Excel Spreadsheet format, as the files are very similar.



Select File to Import
Pressing this button shows a dialog where you can select a .CSV file to import into Router-CIM.

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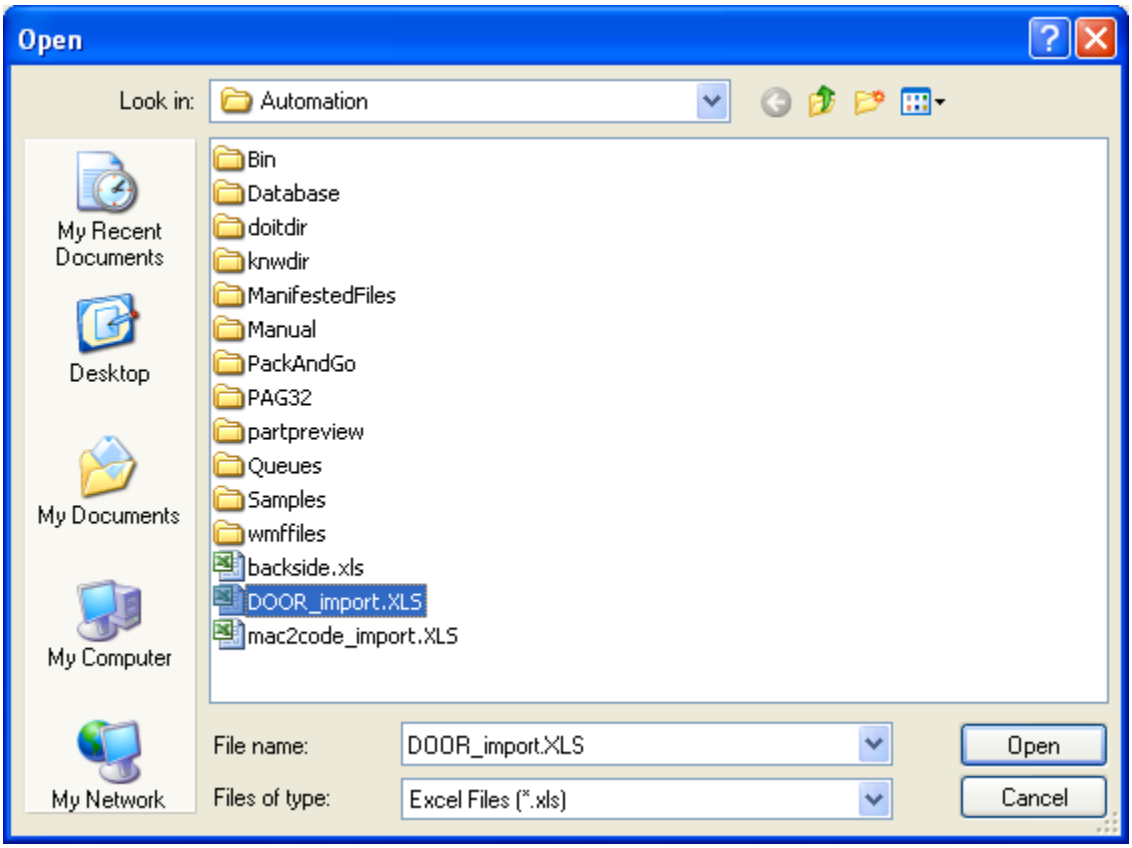

Number of Header Rows

If your comma delimited file has header rows in it for any reason, you can bypass those and get straight to the data by specifying how many header rows to skip.

Assign Column Headings

Assigning Column Headings will allow you to select the data for each column in the imported file. The choices available in the pulldown list are:

Ignore
Part Name
Part Material
Quantity
X Dim
Y Dim
Z Dim
Ignore Panel
Backside
Description
Label Info 1 - 8
Rotate Part
Rotate Angle
Knowledge Drawing
DOIT file
Print Nests
Print Single Part
Job Name
Filler Quantity
Start Point on Longest Side

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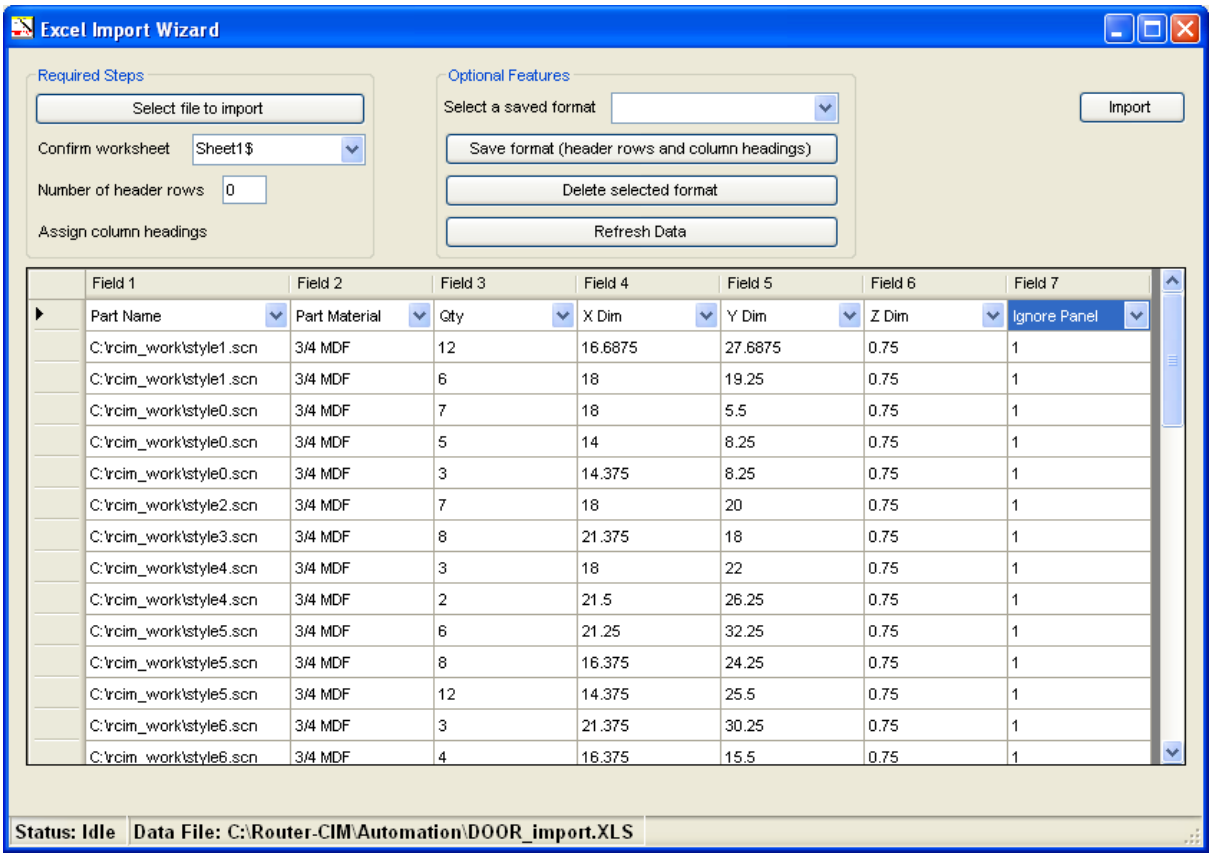
Nest Rotation
Mirror
Mirror Type
Variable

Changing Header Rows

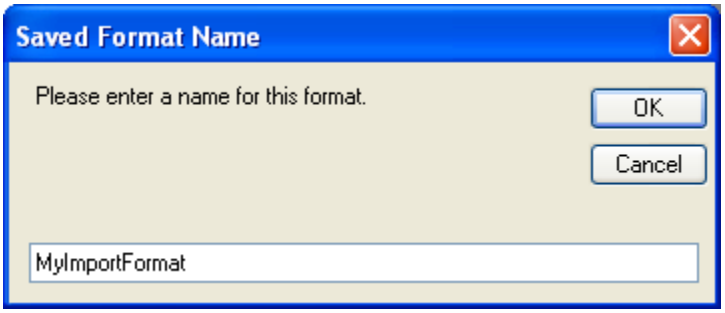
To change any of the header rows, select the arrow next to the heading name and pick on the new heading desired.



Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7
Part Name	Part Material	Qty	X Dim	Y Dim	Z Dim	Ignore Panel
C:\rcim_work\style1.scn	3/4 MDF	12	16.6875	27.6875	0.75	1
C:\rcim_work\style1.scn	3/4 MDF	6	18	19.25	0.75	1
C:\rcim_work\style0.scn	3/4 MDF	7	18	5.5	0.75	1
C:\rcim_work\style0.scn	3/4 MDF	5	14	8.25	0.75	1
C:\rcim_work\style0.scn	3/4 MDF	3	14.375	8.25	0.75	1
C:\rcim_work\style2.scn	3/4 MDF	7	18	20	0.75	1
C:\rcim_work\style3.scn	3/4 MDF	8	21.375	18	0.75	1
C:\rcim_work\style4.scn	3/4 MDF	3	18	22	0.75	1
C:\rcim_work\style4.scn	3/4 MDF	2	21.5	26.25	0.75	1
C:\rcim_work\style5.scn	3/4 MDF	6	21.25	32.25	0.75	1
C:\rcim_work\style5.scn	3/4 MDF	8	16.375	24.25	0.75	1
C:\rcim_work\style5.scn	3/4 MDF	12	14.375	25.5	0.75	1
C:\rcim_work\style6.scn	3/4 MDF	3	21.375	30.25	0.75	1
C:\rcim_work\style6.scn	3/4 MDF	4	16.375	15.5	0.75	1

Save Format

You are able to save the data that is set up for a job by selecting Save Format. You will be prompted for a name of the Saved Format:



Selecting OK will add this name to the Saved Format list so that you can select this format at a later time instead of re-selecting each column.

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Delete Selected Format
You may delete the saved selected format from the saved format list.

Refresh Data
This option refreshes the screen, displaying all column headings selected or imported.

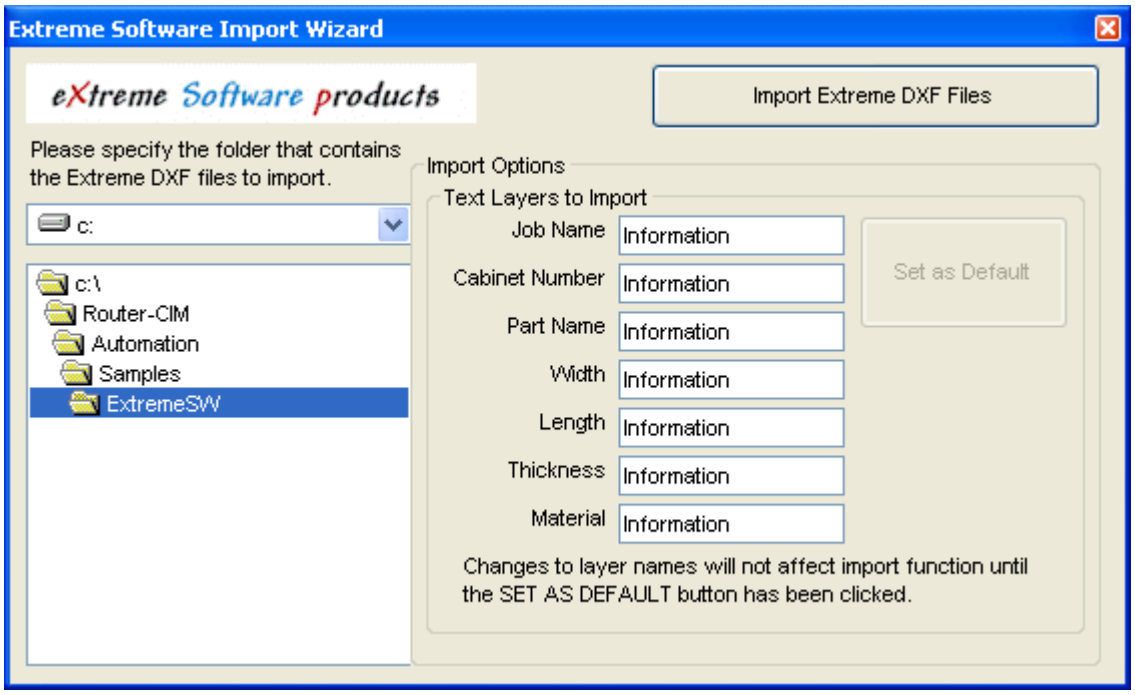
Import
Finally when you are done selecting your file and headings, you can import the file into Router-CIM and it will build a job from the selected data

2.1.1.3.5 Extreme Software

Extreme Software

Extreme Software Products makes a cabinet design software with an easy to use graphical interface. Router-CIM can import the files that this software package creates and process them in a job. The Extreme Software Import Wizard is a very simple interface to get the parts from one software to another.

Extreme Software will export DXF files to a folder of your choosing. In Router-CIM, select the Extreme Software Import Wizard and a window will appear allowing you to select the folder where the dxf files are stored. Select the folder and click on Import Extreme DXF Files.



There is a section in the Import Wizard that shows where some of the job information from the DXF files is stored. By default, all the information is stored on layer "Information". If that changes in your DXF files, input the layer name where the data is kept, and Router-CIM will read that data when it imports each DXF File.

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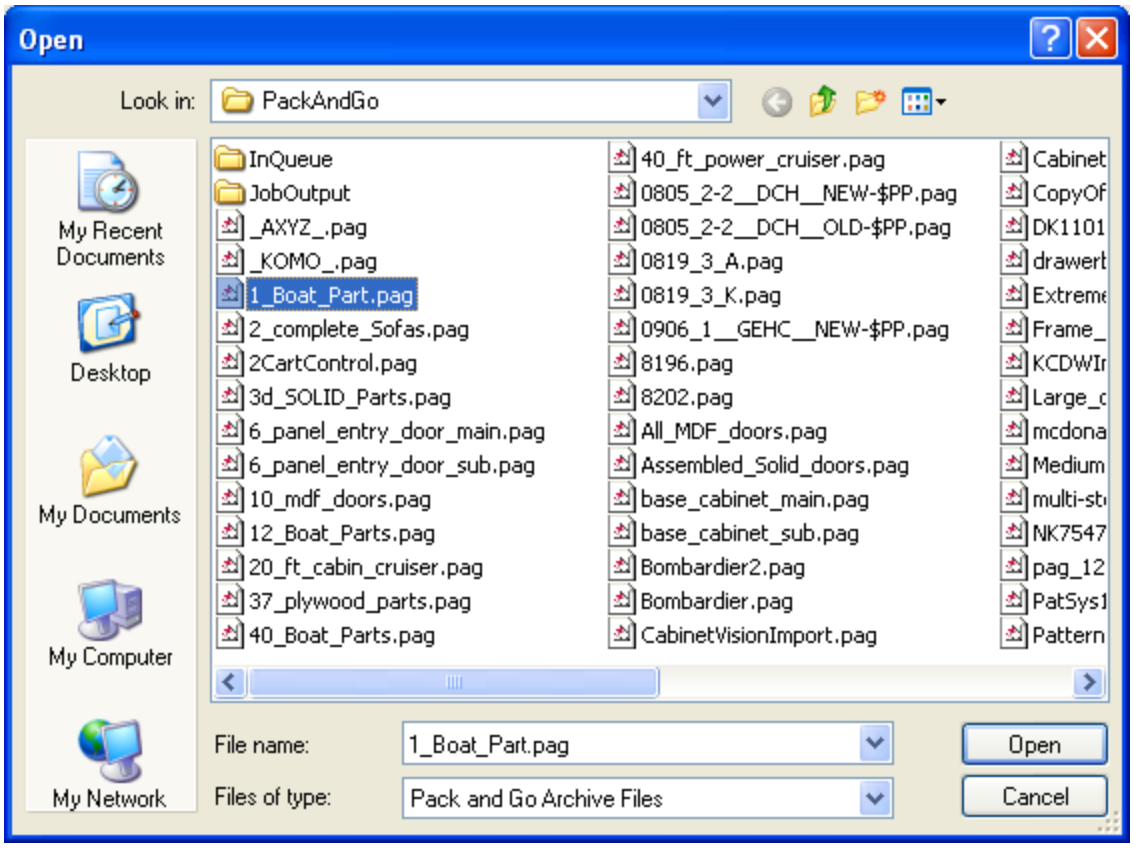
2.1.1.3.6 Pack and Go

Pack and Go

Pack and Go is the Router-CIM format for packaging all the elements of a job into one file. To import that file into Router-CIM as a job, select pack and go from the import list, and a window will appear where you can select the PAG file from.



Once that file has been selected, you will be show a list of all the elements of a job that can be imported. Most of the time, you can select all the elements, but a check box is provided for you to remove elements from the selection.

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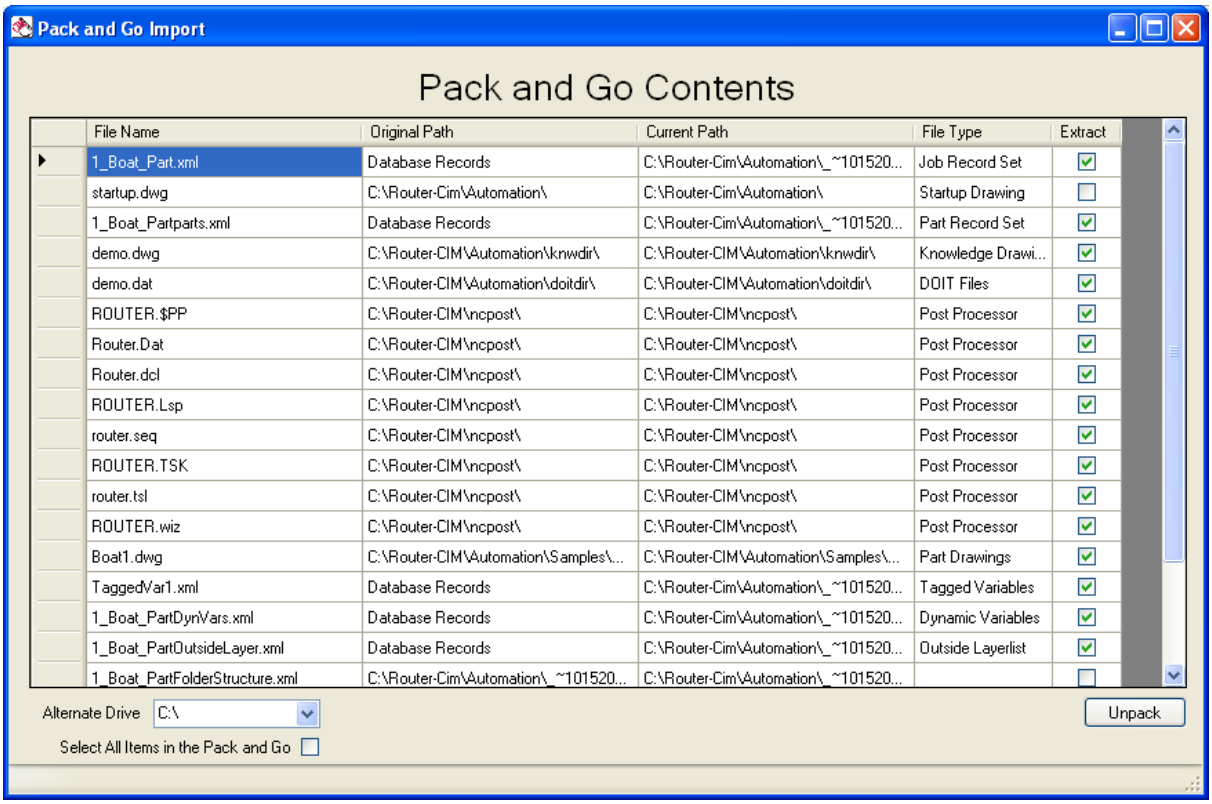

File Name	Original Path	Current Path	File Type	Extract
1_Boat_Part.xml	Database Records	C:\Router-Cim\Automation_~101520...	Job Record Set	☑
startup.dwg	C:\Router-Cim\Automation\	C:\Router-Cim\Automation\	Startup Drawing	☐
1_Boat_Partparts.xml	Database Records	C:\Router-Cim\Automation_~101520...	Part Record Set	☑
demo.dwg	C:\Router-CIM\Automation\knwdir\	C:\Router-CIM\Automation\knwdir\	Knowledge Drawi...	☑
demo.dat	C:\Router-CIM\Automation\doitdir\	C:\Router-CIM\Automation\doitdir\	DOIT Files	☑
ROUTER.$PP	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
Router.Dat	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
Router.dcl	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
ROUTER.Lsp	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
router.seq	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
ROUTER.TSK	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
router.tsl	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
ROUTER.wiz	C:\Router-CIM\ncpost\	C:\Router-CIM\ncpost\	Post Processor	☑
Boat1.dwg	C:\Router-CIM\Automation\Samples\...	C:\Router-CIM\Automation\Samples\...	Part Drawings	☑
TaggedVar1.xml	Database Records	C:\Router-Cim\Automation_~101520...	Tagged Variables	☑
1_Boat_PartDynVars.xml	Database Records	C:\Router-Cim\Automation_~101520...	Dynamic Variables	☑
1_Boat_PartOutsideLayer.xml	Database Records	C:\Router-Cim\Automation_~101520...	Outside Layerlist	☑
1_Boat_PartFolderStructure.xml	C:\Router-Cim\Automation_~101520...	C:\Router-Cim\Automation_~101520...		☐

Once you have all the elements selected that you wish to import, select the Unpack button and a job will be created in the current folder.

2.1.1.3.7 Pattern Systems

Pattern Systems

Pattern Systems software allows the creation of layered DXF files for import. Once the DXF Files have been made, Pattern Systems will also create a Job File that describes the material used, the part names, quantities, edge treatments, etc. That Job file can be selected and Router-CIM will import the files into a Router-CIM Automation job.

Select the Pattern Systems Wizard and a window will appear allowing you to select the data file from Pattern Systems. Click Select Data File.

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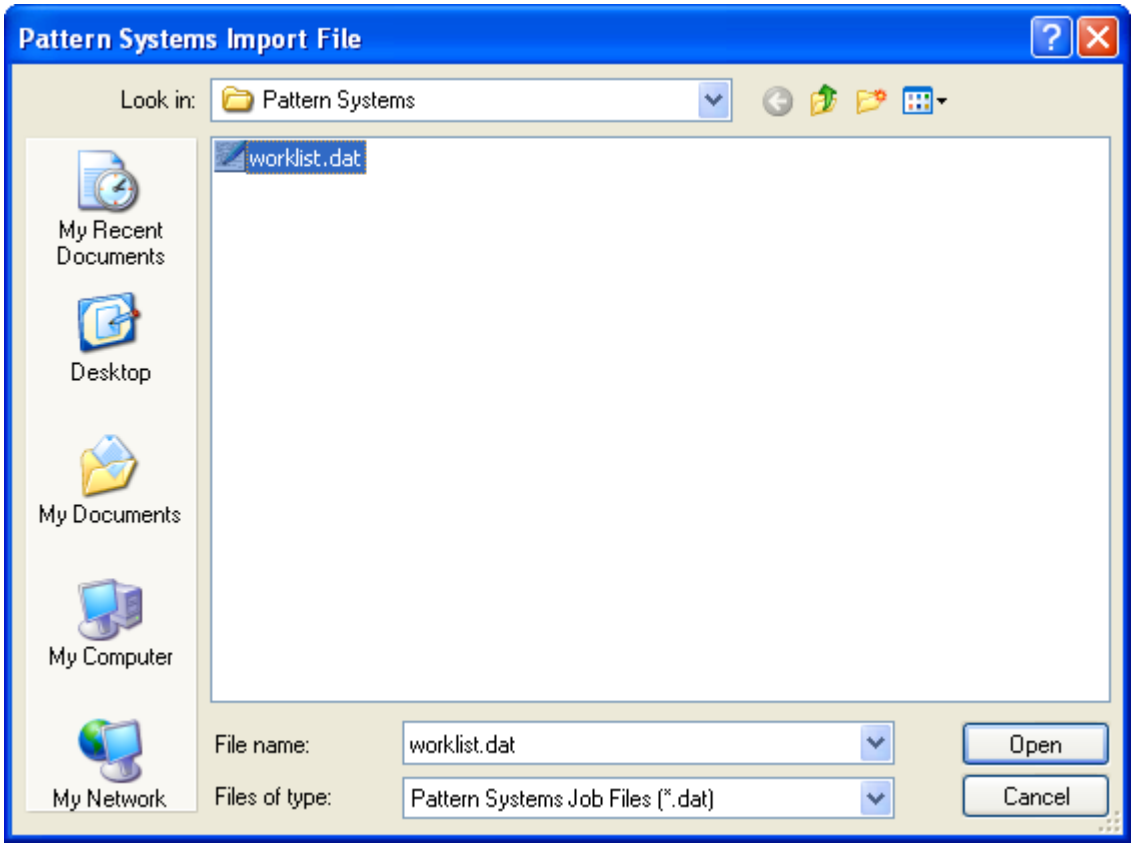
A new window will appear allowing you to navigate to the folder where the job and dxf files you made with Pattern Systems are stored.



Select the data file and click on Open. The files will be imported into Router-CIM as a job in the current folder.

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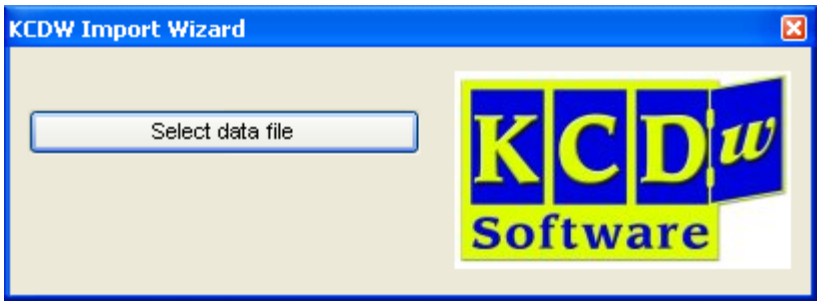
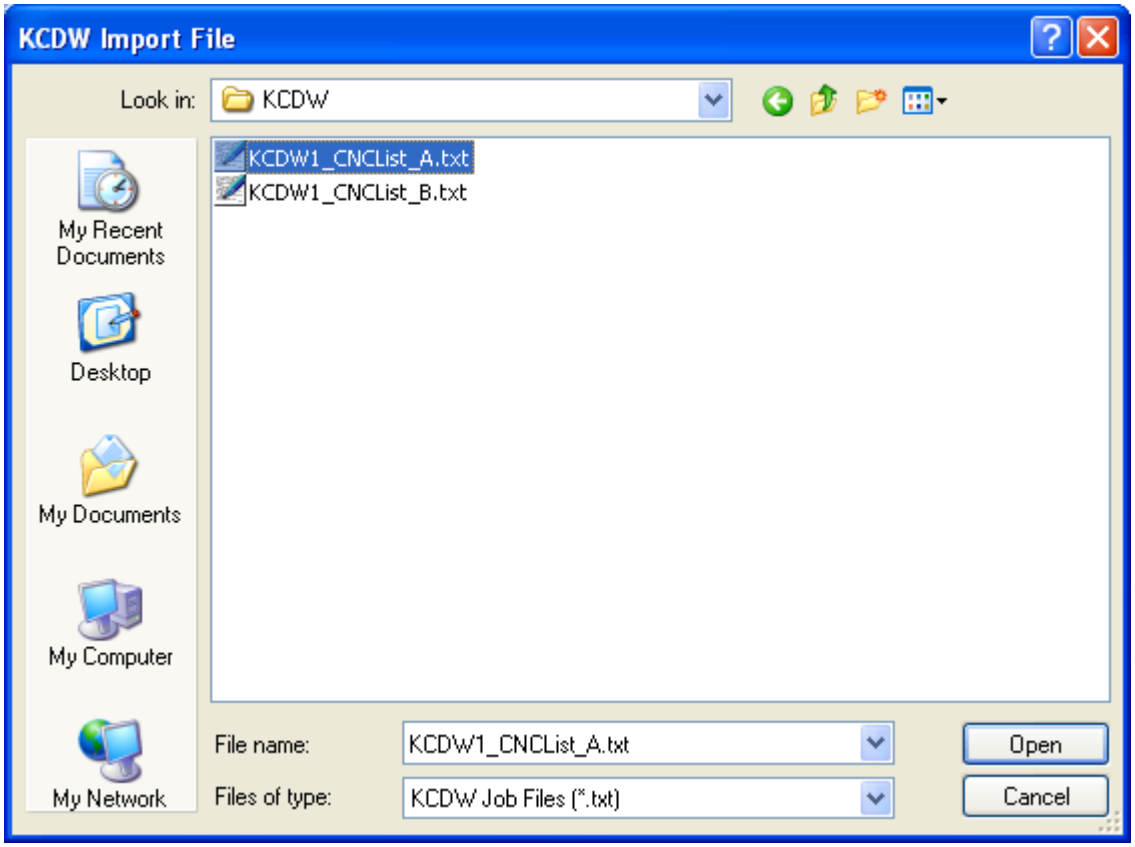
2.1.1.3.8 KCDw

KCDw

With the KCDw Machining version, layered DXF files are created and stored in a folder of your choosing. It will also create a job file that describes the material, part names, etc. Once the DXF files are created, select the KCDw Import Wizard in Router-CIM.



Click on Select Data File and a new window will appear allowing you to select the job file that KCDw created.



There is typically only one job file in each of the folders where the job DXF files are created. Select the job file and the parts will be inserted into Router-CIM as a job in the current folder.

A confirmation window will show up when the file is imported successfully.

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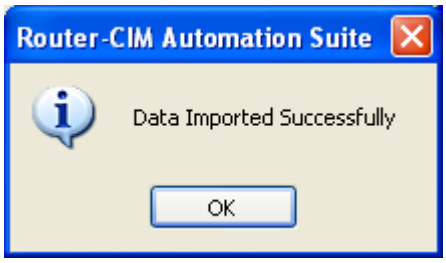
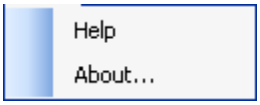


2.1.1.4 Help

Help Menu



Help

Selecting Help opens a copy of this file with only Automation Suite related information.

About

About shows an informational window displaying the current version of your Router-CIM software and also a link to the web based help desk system. Should you need help and not be able to reach tech support via the toll free number, you may fill out a support ticket in the browser window that opens and a message will be emailed to the support desk.

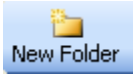
2.1.2 Toolbar

Toolbar

The toolbar in Router-CIM allows access to many functions within jobs, parts, and folders.

2.1.2.1 New Folder

New Folder



Using this option will create a new folder in the current position of the job tree.

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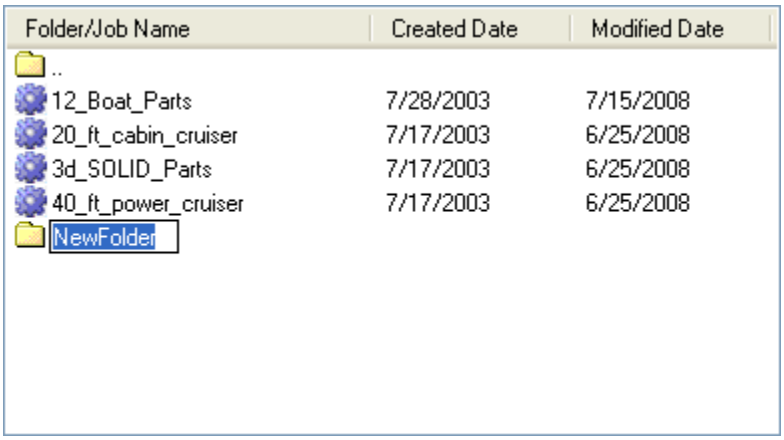
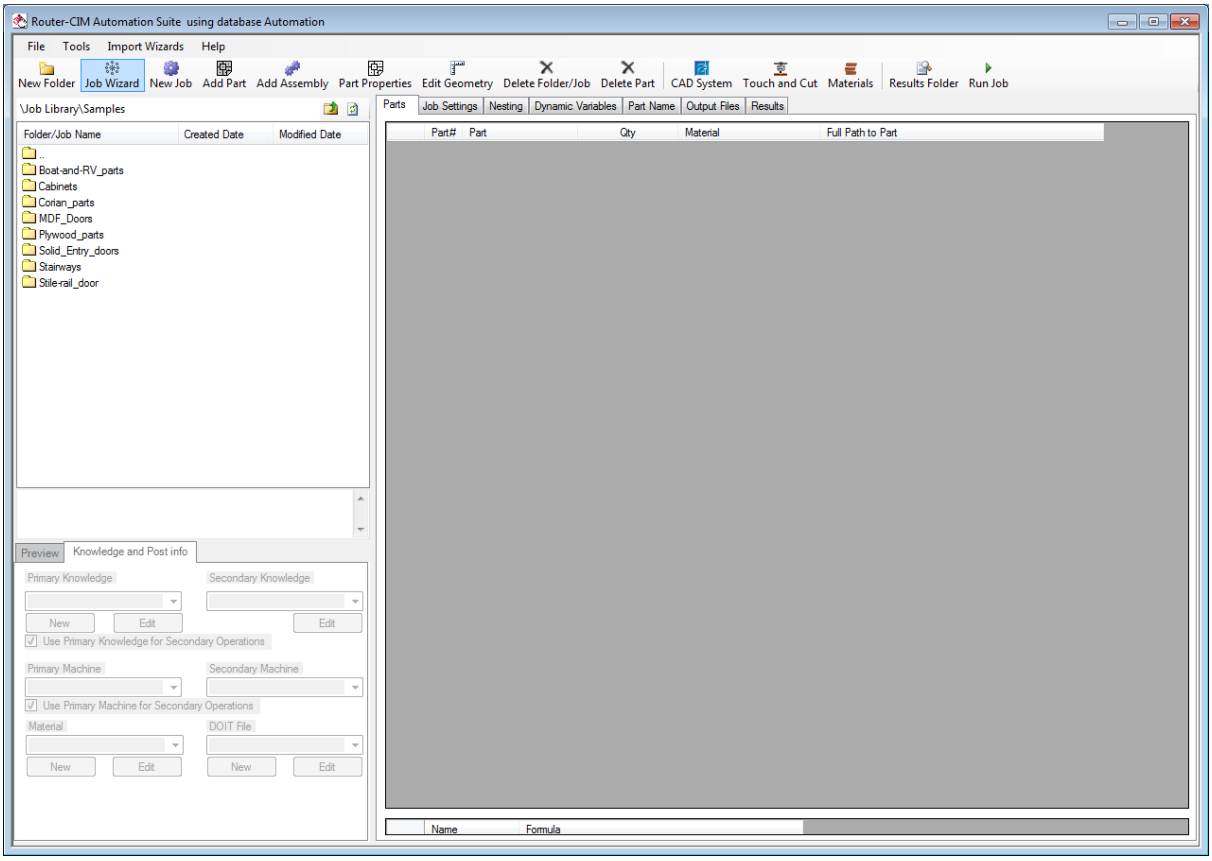


2.1.2.2 Job Wizard

Job Wizard

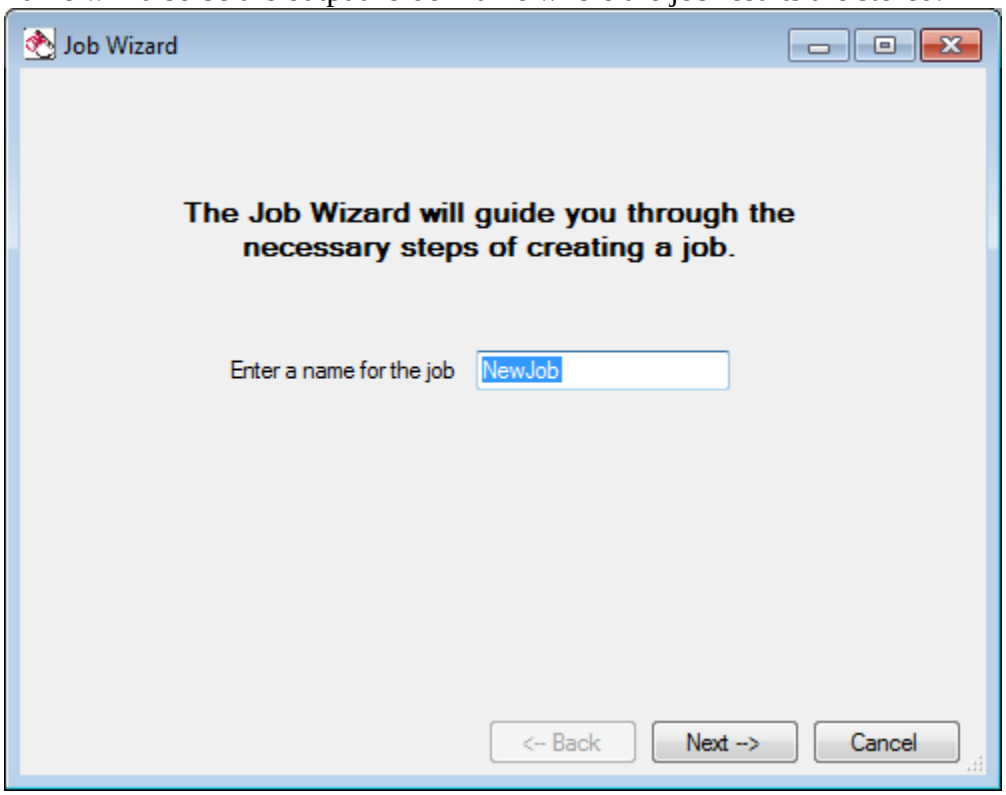
Using the Job Wizard, you can create a job in a step by step fashion.

Pick the Job Wizard



Enter a job name and pick Next.

The job name will also be the output folder name where the job results are stored.



Select your Machine/Post processor and pick Next.

The post processor makes the machine code for different types and configurations of CNC machines.

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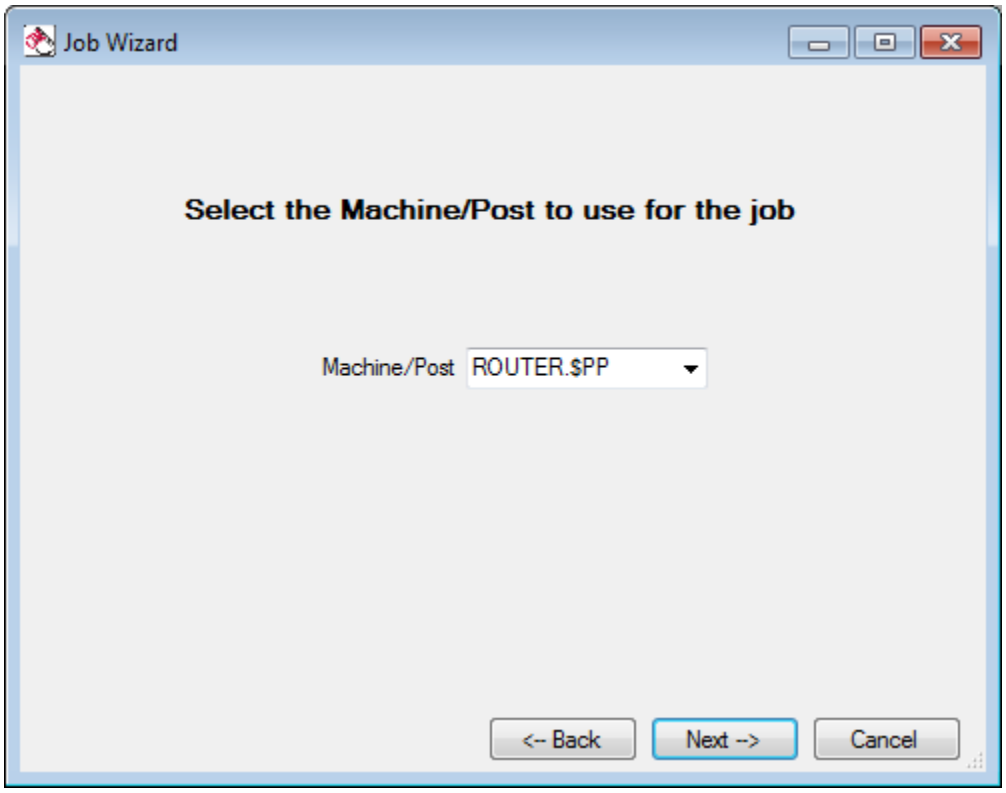

Create, Edit or Select a Knowledge drawing and pick Next.

The knowledge drawing is a collection of machining operations that are saved and named within this drawing. You can make a new knowledge drawing where you build knowledges and save /name them. You then save that drawing and use it as your knowledge drawing. From this screen, you can also edit existing knowledges that are stored in a selected knowledge drawing.

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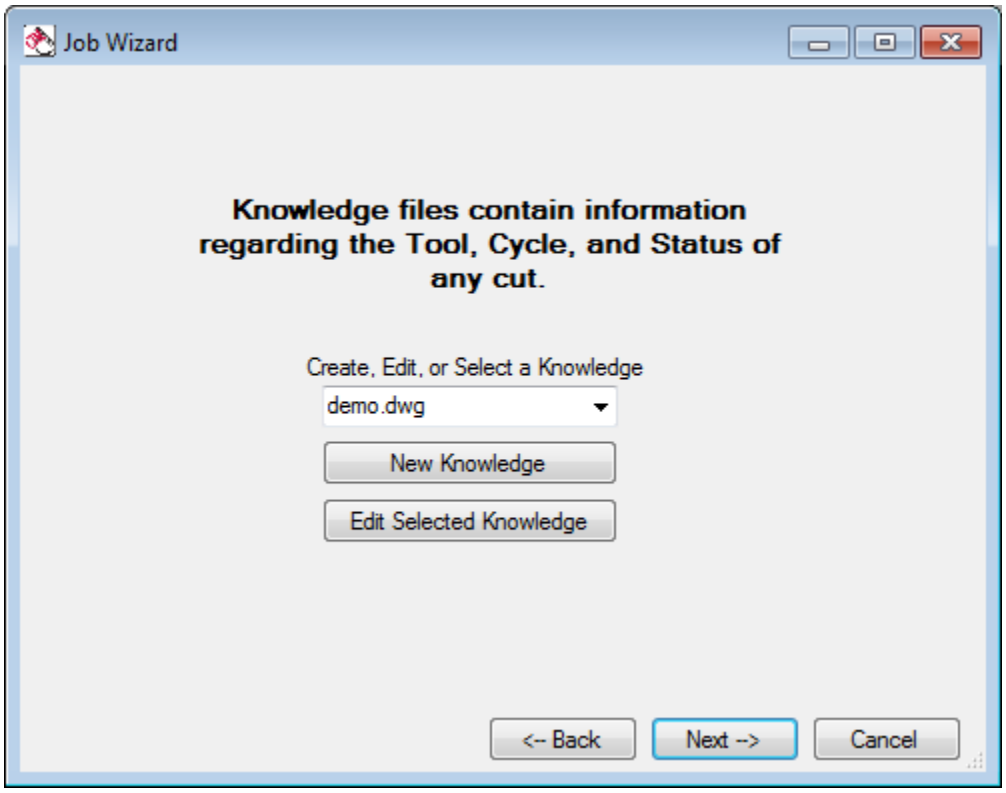

<u>Create, Edit, or Select a default material and pick Next.</u>
The material determines the sheet size when nesting parts. The material also determines the material thickness and if Z zero is the top of the material or top of spoil board.

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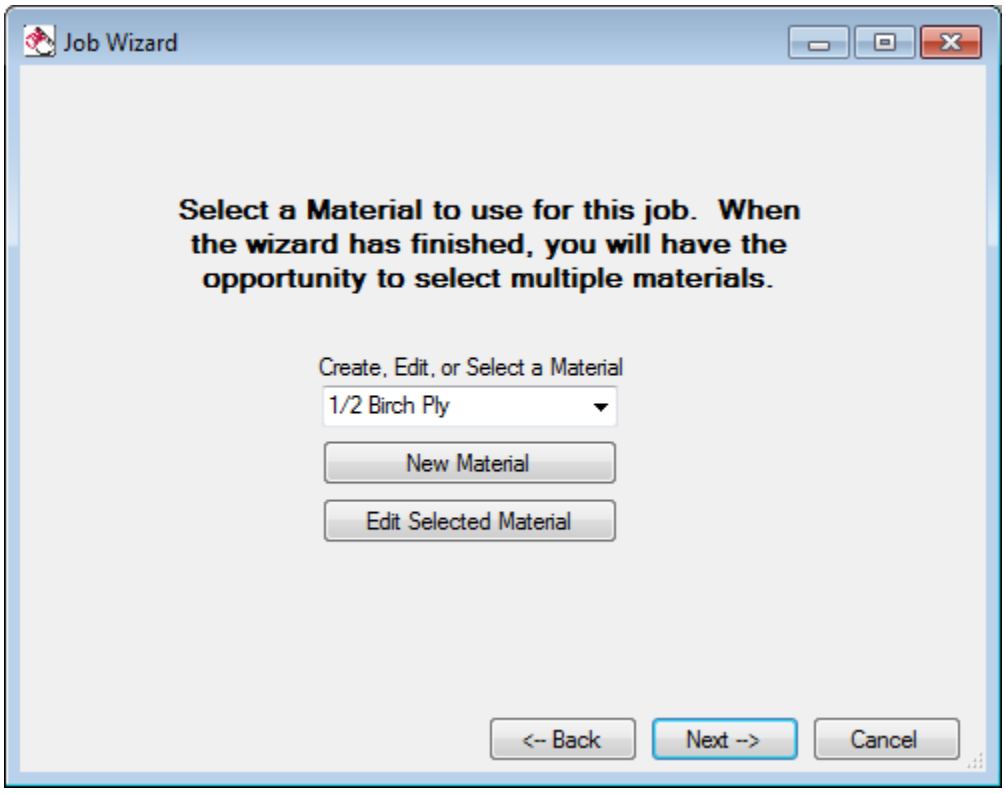

<u>Add parts to your job and pick Next</u>.
From this screen, you can add parts to your Router-CIM job. Add parts by picking the Add parts button and browsing for DWG, DXF, or SCN files to add. You can also drag files from Windows Explorer and drop them into this window.

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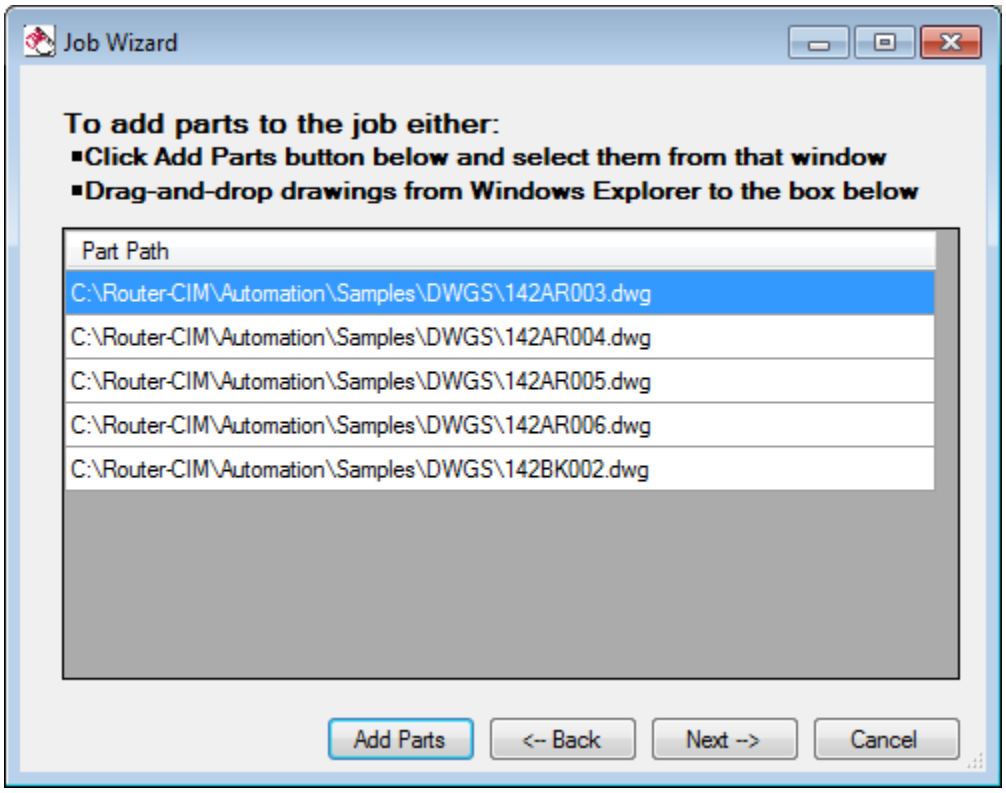

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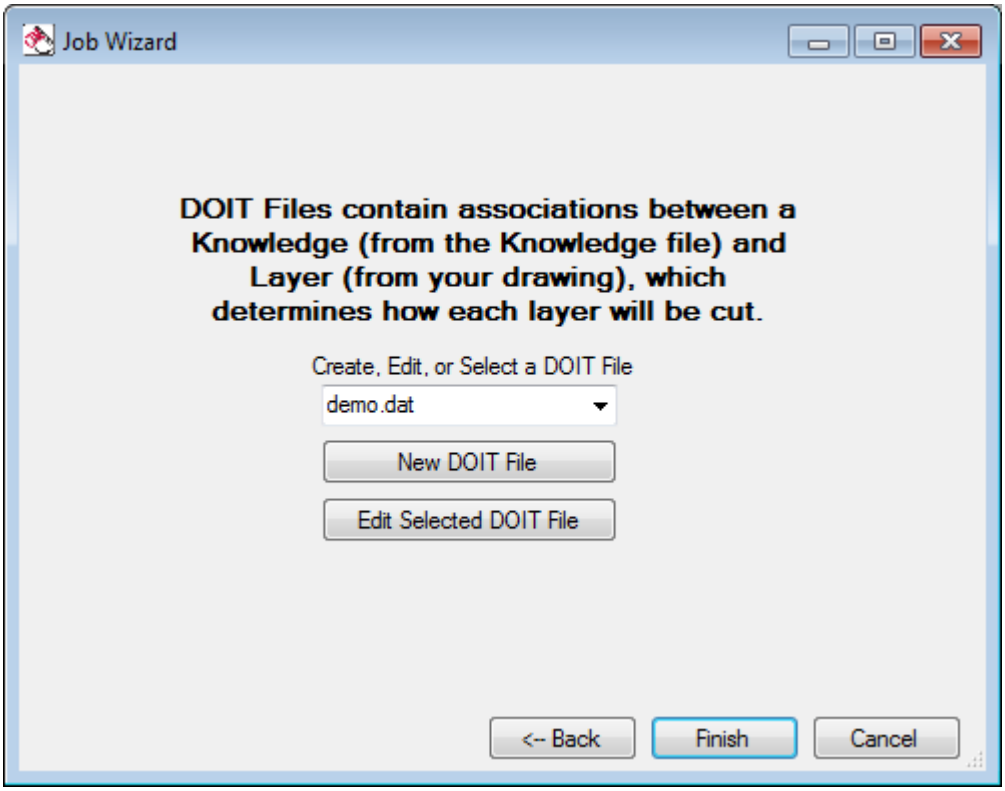
Create, Edit, or Select a DOIT file and pick Finish.
The doit file contains the association list that cuts a specific layer with a specific knowledge. You can make a new doit file and choose what knowledge cuts what layer or you can edit the selected doit file.



Pick the Run Job button to run your job.

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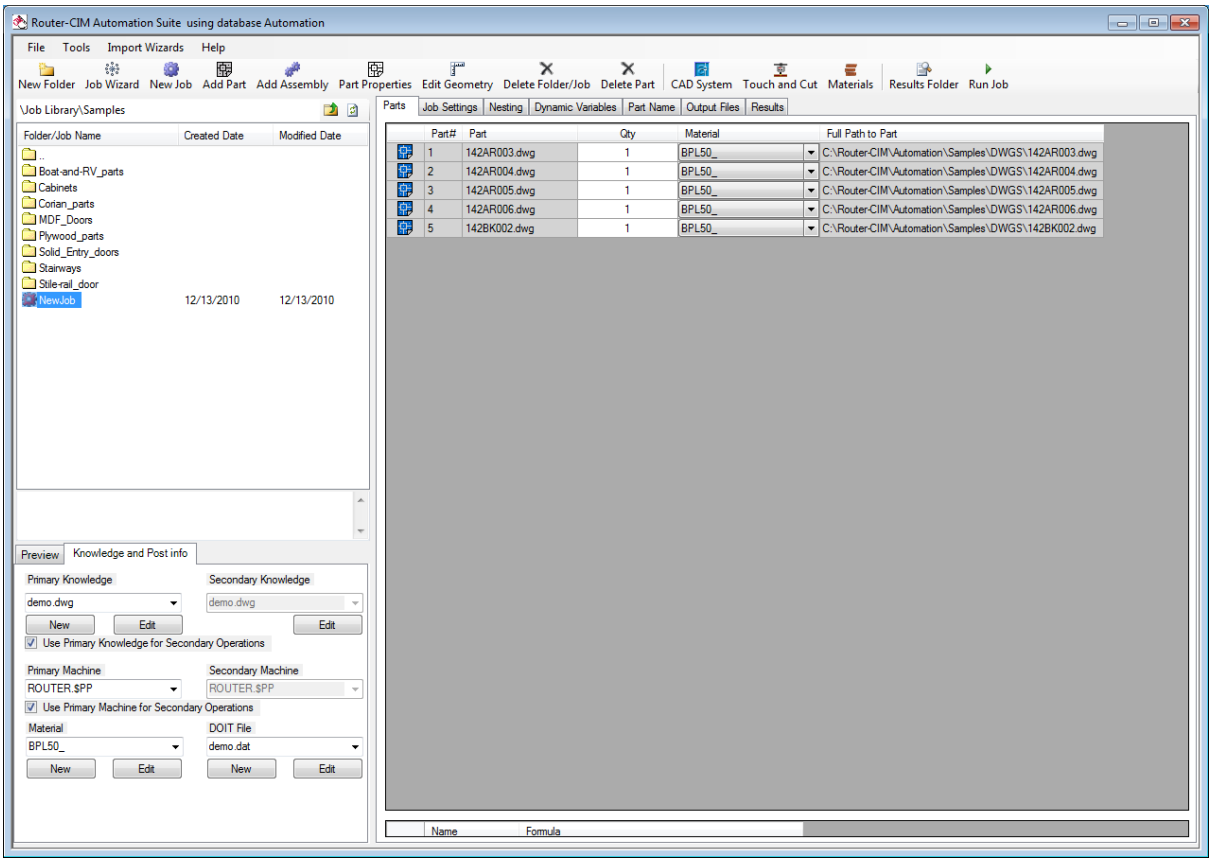

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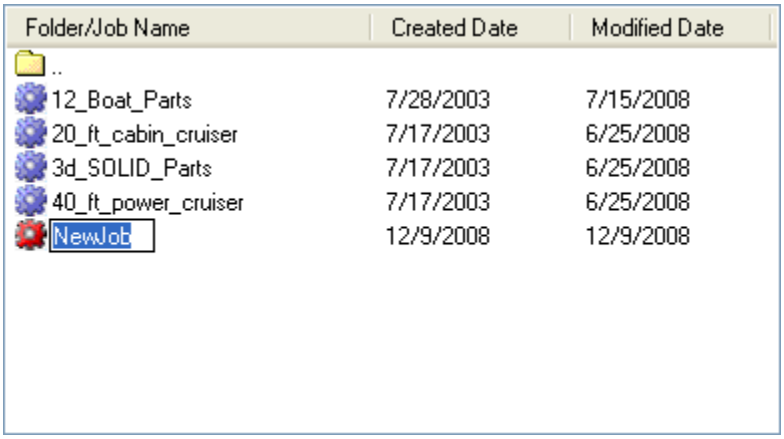
Pick Open Results Folder
Run the output files on your machine.

2.1.2.3 New Job

New Job

This option will create a new job in the currently select folder.



Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	7/28/2003	7/15/2008
20_ft_cabin_cruiser	7/17/2003	6/25/2008
3d_SOLID_Parts	7/17/2003	6/25/2008
40_ft_power_cruiser	7/17/2003	6/25/2008
NewJob	12/9/2008	12/9/2008

The new job will have the name of NewJob until you rename it. The job will contain no parts, but will have all the default settings in use.

2.1.2.4 Add Part

Add Part

Selecting this option will open the Add Parts window. This window has several options, you can select default folders rcim_work, or Router-CIM as well as set the default types of files to DWG, DXF, or SCN files. You can see a preview of the part, unless multiple parts are selected.

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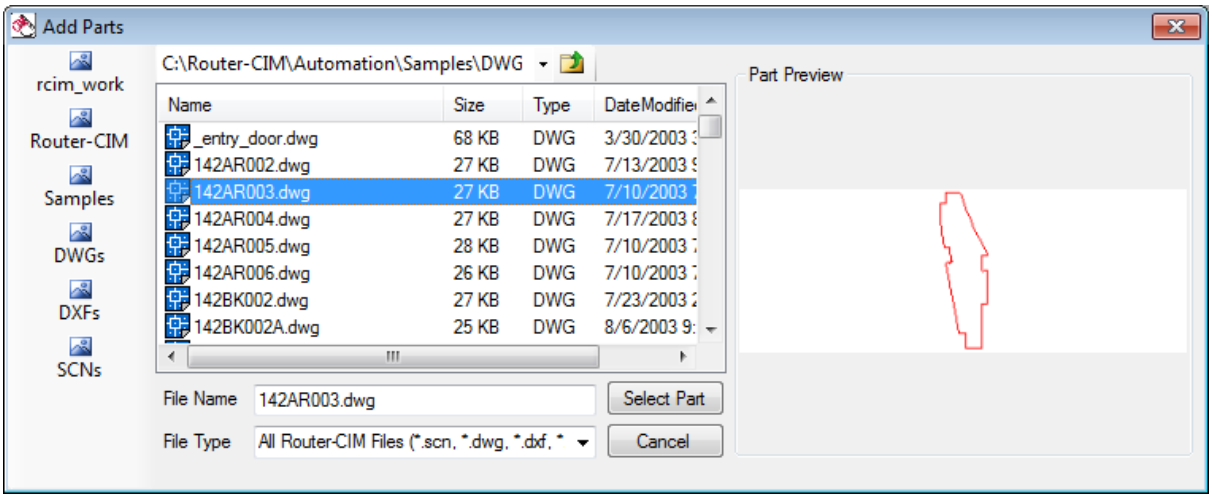
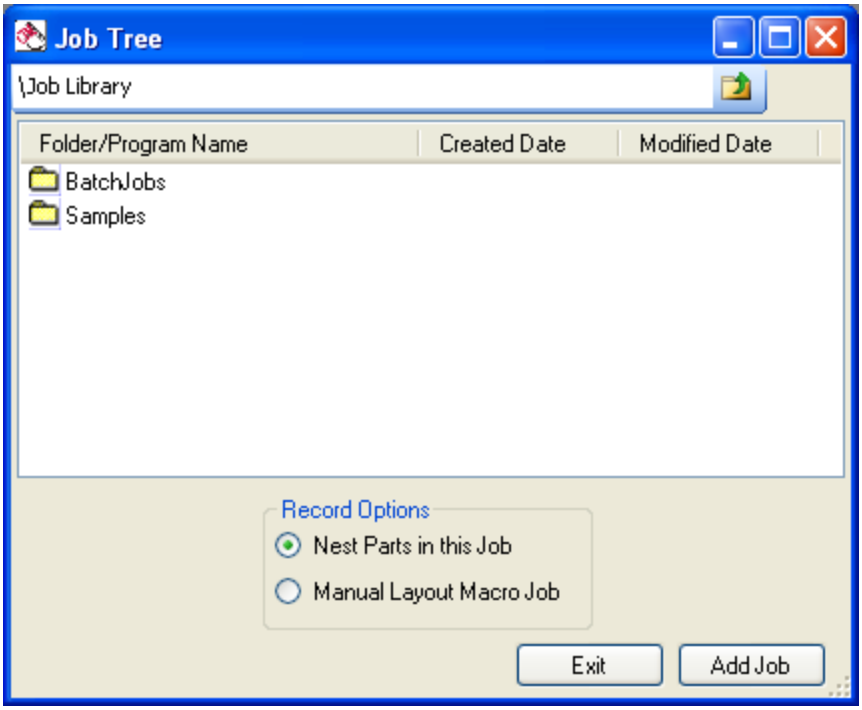


2.1.2.5 Add Assembly

Add Assembly

An assembly is simply another job that already has parts and settings. If you make a new job, and then select add assembly, you will be prompted with a window to pick the job you would like to add to the current job you have selected.

From the job tree in this window, select Samples.



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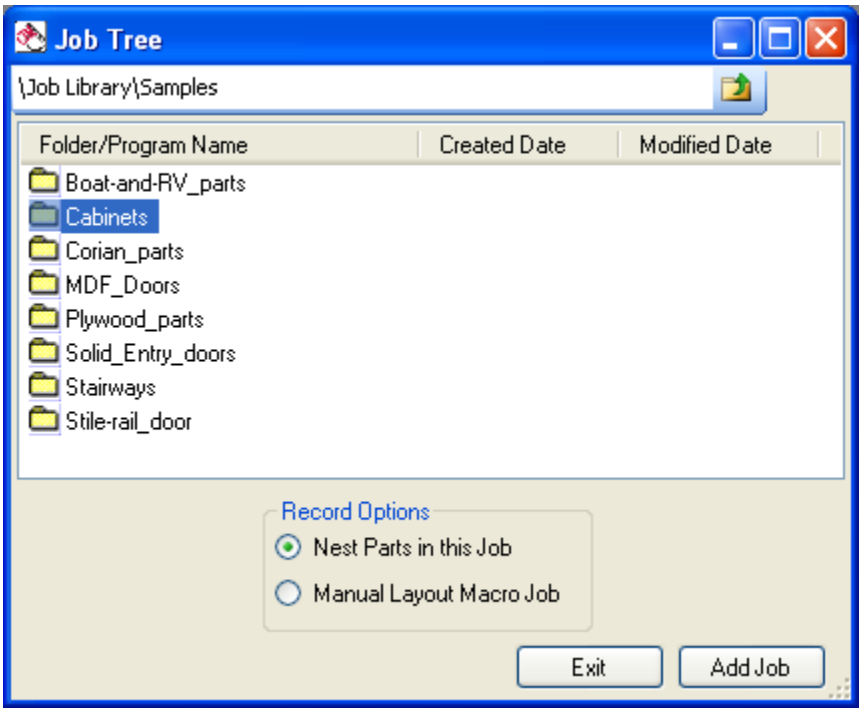
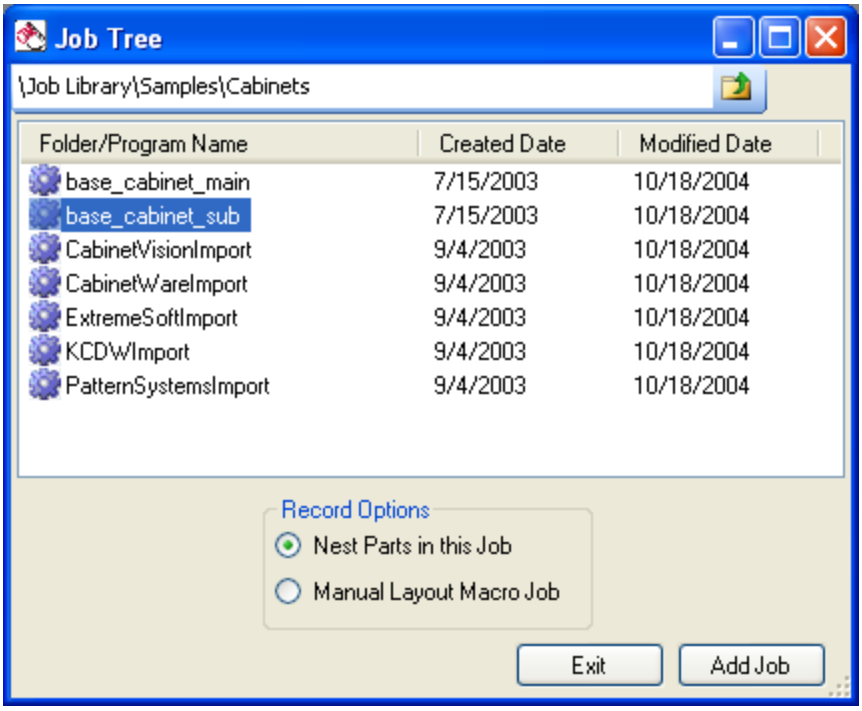
Then select Cabinets.



Finally, select Base_Cabinet_Sub as the job, and then click on Add Job.



The whole job will be added to the current job as a part.

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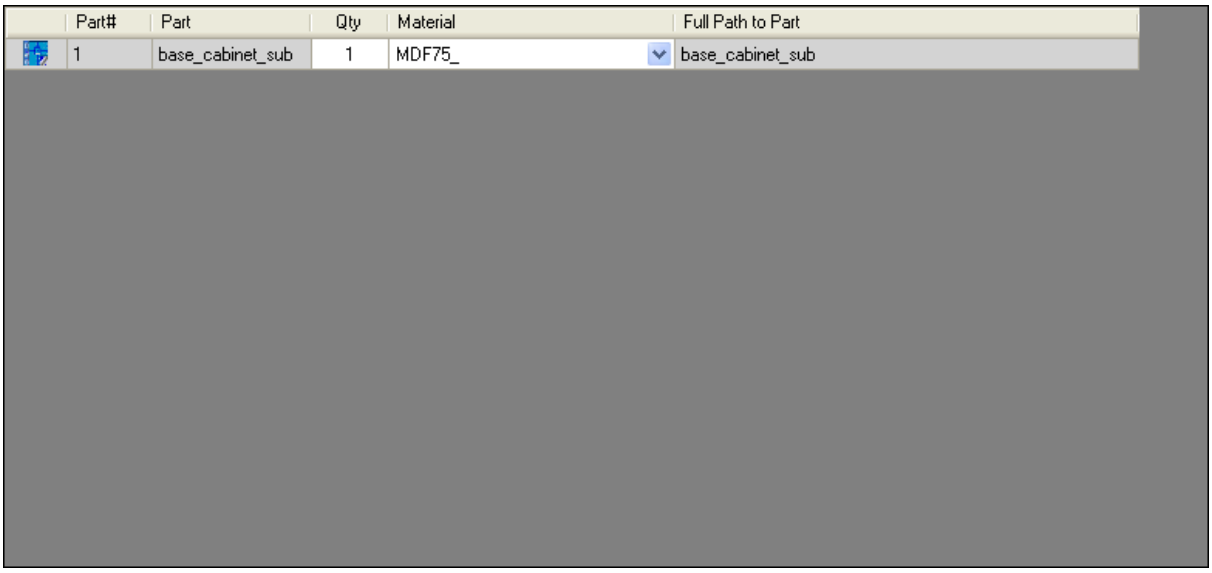
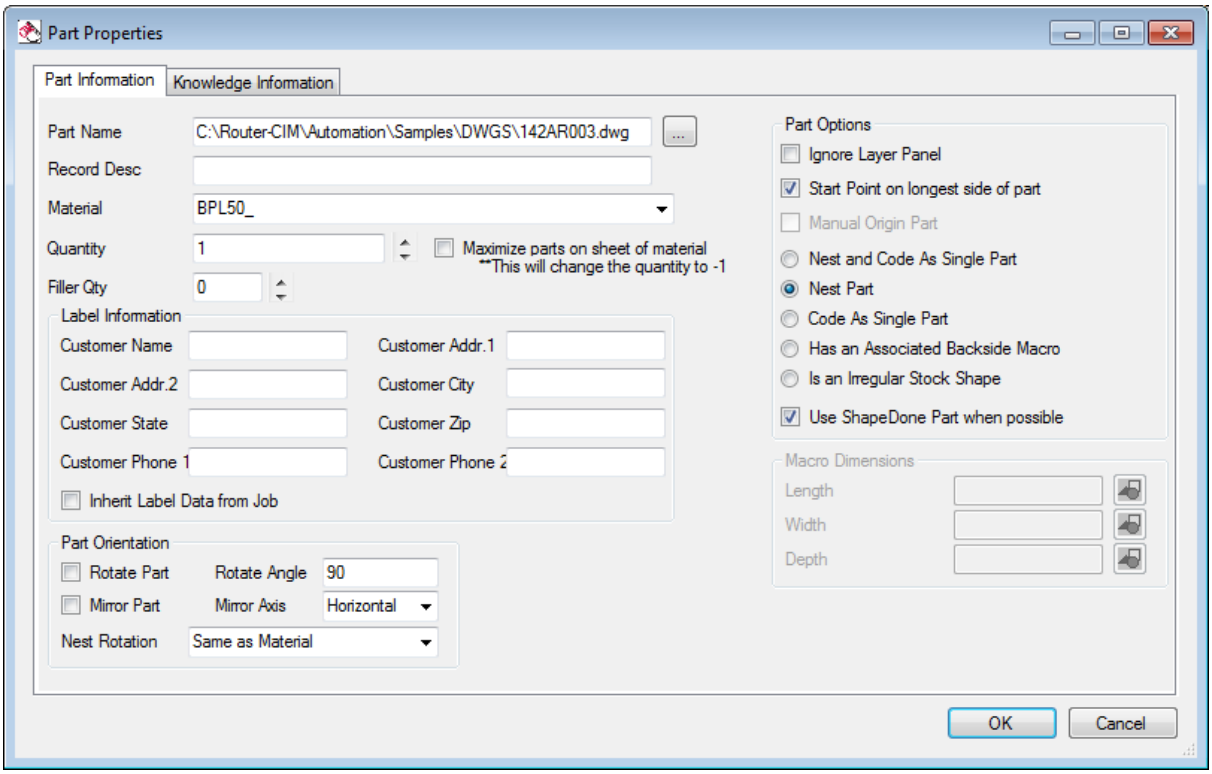


2.1.2.6 Part Properties

Part Properties

This selection opens the part properties window.



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This will show the current properties of the currently selected part in a job. If no part is selected, the first part in the job is shown.

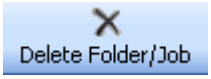
2.1.2.7 Edit Geometry

Edit Geometry

Selecting Edit Geometry will open AutoCAD and show the currently selected part. If no part is selected you will be prompted to select a part first.

2.1.2.8 Delete Folder/Job

Delete Folder/Job



This option deletes a job if a job is selected or an entire folder if a folder is selected. You cannot get these jobs or folders back once they are deleted, so be sure to have a pack and go of the job or a backup of the database if you think you might want them back at some point.

2.1.2.9 Delete Part

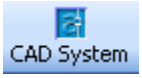
Delete Part

Selecting this option will delete the selected part from within a job.

You may also delete a part by right clicking on it and selecting delete from the menu.

2.1.2.10 Cad System

Cad System



This option is a shortcut to starting AutoCAD. Using this option will start AutoCAD in a new blank or default drawing.

2.1.2.11 Touch and Cut

Touch and Cut

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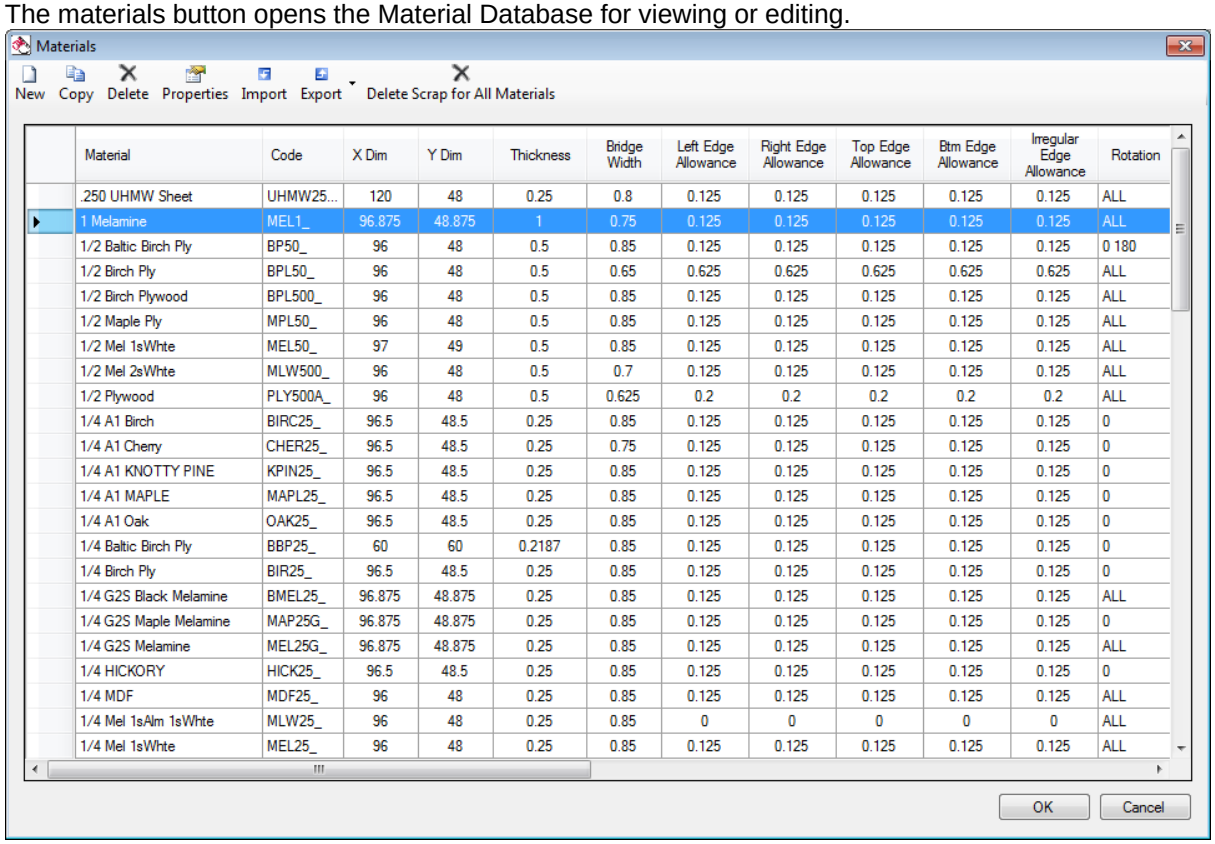
Touch and Cut is a tool that will allow you to select a part within a job and make Router-CIM cut and sequence only that one selected part.

2.1.2.12 Materials

Materials

The materials button opens the Material Database for viewing or editing.



Material	Code	X Dim	Y Dim	Thickness	Bridge Width	Left Edge Allowance	Right Edge Allowance	Top Edge Allowance	Btm Edge Allowance	Irregular Edge Allowance	Rotation
.250 UHMW Sheet	UHMW25...	120	48	0.25	0.8	0.125	0.125	0.125	0.125	0.125	ALL
1 Melamine	MEL1_	96.875	48.875	1	0.75	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Baltic Birch Ply	BP50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	0 180
1/2 Birch Ply	BPL50_	96	48	0.5	0.65	0.625	0.625	0.625	0.625	0.625	ALL
1/2 Birch Plywood	BPL500_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Maple Ply	MPL50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 1sWhte	MEL50_	97	49	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 2sWhte	MLW500_	96	48	0.5	0.7	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Plywood	PLY500A_	96	48	0.5	0.625	0.2	0.2	0.2	0.2	0.2	ALL
1/4 A1 Birch	BIRC25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Cherry	CHER25_	96.5	48.5	0.25	0.75	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 KNOTTY PINE	KPIN25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 MAPLE	MAPL25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Oak	OAK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Baltic Birch Ply	BBP25_	60	60	0.2187	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Birch Ply	BIR25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Black Melamine	BMEL25_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 G2S Maple Melamine	MAP25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Melamine	MEL25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 HICKORY	HICK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 MDF	MDF25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 Mel 1sAlm 1sWhte	MLW25_	96	48	0.25	0.85	0	0	0	0	0	ALL
1/4 Mel 1sWhte	MEL25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL

2.1.2.13 Results Folder

Results Folder

Selecting this option will show you the result folder for a job, if a job is selected. If no job is selected, then the base results folder (the one containing all the others) is shown. The default results folder can be specified in the system settings under System Folders >> Data Output Folder.

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2.1.2.14 Run Job

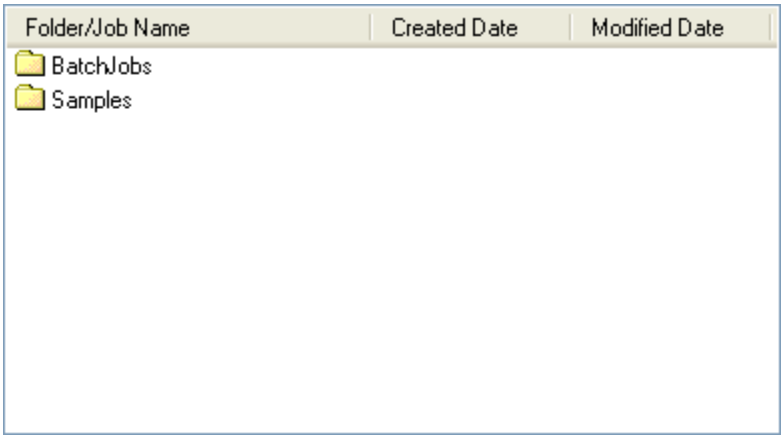
Run Job

This button starts the selected job in Router-CIM and begins processing.

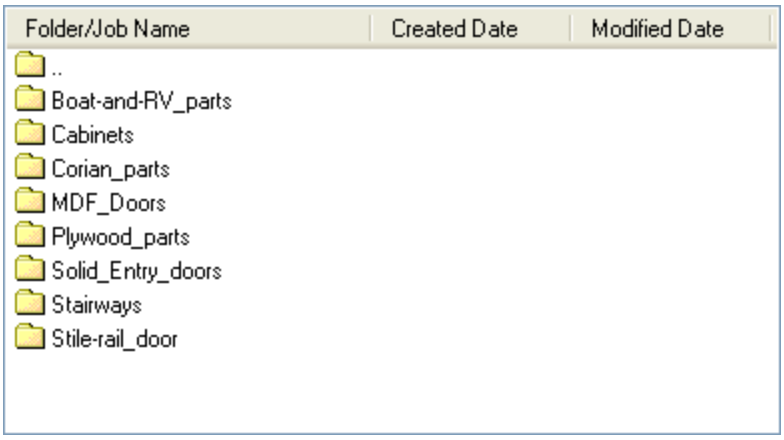
2.1.3 Folder Tree

Folder Tree

The folder tree is where your jobs are stored. Each job can be in the main folder or they can be stored in sub folders. The preference for how you store jobs is really up to you.
In this example, there is a folder called Samples.



Selecting the Samples folder opens the tree further to show several other folders.



Each of these folders contain jobs. Using these folders is simply a way to keep them separated according to their types. Selecting Plywood_parts will show the jobs inside that folder.

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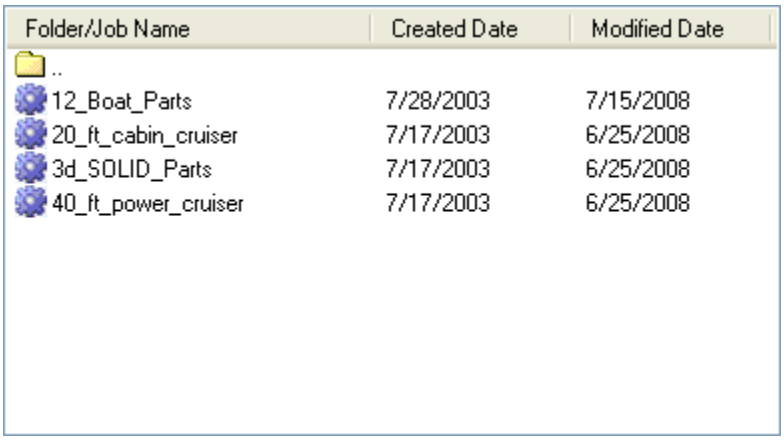


Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	7/28/2003	7/15/2008
20_ft_cabin_cruiser	7/17/2003	6/25/2008
3d_SOLID_Parts	7/17/2003	6/25/2008
40_ft_power_cruiser	7/17/2003	6/25/2008

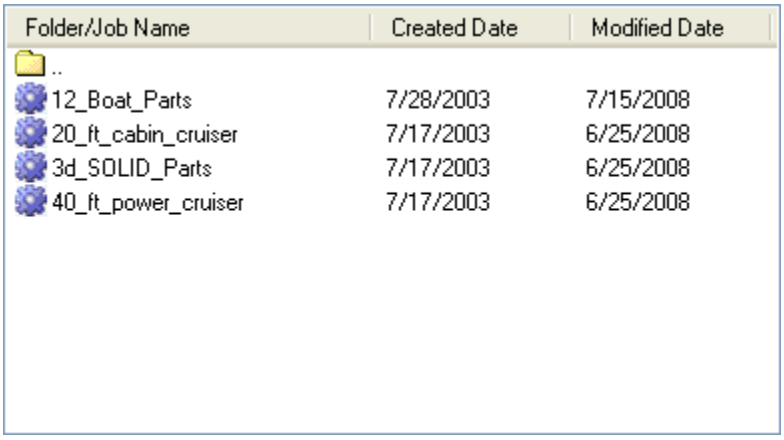
There could have been even more folders in this folder if the jobs needed to be separated further.

2.1.3.1 Batch Jobs

Batch Jobs

Batch Jobs are somewhat special and have a folder of their own. A batch job is really several jobs, each in one folder and run one at a time. Each job in a batch will run until it is done, and when it is done and all the code is made, then the next job will start up. None of the parts from one job are cut or nested with parts from another job.

To create a Batch Job, go to any folder containing jobs, and right click on a job and select Add to Batch Job. For instance, Select the Samples folder, and then the Boat-and-RV_parts folder. In this folder there are 4 jobs.



Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	7/28/2003	7/15/2008
20_ft_cabin_cruiser	7/17/2003	6/25/2008
3d_SOLID_Parts	7/17/2003	6/25/2008
40_ft_power_cruiser	7/17/2003	6/25/2008

Select the 12_Boat_Parts job and Right-Click on it to bring up the menu, then select Add to Batch Job.

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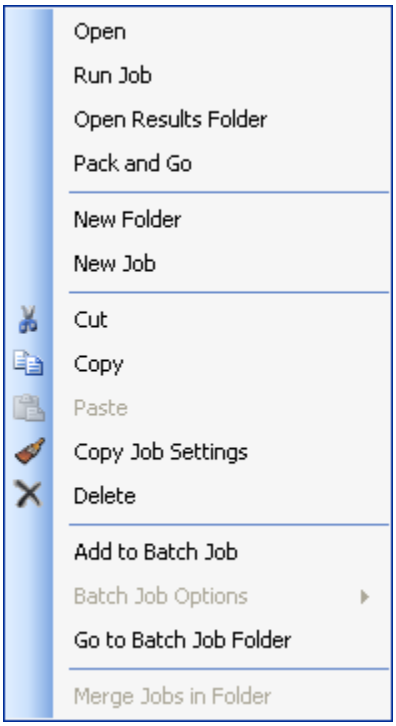
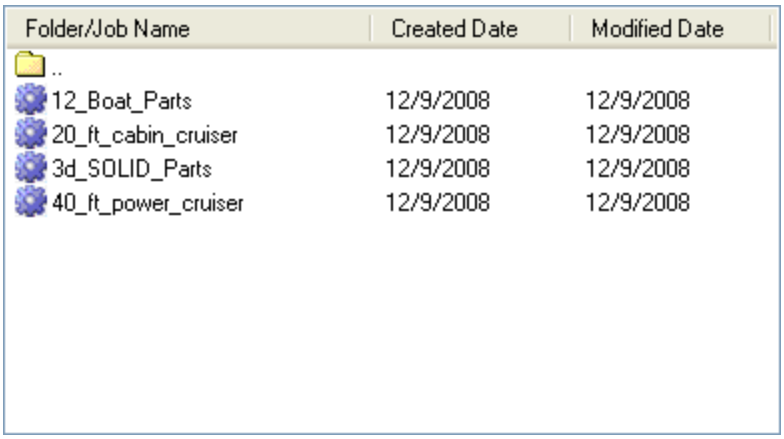


Now do the same for each of the other three jobs in the folder. There is 10_ft_cabin_cruiser, 3d_SOLID_parts, and 40_ft_power_cruiser. Add each of these to a Batch Job.

Next, click back to the top of the job library and select Batch Jobs. You will see each of the 4 jobs listed under Batch Jobs.



Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	12/9/2008	12/9/2008
20_ft_cabin_cruiser	12/9/2008	12/9/2008
3d_SOLID_Parts	12/9/2008	12/9/2008
40_ft_power_cruiser	12/9/2008	12/9/2008

If you Right-Click on one of these jobs now you will see Batch Job Options.

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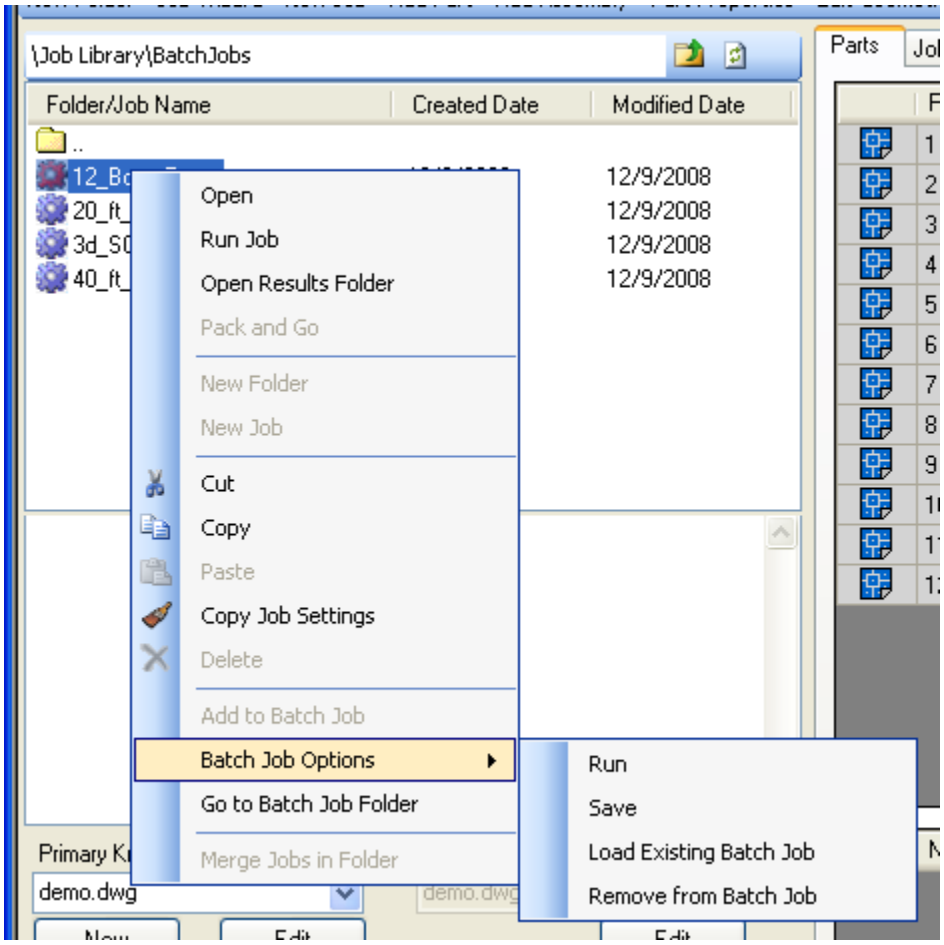
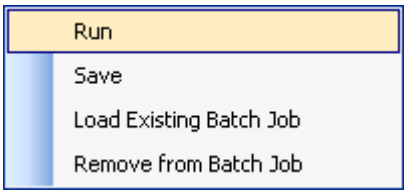


From here you can Run the batch, save the batch to run it later, load a saved batch, or remove a job from the batch list.



2.1.4 Part Window

Part Window

The Part Window contains all the settings for the parts inside the job. It is also the container for many of the job-specific settings. Each of these settings is available in one of the tabs at the top of the part window. These are available only when a job that contains parts is selected.

The part window itself is editable for some of the part settings. You can change a parts Quantity, or Material directly from the part window by selecting the field and changing the value. Select a part and then select the quantity field. It will highlight indicating you can change the value. In this case we will change it from 4, to 6.

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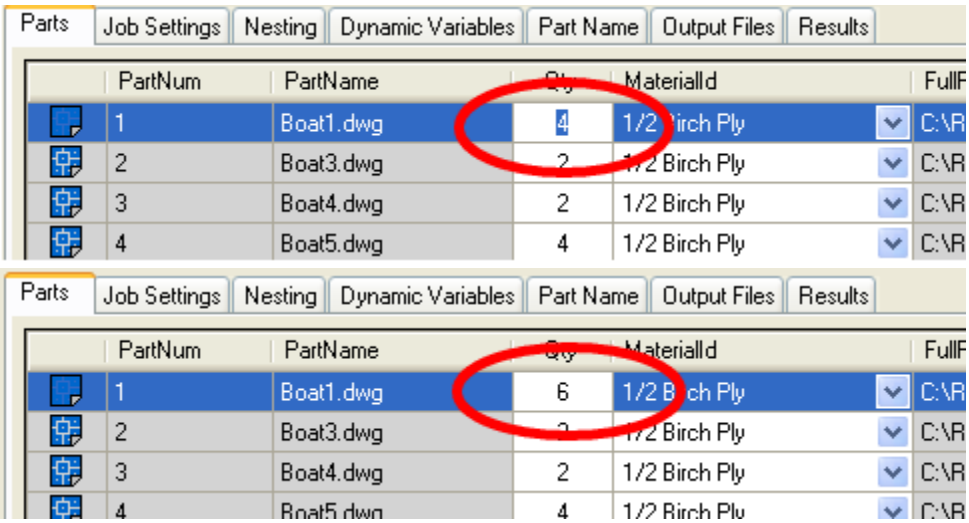
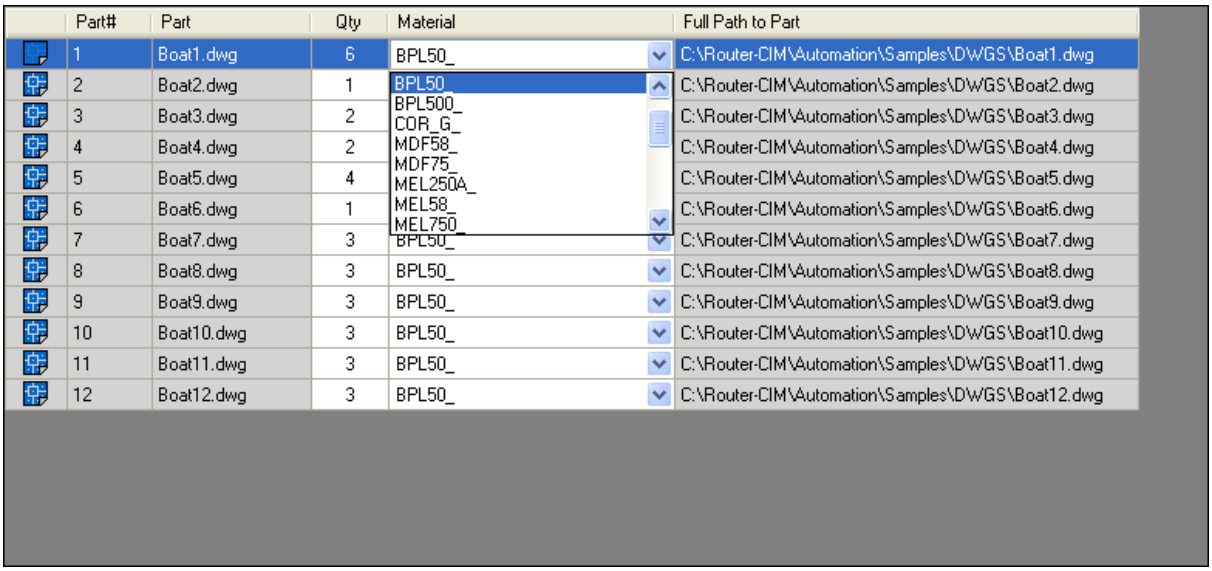


Changing the material is just as easy. You can pull down the materials available from the list on a selected part and change the material to another from the list.



Selecting the BPL500_ material from the list changes the material that particular part is going to use.

Double-Clicking on any part will display the Part Properties.

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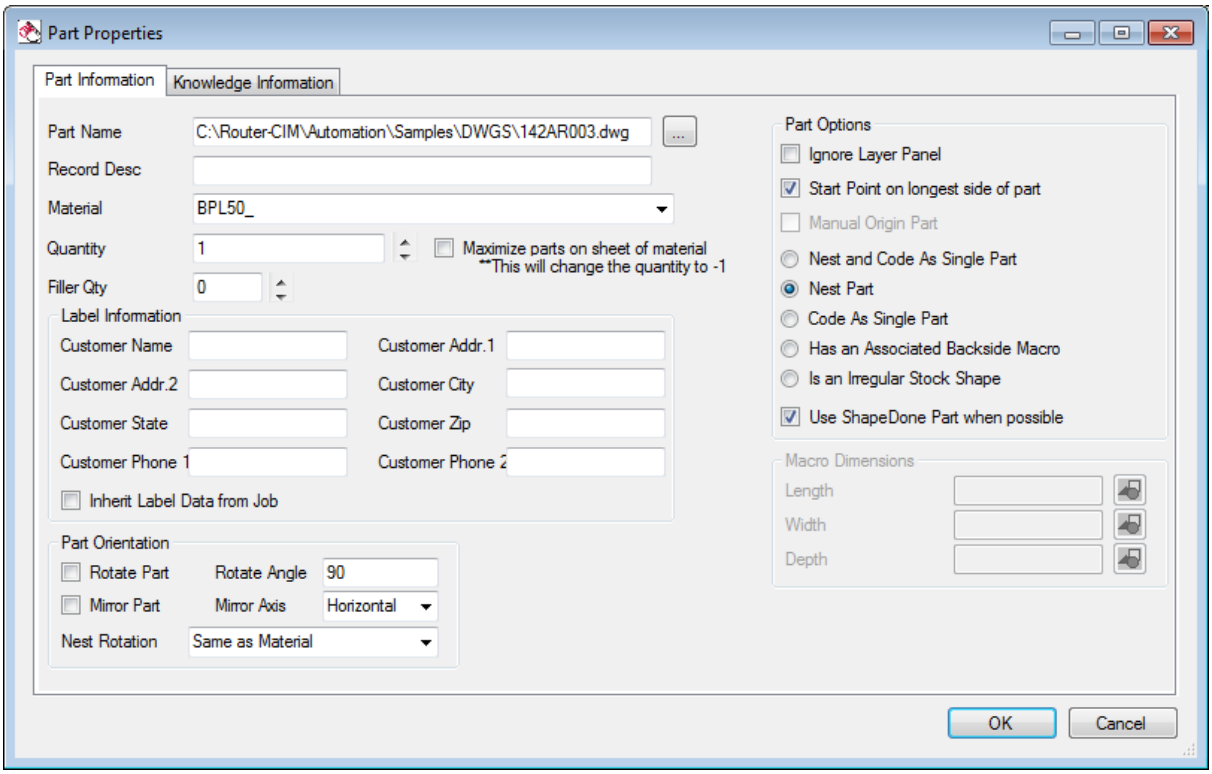

These are the part related properties that can be individually changed on any part in a job.

2.1.4.1 Part Properties

Part Properties

The part properties are broken down into two tabs. They are Part Information and Knowledge Information.

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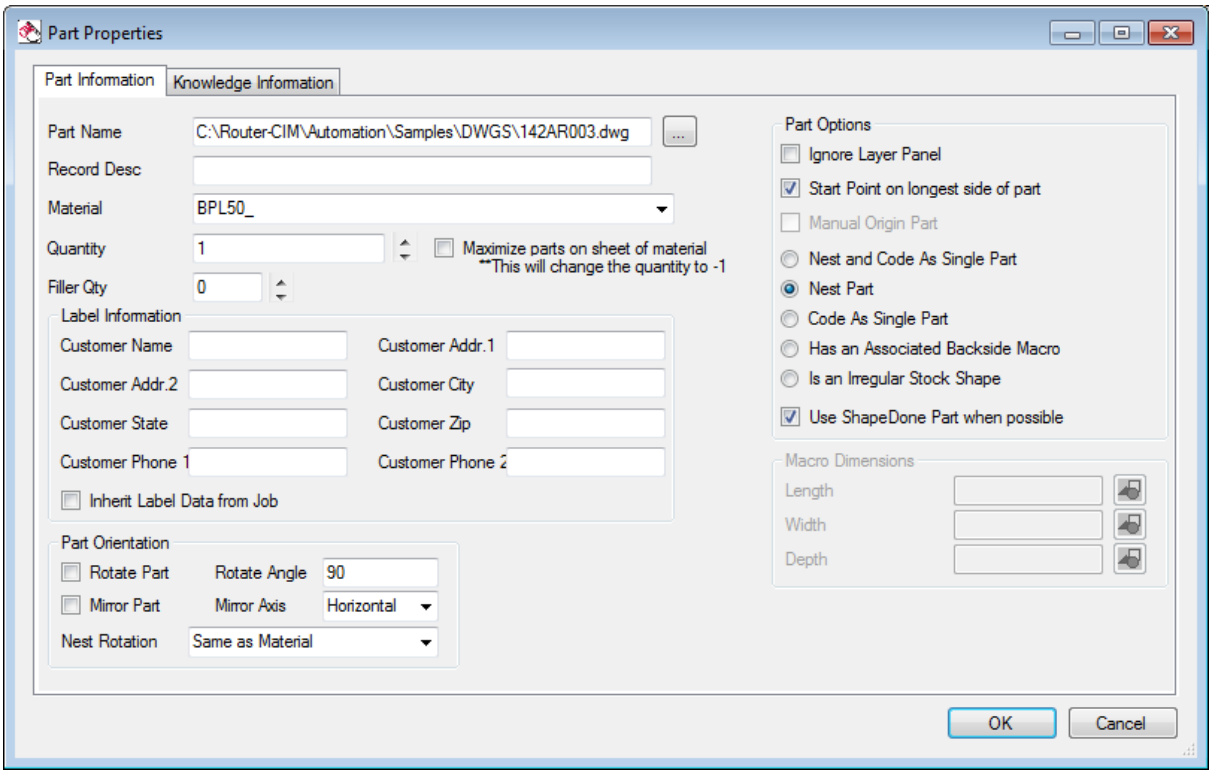

Part Information

Path to Part
This box displays the path and name of the current selected part.

Part Description
Optional. An editable field that will allow you to enter information you want to appear in the part description location of a label or a description you want to store in the job for the part if you do not use labels.

Part Material
Shows the material selected for the current part, and also allows you to change the part material from a drop-down list containing all the materials in your current database.

Quantity
Editable field to display or set the number of the selected part you want to appear in the job.

Filler Quantity
Optional. Allows you to set any number of this part to use to fill in gaps and open space in the nest. Use this option if you can store an extra quantity of the current part. Router-CIM will only generate filler parts if the option to allow them is turned on and there is sufficient room in the nest. No regular required parts from the job will be sacrificed to allow filler parts.

Label Information
Optional. There are 8 editable fields that can contain any data you think relevant to appear on the part labels. You can place data in as many or as few of these as you wish.

Inherit Label Data from Job

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It is possible to have this data set to the same values for every part automatically if you set them in a job and make that job a template. This setting in each parts properties to 'Inherit Label Data from Job' will set all the label fields for each part to whatever they were set to in the job that the parts were added to.

Part Orientation

Rotate Part
Checking this option will force the part to rotate to the angle set in the Rotate Angle field (to the right). Whether or not the material has part rotation set, this field will override the setting and rotate the part from the default view it was drawn in. This setting has no effect on the material rotation angle and any material related settings will occur during the nesting section of a job run.
Only Pattern Recognition will stop this rotation. If a part is being drilled with Pattern Recognition and has more than 1 hole drilled at a time (in other words a pattern of two or more) then the part will be rotation locked and cannot be rotated.

Rotate Angle
Controls the rotation angle of the part when an override to the rotation angle is needed. See above.

Mirror Part
Checking this option will force the part to be mirrored about the axis specified to the right (Mirror Axis).
The mirroring is done prior to cut and it is entirely possible to have a part mirrored and rotated using the rotate commands within this section.
Pattern Recognition has no effect on mirror since the part will still have the orientation of its holes in the same direction.

Mirror Axis
Controls the direction of the mirror. Available options are Vertical or Horizontal. The Mirror Part box must be checked to turn this option on.

Nest Rotation
This is the default setting for the current part nested on a sheet. You can allow it to rotate based on the material settings or force it to override the material settings and control the rotation angle. The available options are Same as Material, ALL, 0, 0 90, 0 180, 0 90 180. Once this setting is changed the part rotation will be set to this setting and ignore the material setting. Note that it is possible to have this rotation set as well as the Rotate Part box checked and multiple angle rotations will occur.

Part Options

Ignore Layer Panel
When checked, this will ignore the default rectangle for the panel size on a macro, even if there is a layer to knowledge association present for it. It will further ignore that layer for nesting purposes.

Start Point on longest side of part
If checked, this option will move the start point of the shapes on the currently selected part to the mid point of whichever element on that particular shape is the longest, whether that is a line or an arc.

Manual Origin Part
This option is for Router-CIM macros only and will allow you to set where the origin of the part is instead of assuming 0,0.

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Nest and Code As Single Part
This option will allow all the parts in a job to have code created not only for the nests, but it will also generate one nc code file for each individual part in the job.

Nest Part
This will cause the parts in the job to be nested on the specified material.

Code As Single Part
Any part with this option checked will be cut and have code made for just the one part and it will not be considered for nesting.

Has an Associated Backside Macro
This option is for Router-CIM macros only and will cause Router-CIM to look for a macro with the same name, followed by -b. The backside macro will then be cut as a single part (not nested) and the code included in the results folder. For instance Style1.scn has a backside macro named Style1-b.scn.
If Style1.scn were a part in a job, you could check this option and both Style1.scn and Style1-b.scn would be cut, but only Style1.scn would be nested. The code for Style1-b.scn would be as a single part.

Is an Irregular Stock Shape
A drawing that has geometry on layer IR_STOCK can be placed in a job and then if this option is checked, that shape would be used as a piece of material for nesting. Any shape is allowed, but it should be a closed polyline (on layer IR_STOCK).

Use ShapeDone Part when possible
Checking this option will allow the ShapeDone feature to be used on the selected part. Once the part is cut, that part and tool paths will be placed in the ShapeDone folder so that if it is cut at a later time, and has not been modified, it will simply be passed directly to nest and will not be cut again.

Macro Dimensions

Generic Record X Dim
When a Router-CIM macro is used, the X dimension setting can be overridden with this field.

Generic Record Y Dim
When a Router-CIM macro is used, the Y dimension setting can be overridden with this field.

Generic Record Z Dim
When a Router-CIM macro is used, the Z dimension setting can be overridden with this field. Note that the material can be used for the Z value to determine a parts thickness.

Knowledge Information

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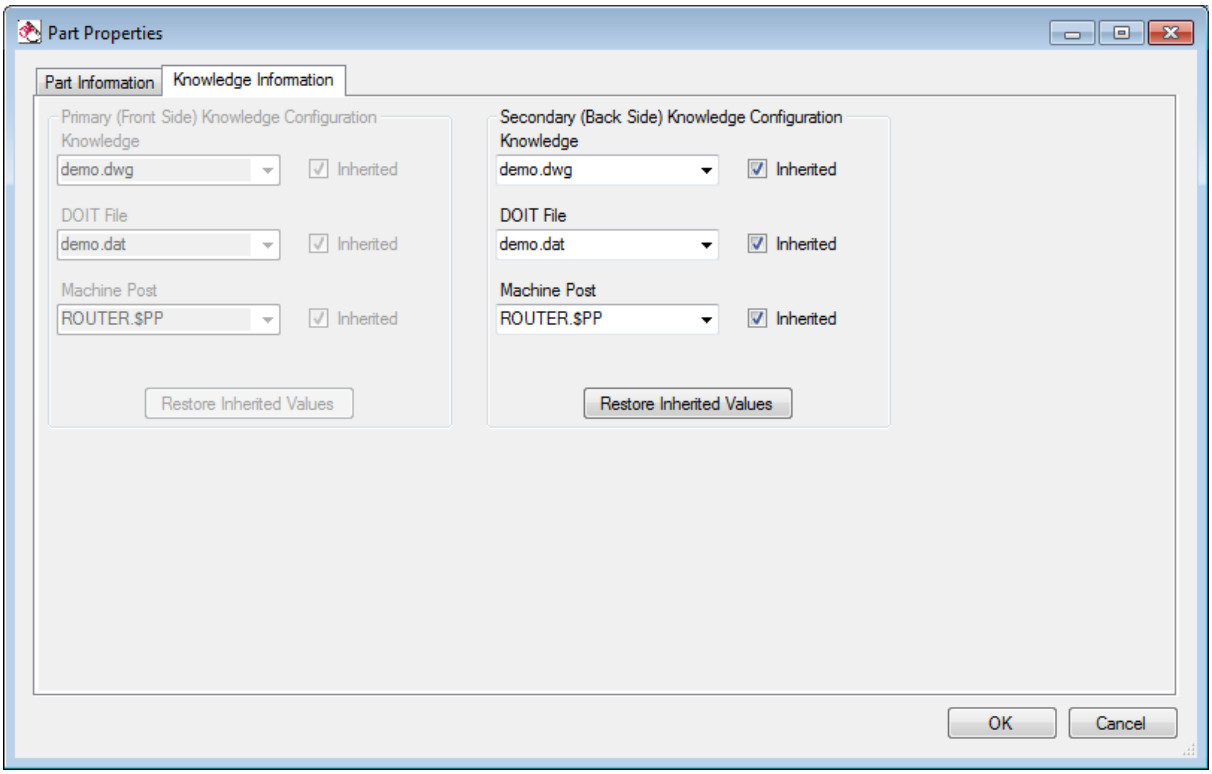

It is possible to have certain parts in a job nested and cut on one machine, and single parts (not nested) cut on another machine. These single parts can be secondary operations to a particular part, or just some parts that you wish to cut one at a time on a different machine. These parts cannot be nested. They can use a different knowledge drawing, DOIT file, Post Processor, and different part settings. They all, however, must be set to Code as Single Part.

Primary Knowledge Configuration
When a job has parts that are marked as Code as Single Part, the Knowledge Information screen will be available. You can set the Primary Knowledge in this window to run with a different knowledge drawing, DOIT file, and post processor than the other parts that are being cut in the main job.

Secondary Knowledge Configuration
This is only for Router-CIM macros, where the part properties are marked "Has an Associated Backside Macro". The backside macro (same name as the regular macro, with a -b at the end) can be cut with a different knowledge drawing, DOIT file, and post processor than the front side (nested side) of the same macro.

When using this feature, you should uncheck the box marked "Use Primary Knowledge for Secondary Operations" if you need a secondary knowledge drawing, and also the "Use Primary Machine for Secondary Operations" to specify the secondary post processor.

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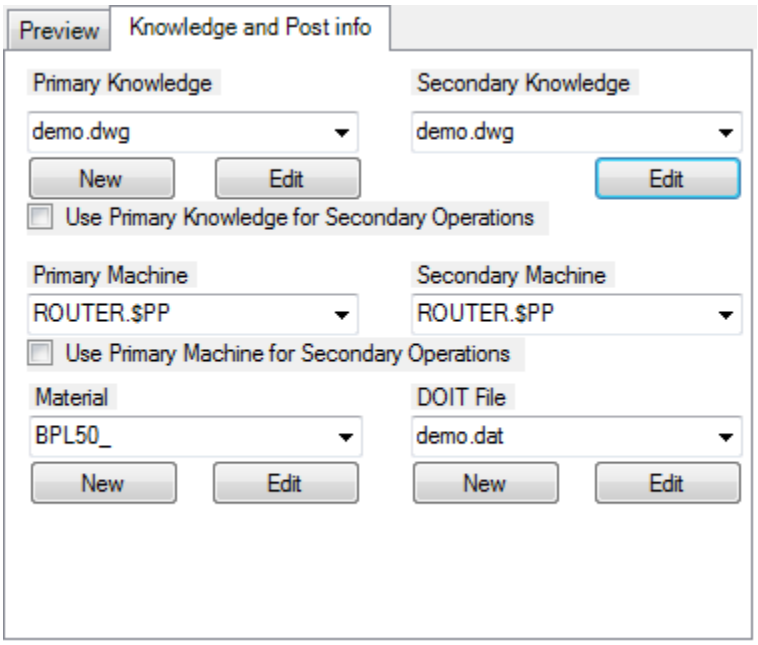

Inherited
Checking the Inherited box in any of these fields will set that particular property to the same settings as the main window is using for the job.

2.1.4.2 Job Settings

Job Settings

The Job Settings tab in a job contains the variables that affect various aspects of the job during the automation run. There are several sections to these settings.

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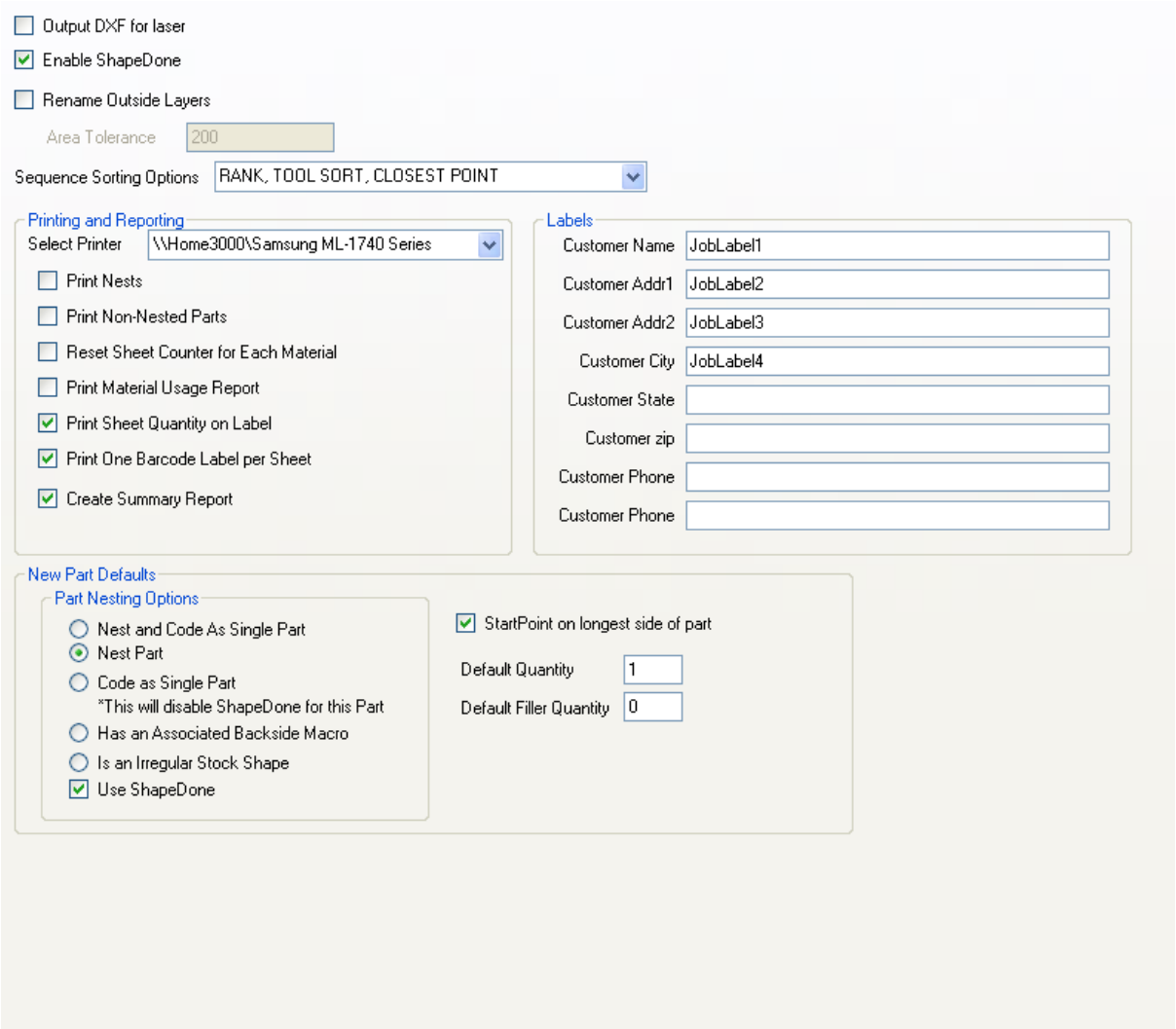

Output DXF for laser
This option will create a DXF file of each nest or single part cut for a projection laser to use in order to show the layout of the parts on the table. If you do not have a projection laser, leave this option off.

Enable Shape Done
Enabling Shape Done will turn on Shape Done for the job. If parts have the option turned on to enable Shape Done, then a copy of the part will be stored with the knowledge drawing.

Rename Outside Layers
If this option is checked, the the area tolerance is filled in, parts with less area than the amount listed will have the outside layer rename with a prefix of SML so that an alternate knowledge can be used on them. This is useful if you cut small parts and they tend to lose vacuum or move.

Sequence Sorting Options
You may select from any of the sorting options listed and that option will be used to sort all the parts in the job during Sequence.

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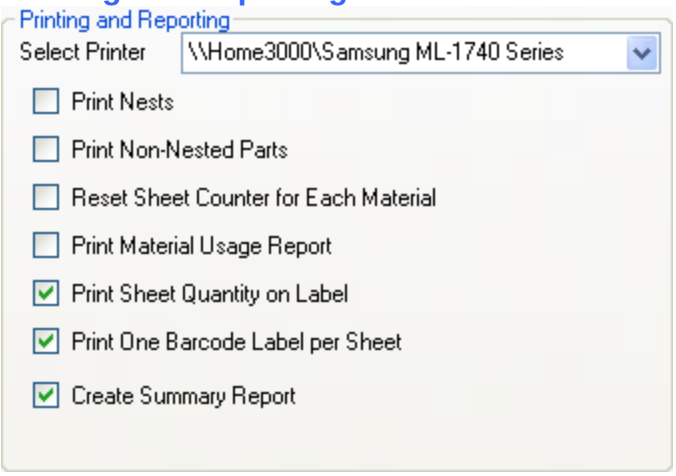
Printing and Reporting



Select Printer
This option will allow you to select a printer for the plotting of the nested and non-nested parts.

Print Nests
If checked, you will get a print of each nested sheet sent to the printer automatically during the job run. One print for each nest.

Print Non-Nested Parts
If checked and you have parts that are set to Code as Single Part, they will be printed during the job run. One print for each part.

Reset Sheet Counter for each material
If checked, the counter for the nc code file will have its numbers reset each time it encounters a new material. So if you had two nests, one on MDF75 and one on BIR500, you would get files named MDF751 and BIR5001. If the box was unchecked, you would get MDF751 and BIR5002. The last digit is the sheet count.

Print Material Usage Report
Turned on, a material report will automatically be printed at the end of the job.

Print Sheet Quantity on Label
Turned on, you will have the number of the sheet listed for each nc code file on the label.

Print One Barcode Label per Sheet
If checked, there will be a barcode label printed in the label file for each sheet nested in the job.

Create Summary Report
If checked, there will be a summary report created at the end of each job run. This will be an Excel spreadsheet and contain material and tooling data for the job.

Labels

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This section is where you can place any custom data you wish to appear on your labels for each part.

New Part Defaults

StartPoint on longest side of part
Using this option will insure that when new parts are added to a job, the Startpoint on longest side of part box is checked by default.
Checking this box will force Router-CIM to move the startpoint to the longest side of the part, regardless of where the startpoint exists currently.

Default Quantity
This field allows you to set the default quantity that parts are set to when they are added to a new job. When a new job is created, the number of parts that are set automatically will be set to this number.

Default Filler Quantity
This parameter is to set the default number of filler parts set for each new part in a job. If there is enough space in the nest, then these parts will be placed in the nest to fill the space and boost sheet yield, up to the number set in this section.

Part Nesting Options

Nest and Code as Single Part
Checking this option will cause Router-CIM to nest each part in the job, and also make a separate NC program for each and every part on its own. This is useful for situations where a part is later broken or lost, a piece of material can be placed on the machine at the home position and run just the program for the one part.

Nest Part
When enabled, this option will cause Router-CIM to place every part in the job into a nested sheet based on the material specified. If more than one material exists for parts in a job, nests will be created for each sheet with the parts specified for that material.

Code as Single Part
Using this setting will cause Router-CIM to make a separate NC program for each part in a job. No parts will be nested together.

Has an Associated Backside Macro
When using macros, it is sometimes possible to have a macro for operations on the front of the part and also for operations on the back of a part. When this is true, enabling this option will allow one of the macros to be placed into a nest and the other side will be coded as a single part with a separate NC program. This option only works on macros, and the backside

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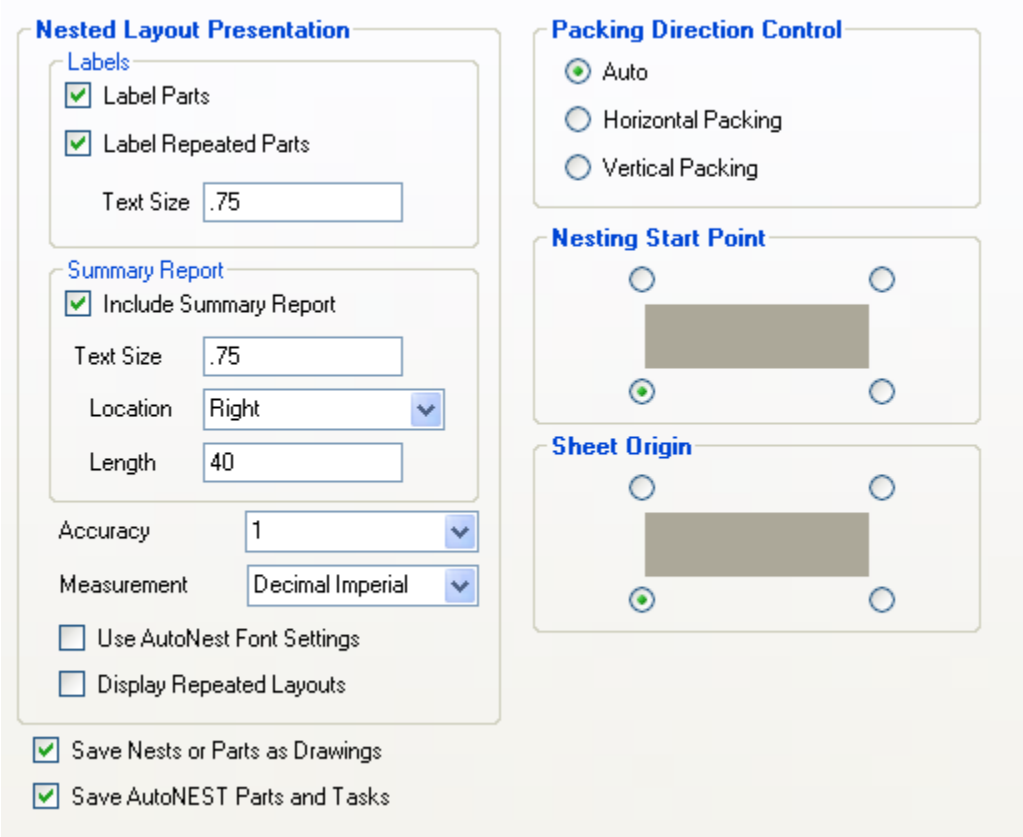
macro must have the same name as the front side but end in '-b'. For instance Style11.scn has an associated back side macro named Style11-b.scn.

Is an Irregular Stock Shape
If you have an irregular shaped piece of material that you want to use as a sheet to nest parts on, you may include that drawing in the job as a part and then set this option for that particular part. Router-CIM will not cut this shape, but will use it to nest parts in.
The geometry of the irregular stock sheet should be drawn on layer IR_STOCK.

Use ShapeDone
This option must be turned on in order for a part to be passed to the ShapeDone folder and stored.

2.1.4.3 Nesting

Nesting



Nested Layout Presentation

This section contains parameters that affect the look of the nested sheet, summaries, and part labels on the nest.

Labels

Label Parts
If you want the parts in the nest labeled, check this option.
This option is ON by default.

Label Repeated Parts
Check this option when you want each part in the nest labeled, even when it is duplicated in the nest pattern.
This option is ON by default.

Text Size
Set the text size (in current units) for the text that appears on the part labels.
Default value is 0.75"

Summary Report

Include Summary Report

The Summary Report is a recap at the end of the last nested sheet that shows how many parts have been nested and the material cost.

NESTING SUMMARY

PART NAME	BASIC QTY	FILLER QTY
1	12/12	-
2	12/12	-
3	8/8	-
4	4/4	-
5	12/12	-
6	10/10	-
7	8/8	-
8	4/4	-
9	12/12	-
10	10/10	-
TOTAL PARTS NESTED	92/92	-

STOCK	QTY	COST
60.0"x96.0"	5	90.00
TOTAL	5	90.00

Text Size
This setting controls the text size of the summary report.

Location
The location of the Summary Report can be set to either RIGHT, TOP-LEFT, or TOP-RIGHT.

Length
This is the distance between the nested sheets as they are displayed on the screen. This value is in default units.

Accuracy
This is a font setting for the decimal places that will show for the numbers in the nest summaries. For instance using 1 will show a material as 96.0x60.0. Using more than one will increase the number of decimal locations that are reported. 1-4 are the only possible inputs in the list.

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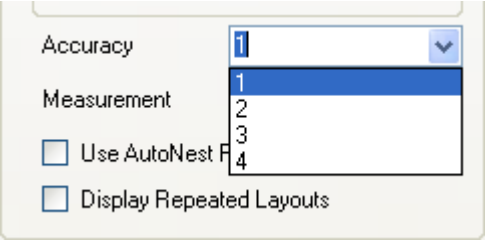
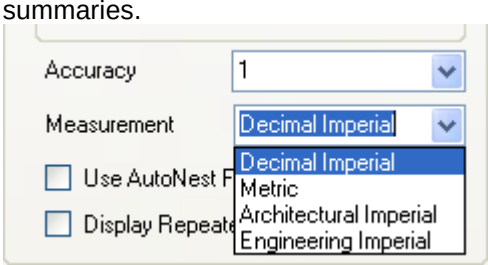


Measurement
The measurement type will be used by the font that displays the units used in the nesting and summaries.



The default setting is Decimal Imperial.

Use AutoNest Font Settings
Checking this box will override the Accuracy and Measurement settings above and use the settings set by the nest program instead.
The default is to leave this box unchecked and use the settings in this menu.

Display Repeated Layouts
Using Display Repeated Layouts will show a nested sheet in the nest drawing for every sheet needed in the job. Typically, if there is a nest that needs to be run more than once, the quantity field will simply show the quantity of that sheet that you need to run, instead of making duplicate nests. So, if you run a job and the nest drawing shows 2 sheets, but there are several programs to run, then you can check the sheet quantity in the nested sheet for how many instances of that sheet are needed.

Packing Direction Control
Packing Direction Control is the setting for the method used to place parts on the nested sheet.

Auto
Auto will place parts with no particular preference for Horizontal or Vertical packing, but using the most efficient method to gain yield from the sheet.

Horizontal Packing
Horizontal Packing will favor placing parts across the sheet (in X) before moving up the sheet (in Y).

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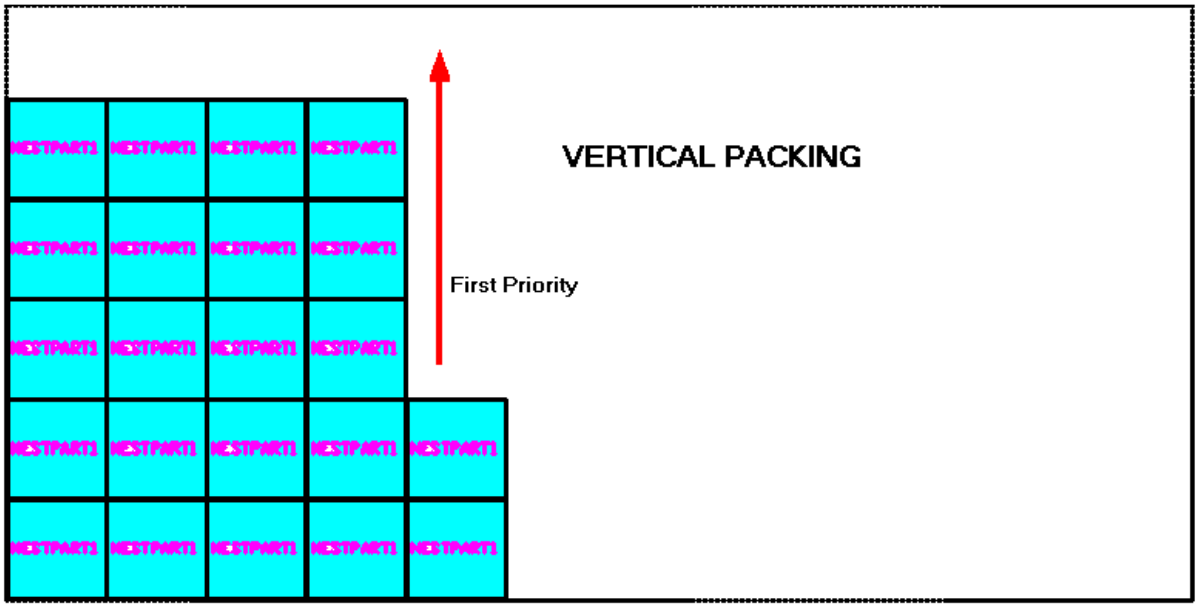
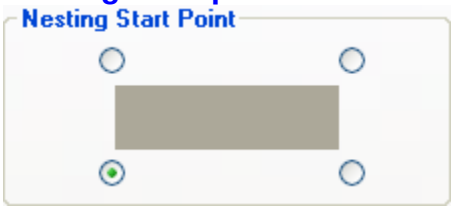
Vertical Packing

Vertical Packing will favor placing parts moving up the sheet (in Y) before moving across the sheet (in X).



Nesting Start point



This selection will change the location where nest starts placing the parts.

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Sheet Origin

The sheet origin is the corner where 0,0 is located, affecting the creation of the nc code by generating X, and Y values relative to the start point.

Save Nests or Parts as Drawings
Checking this parameter will save a copy of the nest layout drawing or single parts drawings in the job results folder. This is useful to review the nest results for a job.

Save AutoNEST Parts and Tasks
Checking this option will create a folder inside the job results folder containing the AutoNEST parts and task files for the job. This is useful if you want to keep the results folders for backup and need to run the nest later.

2.1.4.4 Advanced Nesting

Advanced Nesting

Advanced nesting is a set of features that allow for more efficient methods of cutting parts in a nest. There are methods to keep the tool down in the material for as long as possible while cutting all the profiles of the parts (Staydown). There is also a method to cut in on two parts at the same time by cutting between the parts and spacing the parts so that the cutting tool contacts a part on each side as it moves through the sheet (Common Line). One advanced method involves cutting both sides of a sheet while the parts are still nested together by first cutting one side (but not cutting through the parts, then flipping the sheet over and cutting the other side, cutting the parts loose at that time (Backside Nesting). The final advanced method is a procedure that allows you mix multiple jobs together, but control the number of jobs that get mixed into one sheet, allowing you to sort the parts easier as they come off the machine, but still allowing higher yields in the sheet by allowing the maximum number of parts/sizes available to fill the nest (Cart Control Nesting).

Each of these methods are described here along with their required settings.

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2.1.4.4.1 Nested Layout Presentation

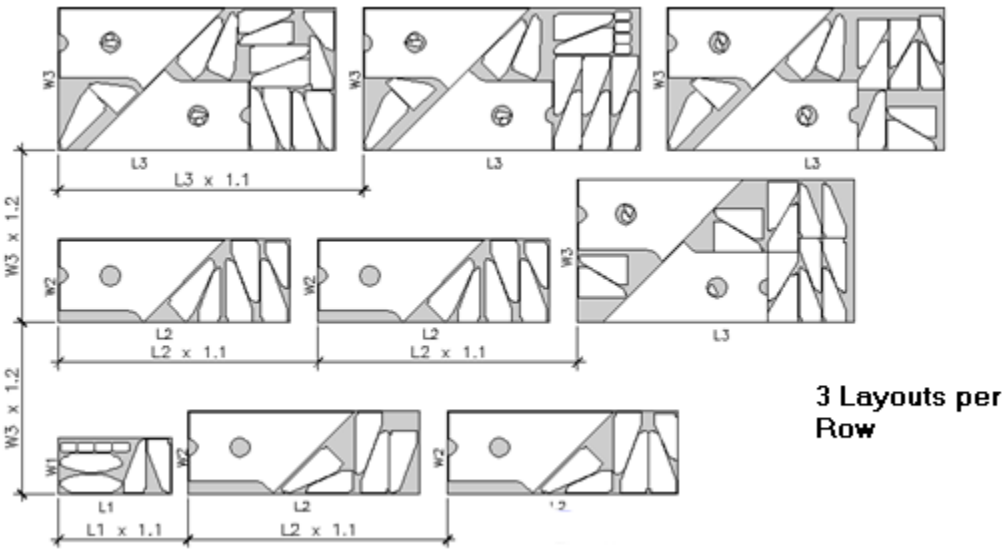
Nested Layout Presentation

The options in Nested Layout Presentation will allow you to format the result nest drawing so that the nested sheets are easier to see, read and print. You are allowed control over a system of layout that has rows and columns, referred to as Horizontal Spacing, Vertical Spacing, and Layouts per Row.

Horizontal Spacing
This is the setting for the horizontal spacing between the nested sheets when repeated horizontally. This would be similar to the spacing between Columns on a spreadsheet.

Vertical Spacing
This is the setting for the vertical spacing between the nested sheets when repeated vertically. This feature would be similar to the spacing between Rows in a spreadsheet.

Layouts per Row
This is the number of nested sheets in a row to display horizontally. The sheets will continue vertically until all sheets are shown.



2.1.4.4.2 Nesting Bridge Parameters

Nesting Bridge Parameters

Off
Setting this parameter to Off will create a standard type of nest and place the parts on the sheet with all their tool paths. This is the default method of nesting with no advanced features. Typically this results in a separate tool path around each, individual part in the nest.

Staydown
Staydown nesting will attempt to place the tool in the nest and leave the tool in the material as much as possible as it cuts around all the parts. This will typically create small bridges between the parts as the

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tool cuts around them. These bridges can be a positive value so that there is a tab holding the parts together, or it can be a negative value so that the tool overlaps the starting point of the bridges.

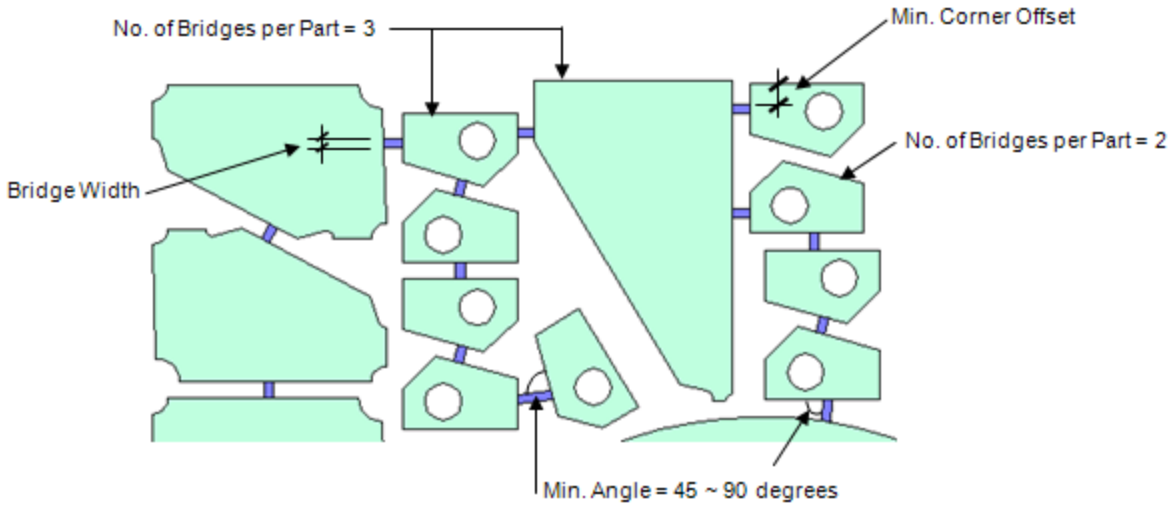
Bridge Width
Use this parameter to set the width of the bridges between the parts.

Minimum Corner Offset
The minimum corner offset is how far from the corner of the nested part the bridge can appear. You do not want the bridge on the very corner of the part, especially if you wish to use a negative tab that the tool will cut off. Typically you would put a number in there that would allow for the entire tool diameter to move from the tab to the corner of the part (so at least 1 tool diameter plus).

Minimum Bridge Angle
This is an angle between 45°-90°, to specify the minimum angle to consider for placing a bridge between two parts. Typically you would not want an angle that was too acute, or the bridge and resulting corner can become unsuitable for a tool to cut.

Maximum Bridges Per Part
There will often need to be several bridges on a part depending on the nest. This field limits the number of bridges that the nest can use to hold the parts together. This sometimes means that there will be more tool paths made if the number of bridges is too small. A good starting default is 4.

Illustration for Bridge Parameters



Common Line

Common Line will create a series of tool paths between the parts attempting to make the fewest tool path moves and still cutting all the parts. This means that the tool will be cutting parts on both sides of the tool path, instead of making one tool path around each individual part.
Consider the following nest of parts, cut with Common Line:

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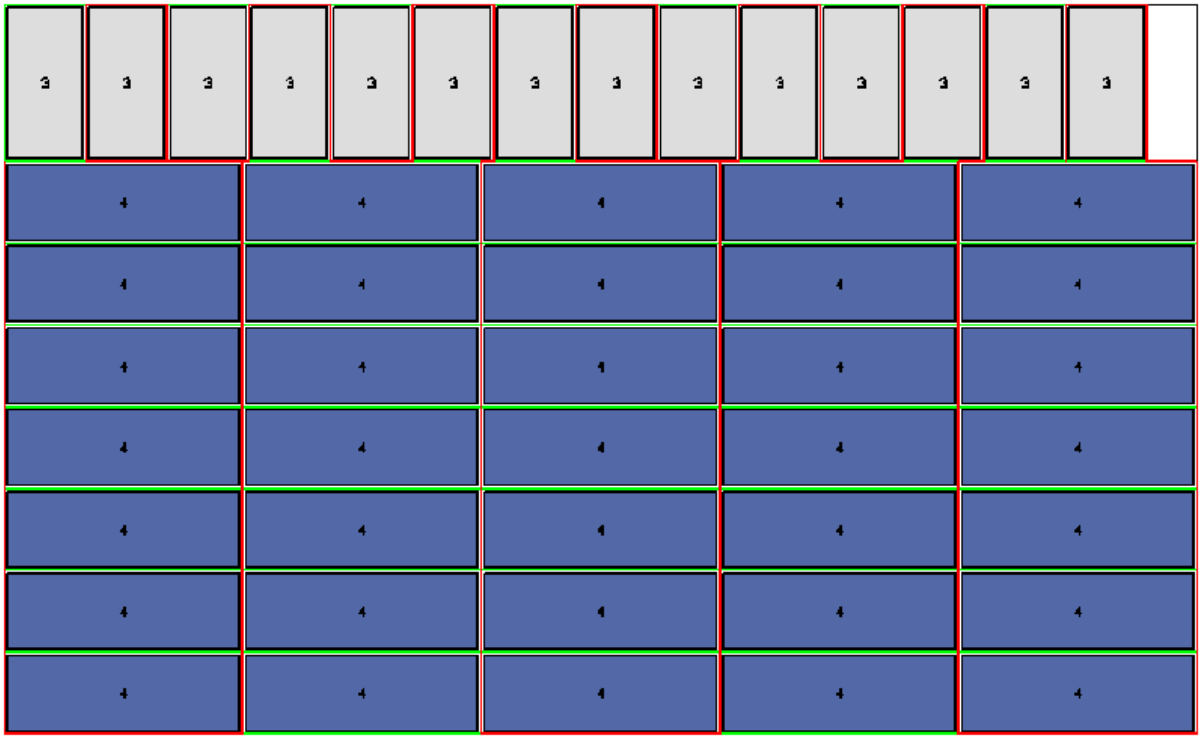
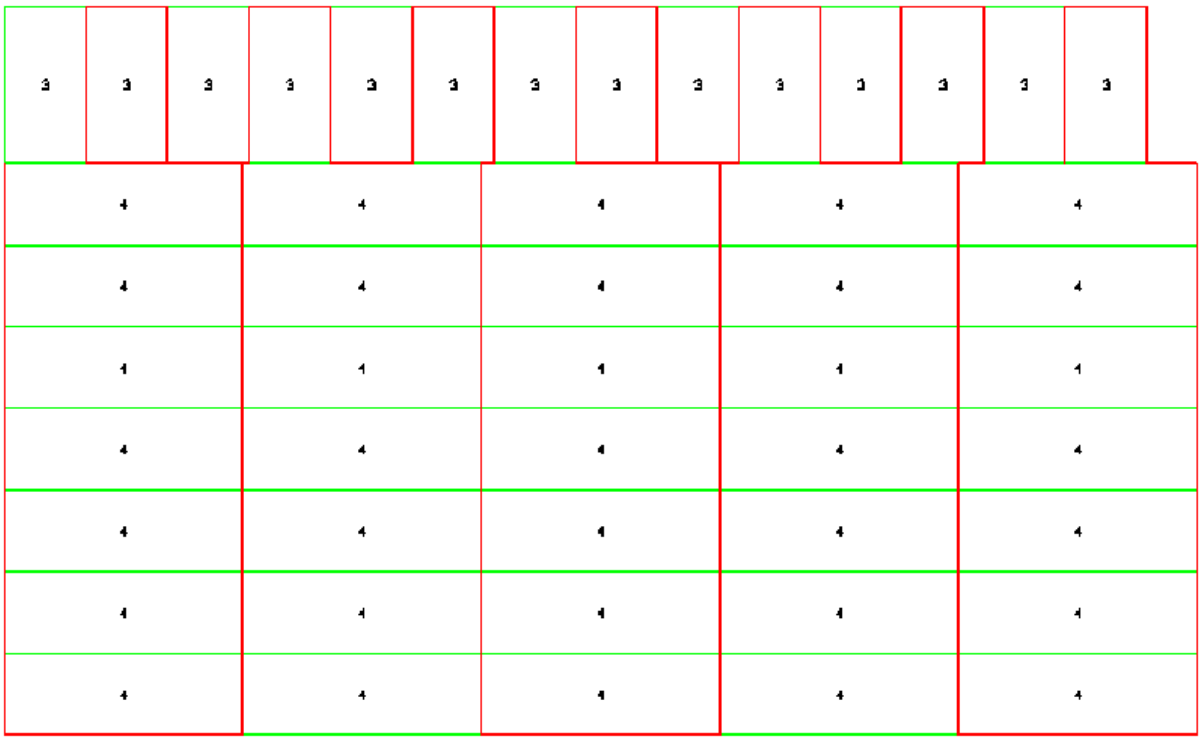


These parts are laid out according to size so that the common edges are matched. Looking at the same nest without the parts, shows the tool path motions:



Here the hint of fact that there are really only two tool paths on the entire nest starts to show. If we

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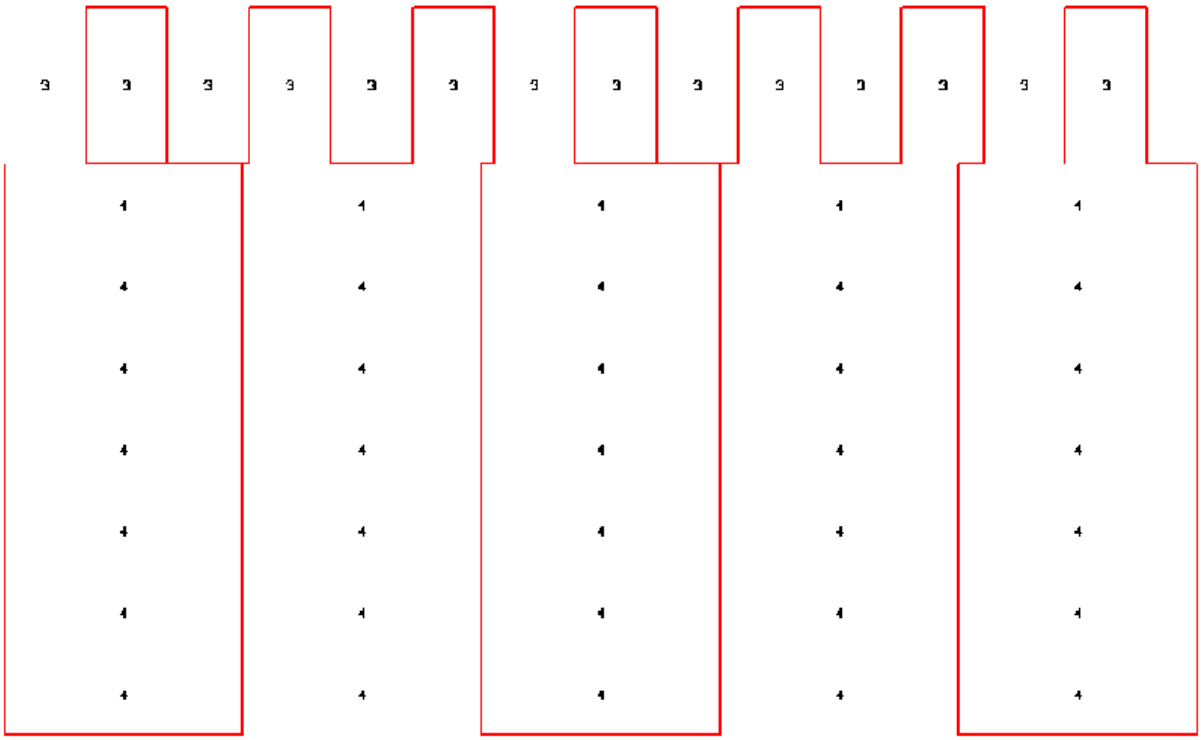
isolate just the vertical tool path (red line shown) we can see:



The above illustration shows that the tool path winds through the parts without lifting, cutting each of the vertical sections as it moves through the nest.
Further isolating the horizontal tool paths shows the rest of the tool path.

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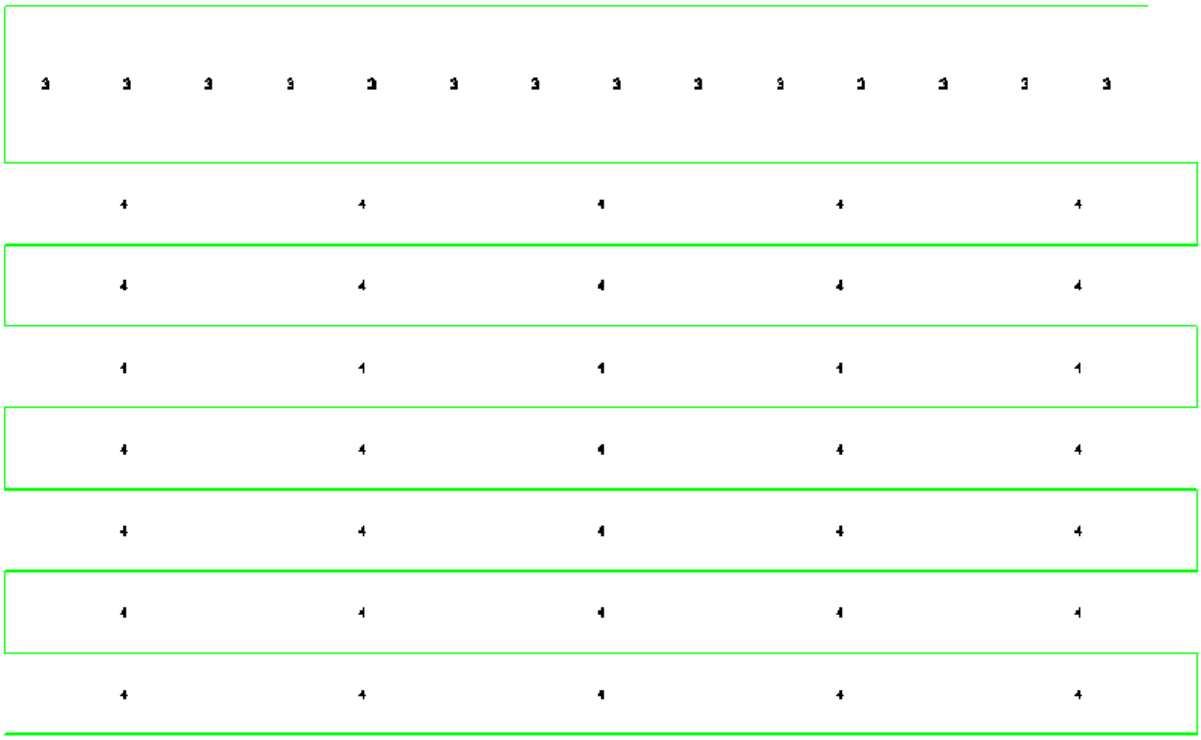

This is the horizontal path that cuts the rest of the geometry in the nest.

The end result being that with only two tool paths the tool is able to stay in the nest longer, eliminating the constant index moves from part to part and also is better able to maintain a more constant chip load, which keeps the tool cooler and makes it last longer. The result being a faster and more efficient process.

2.1.4.4.3 Enable Backside Nesting

Enable Backside Nesting

Use this option to turn on and off the Backside Nesting feature.
Backside nesting will allow you to cut on both sides of a nested sheet, enabling you to make all the necessary router operations on a part without having to place any parts back on the machine one at a time for re-processing.
Typically the back side is cut first. Outside profile cuts (through cuts) can be made halfway through on the back and then all the way through on the front, or they can be cut all the way through on the front side (second side).

Consider the following nest of parts:

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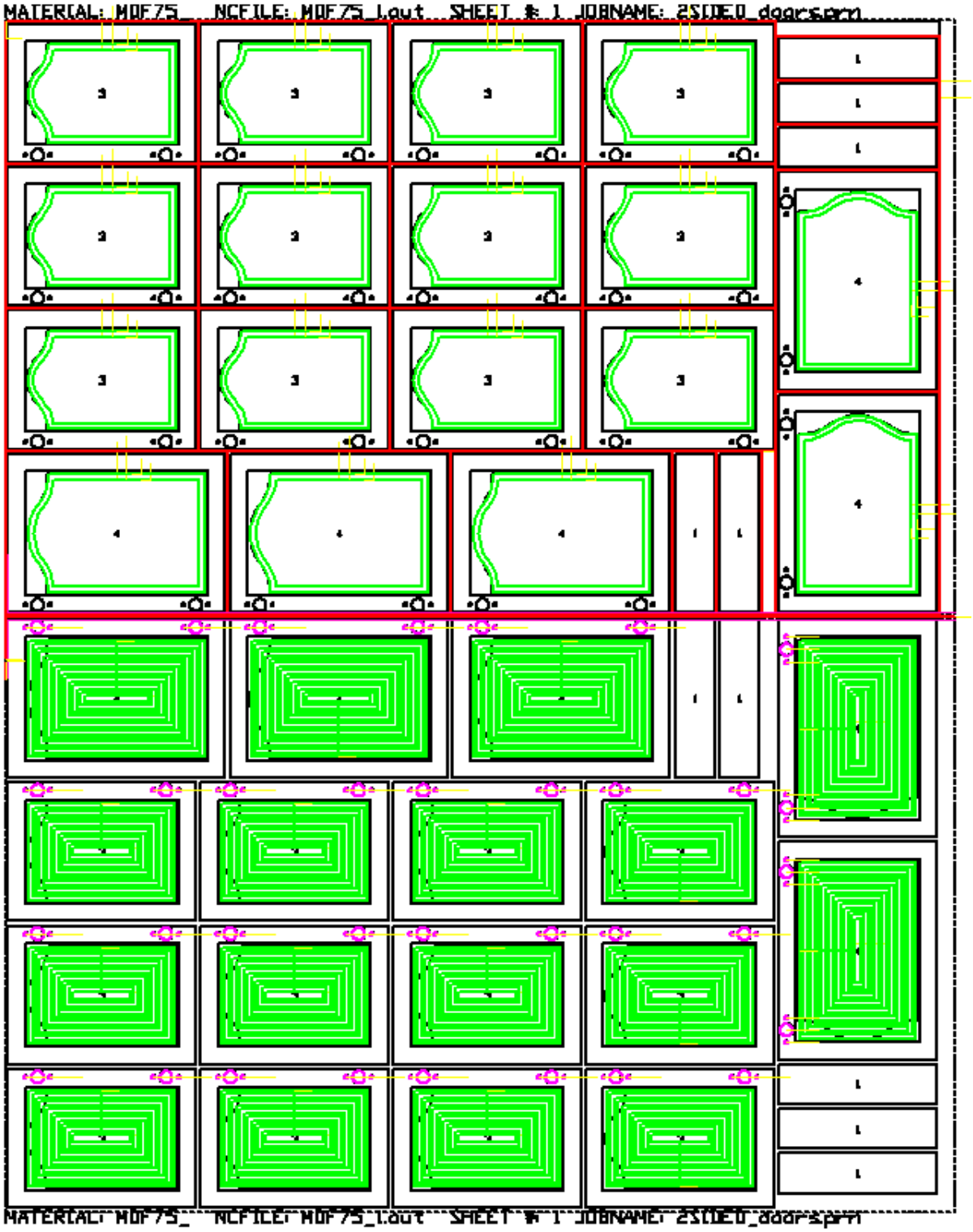

In this scenario, the bottom sheet has all the glass pockets, hinge hardware cuts, etc. that will be necessary on the back side. Then there is a reference cut made on the top and top left corner of the sheet. Next the sheet can be flipped over with the reference point being placed against the location pins. Then all the parts can have the details cut and then the profiles can be cut, releasing the part from the sheet. In this case, Common Line cutting could also be used on the top to reduce the cycle

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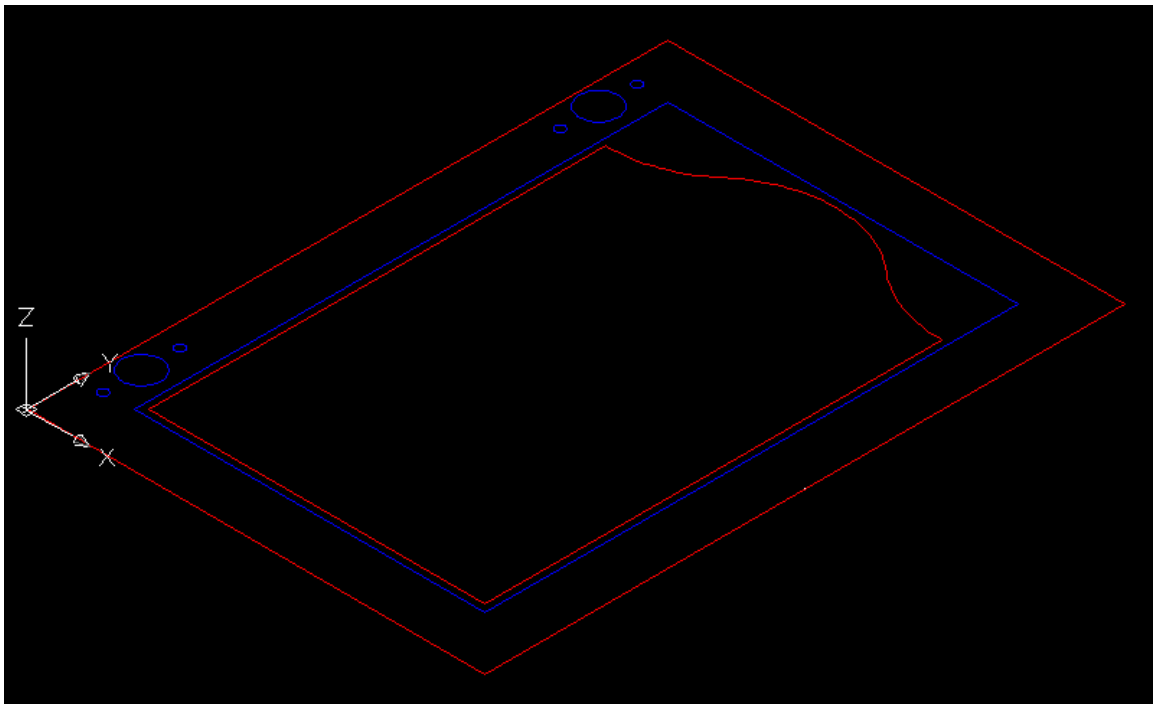
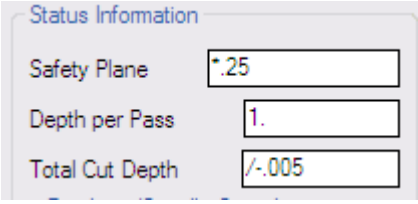
time necessary to release the parts from the sheet.

Operation
The general rules to this method are that all the geometry for the part (front and back side) must be in one drawing and on separate layers that can be controlled with a layer to knowledge association in the DOIT files.

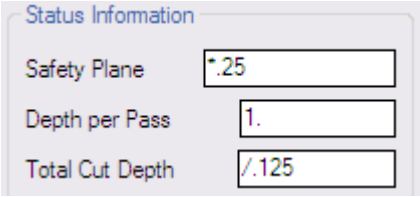


In the drawing shown above, the red geometry is cut on the front side of the sheet and the blue geometry is cut on the back side of the sheet. Both front and back geometry must exist in the same drawing, dxf, or macro file.

The front and or back geometry can have negative thickness. If you want your knowledge to cut to the geometry thickness, then your total cut depth can either be left blank, or have a capital A, or a backslash and a value. Blank or A will make the cut depth to the geometry thickness. A backslash and a value will cut that value more or less than the geometry thickness:



This example will cut .005 MORE than the geometry thickness. If the geometry is -.75 thick, the cut depth will be -.755



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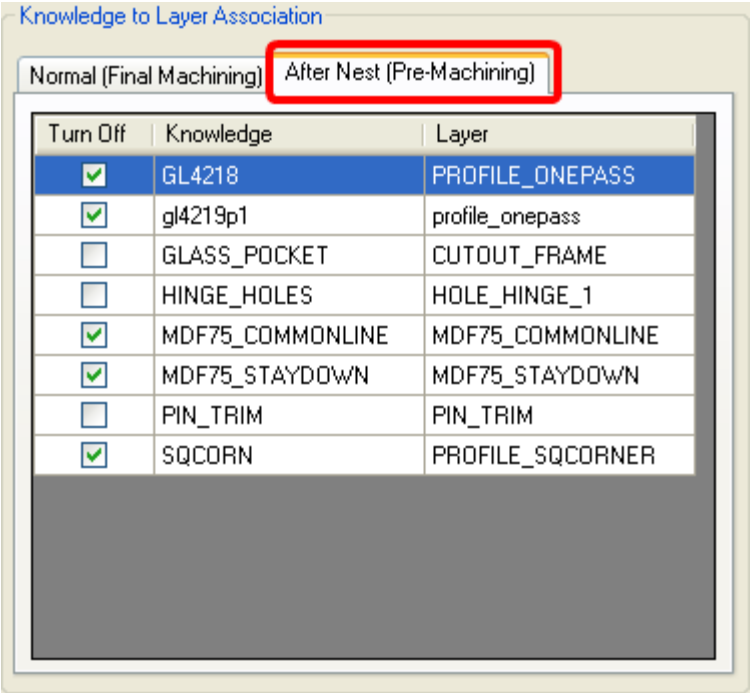
This example will cut .125 LESS than the geometry thickness. If the geometry is -.75 thick, the cut depth will be -.625

In the DOIT editor, there are two tabs. One for cuts on the first side and one for cuts on the second side. The order of these are as follows; The After Nest (pre-machining) tab is for the cuts that will happen first, before the sheet is turned over. The Normal (final machining) tab is for the cuts that will happen when the sheet is flipped over, containing all the cuts that will happen last and when the parts are cut loose from the sheet.



First side (non through) cuts happen with this list.

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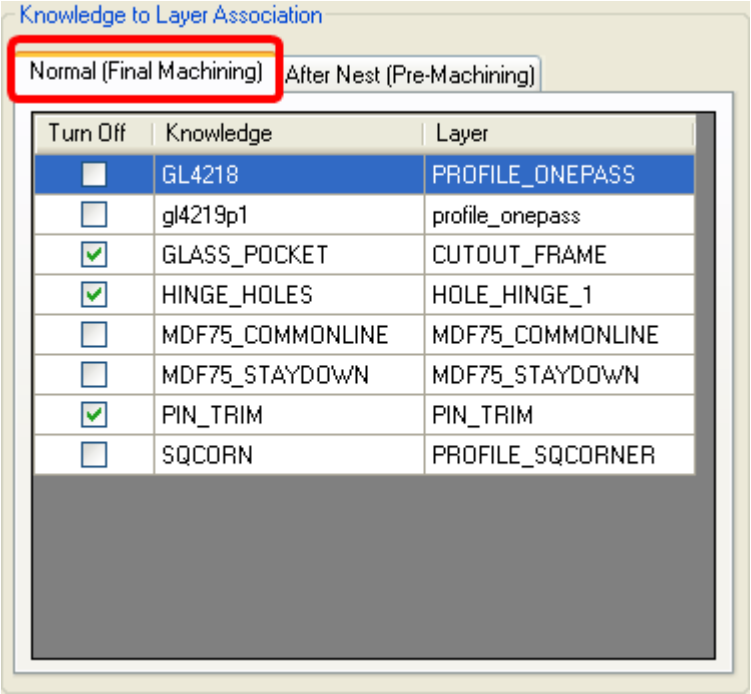

Second side (and through) cuts happen with this list.

If you want to cut half way through on the front, and half way through on the back, then you need a knowledge and layer association that cuts half way through for both the Normal tab and another (or the same) knowledge association for the After Nest tab. If you want to cut all the way through on the front side, then that knowledge / layer association should be done in the Normal machining tab.

You would never cut all the way through on the After Nest because that would separate all the parts and you could not flip the sheet over!

Once you make the associations in these two lists, save the DOIT file.

The 2 sided nesting is activated by checking the box in the Advanced Nesting tab that says “Enable Backside Nesting”.

Also in the Advanced Nesting tab, the vertical spacing needs to be set at 2.5 or more. This ensures that there is enough room to mirror the sheets.

Note that 2 sided nesting requires rectangular stock only, irregular stock shapes with more than 4 sides will not be mirrored.

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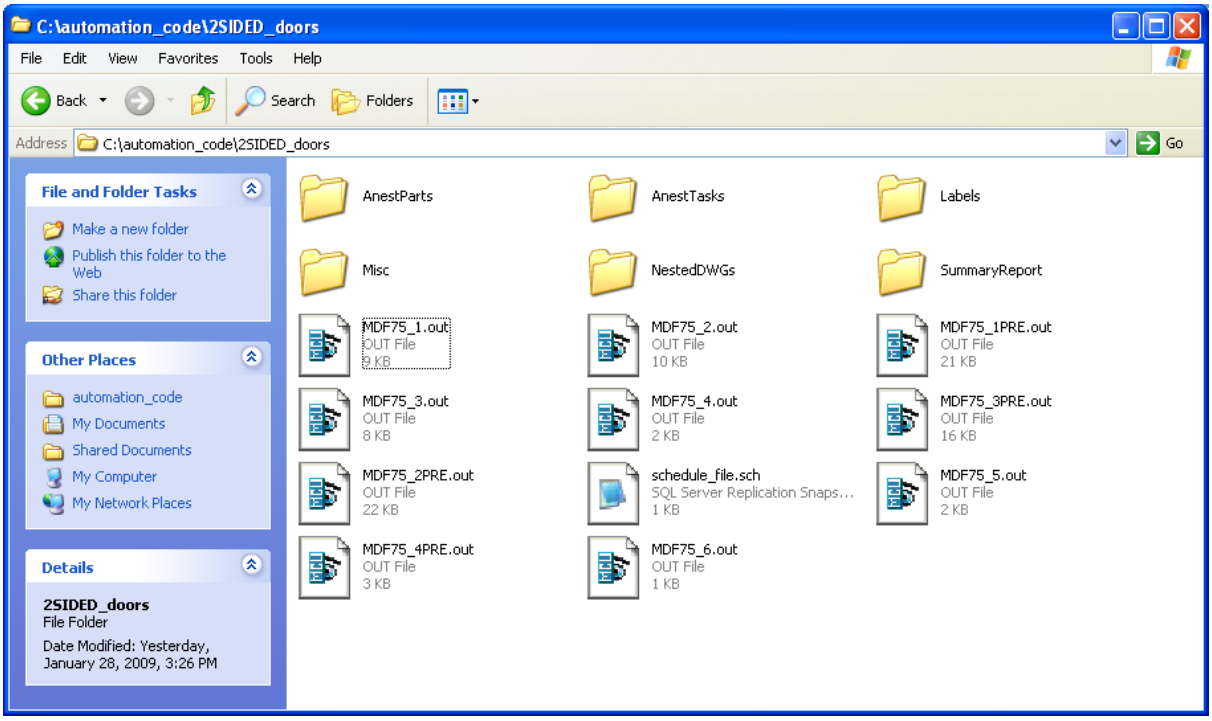
Trim cut

A trim cut is made along the edge of the back side sheet. This trim cut ensures a good edge to place up on the pop up pins when the sheet gets flipped over.
Router-CIM automatically makes geometry on layer pin_trim. You need a knowledge named pin_trim associated to layer pin_trim in the after nest DOIT file. This knowledge is a centerline cut set to offset by the tool radius, cut to the RH and CCW direction.

The pin_trim geometry is offset by ½ of the edge allowance and will be shaved off the back side of the sheet and the origin of the main nc code file will be shifted by that amount.

Results

When the job is run, the results will have two NC Code files for each sheet.
The regular sheet name and one with PRE in the name. The PRE is the back side and it is run first.



Operation

- In the Advanced nesting tab, the Enable Backside Nesting box is checked and the vertical spacing is set to 2.5 or more
- Parts are added to a job. These parts must have geometry for both front and back side machining.
- The DOIT file has associations for both the front and back sides
- The After Nest tab in the DOIT file requires a layer to knowledge association called pin_trim. This is the trim cut to ensure a stable edge to flip the sheet against.
- Run the job.
- Load the sheets backside up at the CNC. The backside is the first machining to be done, then the sheet is flipped over and the front side machining is done.
- The results will have 2 NC Code files for each sheet. The regular sheet name and one with PRE in the name. The PRE is the back side and it is run first.
- The schedule file will have the PRE file first, then the regular NC Code name. This makes the back side of the sheet, flip it over, then the top side of the sheet.

Schedule file

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The schedule file will be created with the files listed in the proper order to be executed.

```
1,MDF75_1PRE.OUT,1,1,00:00:00,00:00:00
1,MDF75_1.OUT,1,1,00:00:00,00:00:00
2,MDF75_2PRE.OUT,1,1,00:00:00,00:00:00
2,MDF75_2.OUT,1,1,00:00:00,00:00:00
3,MDF75_3PRE.OUT,1,1,00:00:00,00:00:00
3,MDF75_3.OUT,1,1,00:00:00,00:00:00
```

2.1.4.4.4 Cart Control Nesting

Open Cart Control Grouping Key

This is the field you can use to set the cart name or number for each part. You can choose from Record Description, or Label Fields 1-8 (Customer Info 1-8 by default).
Whichever key you choose, when adding parts to a job, you will place the cart name or number in the specified field so that the nest program can group the cart parts together.

Cart Control Nesting

Cart Control Nesting will allow you to control, to some degree, the jobs that are nested together on your sheet stock when multiple jobs are run together in Router-CIM Automation. Normally if you place parts from multiple jobs together in Router-CIM, there is no control over which parts will end up together on a sheet, since yield is the highest concern at that point. This can lead to confusion or lost time as the parts are sorted at the machine, after being cut, so that they can be stacked together with other parts from the same job.
As an example, if you had parts from 5 jobs together, it is entirely possible to have parts from all 5 jobs on the same sheet. This would cause the workers removing the parts to have 5 stacks (or carts) at the machine so that they can place the parts from the same jobs together. A more efficient way of performing these tasks might be to limit how many carts (or jobs) can be nested together on the same sheet. So, if the max number of carts is set to 2, then you can only have parts from 2 carts together on the sheet at one time until one of the two carts is finished, then another cart is added so that there are still only two until one of those carts runs out of parts, then another is substituted, and so on until all the parts from all 5 carts are finished. This way there are no more than two carts to stack at one time, or possibly 3 if you run out of parts for a cart part way through a sheet.

To control this in Router-CIM, you must have the Advanced Nesting option and in the Advanced Nesting tab set what field will be the Open Cart Control Grouping Key in the part parameters. In this case the key is Label Field 8 (Customer Info 8).

Once this is set, in your job you should set which parts belong to which job (or cart). In the case below, the part is set for Cart1. You can use any description for the field that identifies the cart, as long as all the parts in the same cart use exactly the same description.

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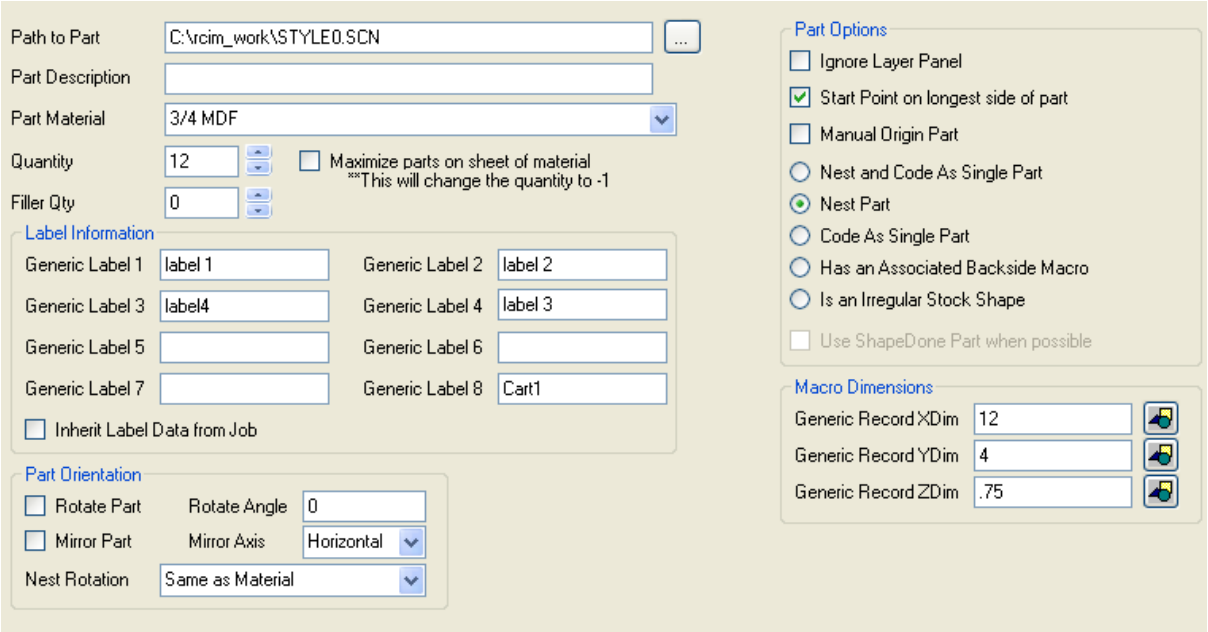
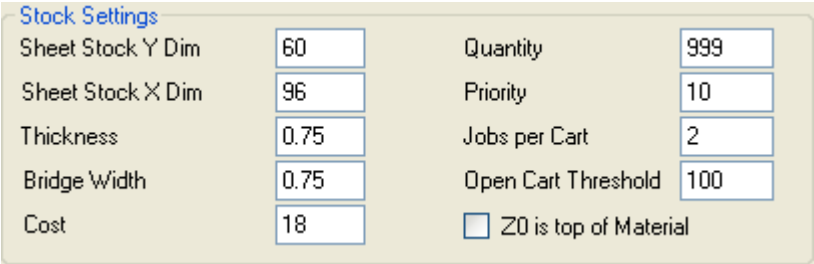


In the material, you can choose the number of Jobs per cart. This is really the number of groups of parts that have the same record description per sheet in this material. The Open cart threshold is an override that says if there is at least the percentage shown of available space then go ahead and add another group of parts with the same description on this sheet. In this case, only two carts can be on the same sheet because there would have to be 100% of the space (empty sheet) left over in order to add a third cart to the sheet.



This example will use a job that has 10 parts that belong to 5 different carts. The breakdown is like this:

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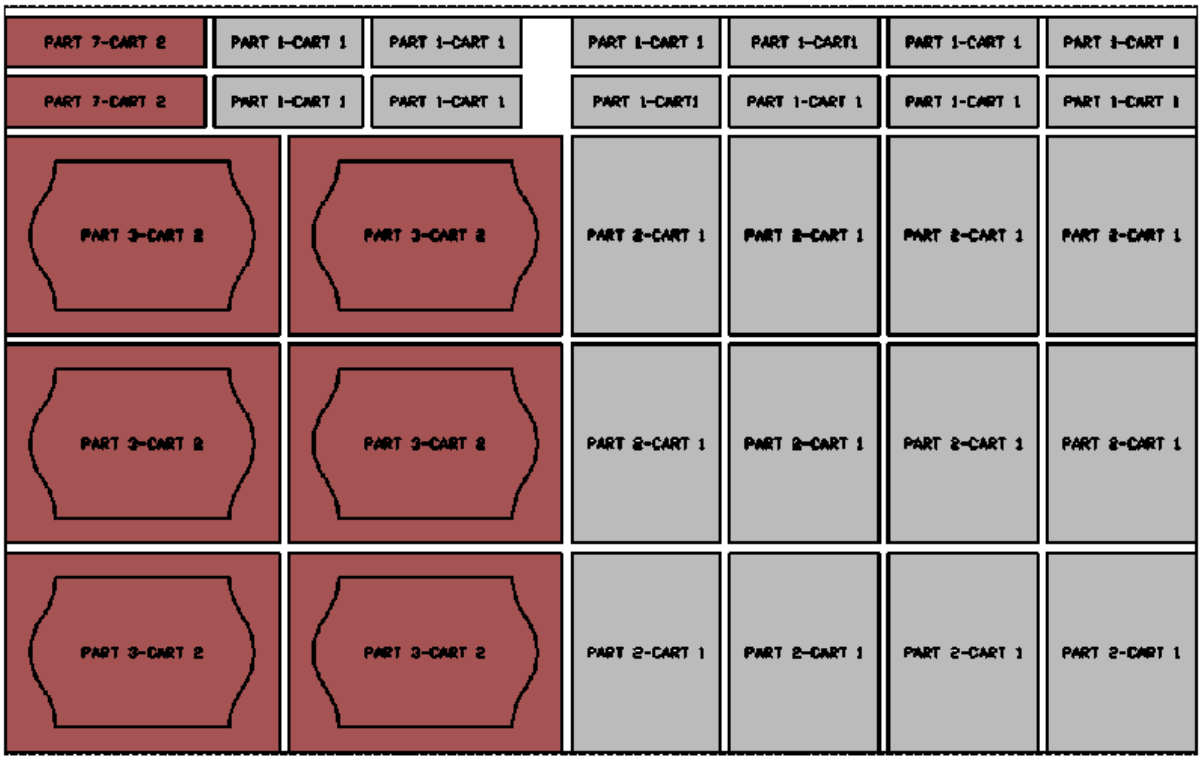
	Part#	Part	Qty	Material		X Dim	Y Dim	Z Dim	Full Path to Part
	1	STYLE0.SCN	12	3/4 MDF	CART 1	12	4	.75	C:\rcim_work\STYLE0.SCN
	2	Style1SQ.scn	12	3/4 MDF	CART 1	12	16	.75	C:\rcim_work\Style1SQ.scn
	3	STYLE2.SCN	8	3/4 MDF	CART 2	16	22	.75	C:\rcim_work\STYLE2.SCN
	4	STYLE6.SCN	4	3/4 MDF	CART 3	23	32	.75	C:\rcim_work\STYLE6.SCN
	5	STYLE8.SCN	12	3/4 MDF	CART 4	19	23	.75	C:\rcim_work\STYLE8.SCN
	6	STYLE9.SCN	10	3/4 MDF	CART 5	18	24	.75	C:\rcim_work\STYLE9.SCN
	7	STYLE0.SCN	8	3/4 MDF	CART 2	16	4	.75	C:\rcim_work\STYLE0.SCN
	8	STYLE0.SCN	4	3/4 MDF	CART 3	23	4	.75	C:\rcim_work\STYLE0.SCN
	9	STYLE0.SCN	12	3/4 MDF	CART 4	19	4	.75	C:\rcim_work\STYLE0.SCN
	10	STYLE0.SCN	10	3/4 MDF	CART 5	18	4	.75	C:\rcim_work\STYLE0.SCN

Once this job is nested with the previously set parameters the sheets will look like this:



Sheet 1 has parts 1, 2, 3, and 7 which are from Cart 1 and Cart 2. Cart 1 is finished.

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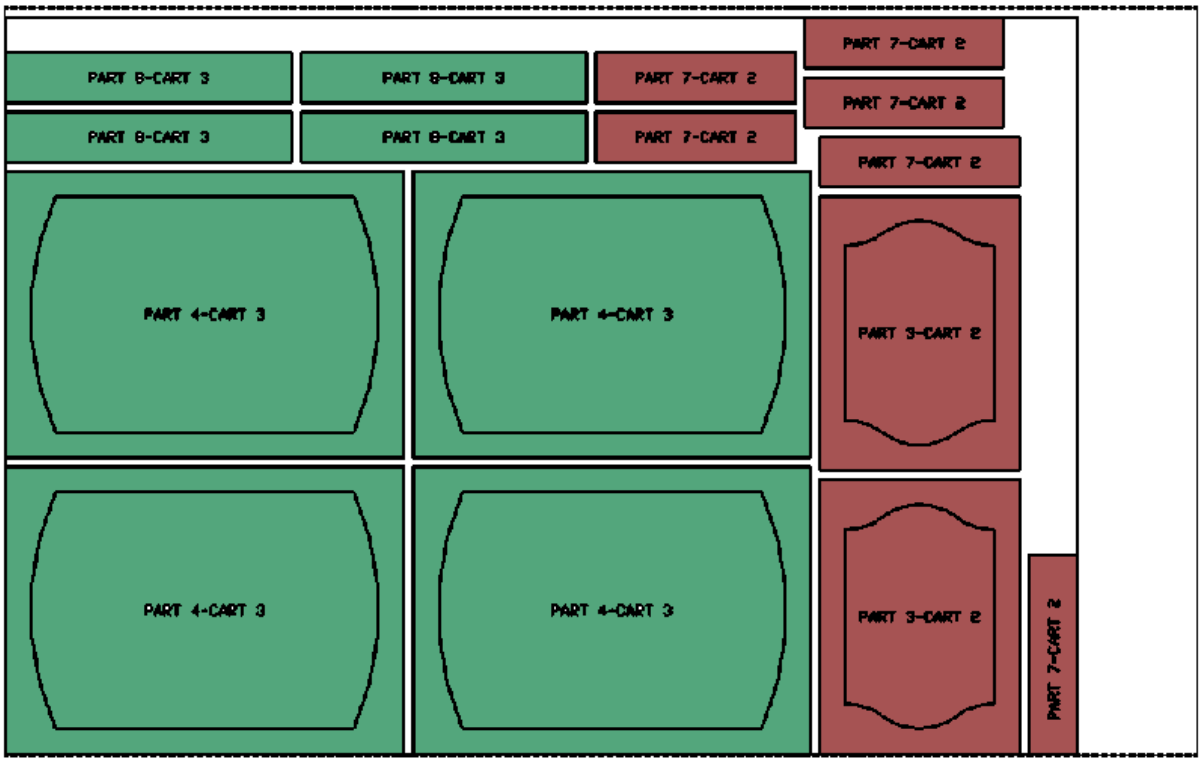
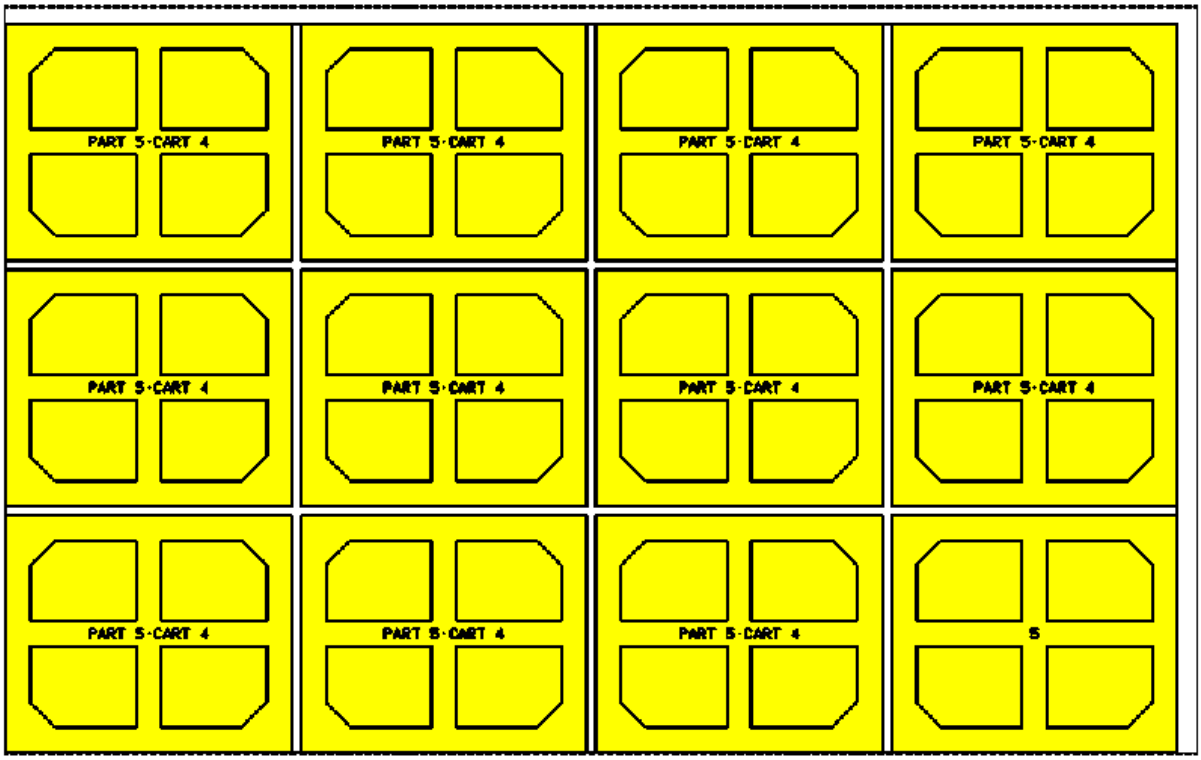


Sheet 2 has parts 3, 4, 7 and 8 which are from Cart 2 and Cart 3. Cart 2 is finished. Cart 3 is also finished.



Sheet 3 has part 5 which is from Cart 4 only.

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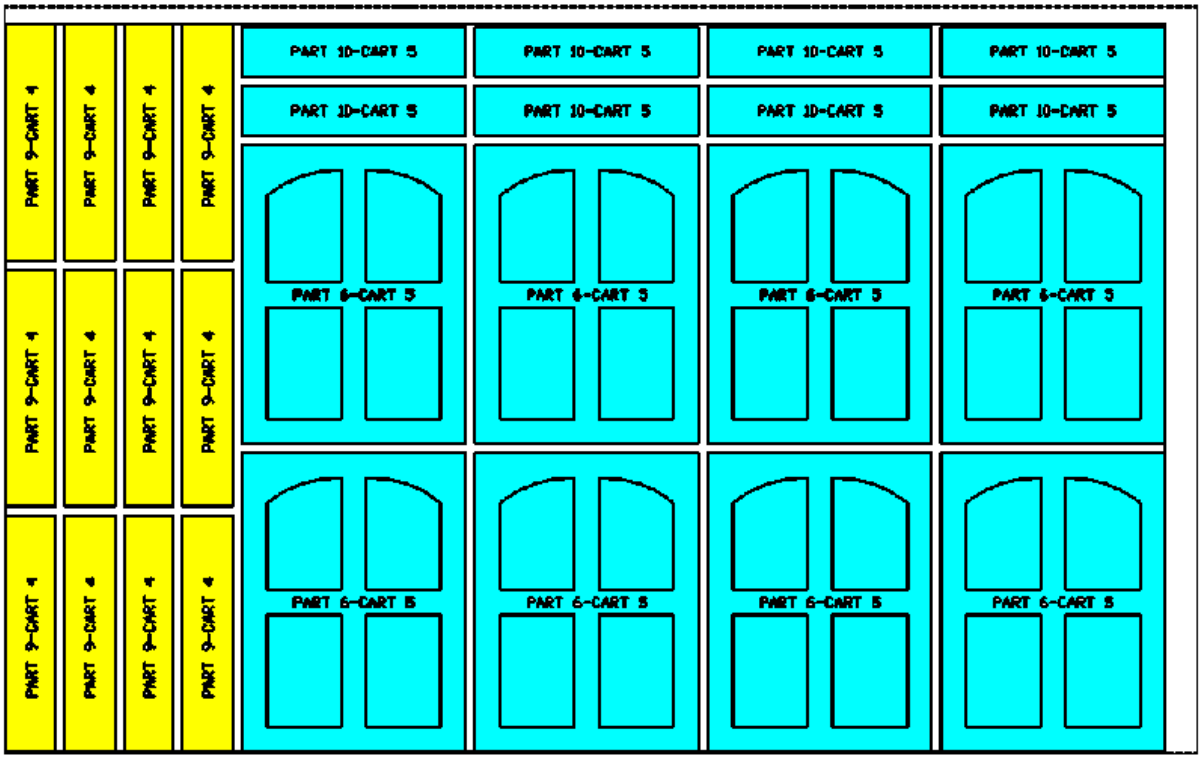
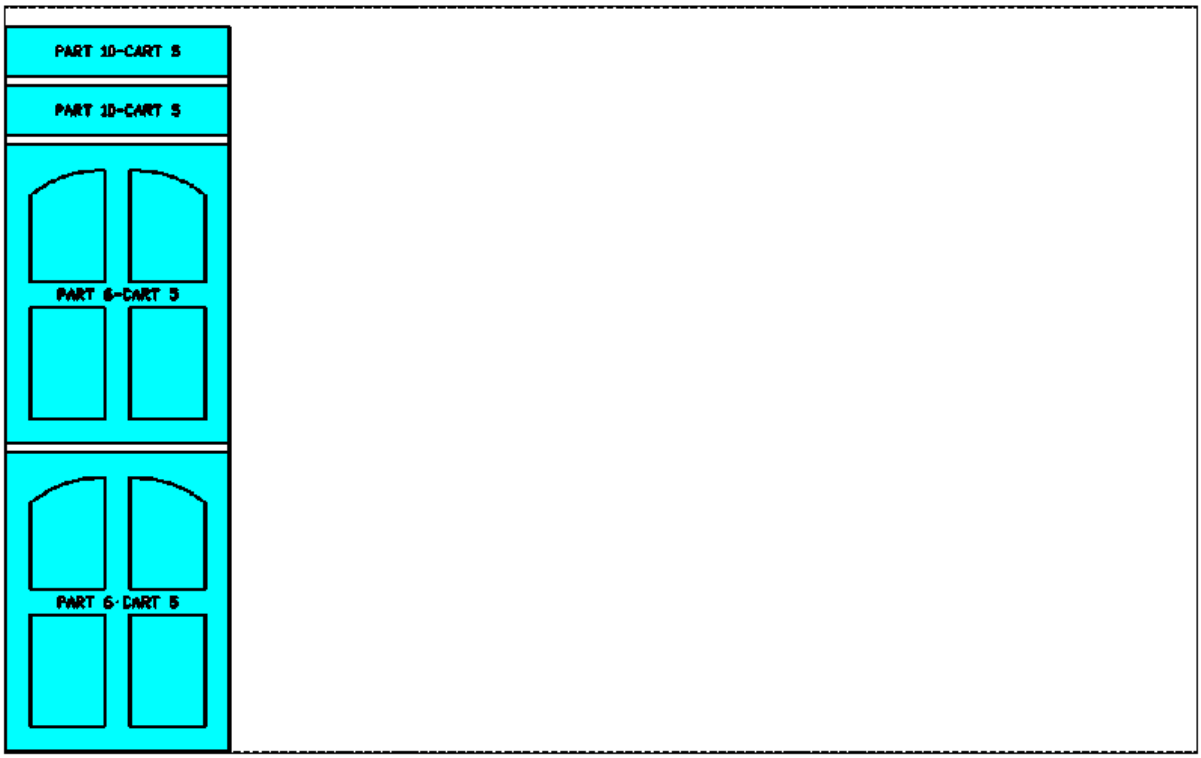


Sheet 4 has parts 6, 9, and 10 which are from Cart 4 and Cart 5. Cart 4 is finished.



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2.1.4.5 Dynamic Variables

Dynamic Variables

	Name	Value
▶	MDF75	.75
	MEL750	.75
	PLY250	.25
	MDFXX	.75
	WHT75	0.750
	BIR25	0.25
	MEL75	0.750
	ALM75	0.750
	BBP25	0.2187
	MEL25	0.25

This section will show all the Dynamic Variables from a macro job or part. If there are no macros in the job, the default will show each of the materials as the materials can be used for setting thickness in a macro.

2.1.4.6 Part Name

Part Name

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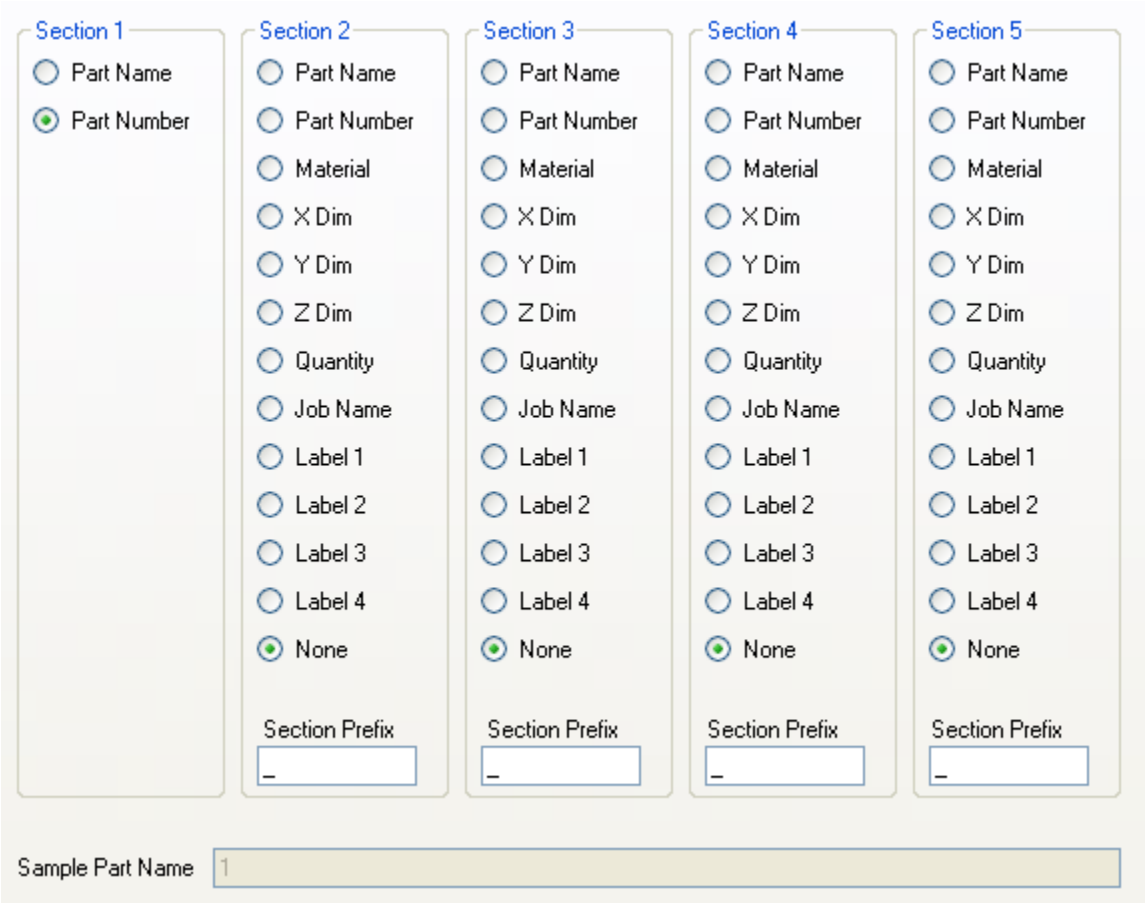
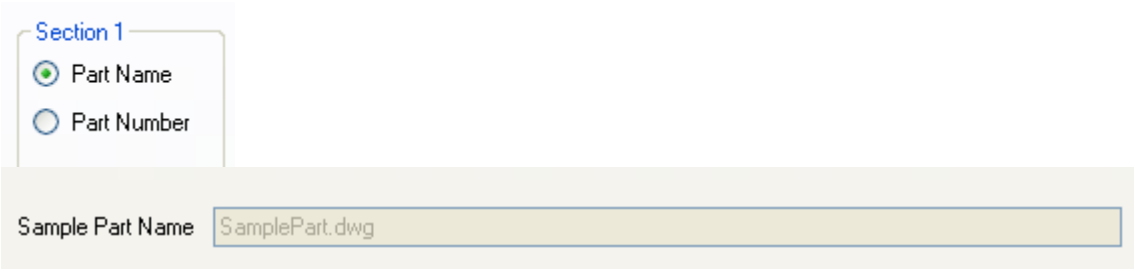


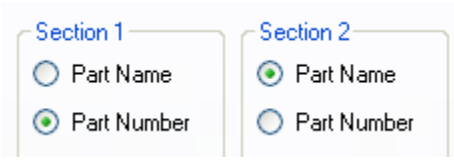
There are 5 possible sections to compile the data embedded in the part name as it appears on the nested sheet. Each section will appear in the Sample Part Name box at the bottom to show an example of how the name might look should certain options be specified.

The prefix for each section can be specified as a character you wish displayed between each field.

The following shows Section 1 set to Part Name instead of Part Number:



Changing Section 1 to Part Number and Section 2 to Part Name gives you this result:



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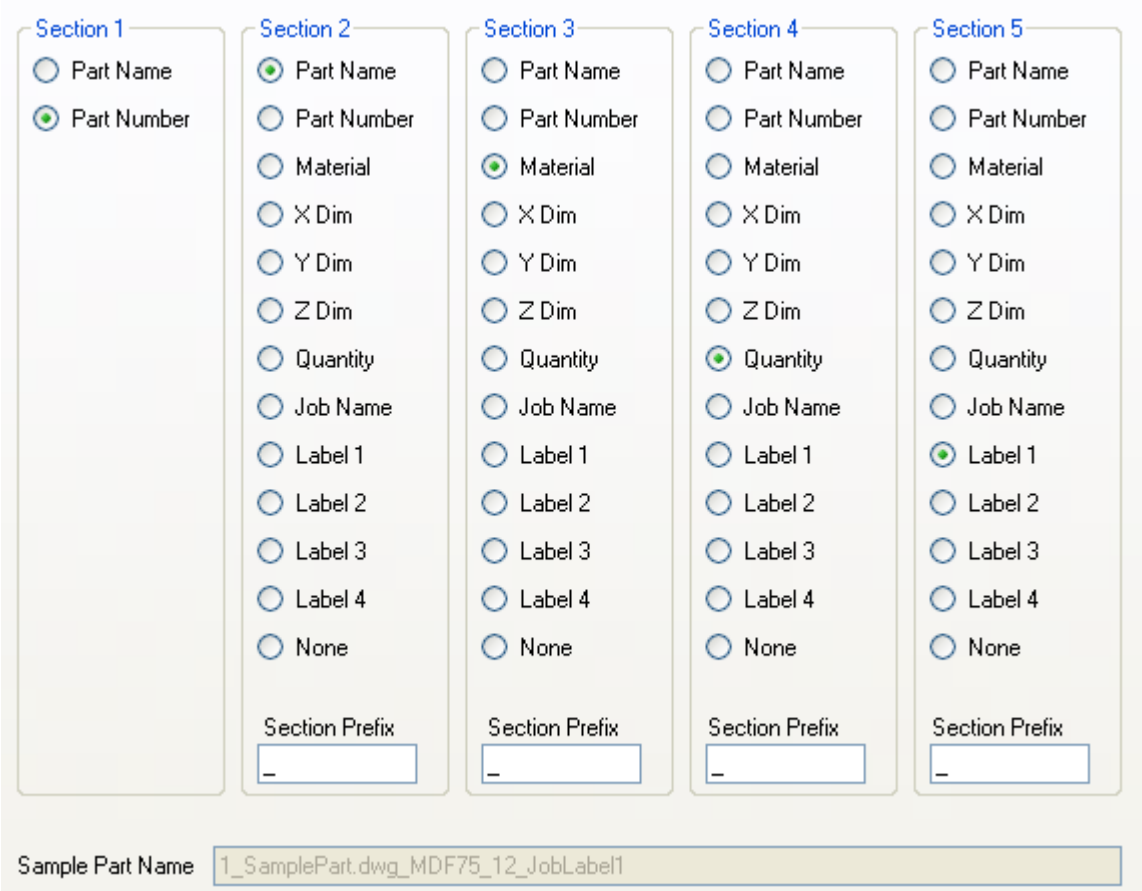
And using all 5 sections could give you the following result (which is a very long file name).



Keep in mind that this is to set the name of the part as it shows in the nested sheets. If you have small or narrow parts, and a lot of combinations to the name field, the text will overlap other parts and could become confusing.

The default is to use only the Part Number.

2.1.4.7 Output Files

Output Files

Similar to the Part Name section the Output Files parameters contain 5 sections to allow you to string together names for the NC Code files that have the proper meaning for you.

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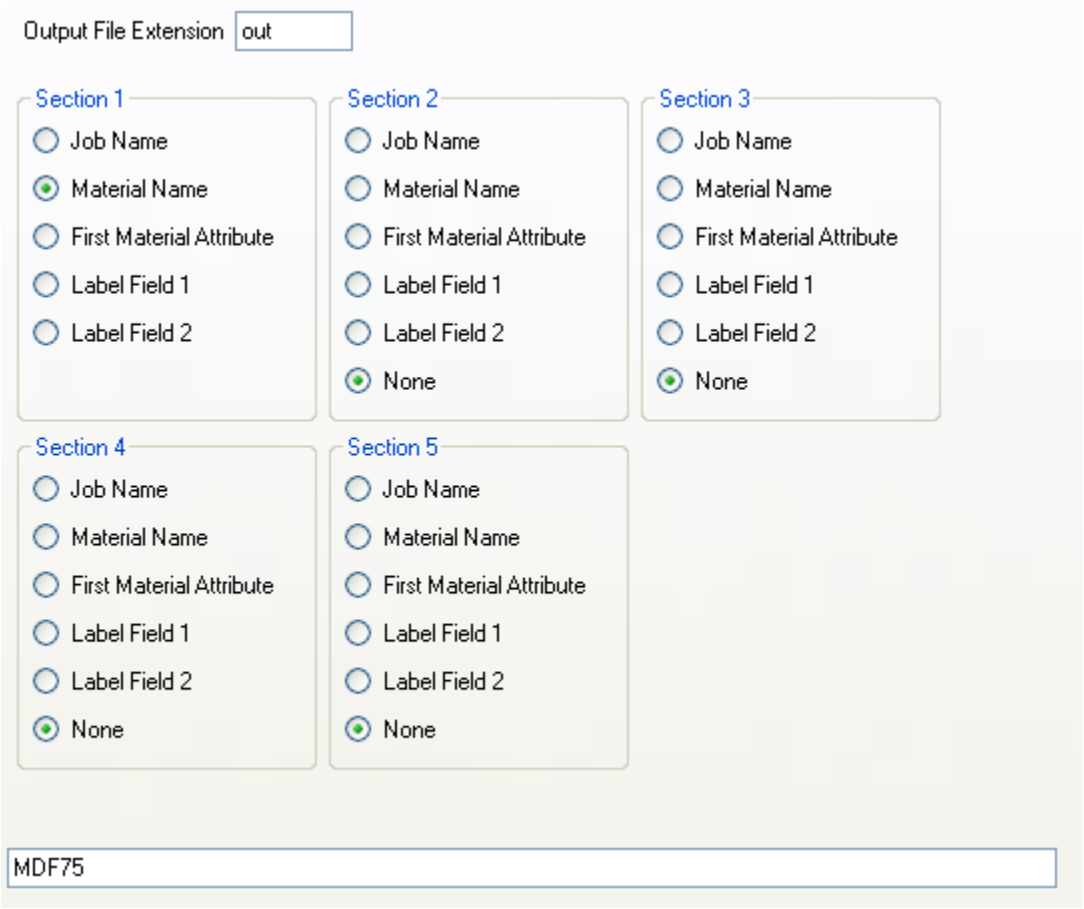

The default name for the code files is set to Material Name. Using other combinations appends those combinations to the name. Examples of the name are show below.

Using all 5 fields can create a very long file name, and there are no delimiters between the sections (as some controllers will not allow special characters).

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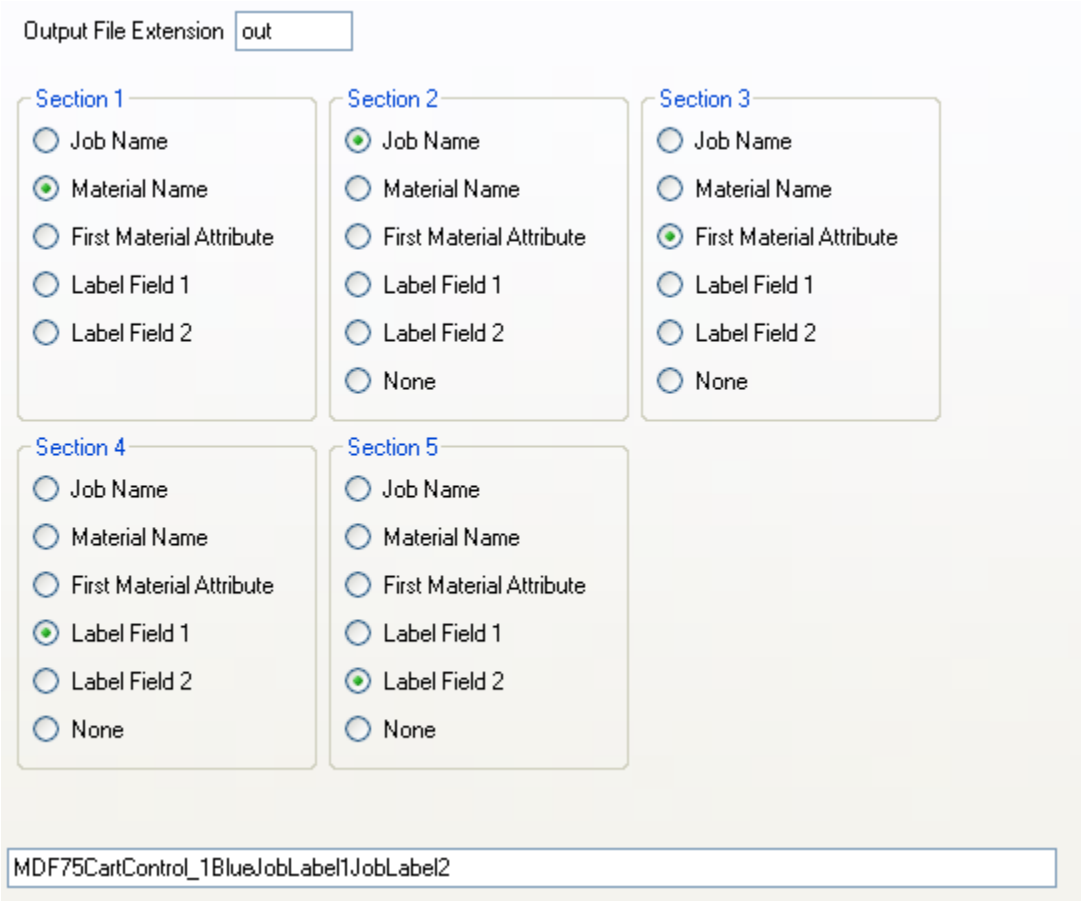

So this filename would be MDF75CartControl_1BlueJobLabel1JobLabel2.out

2.1.4.8 Results

Results

The results section will display a log for each time the job is run, and place in the log the results of the run.

	Entry Type	Entry Date	Entry Text
	Audit Entry	1/22/2009	Job CartControl_1 Completed Successfully. Elapsed time: 2 minutes and 45 seconds
	Audit Entry	1/12/2009	Job CartControl_1 Completed Successfully. Elapsed time: 2 minutes and 41 seconds
	Audit Entry	1/12/2009	Job CartControl_1 Completed Successfully. Elapsed time: 2 minutes and 55 seconds

You can double-click on any of these logs, and you will see the summary:

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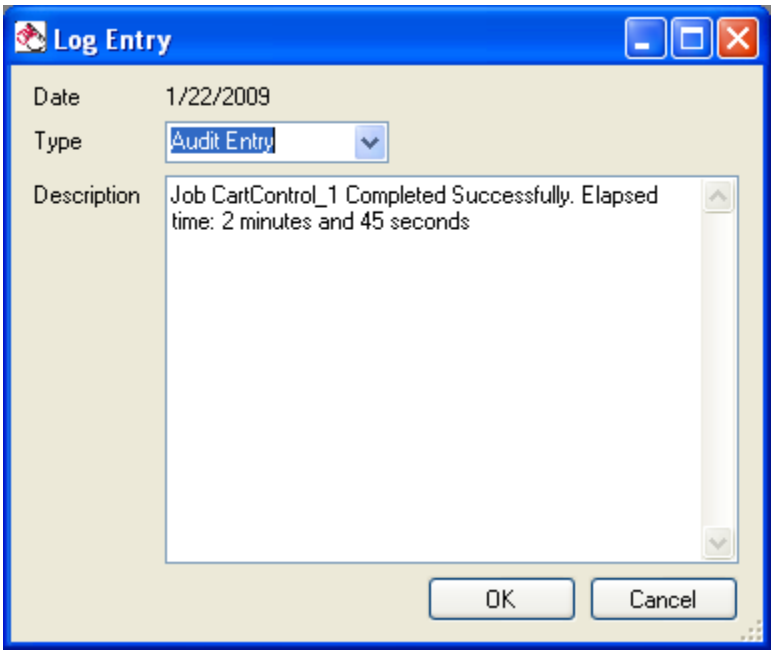
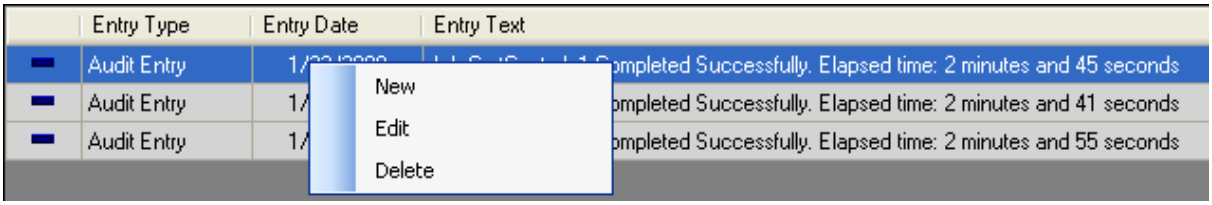


Also right-clicking on an entry shows a menu which will allow you to add a new entry, edit and entry, or delete an entry.



2.2 Variables Window

Variables Window

The variables window displays all tagged variables for a part, or any global variables for an assembly.

Tagged Variables

These variables are marked in the macro as tagged so that they may be modified in the job individually. In this instance a door macro is selected and several variables display in the Variables Window.

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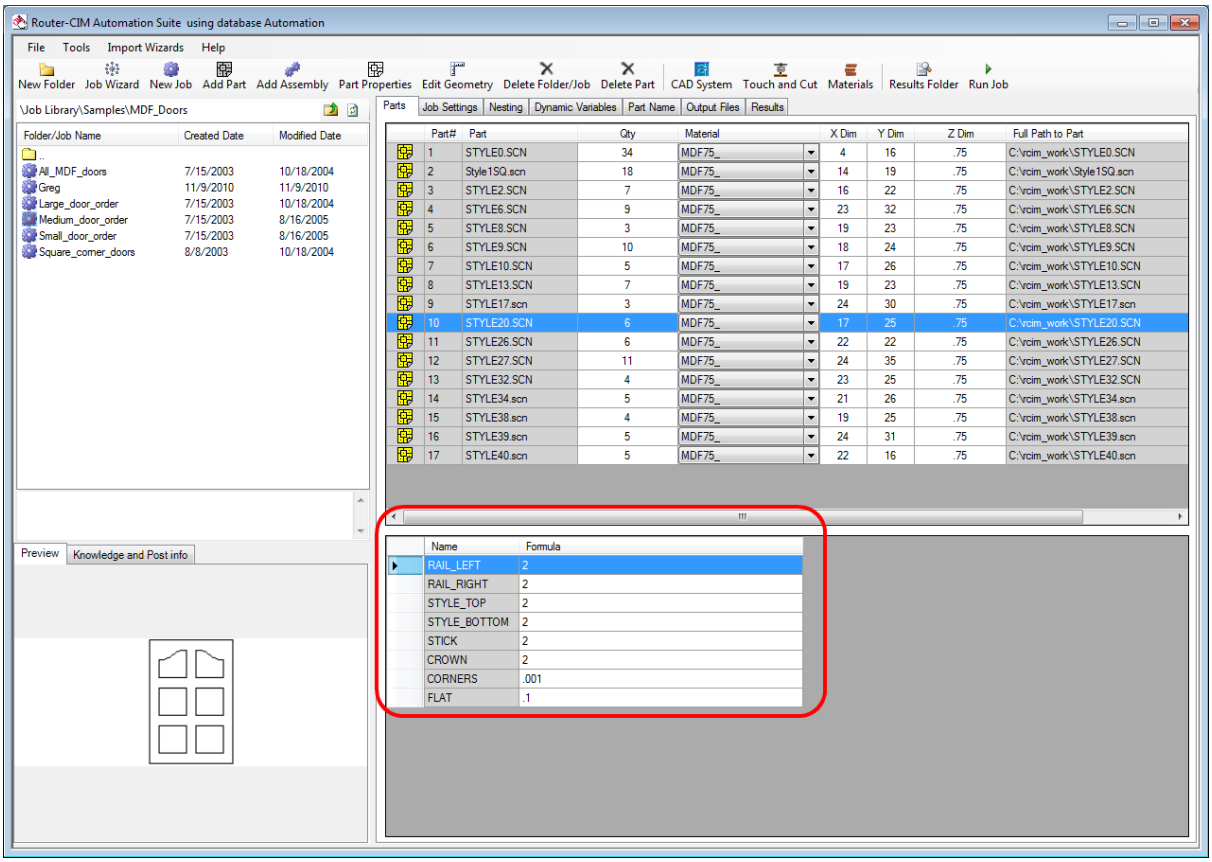

You can edit the Formula value for the tagged value by selecting it and typing in a new formula or value. You cannot change the variable name.

Global Variables

Global variables are typically variables that affect more than one part in an assembly. Instead of having the same variable in each part and trying to remember to change the value for each part, you would make a global variable and have it changed once and that change would affect each macro that uses that variable. For instance, there may be several macros that make up a cabinet, but you would only want to change the cabinets Height once and have all the parts relate to that value. Height would be a global variable.

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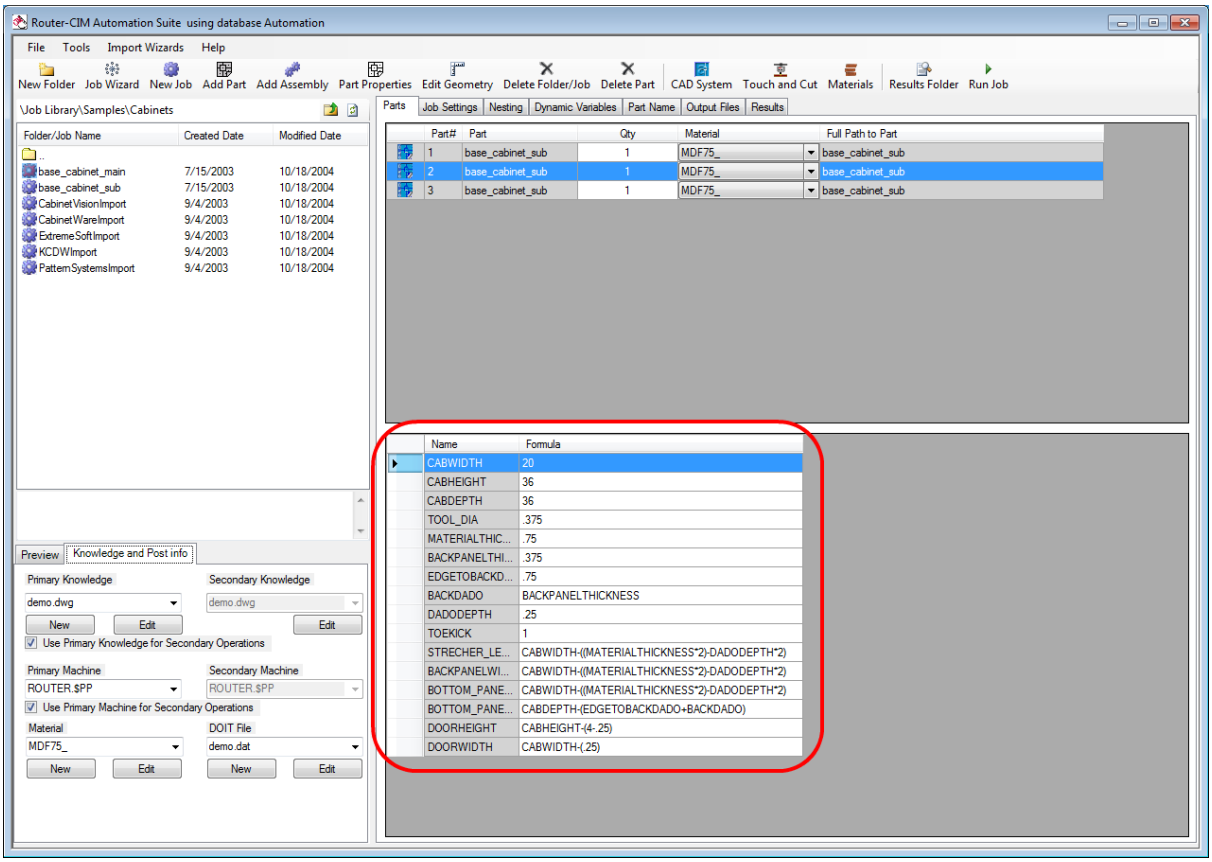

This job (base_cabinet_main) has 3 assemblies in it. Each of them are the same assembly, but the global variables for CABWIDTH, CABHEIGHT, and CABDEPTH can be changed to allow 3 different size cabinets, just from changing those 3 global variables. This way none of the parts in the sub job has to be changed on its own.

2.3 Knowledge Settings

Knowledge Settings

Knowledge Settings are all the parameters relating to the Knowledge Drawings, DOIT file, Primary and Secondary Machines and Materials.

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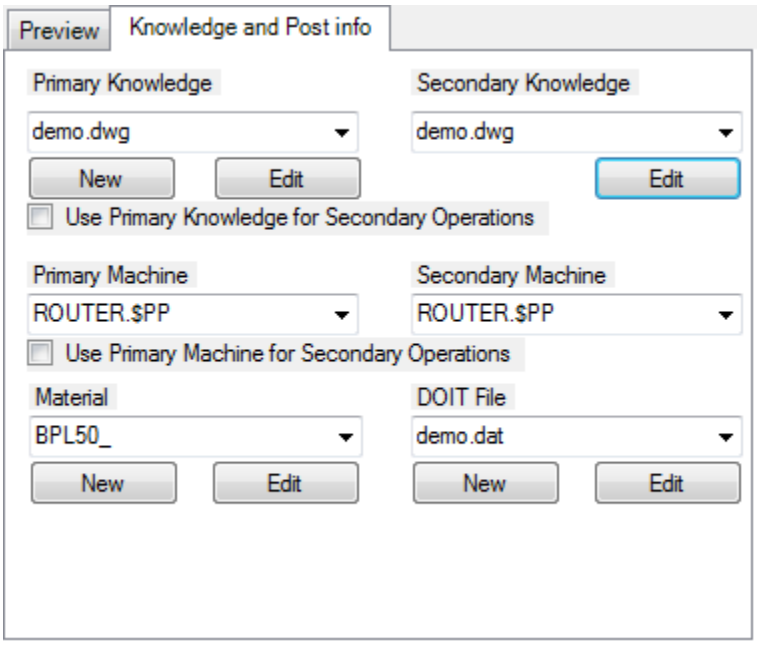

Primary Knowledge

The Primary Knowledge drawing is the drawing that contains the cut knowledges for the parts in a job. If each of the parts are to be nested together, then a single knowledge drawing is all that is necessary. By default, the knowledge drawings are stored in a sub-folder of Router-CIM. This location is editable in the System Defaults windows under Paths.

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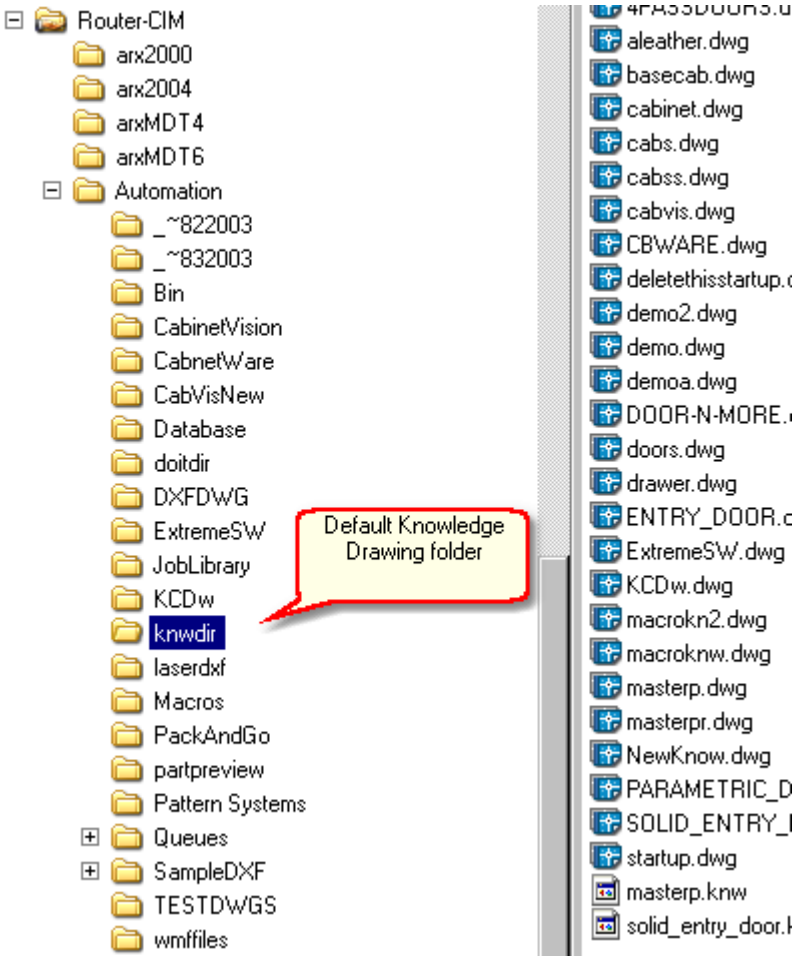

Secondary Knowledge

If a part in the job that is being processed has a backside operation that must be performed, a separate piece of NC Code must be made for that operation. In this instance, a Secondary Knowledge Drawing and Post processor can be used. When you unselect the box marked "Use Primary Drawing for Secondary Operations" another set of choices appears for a Secondary Knowledge Drawing and Post Processor.

New Knowledge Drawing

This button will allow a new Router-CIM session to start in AutoCAD. The post processor can be specified in the Configuration wizard. Then, new knowledges can be inserted and the drawing can be saved with a new name so that it is added to the list of available drawings.

Edit Knowledge Drawing

Edit Drawing will allow you to have the Knowledge drawing opened in AutoCAD, with Router-CIM running so that you can add, change, or delete cut knowledges or edit fixtures or table drawings in the knowledge drawing that you have selected. Router-CIM will load with the same configuration that the knowledge drawing was made with originally. For instance, if the drawing was configured for a specific post processor when it was made, then it will load into Router-CIM with that post processor in use when selected for editing.

Use Primary Knowledge for Secondary Operations

This allows you to use the same knowledge drawing for any secondary drawings that are to be cut, like a backside operation that has a separate drawing and needs separate code.

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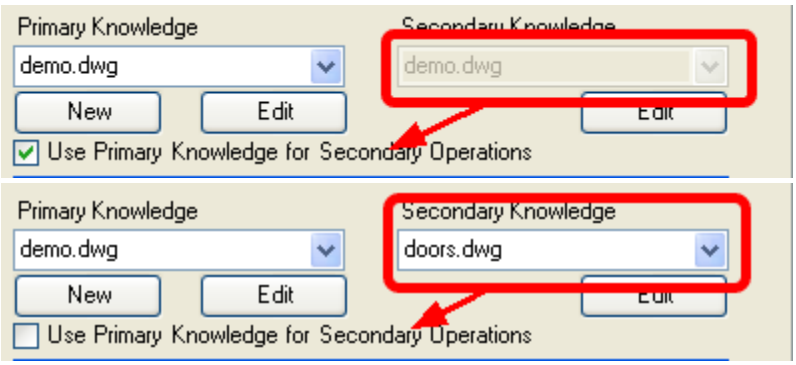
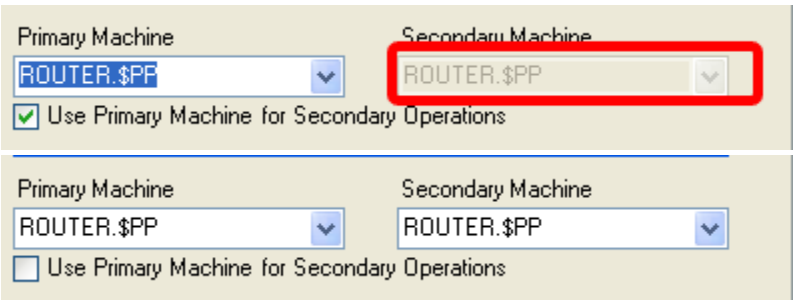


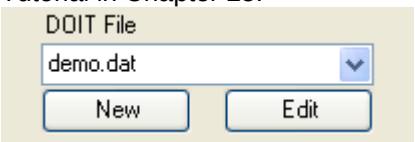
Primary and Secondary Machine

The Primary and Secondary post processors may be selected from this list of available post processors. Only the post processors in the working Router-CIM\Ncpost folder will be available for selection. If you do not see the post processor for your machine in this list, contact Komo / CIM-Tech for more information.
If the Secondary machine selection is not available, uncheck the box marked Use Primary Machine for Secondary Operations.



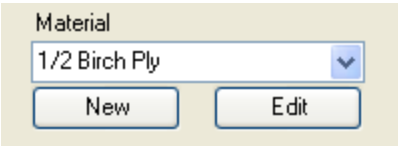
DOIT File

Router-CIM's automation runs on the drawing Layer to Cut Knowledge association principle. That means that for each Layer in a drawing that has geometry that you want cut on the machine, a Cut Knowledge must exist. Further, the two of them must be associated together in the system to allow Router-CIM to know that the partnership exists. From this area you may select a DOIT file (that is a Layer/Knowledge Association file) from the list of available DOIT files in the \Router-CIM\Automation\Doitdir folder. You can edit the selected file and add/remove associations, and even created new DOIT files for use in Router-CIM. For more information on DOIT, see the DOIT Tutorial in Chapter 25.



Material

You can select the jobs material here from the list of available materials in the materials database. You can also create or edit a material with the options provided.



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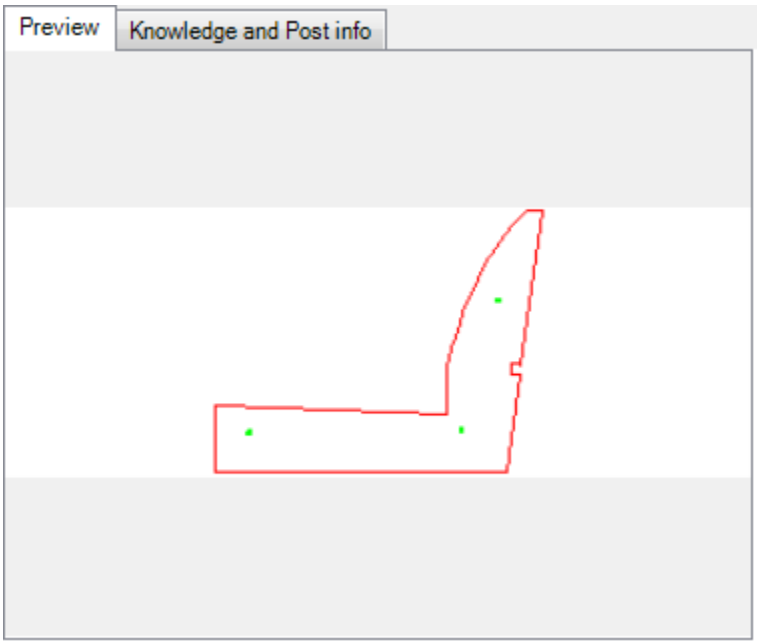
Part Preview

The part preview window will allow you to see a thumbnail image of the currently selected part. You can enlarge the image by selecting the arrow in the upper right corner. You can also suppress the display of the preview by un-selecting the Show Part Preview box.



2.4 The Results Folder

The Results Folder

After every job is run in Automation, there is a folder created with the same name as the job name. This folder contains all the files created by the job as a result of the run in Automation.

The result folder will have your NC Code files, summary reports, nested drawings, AutoNEST parts and tasks, schedule files, etc.

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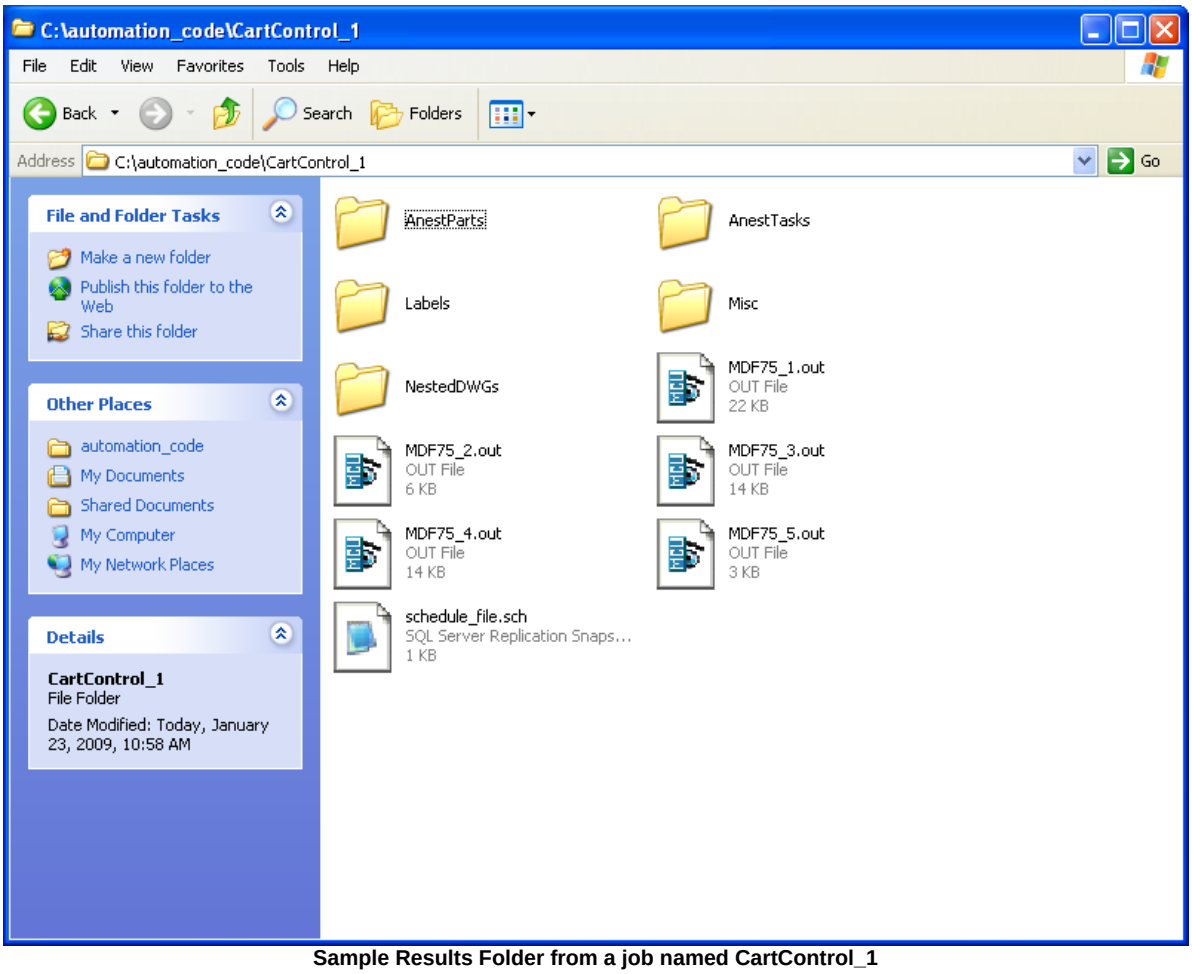

Sample Results Folder from a job named CartControl_1

The Root folder (with the job name) will contain the nc code files, and schedule file for the job and also the separate folders for the other data created by the job.

2.4.1 AnestParts

AnestParts subfolder

All of the part files (.dwg, .dxf & .vec) for each part will be stored in this folder for AutoNEST to recreate the parts with.

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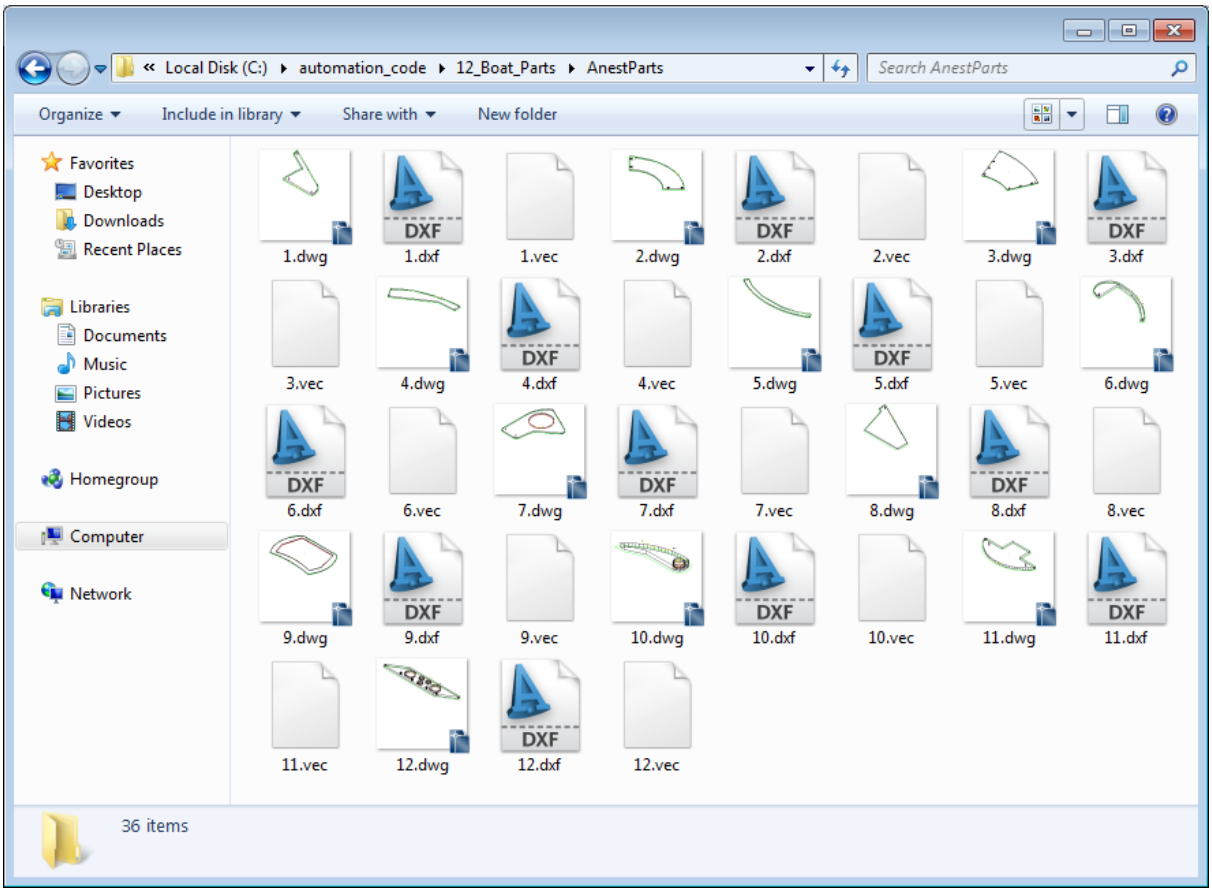

2.4.2 AnestTasks

AnestTasks subfolder

All the task files (.sym, .sum, .sgd and .job) for the job that AutoNEST needs to recreate the job settings.

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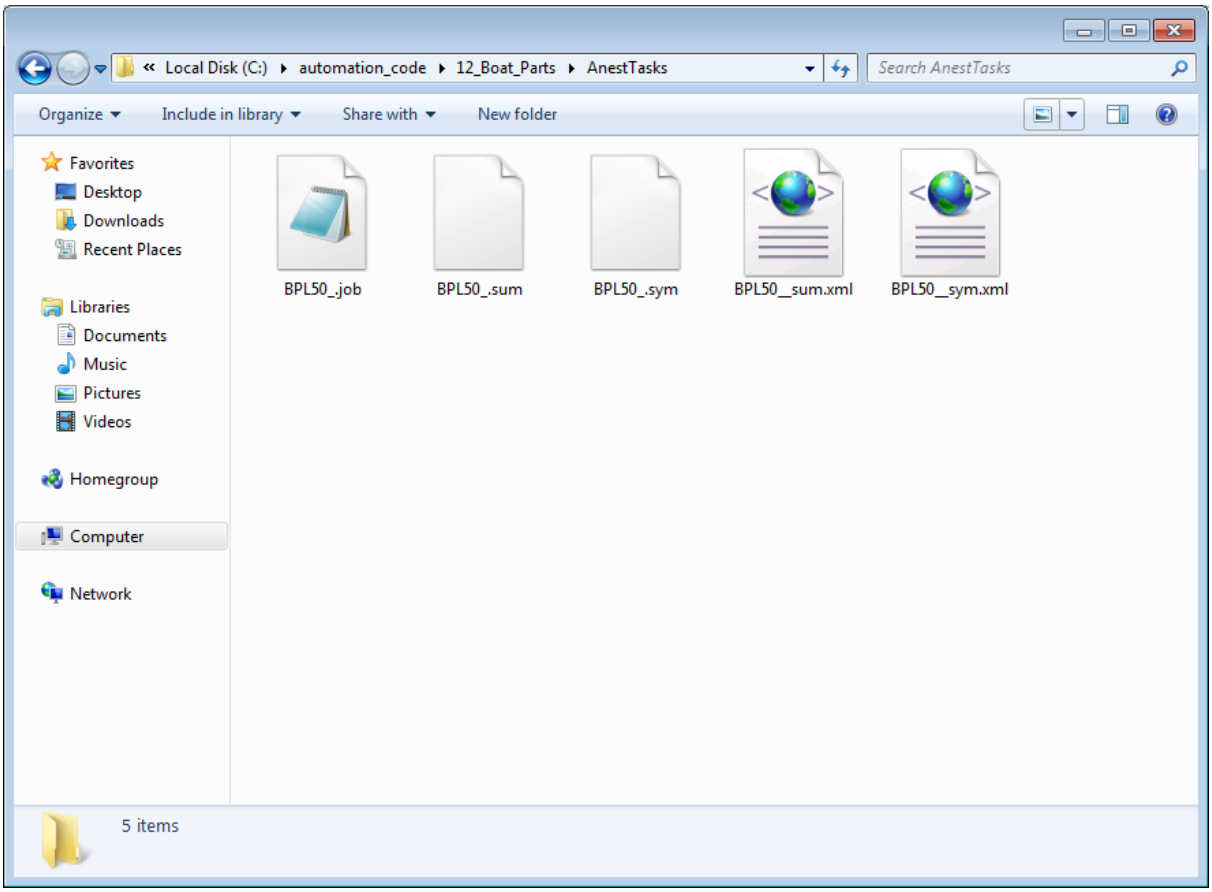

2.4.3 Labels

Labels subfolder

All the label files for the job are stored in this folder. There are label files for Avery Label Pro, Avery Design Pro, a comma-delimited label text file, and a label database file. These labels can be opened in the software of your choice. Router-CIM includes Avery Label Pro, and a limited time install of Avery Design Pro.

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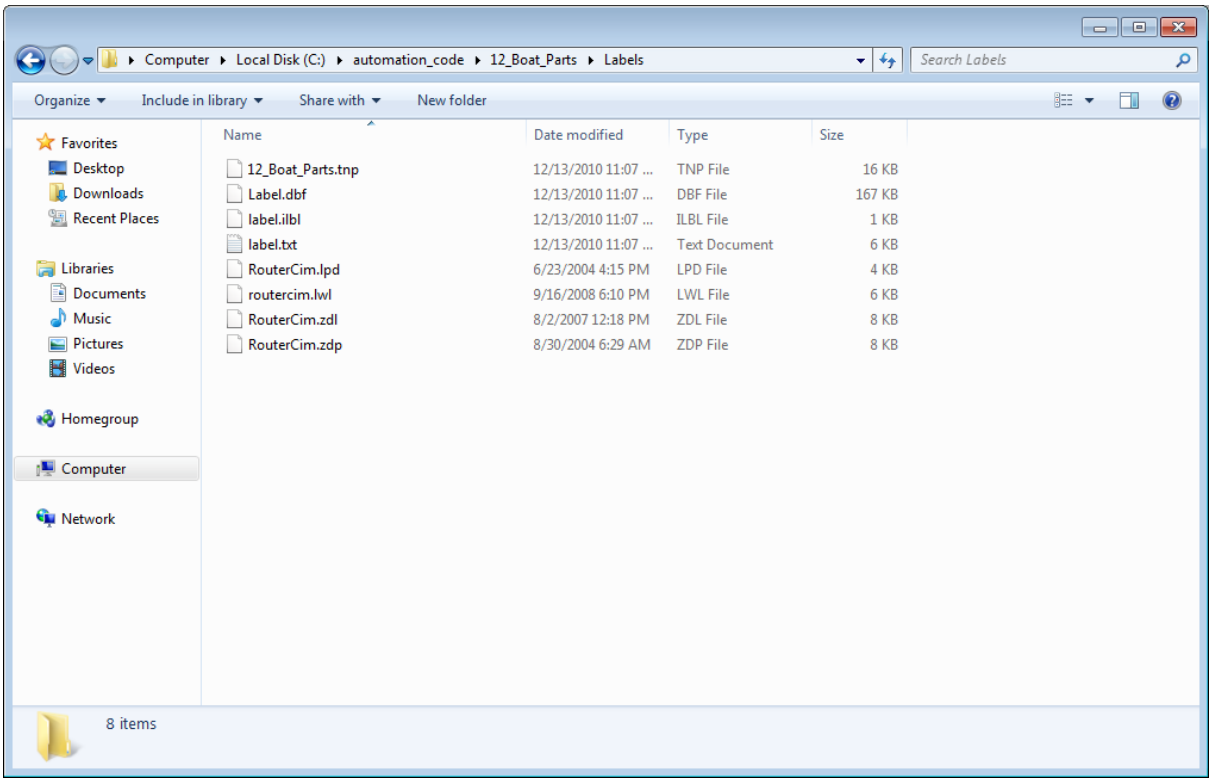

2.4.4 Misc

Misc subfolder

Typically this folder contains the error log and any other miscellaneous files created by the job. It is usually empty if the job run successfully.

2.4.5 NestedDWGs

NestedDWGs subfolder

This folder contains the nest drawing for all the materials in the job. Each material will have a separate drawing containing all the nests for that material.

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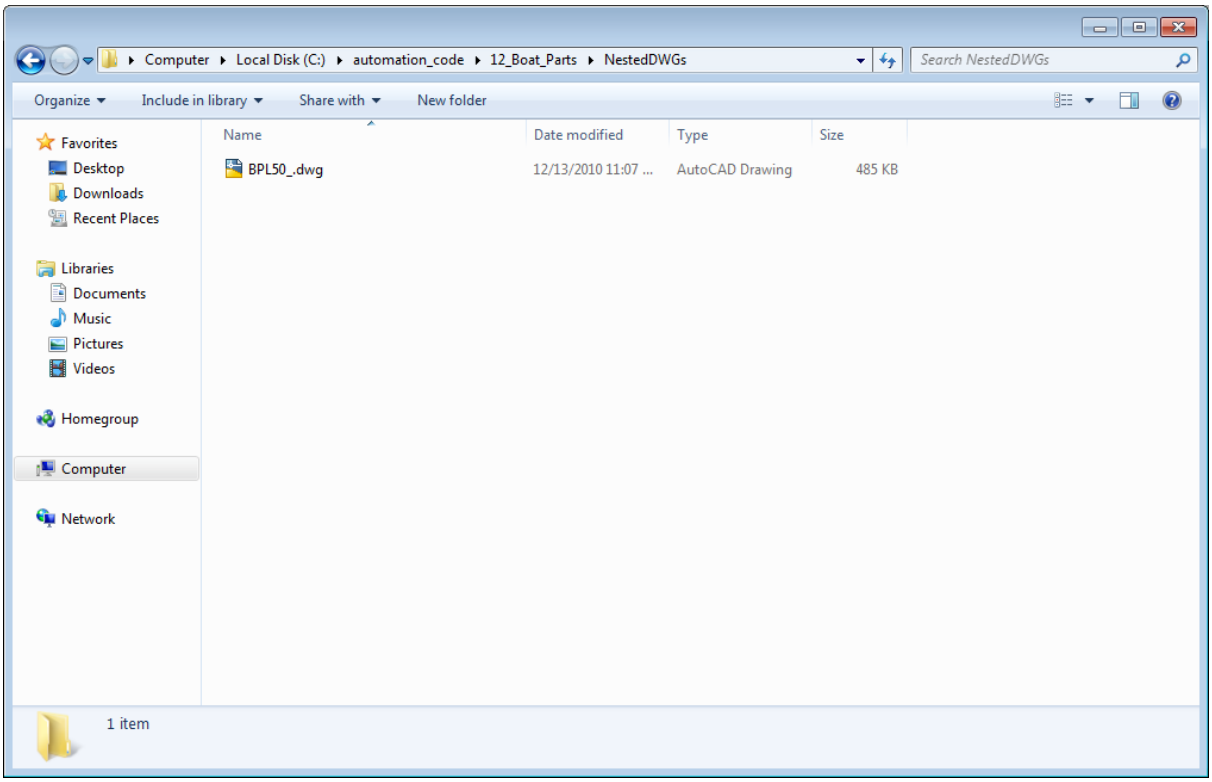

2.4.6 Summary Report

Summary Report subfolder

This is optional, but if the create summary report option is checked in the job, the summary report data files and Excel spreadsheet will be contained in this folder.

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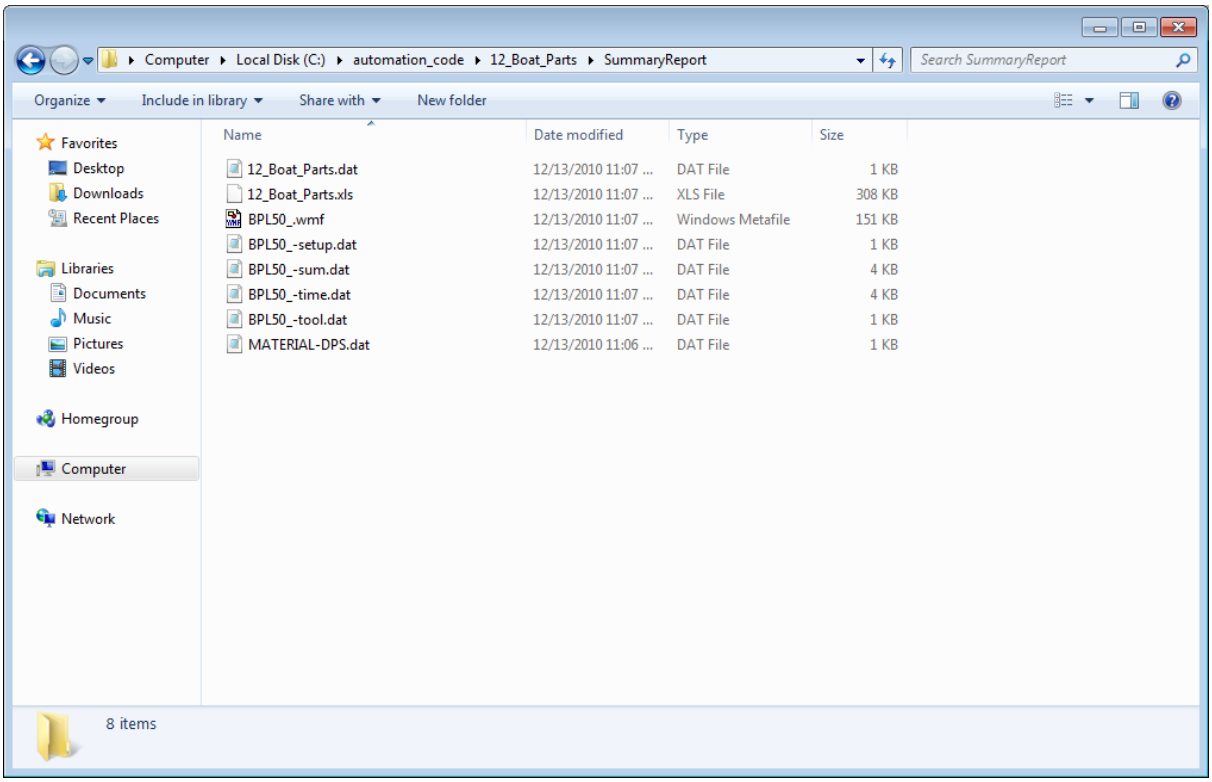

2.5 Materials Editor

Materials Editor

The Materials Editor contains a database of all your materials and their individual settings. The Material Editor has several options available:

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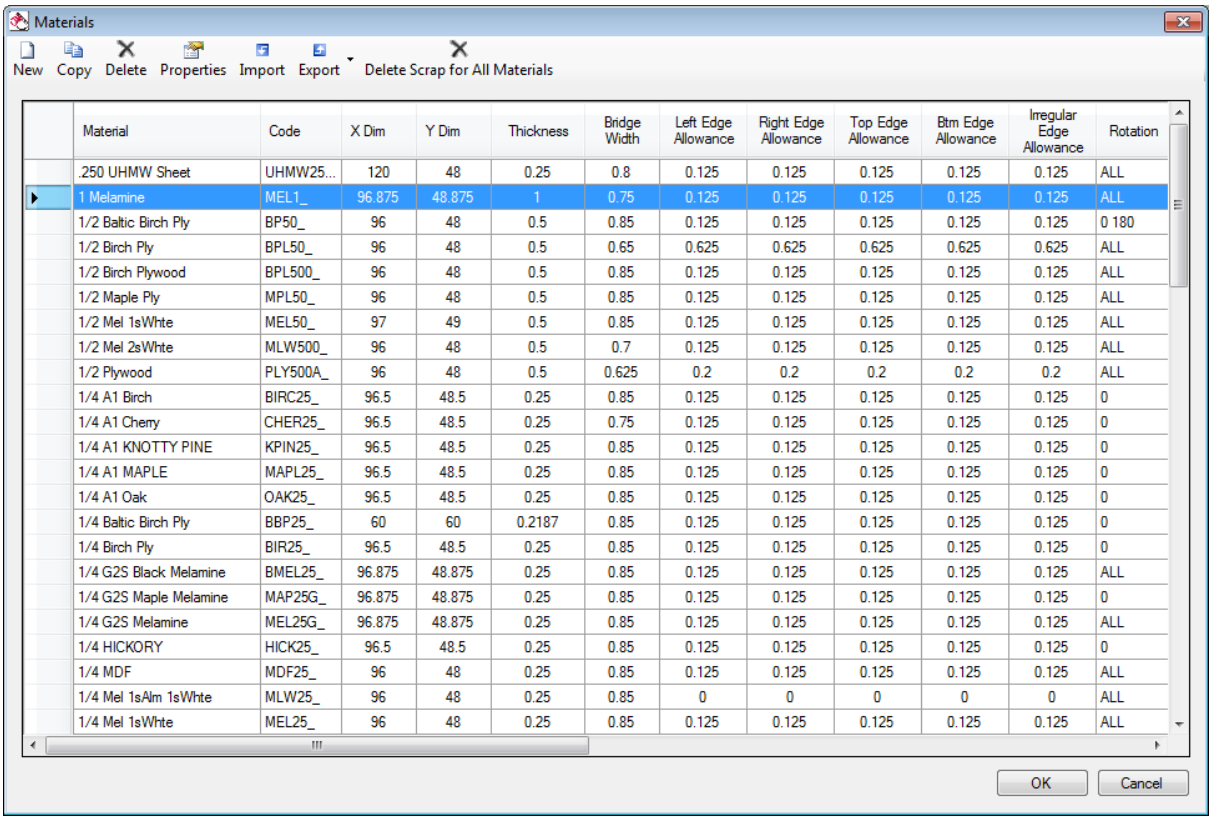

Material	Code	X Dim	Y Dim	Thickness	Bridge Width	Left Edge Allowance	Right Edge Allowance	Top Edge Allowance	Btm Edge Allowance	Irregular Edge Allowance	Rotation
.250 UHMW Sheet	UHMW25...	120	48	0.25	0.8	0.125	0.125	0.125	0.125	0.125	ALL
1 Melamine	MEL1_	96.875	48.875	1	0.75	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Baltic Birch Ply	BP50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	0 180
1/2 Birch Ply	BPL50_	96	48	0.5	0.65	0.625	0.625	0.625	0.625	0.625	ALL
1/2 Birch Plywood	BPL500_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Maple Ply	MPL50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 1sWhte	MEL50_	97	49	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 2sWhte	MLW500_	96	48	0.5	0.7	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Plywood	PLY500A_	96	48	0.5	0.625	0.2	0.2	0.2	0.2	0.2	ALL
1/4 A1 Birch	BIRC25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Cherry	CHER25_	96.5	48.5	0.25	0.75	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 KNOTTY PINE	KPIN25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 MAPLE	MAPL25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Oak	OAK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Baltic Birch Ply	BBP25_	60	60	0.2187	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Birch Ply	BIR25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Black Melamine	BMEL25_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 G2S Maple Melamine	MAP25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Melamine	MEL25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 HICKORY	HICK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 MDF	MDF25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 Mel 1sAlm 1sWhte	MLW25_	96	48	0.25	0.85	0	0	0	0	0	ALL
1/4 Mel 1sWhte	MEL25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL

2.5.1 New

New

The New option allows you to enter a new material into the database.

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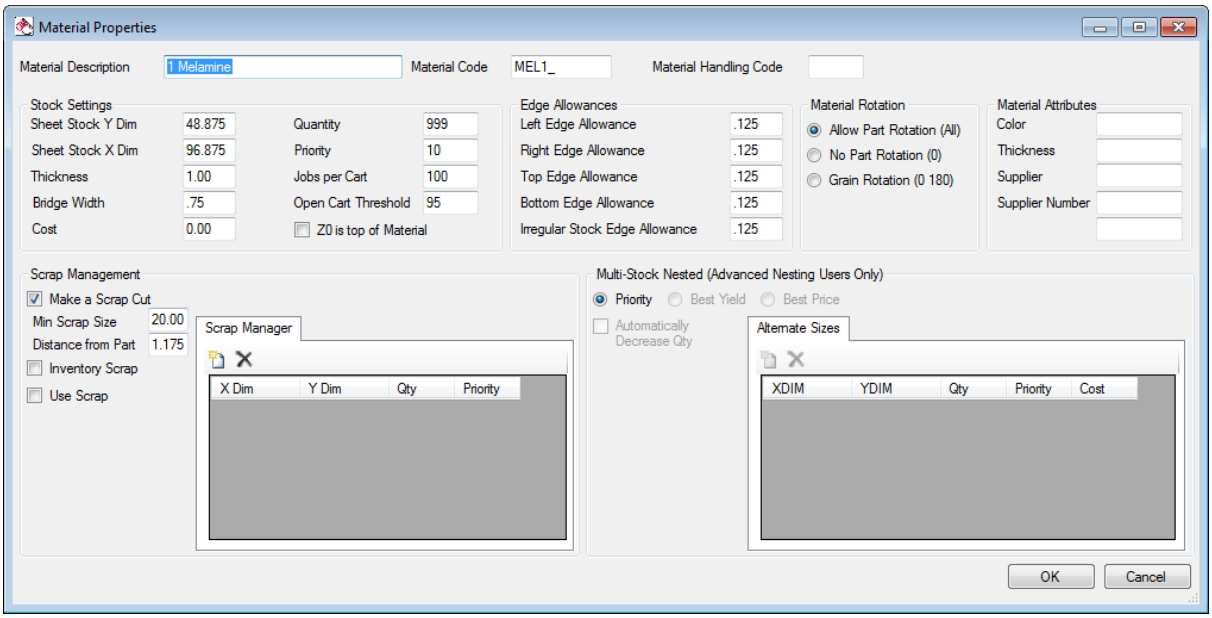


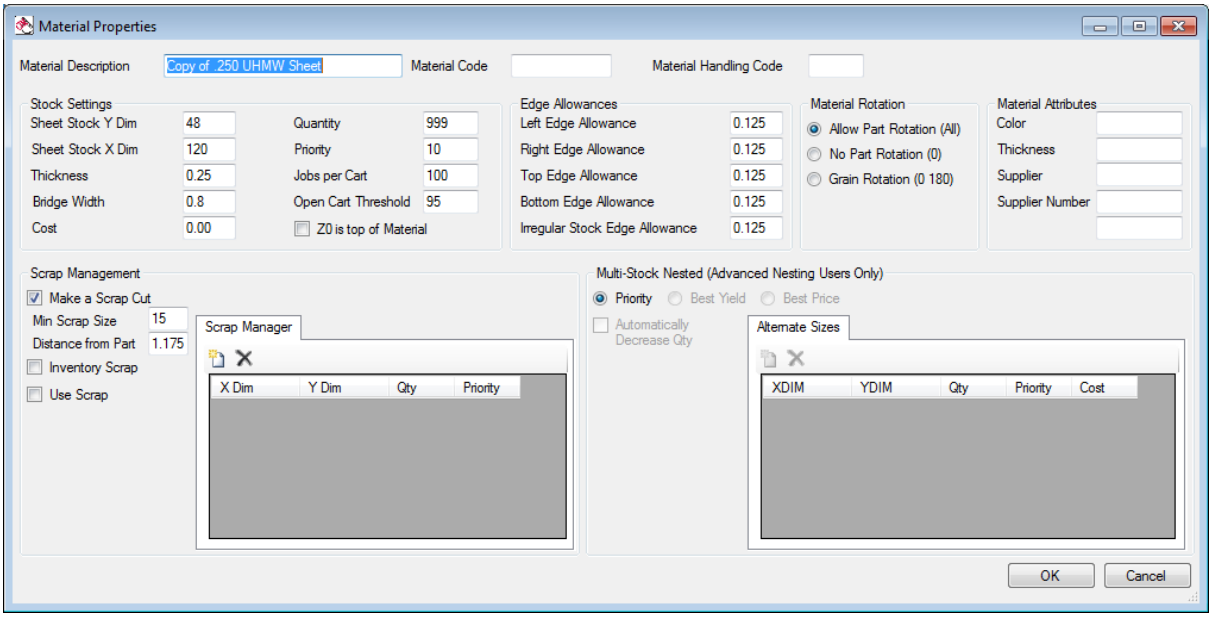
Shown above is the default screen for adding a new material to the material database. There are several default settings that will be present, but the main information that must be entered is the Material Description, Material Code, Sheet Y Dim, Sheet X Dim and Thickness. Without those, the material cannot be saved.

Each of the settings are described in the Properties section.

2.5.2 Copy

Copy Material

This function will copy the currently selected material into a new material so that you can maintain the copied materials settings. You should specify a new Material Description and you must enter a unique Material Code.



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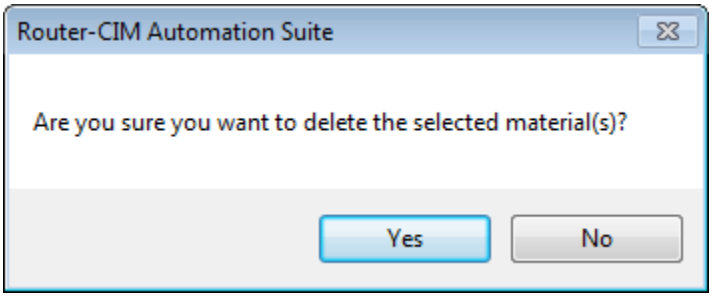
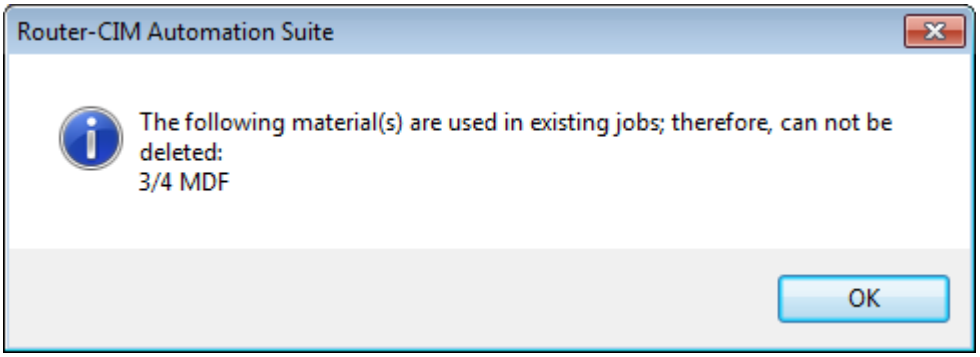
2.5.3 Delete

Delete Material

To remove a material from the database, select it in the list and the select the Delete button. You will be prompted to be sure you want to remove the material.



If the material selected is in use in the database on a job in the job tree, you will see the following message:



You then must remove the job that has parts using that material in order to remove the material from the list.

2.5.4 Properties

Material Properties

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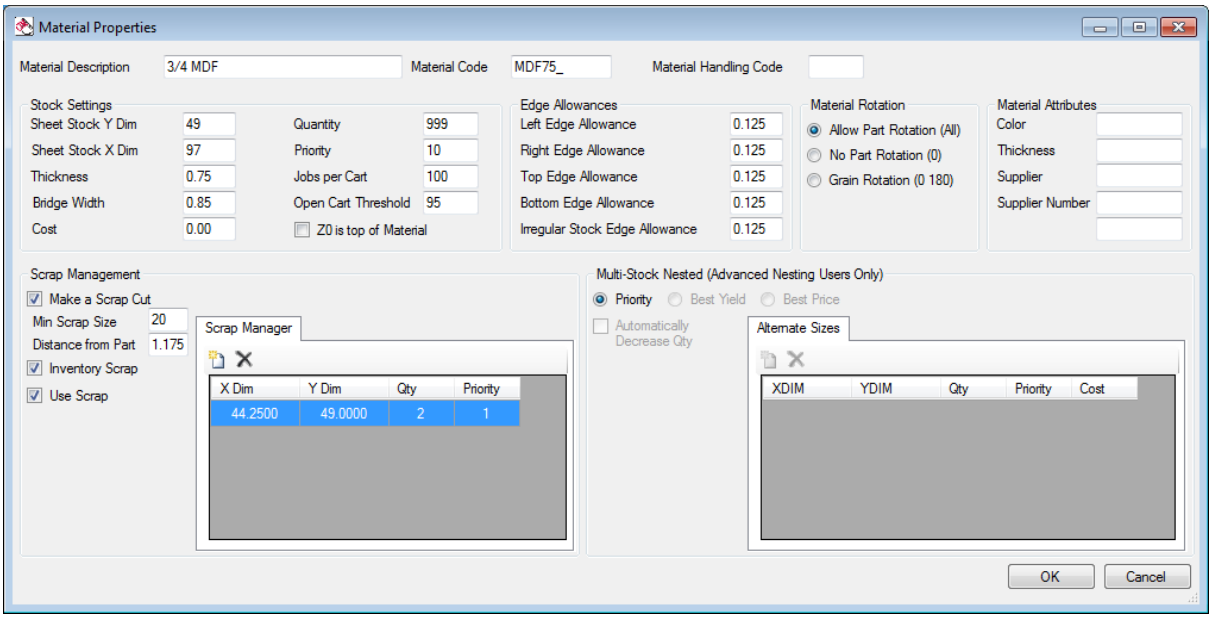

There are several default settings that will be present, but the main information that must be entered is the Material Description, Material Code, Sheet Y Dim, Sheet X Dim and Thickness. Without those, the material cannot be saved.

Material Description (Mandatory)

A text field describing the material. This description is most used in the labeling where the material description may be necessary.

Material Code (Mandatory)

The Material Code is a field that accepts an 8 digit code. This code can contain letters and numbers or an underscore (_). This field should ALWAYS start with a letter or underscore. Starting the description with a number can result in issues later during job runs under certain circumstances.

Material Handling Code (Optional)

If your machine is equipped with an automatic material load/unload mechanism, you can enter the bunk number where the material is stored here and during the creation of the nc code file, the proper commands will be issued to grab the material from the correct location.

Stock Settings

Sheet Stock Y Dim

The dimension of the material in the Y direction on the machine. This is always a positive number.

Sheet Stock X Dim

The dimension of the material in the X direction on the machine. This is always a positive number.

Thickness

The thickness of the material. This is always a positive number.

Bridge Width

This is the minimum distance to keep between parts when nested on the sheet. Typically this is set to at least the largest tool diameter in the job being run.

Cost

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You may specify the cost of the material in this location. If you have advanced nesting, then you can also add multiple materials of the same type and list their cost, and allow Router-CIM to use the material sized based on cost per job instead of yield only.

Quantity
You may specify a number of sheets on hand in this location. The maximum number of sheets in 999. If you specify a lower number and the job runs out of material, you will be alerted that no suitable stock sizes are available.

Priority
You may specify a priority number from 1-10 for a material, and also for sub-materials of the same type. If you have advanced nesting, you can sort by priority, allowing the use of specific sizes of material as a preference.

Jobs per Cart
If you have advanced nesting and wish to use Cart Control, you specify the number of open carts that can be nested on a sheet at any one time. The default is set to 100 to bypass this consideration.

Open Cart Threshold
This value is a percentage from 0-100. The Open cart threshold is an override that means that there must be at least the percentage shown of available space left in order to add add another cart of parts with the same material description on this sheet. So, 100 means only the number of carts shown above is allowed, no matter what, and 0 would mean that more carts will be added to the sheet. Any number in between will be compared against the remaining space left in the sheet after the required parts have been put on and if there is enough space, more can be added.

Z0 is top of Material
Typically Z0 is at the top of the spoilboard (bottom of part). Router-CIM automatically shifts all the tool paths and code to allow for the material thickness so that the tool paths are made properly for the material in the job. However, if you touch off your tools to the top of the material instead, check this box to avoid Router-CIM shifting all the tool paths.

Edge Allowance

You can specify areas to leave empty and have the parts offset from by filling in the edge allowances for each of the sides of the sheet. Router-CIM will not nest any parts in this area. This is useful to keep parts for lining up exactly on an unfinished edge of a sheet.

Left Edge Allowance
Default minimum distance to leave empty from the left side of the sheet to the nested parts.

Right Edge Allowance
Default minimum distance to leave empty from the right side of the sheet to the nested parts.

Top Edge Allowance
Default minimum distance to leave empty from the top side of the sheet to the nested parts.

Bottom Edge Allowance
Default minimum distance to leave empty from the bottom side of the sheet to the nested parts.

Irregular Edge Allowance
Default minimum distance to leave empty from the any side of the sheet to the nested parts.

Material Rotation

Material rotation controls how parts are allowed to be placed on the nested sheet.

Allow Part Rotation (All)
Rotation set to all will allow parts to be rotated at any angle from 0-360° in 1° increments. See part property overrides for individual part rotation considerations.

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No Part Rotation (0)
Rotation set to 0 will not allow a part to be rotated from the angle it is drawn in. See part property overrides for individual part rotation considerations.

Grain Rotation (0 180)
Rotation for consideration of grain will only allow a part to be rotated 180° on a nested sheet so that it is aligned with the grain of the material. Consideration should be given to the orientation of the part drawing when considering grain rotation. See part property overrides for individual part rotation considerations.

Material Attributes

You can specify material attributes that you wish to have appear on labels. These fields can be customized in the Automation Settings.

Scrap Management

Make a Scrap Cut
Using this setting will force Router-CIM to create a scrap tool path as long as there is a knowledge named SCRAP in the knowledge drawing.

Min. Scrap Size
This parameters is the minimum amount of material left, in units from the right edge of the sheet, required in order to save the scrap and make a scrap cut. If there is less material than this free (from the right edge) then the scrap will not be cut off.

Distance from Part
This setting is the distance from the edge of the furthest right hand part to the scrap cut off in current units. Typically this is where you can allow for the radius of the largest tool to cut out the parts and further allow for space to cut off the scrap.

Inventory Scrap
Setting this option will allow Router-CIM to add newly cut scrap pieces into the materials scrap inventory.

Use Scrap
Setting this option will force Router-CIM to use scrap material in the job if it is available and of suitable size.

Scrap Manager
The Scrap Manager is where you can add, delete, modify scrap pieces in the scrap inventory of the current material. These settings only affect the scrap of the current material.

Multi Stock Nested(Advanced Nesting Users Only)

Priority
Best Yield
Best Price
Automatically Decrease Qty.
Alternate Sizes

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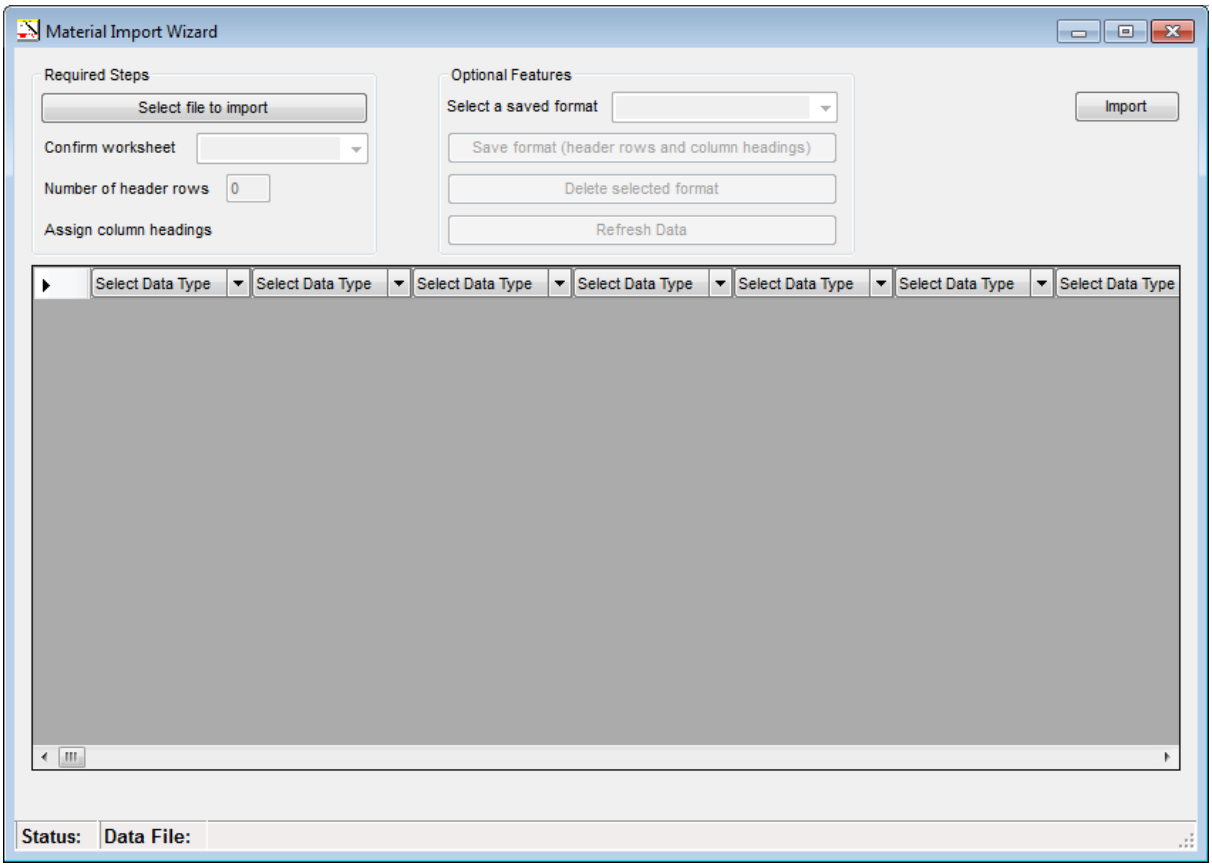
2.5.5 Import

Import Material



This window will allow you to import materials into the material database from a saved Excel Spreadsheet (.xls), Comma Delimited file (.csv) or a previously exported Automation Material database list (.mtl file). The fields for each column are user definable except in the case of the Automation Material database file, which will fill in the fields automatically.

The available data types for each field are:
Material Description
Material Code
X Dim
Y Dim
Thickness
Min. Drop Off
Bridge Width
Left Edge Allowance
Right Edge Allowance
Top Edge Allowance
Bottom Edge Allowance
Irregular Stock Edge Allowance
Rotation
Cut Scrap
Use Scrap
Inventory Scrap
Scrap Cut Distance from

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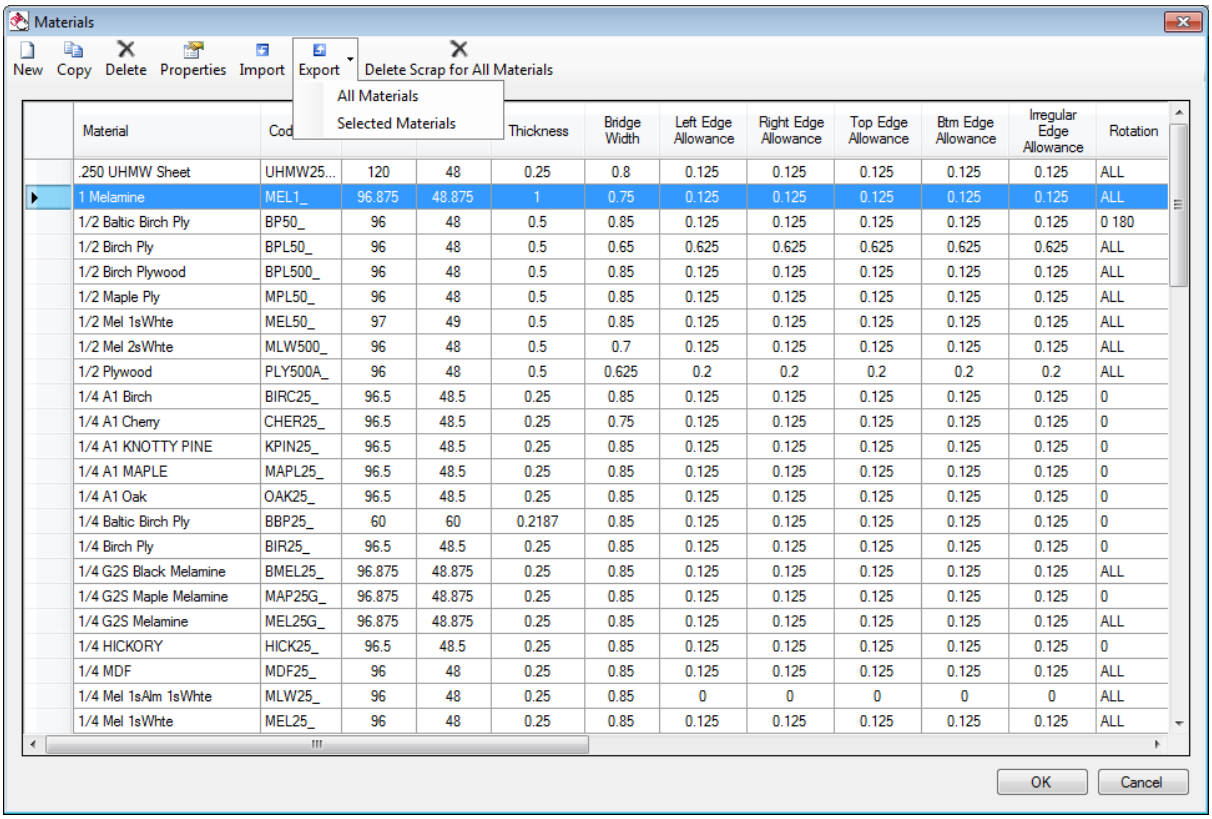
Material Handling Code
Attribute 1
Attribute 2
Attribute 3
Attribute 4
Attribute 5
Z0 is top
Cost
Nest Type (0; Priority
Jobs per Cart
Open Cart Threshold
Quantity
Priority
Alt. Materials Decrease
Ignore

2.5.6 Export

Export Material

Router-CIM Automation will allow you to export one, several, or all materials to an importable database. This allows you to share or back up your materials database so that you can import it into another database at a later time, or on another computer.

To export materials, select one or more materials from the list or optionally select All Materials.



Material	Cod			Thickness	Bridge Width	Left Edge Allowance	Right Edge Allowance	Top Edge Allowance	Btm Edge Allowance	Irregular Edge Allowance	Rotation
.250 UHMW Sheet	UHMW25...	120	48	0.25	0.8	0.125	0.125	0.125	0.125	0.125	ALL
1 Melamine	MEL1_	96.875	48.875	1	0.75	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Baltic Birch Ply	BP50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	0 180
1/2 Birch Ply	BPL50_	96	48	0.5	0.65	0.625	0.625	0.625	0.625	0.625	ALL
1/2 Birch Plywood	BPL500_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Maple Ply	MPL50_	96	48	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 1sWhte	MEL50_	97	49	0.5	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Mel 2sWhte	MLW500_	96	48	0.5	0.7	0.125	0.125	0.125	0.125	0.125	ALL
1/2 Plywood	PLY500A_	96	48	0.5	0.625	0.2	0.2	0.2	0.2	0.2	ALL
1/4 A1 Birch	BIRC25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Cherry	CHER25_	96.5	48.5	0.25	0.75	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 KNOTTY PINE	KPIN25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 MAPLE	MAPL25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 A1 Oak	OAK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Baltic Birch Ply	BBP25_	60	60	0.2187	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 Birch Ply	BIR25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Black Melamine	BMEL25_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 G2S Maple Melamine	MAP25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 G2S Melamine	MEL25G_	96.875	48.875	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 HICKORY	HICK25_	96.5	48.5	0.25	0.85	0.125	0.125	0.125	0.125	0.125	0
1/4 MDF	MDF25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL
1/4 Mel 1sAlm 1sWhte	MLW25_	96	48	0.25	0.85	0	0	0	0	0	ALL
1/4 Mel 1sWhte	MEL25_	96	48	0.25	0.85	0.125	0.125	0.125	0.125	0.125	ALL

You will next be shown a screen where you can select a name and location for the exported materials file to be stored.

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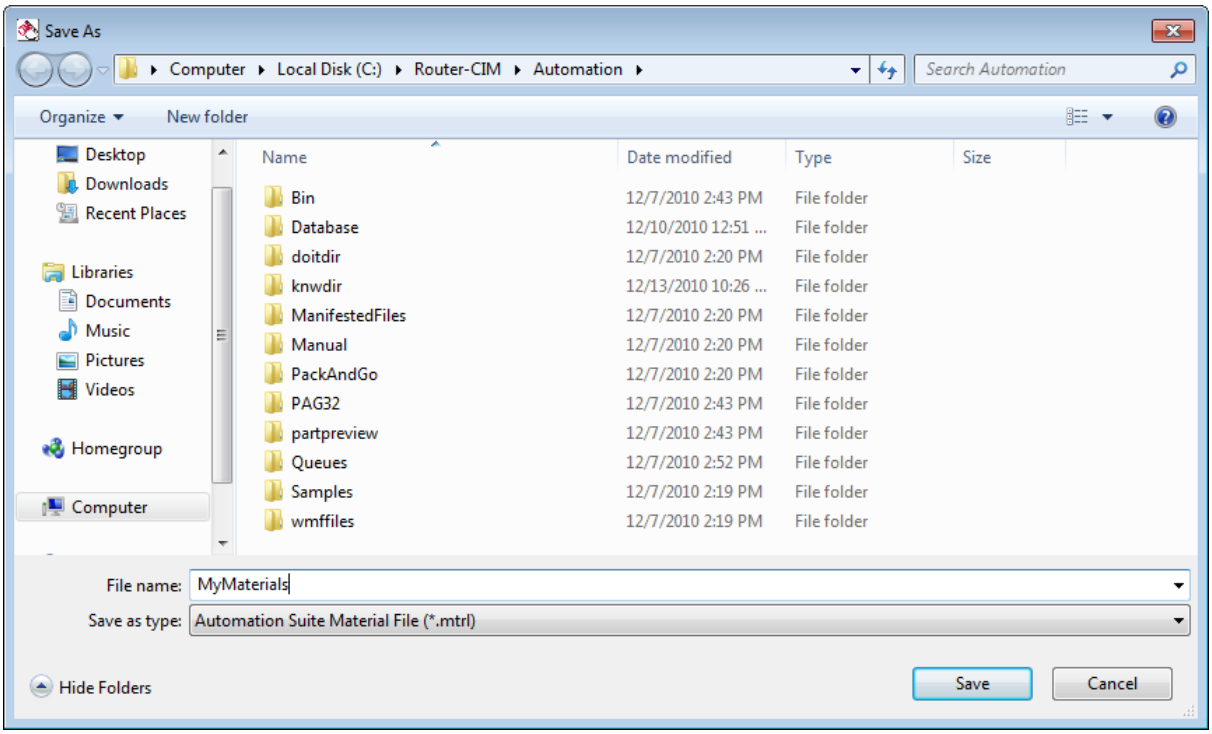
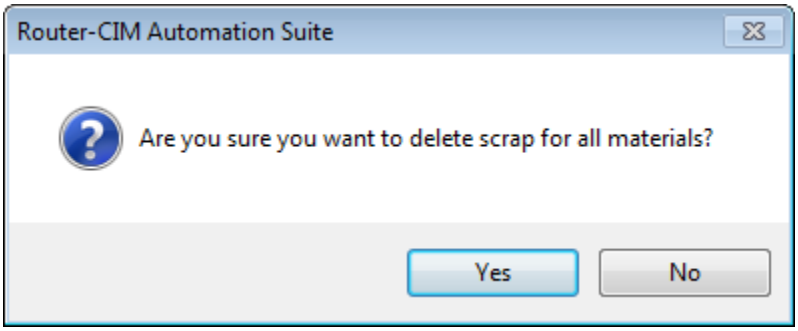


Once you select Save, the material file will be exported and ready for later import.

2.5.7 Delete Scrap for All Materials

Delete Scrap for All Materials

You may delete the scrap entries for all materials by selecting this option. You will be prompted with the following screen to be sure you wish to delete all the scrap entries in the database. Once the scrap entries are deleted, you cannot get them back!



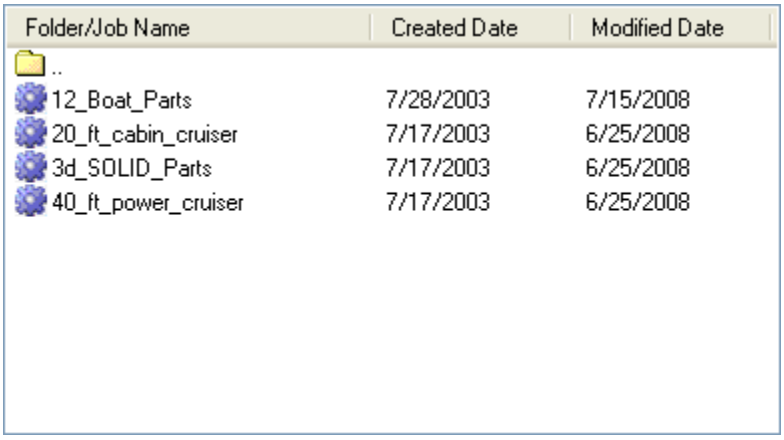
2.6 Batch Processing

Batch Processing

If you wish to load several jobs into Automation at one time, and have them executed in order, separately, then you can use Batch Processing. The process is relatively simple in that you would build your separate Router-CIM jobs as normal, and then add them (one at a time) into the batch folder. Once you create a batch job, you can run the entire batch and Router-CIM will run each job individually to completion, creating an output folder for each job, before going on to the next.

Batch Jobs are somewhat special and have a folder of their own. A batch job is really several jobs, each in one folder and run one at a time. Each job in a batch will run until it is done, and when it is done and all the code is made, then the next job will start up. None of the parts from one job are cut or nested with parts from another job.

To create a Batch Job, go to any folder containing jobs, and right click on a job and select Add to Batch Job. For instance, Select the Samples folder, and then the Boat-and-RV_parts folder. In this folder there are 4 jobs.



Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	7/28/2003	7/15/2008
20_ft_cabin_cruiser	7/17/2003	6/25/2008
3d_SOLID_Parts	7/17/2003	6/25/2008
40_ft_power_cruiser	7/17/2003	6/25/2008

Select the 12_Boat_Parts job and Right-Click on it to bring up the menu, then select Add to Batch Job.

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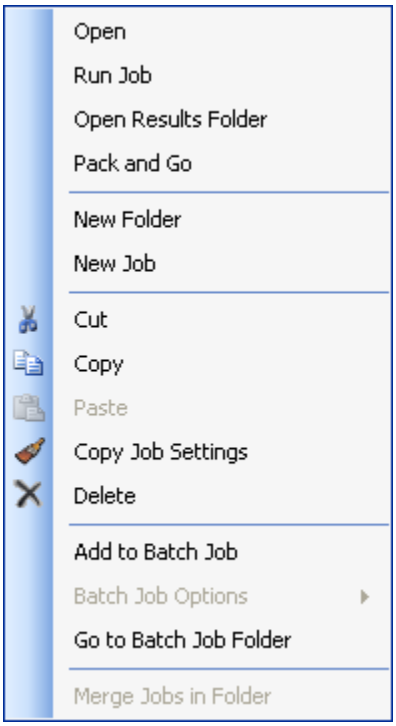
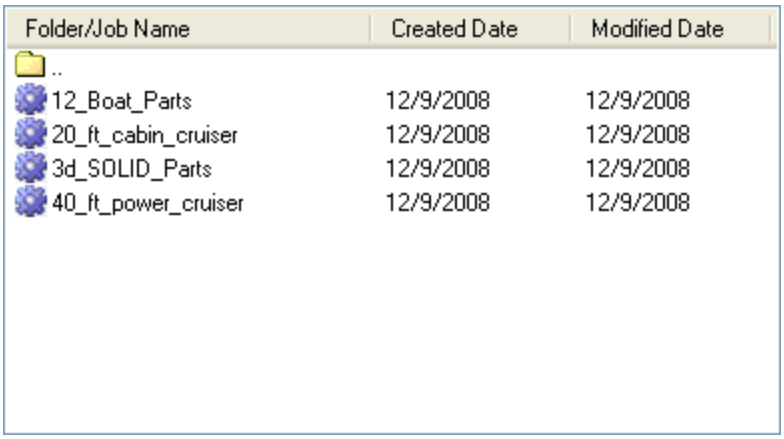


Now do the same for each of the other three jobs in the folder. There is 10_ft_cabin_cruiser, 3d_SOLID_parts, and 40_ft_power_cruiser. Add each of these to a Batch Job.

Next, click back to the top of the job library and select Batch Jobs. You will see each of the 4 jobs listed under Batch Jobs.



Folder/Job Name	Created Date	Modified Date
..		
12_Boat_Parts	12/9/2008	12/9/2008
20_ft_cabin_cruiser	12/9/2008	12/9/2008
3d_SOLID_Parts	12/9/2008	12/9/2008
40_ft_power_cruiser	12/9/2008	12/9/2008

If you Right-Click on one of these jobs now you will see Batch Job Options.

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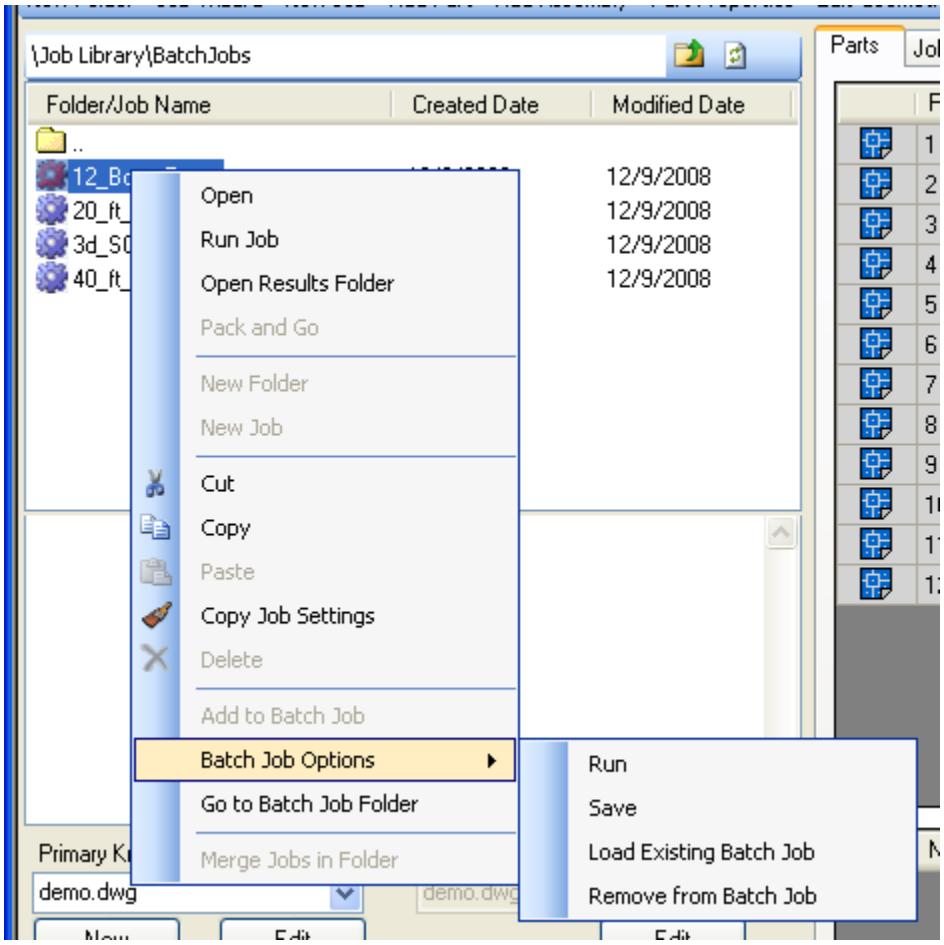
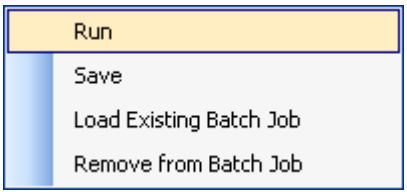


From here you can Run the batch, save the batch to run it later, load a saved batch, or remove a job from the batch list.



2.7 Labeling

Labeling

Router-CIM provides label information in several formats.

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