

SICAM

 **Controlled Automation**

SICAM Software

(Structural Information for Controlled Automation Machinery)



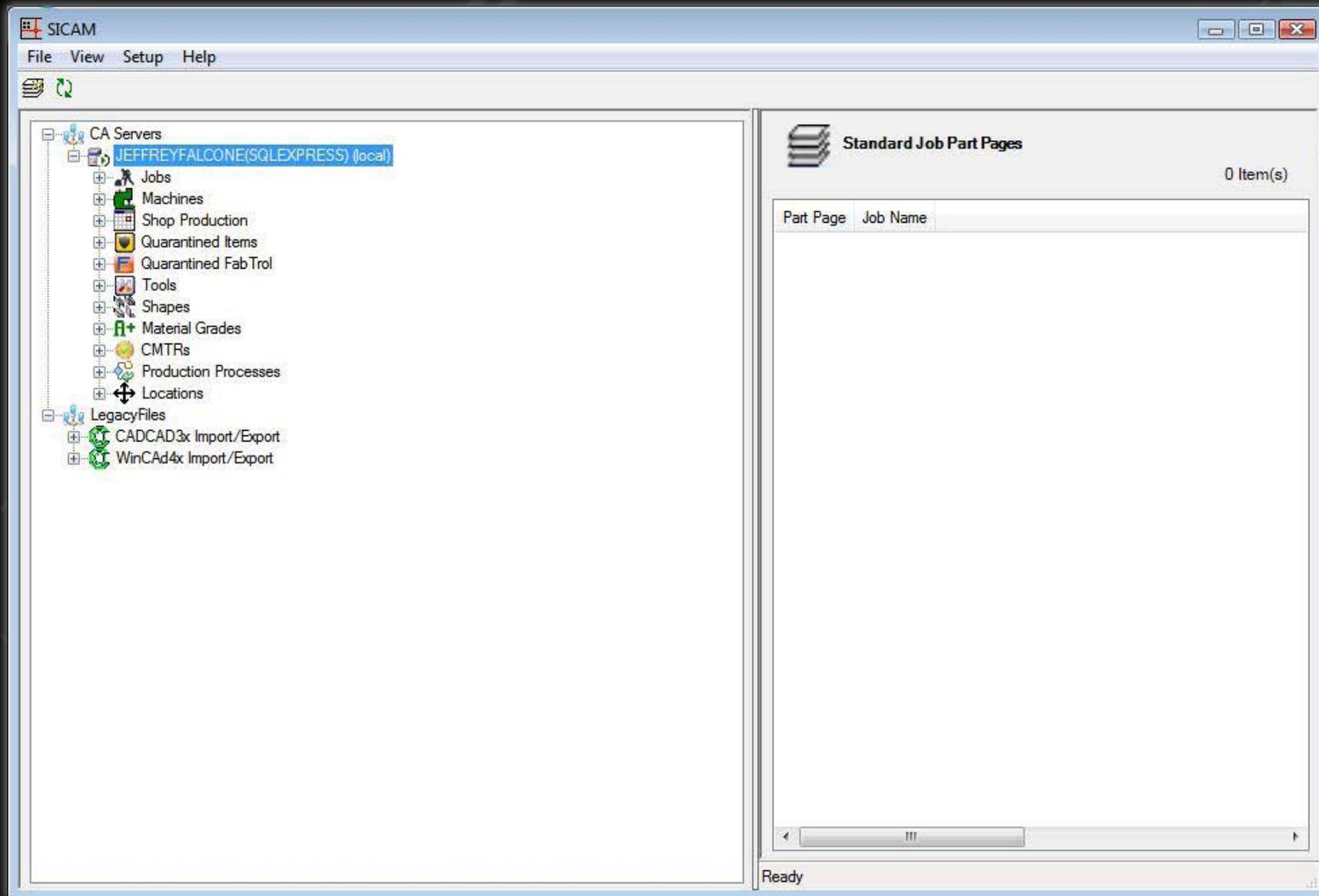
SICAM

SOFTWARE

Controlled Automation has developed software for controlling steel fabrication machinery for over 20 years. Since the very beginning, all our controls have been designed to use a PC computer. This has proven over the years to be a very cost effective, reliable, and flexible platform for controlling machinery. The PC provides an environment that people are familiar with and a platform that can be maintained easily. Because of our unique software abilities, the need for extensive electronics and complex mechanics is minimized or altogether eliminated. The first of our control systems operated in a DOS environment, but today they operate in a Windows environment. Controlled Automation is still able to maintain the very first control system we released over 20 years ago and will continue to do so. As Controlled Automation continues to grow, so does our knowledge and experience. When this is applied to our software, it helps the fabricator get his job done quickly and accurately. With our expanding technology, Controlled Automation will continue to bring high quality, advanced software to the structural industry. With the development of wireless networks, hand held computers, and information systems we can now couple shop production to the office without having to transfer files on floppy disks or printouts. Controlled Automation's cutting edge software abilities have made available what the fabricator has been waiting for – SICAM.

USER FRIENDLY INTERFACE

The SICAM interface is very user friendly by being formatted in a tree view design. This allows users to quickly and easily access, modify, monitor or delete objects including jobs, sequences, job pages, part pages, machines, production schedules, imported quarantined items, main members, detail members, etc..



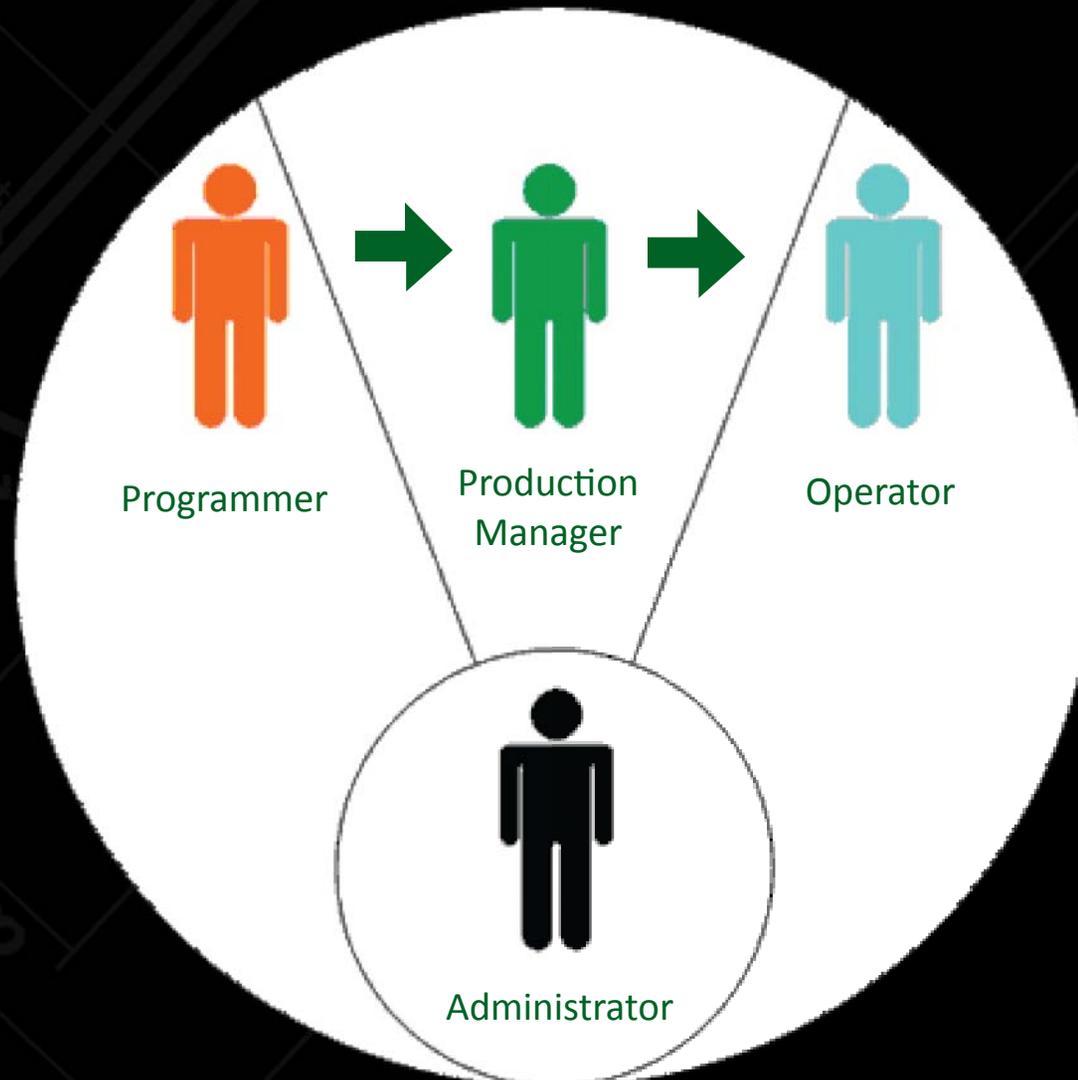
CENTRALIZED DATABASE

In previous file sharing environments, stored job and part information was transferred to the machine by mapping to specific network drives or on floppy disks which could be corrupted or misplaced. This is problematic when revisions to part information are required. If multiple revisions were created, there might be several versions, leaving the possibility for the wrong part to be run by the operator. Controlled Automation's SICAM software utilizes a centralized database for all users with a seat for operating the software. This means that all computers using the software are referencing a single database on the server for the storage and organization of production information. When any user creates, modifies, or makes a change to any job, tooling, shape, material, production information, etc., the change is stored to the database so that all systems running the software are updated dynamically. This means that when a change is made in the office by a programmer for example, the change is immediately visible to all users.



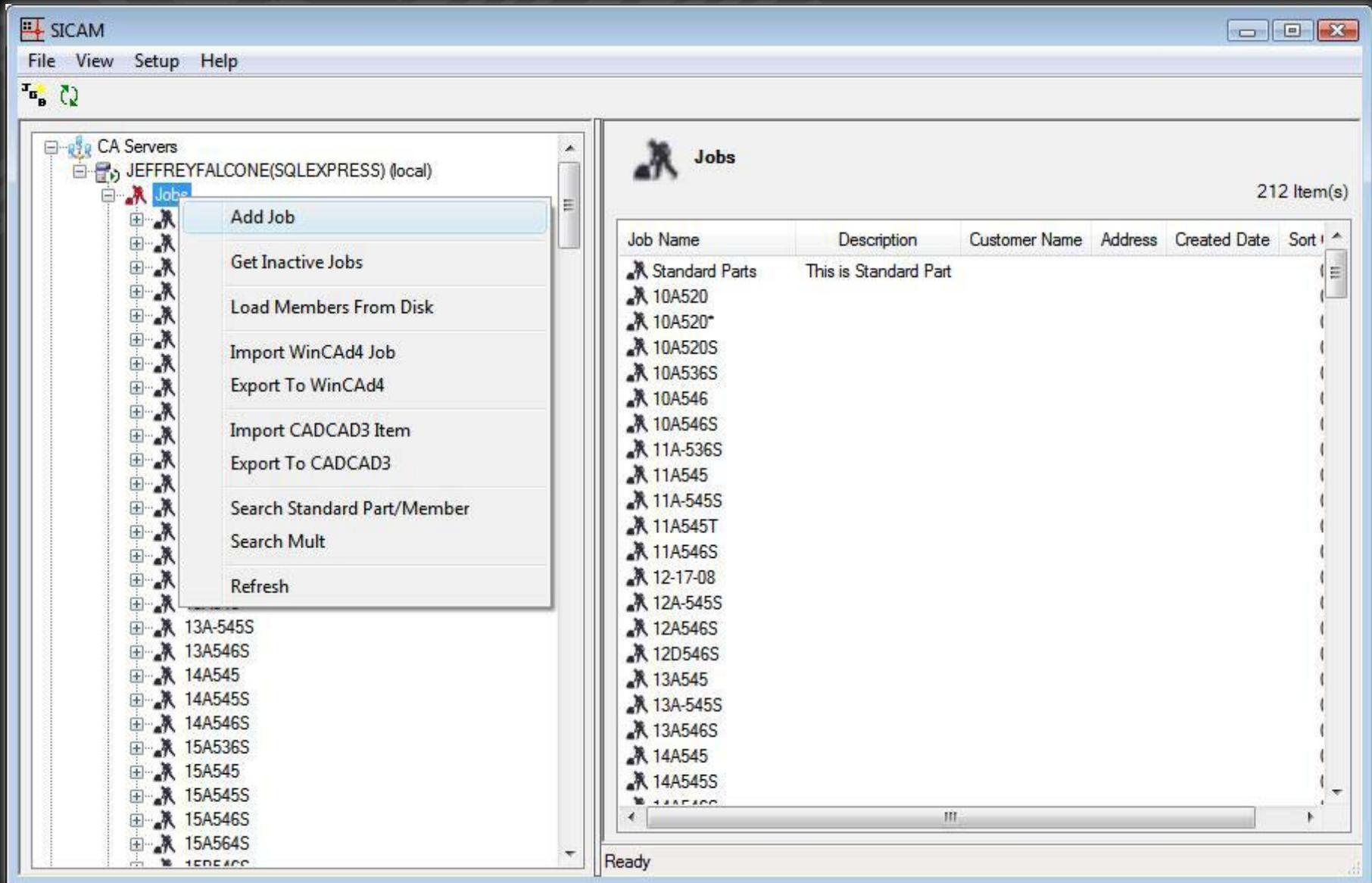
USER ROLES and PERMISSIONS

With Controlled Automation's SICAM, each user with a seat is assigned a user role which grants or restricts certain permissions of software functions. For example the business owner could be assigned the role of administrator to monitor production of all jobs and performance of all machines. While a programmer and the production manager can be assigned the role of administrative user for complete access to the full programming and production scheduling capabilities of the software. This allows them to create jobs, sequences, job pages, parts, production batches, run queues, production schedules and so on. This would also allow them to add, modify or delete machines, tooling, shapes, material types and grades, jobs, parts or production scheduling information. However, the machine operator, may be assigned the role of user allowing them only to view the production information but not to manipulate it.



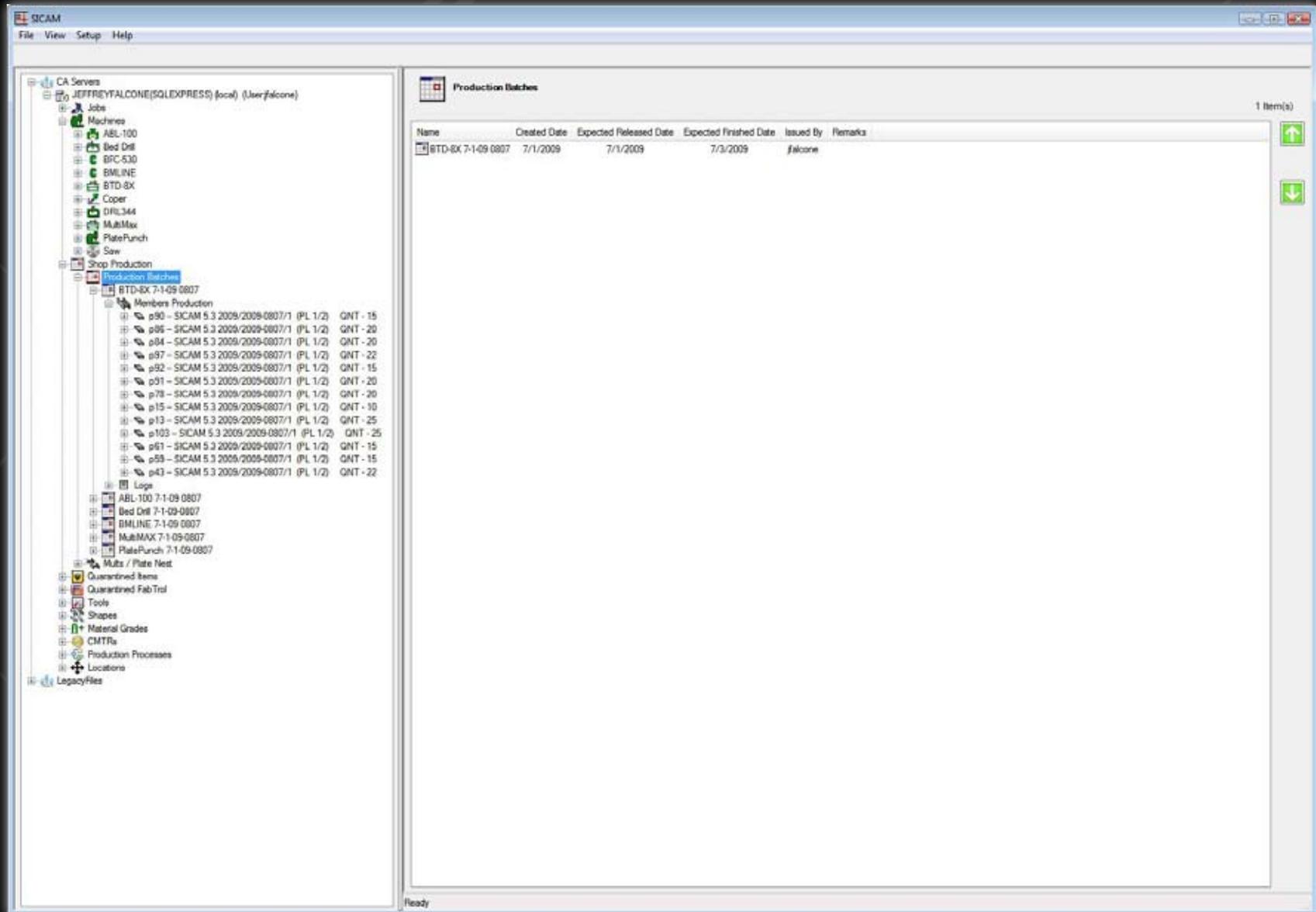
QUICK and EASY JOB MONITORING and MANAGEMENT

The SICAM Lite software allows user to create new jobs or modify existing jobs with just a few clicks of the mouse. By right clicking on the Jobs element in the tree view, users are allowed to create a new job, import previous version WinCad or CADCAD job information, or add structural members from a previously stored location. This allows the jobs to be quickly made available for production and increases shop throughput.



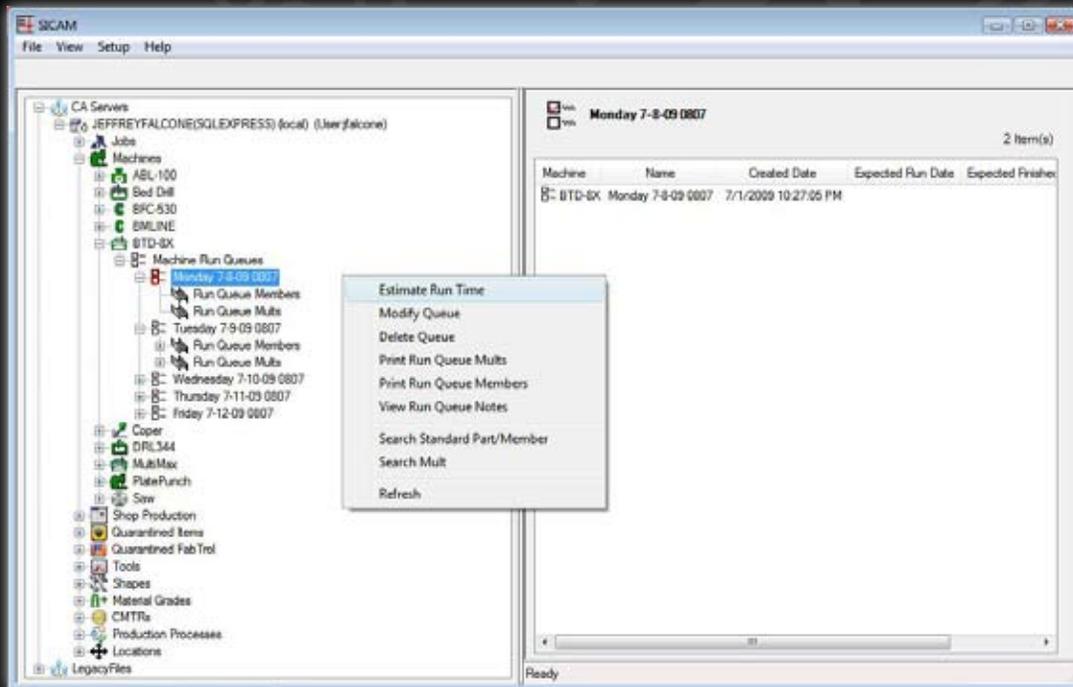
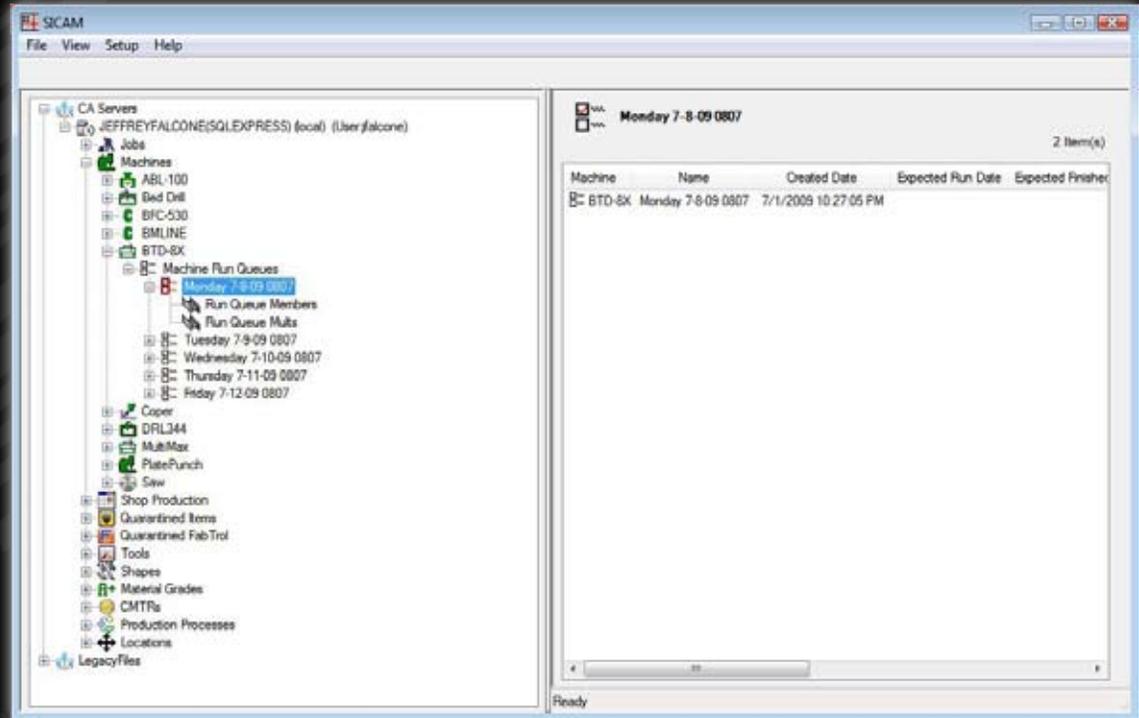
CREATING PRODUCTION BATCHES

Production batches are a way of grouping material in accordance with how and when it should be run. Users can create production batches based on a variety of different options. For example, users could create production batches based on the date the material should be run, the material size, the job sequence in which the parts to be run were created, or even by the storage location where the material is located. Production batches allow users to group and schedule throughput of material on hand which ensures maximum daily shop productivity.



CREATING RUN QUEUES

When a user creates a run queue, they are essentially providing the operators with a group of parts to be run on a particular machine. For example, when a job has been created and all main and detail members have been programmed and verified, programmers create run queues of a group of parts based on material size, production process schedules, shipping deadlines, etc..



RUN QUEUE ESTIMATION

When run queues are created, the SICAM software has an estimation feature which will tell the production manager and operator how long it should take the machine to process the group of parts. This estimation is based on quantity of parts, material size, as well as the time it will take to load and unload material. During the processing of a run queue, if any particular part has already been produced, SICAM will notify the operator that the part has already been run, when it was produced and by which operator. Run queues are a vital tool for the production manager to streamline shop/machine productivity, monitor material usage, maintain shipping deadlines and ensure more accurate production process completion scheduling.

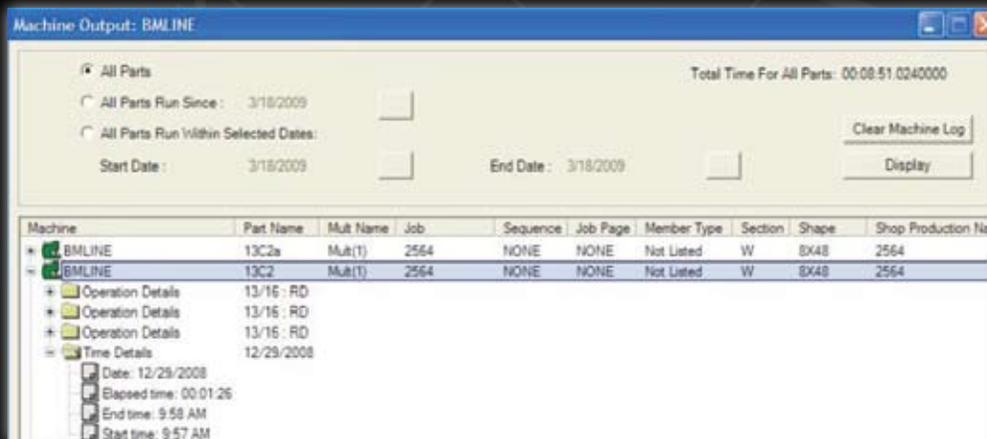
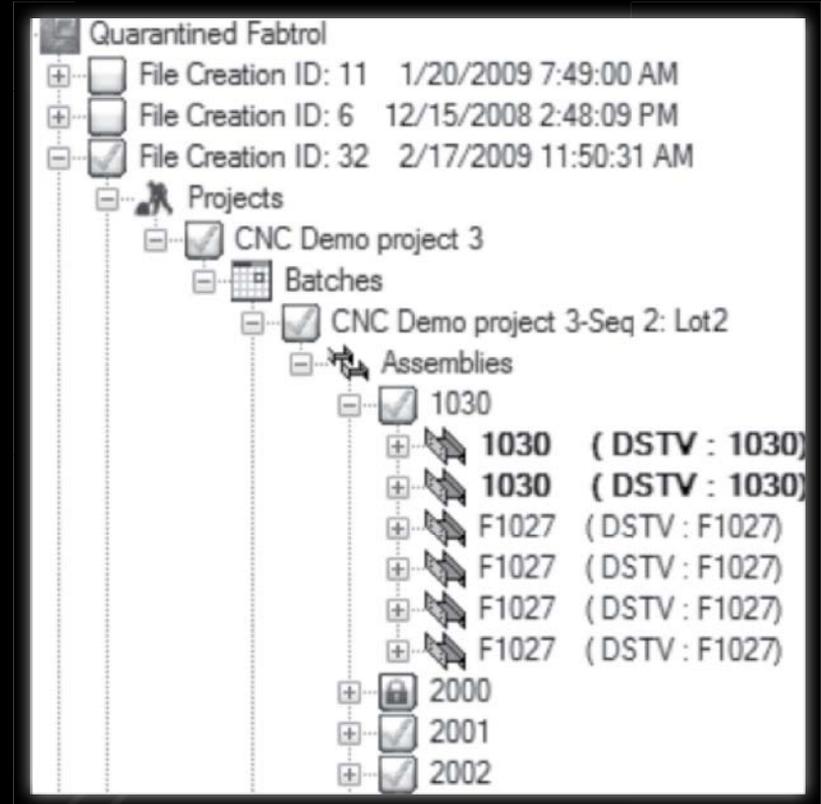
FabTrol MRP IMPORTING & FEEDBACK

A better way to manage

Benefits:

- SICAM uses FabTrol batch data to automatically generate jobs, sequences, production batches, mults, and run queues.
- SICAM can feed production data back into FabTrol indicating when parts are completed in real time
- Bind FabTrol members to DSTV (*nc1*) files or let SICAM generate unbound parts to make part programming easier.
- All FabTrol and DSTV data will remain in quarantine until checked and approved. Parts can be easily verified using SICAM's quick part checking system.

This is what you've been waiting for! SICAM can now import directly from your FabTrol system! Like our DSTV import, batches imported from FabTrol will be placed into a SICAM quarantine area where all of the batch information will reside until it is checked and approved. Once approved, all corresponding data will be automatically generated in the SICAM system. This includes jobs, sequences, production batches, and machine run queues. As parts are ran from controlled automation machines, the data will be fed back into SICAM and FabTrol systems that will indicate which parts have been completed. See "SICAM Import Quarantine" section for more file importing details.

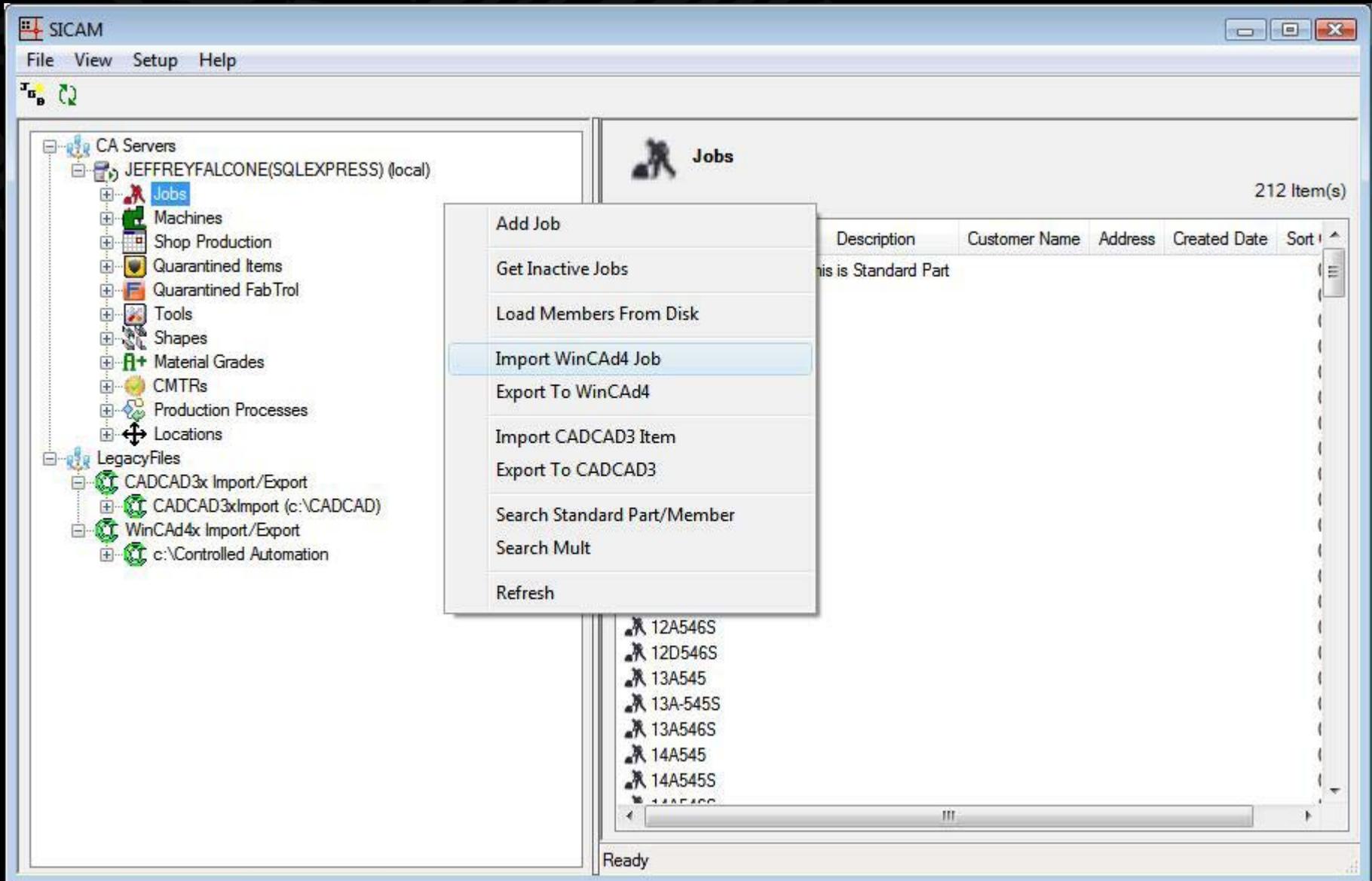


MACHINE FEEDBACK

As parts are run through the shop, machine data is fed back to a centralized SICAM server. This allows any computer running SICAM to see which parts have been completed, when they were completed and how long it took.

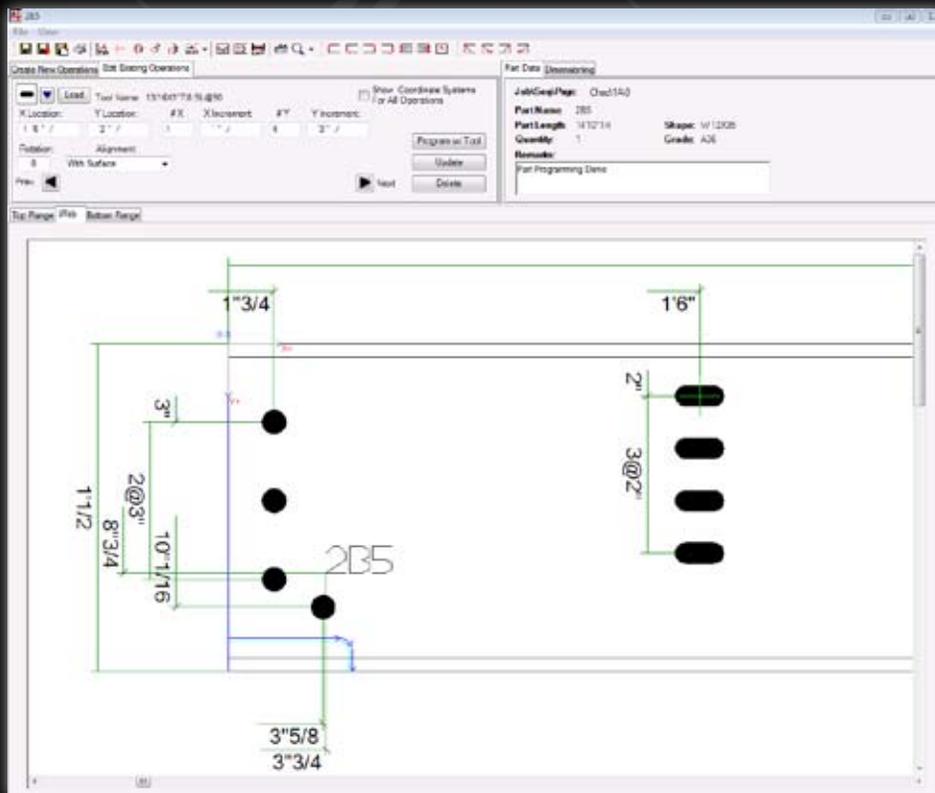
PREVIOUS LEGACY SOFTWARE VERSION SUPPORT

For any user utilizing previous versions of Controlled Automation's legacy WinCAD or CadCad software, there is no need to reprogram any existing part information. All previously created data can be imported seamlessly into the SICAM software. This is available to users within the legacy area of the tree view or within a particular job which has been programmed.



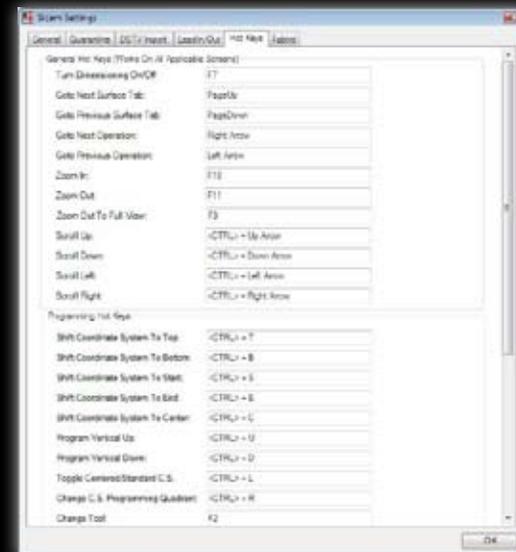
STREAMLINED PART PROGRAMMING ENVIRONMENT

Programming parts has never been simpler than with SICAM's intuitively designed part programming environment. It is designed to enter the parts quickly as they appear on a drawing and provide visual feedback to help check for correctness. Operations can be mirrored on a part, copied from flange to flange, programmed about center lines, programmed from work points off or on the material, rotated, quick tool selection per surface, number pad input, quick part copy, custom patterns, custom hot keys, 3-d Part Viewing, and the list goes on and on. The user is able to rotate the material representation to match the referenced part drawing. With a single click of the mouse, SICAM's auto dimensioning feature will place the dimensions of all operations that have been programmed on the part. This greatly reduces mistakes when programming parts. When the user needs to reference an operation from a point not on the material they can use a Work Point. A Work Point is a defined point at any coordinate which features can be referenced from. Quick tool select saves the users common tools for each surface to help speed up programming. Whether it's modifying or creating a new part, the software selects the initial tools from previous history. For those users that rely on the number pad, operation patterns can quickly be added to the part by using only the number pad. Because many times the members on a part page are the same material type, our software offers a quick copy for the current part along with the ability to modifying the length, name, and grade. Needless to say, Controlled Automation's part programming environment is a perfect balance between being feature rich and easy to use.



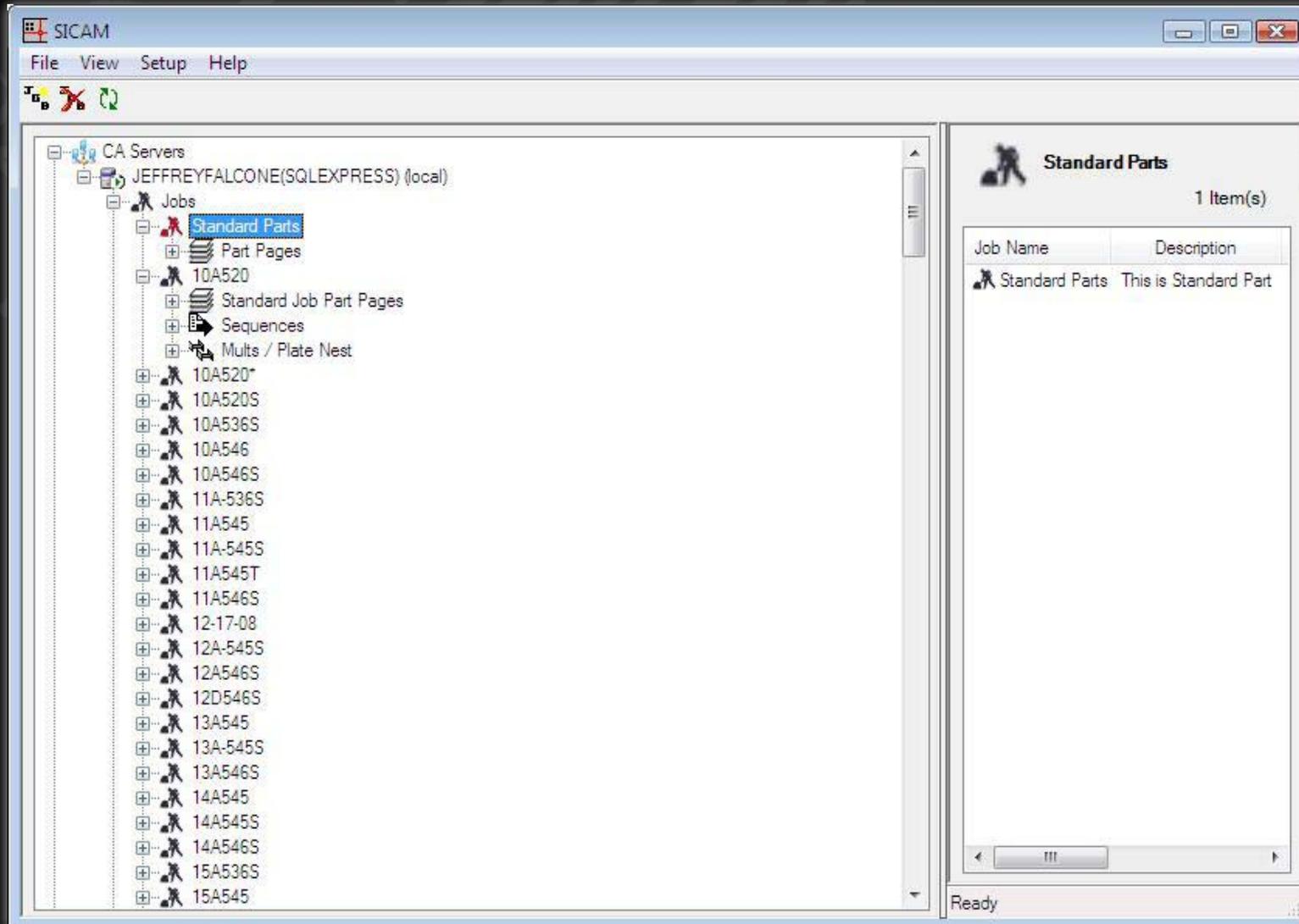
HOT KEY CUSTOMIZATION

For users who are more accustomed to the DOS programming environment, Controlled Automation's SICAM software is provided with new feature that allows any individual user to completely customize the functions of keystrokes on the keyboard. This can actually allow the user to create an environment in which they never have to use the mouse.



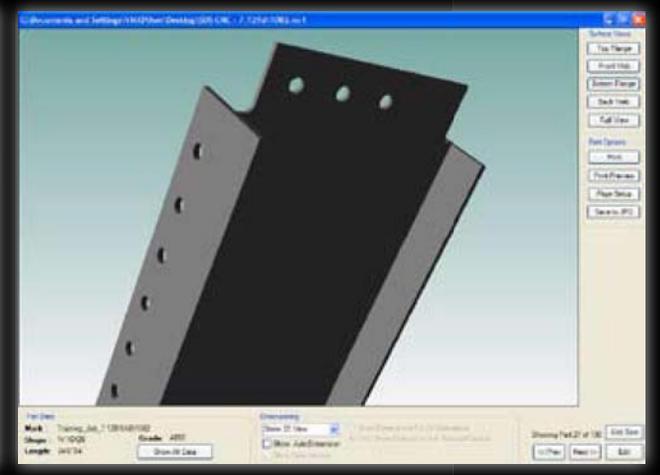
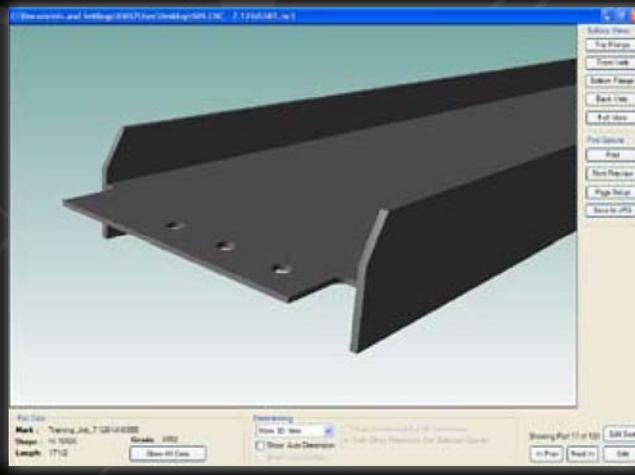
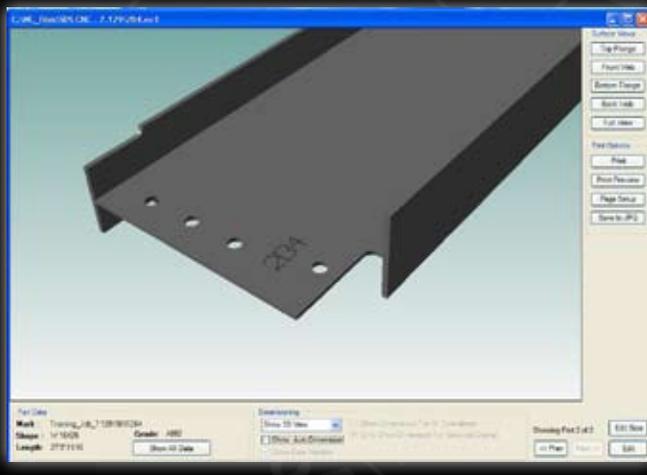
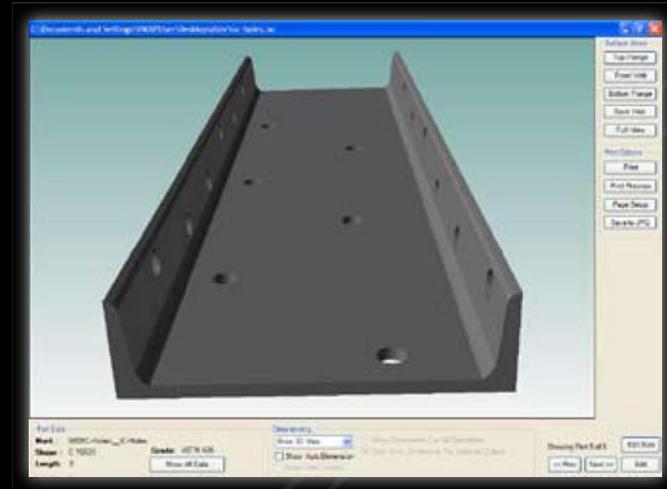
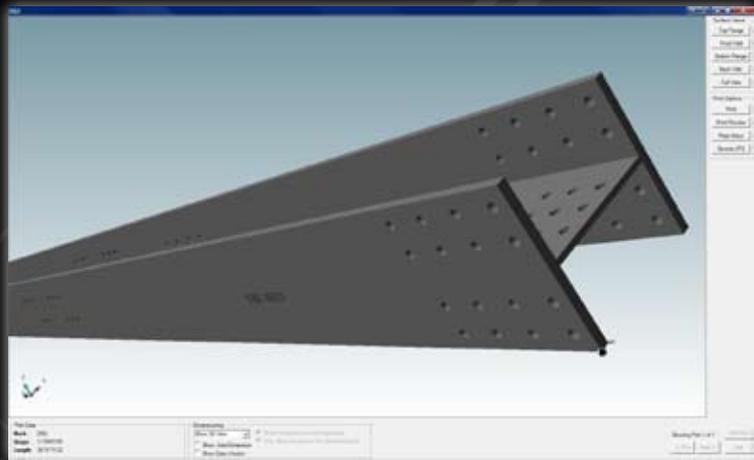
STANDARD PARTS

Standard parts are parts which are commonly used within a particular shop or job. With SICAM software, standard parts can be created and stored in either the main job library or within a particular job. This offers the programmer, operator or production manager a quick and easy way to locate any standard part which has been previously programmed. Controlled Automation's SICAM software also features with a standard part search feature. This allows any user with a seat on SICAM to right click and choose Search Standard Part, and enter all or part of a standard part name or description, and SICAM will list all standard parts which contain all or part of the description entered. Users may then click the desired part and allocate it to where they would like it to be copied and stored. This has proven to be a time saving advantage for facilities that run large amounts of the same part.



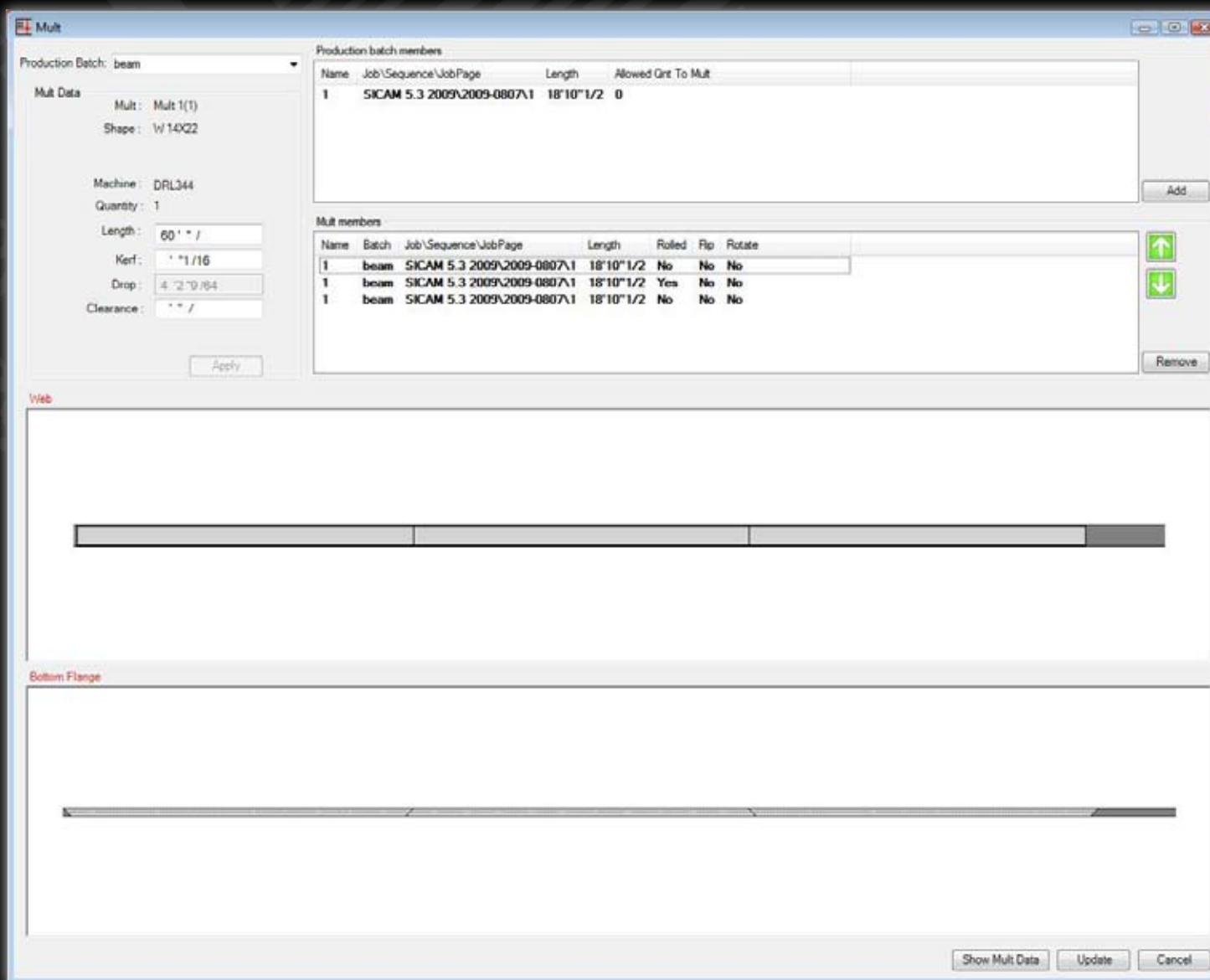
3D PART VIEWING

Any programmed part can be opened in 3D view. This can be extremely useful when verifying part correctness before releasing them into production. The 3D viewing feature allows users to rotate the part on a 360 degree vertical and horizontal orientation as well as zoom in or out.



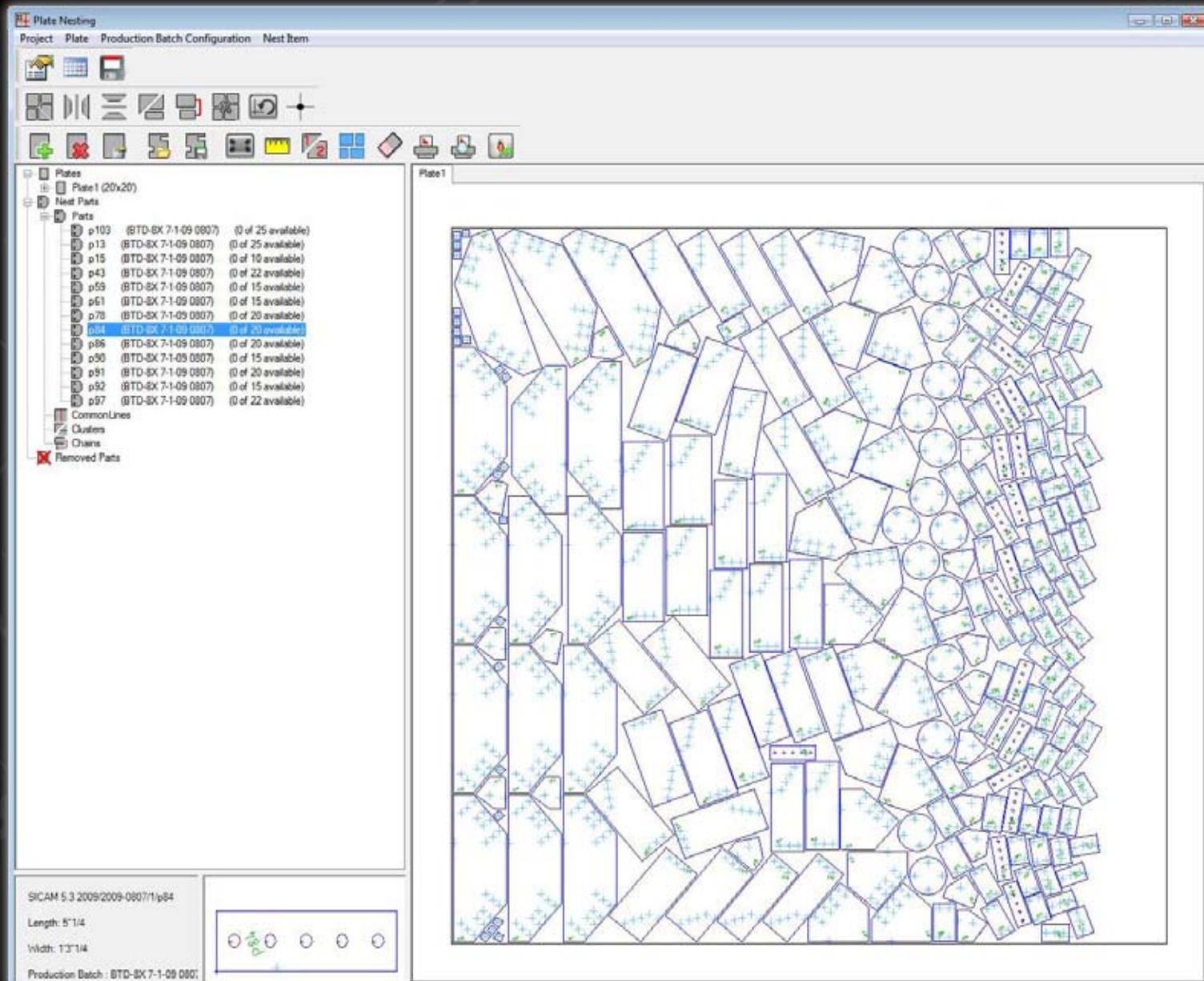
MULTING

With steel prices higher than ever, optimized material usage is a great concern. Whether it's beams, angles, plates, channel, or flat bar, SICAM can automatically group production using stock material for efficient material usage. You select the parts, quantities, kerf, stock material and the multing software will calculate the best combination of parts on each stock piece to get the minimum amount of wasted material. This calculation process is even capable of flipping and rotating miter cut parts to produce as many common cuts as possible. You can also mult manually, if desired, or modify existing mults.



NESTING

Plate nesting has a wide variety of optimization options from common line, chain, and cluster generation. Nesting plates has never been easier. Since SICAM production is contained in production schedules, all the user must do is select plate thickness and all parts with the same thickness for that production schedule are automatically loaded. With one click of the mouse, the parts are automatically added to the stock plate.



MANUALLY PROGRAMMED PART TRACKING INFORMATION

When any user manually creates a part in SICAM, all information pertaining to the part is recorded and stored for reference by other users. This is just another security measure within the software to assist with tracking and part verification before the part is processed.

The screenshot displays the SICAM software interface. On the left, there is a tree view showing the project structure, including 'Standard Parts', 'Job Pages', and 'Parts'. The main window shows a list of parts with the following columns: Member, Job Name, Sequence, Job Page, Quantity, Shape, Length, Plate Width, Grade, Plate Burn, Source, Created/Approved By, and Remarks. A red box highlights the 'Created/Approved By' field for the part with Member ID 'S_75-C4', which contains the name 'Nitesh'. A red arrow points to this field with the text 'SICAM user that approved or created the part'.

Member	Job Name	Sequence	Job Page	Quantity	Shape	Length	Plate Width	Grade	Plate Burn	Source	Created/Approved By	Remarks
S_75-C1	Training_Job_7_128	1A	0	1	C 12X20.7	4'3"1/16	0	A36	FALSE	DSTV	Nitesh	
S_75-C2	Training_Job_7_128	1A	0	1	C 12X20.7	14'8"21/32	0	A36	FALSE	DSTV	Nitesh	
S_75-C3	Training_Job_7_128	1A	0	1	C 12X20.7	4'3"1/16	0	A36	FALSE	DSTV	Nitesh	
S_75-C4	Training_Job_7_128	1A	0	1	C 12X20.7	14'8"21/32	0	A36	FALSE	DSTV	Nitesh	
1001	Training_Job_7_128	1A	0	1	W 18X40	26'9"21/32	0	A992	FALSE	DSTV	Nitesh	
1002	Training_Job_7_128	1A	0	1	W 18X26	24'6"3/4	0	A992	FALSE	DSTV	Nitesh	
1003	Training_Job_7_128	1A	0	1	W 18X26	24'6"3/4	0	A992	FALSE	DSTV	Nitesh	
1004	Training_Job_7_128	1A	0	1	W 14X34	19'5"5/8	0	A992	FALSE	DSTV	Nitesh	
10C2	Training_Job_7_128	1A	0	1	W 8X31	46"	0	A992	FALSE	DSTV	Nitesh	
11B1	Training_Job_7_128	1A	0	1	W 12X22	19'8"13/16	0	A992	FALSE	DSTV	Nitesh	
11C2	Training_Job_7_128	1A	0	1	W 10X49	26'8"1/2	0	A992	FALSE	DSTV	Nitesh	
12B1	Training_Job_7_128	1A	0	1	W 14X34	19'5"3/4	0	A992	FALSE	DSTV	Nitesh	
12C1	Training_Job_7_128	1A	0	1	W 8X31	46"	0	A992	FALSE	DSTV	Nitesh	
13B1	Training_Job_7_128	1A	0	2	W 14X26	11'11"7/4	0	A992	FALSE	DSTV	Nitesh	
13B4	Training_Job_7_128	1A	0	12	W 10X26	13'7"5/16	0	A992	FALSE	DSTV	Nitesh	
14B2	Training_Job_7_128	1A	0	2	W 14X26	11'11"7/4	0	A992	FALSE	DSTV	Nitesh	
14C1	Training_Job_7_128	1A	0	1	HSS 6X4X1/4	84"3/4	0	A5008	FALSE	DSTV	Nitesh	
15B2	Training_Job_7_128	1A	0	1	W 18X35	24'6"1/2	0	A992	FALSE	DSTV	Nitesh	
15C1	Training_Job_7_128	1A	0	1	W 8X31	109"	0	A992	FALSE	DSTV	Nitesh	
16C1	Training_Job_7_128	1A	0	1	HSS 5X5X3/8	122"7/8	0	A5008	FALSE	DSTV	Nitesh	
16H83	Training_Job_7_128	1A	0	1	WT 8X13	28'1"5/16	0	A992	FALSE	DSTV	Nitesh	
17B1	Training_Job_7_128	1A	0	1	W 18X35	24'6"3/4	0	A992	FALSE	DSTV	Nitesh	
19B1	Training_Job_7_128	1A	0	1	W 18X35	24'6"1/2	0	A992	FALSE	DSTV	Nitesh	
19B2	Training_Job_7_128	1A	0	1	HSS 6X6X1/4	96"3/4	0	A5008	FALSE	DSTV	Nitesh	
19B3	Training_Job_7_128	1A	0	1	W 18X26	24'4"1/4	0	A992	FALSE	DSTV	Nitesh	
1C3	Training_Job_7_128	1A	0	1	HSS 8X8X1/4	20'10"	0	A5008	FALSE	DSTV	Nitesh	
1M1	Training_Job_7_128	1A	0	2	PL 7/32	3'9"29/32	15"15/32	A36	FALSE	DSTV	Nitesh	
20B1	Training_Job_7_128	1A	0	1	W 12X14	28'6"3/16	0	A992	FALSE	DSTV	Nitesh	
23C1	Training_Job_7_128	1A	0	1	W 10X49	26'7"	0	A992	FALSE	DSTV	Nitesh	
2B1	Training_Job_7_128	1A	0	1	W 18X35	24'6"1/4	0	A992	FALSE	DSTV	Nitesh	
2B5	Training_Job_7_128	1A	0	1	W 12X35	14'10"1/4	0	A992	FALSE	DSTV	Nitesh	
2V83	Training_Job_7_128	1A	0	1	HSS 6X4X1/4	174"1/2	0	A5008	FALSE	DSTV	Nitesh	
2V84	Training_Job_7_128	1A	0	1	HSS 6X4X1/4	175"1/6	0	A5008	FALSE	DSTV	Nitesh	
3B5	Training_Job_7_128	1A	0	4	W 12X26	14'10"3/4	0	A992	FALSE	DSTV	Nitesh	
3C3	Training_Job_7_128	1A	0	2	HSS 4X4X1/4	19'9"	0	A5008	FALSE	DSTV	Nitesh	
4B2	Training_Job_7_128	1A	0	1	W 18X40	26'9"1/4	0	A992	FALSE	DSTV	Nitesh	
4B5	Training_Job_7_128	1A	0	1	W 14X30	22'1"1/2	0	A992	FALSE	DSTV	Nitesh	
5B1	Training_Job_7_128	1A	0	1	W 14X30	22'1"1/2	0	A992	FALSE	DSTV	Nitesh	
5B2	Training_Job_7_128	1A	0	1	W 10X12	10'9"3/32	0	A992	FALSE	DSTV	Nitesh	
5B3	Training_Job_7_128	1A	0	1	W 10X12	5'11"3/32	0	A992	FALSE	DSTV	Nitesh	
5B4	Training_Job_7_128	1A	0	1	W 10X12	15'25/32	0	A992	FALSE	DSTV	Nitesh	
5B5	Training_Job_7_128	1A	0	1	W 16X26	17'1/2	0	A992	FALSE	DSTV	Nitesh	
6B1	Training_Job_7_128	1A	0	2	W 14X22	22'6"29/32	0	A992	FALSE	DSTV	Nitesh	
6B2	Training_Job_7_128	1A	0	1	W 10X12	20'1"1/32	0	A992	FALSE	DSTV	Nitesh	
6C2	Training_Job_7_128	1A	0	1	W 8X31	109"	0	A992	FALSE	DSTV	Nitesh	
GHB3-GHB3L	Training_Job_7_128	1A	0	1	L 6X4X3/8	20'11"15/16	0	A36	FALSE	DSTV	Nitesh	
GHB3-GHB3R	Training_Job_7_128	1A	0	1	L 6X4X3/8	20'11"15/16	0	A36	FALSE	DSTV	Nitesh	
7B1	Training_Job_7_128	1A	0	1	W 18X26	17'1/2	0	A992	FALSE	DSTV	Nitesh	
7B2	Training_Job_7_128	1A	0	1	W 18X17	10'9"3/32	0	A992	FALSE	DSTV	Nitesh	

SICAM IMPORT QUARANTINE

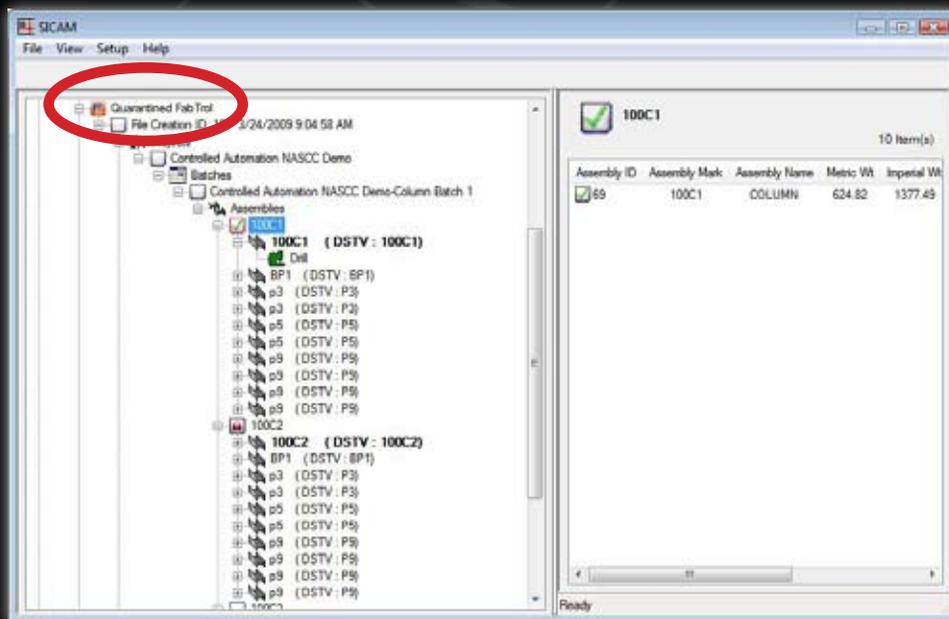
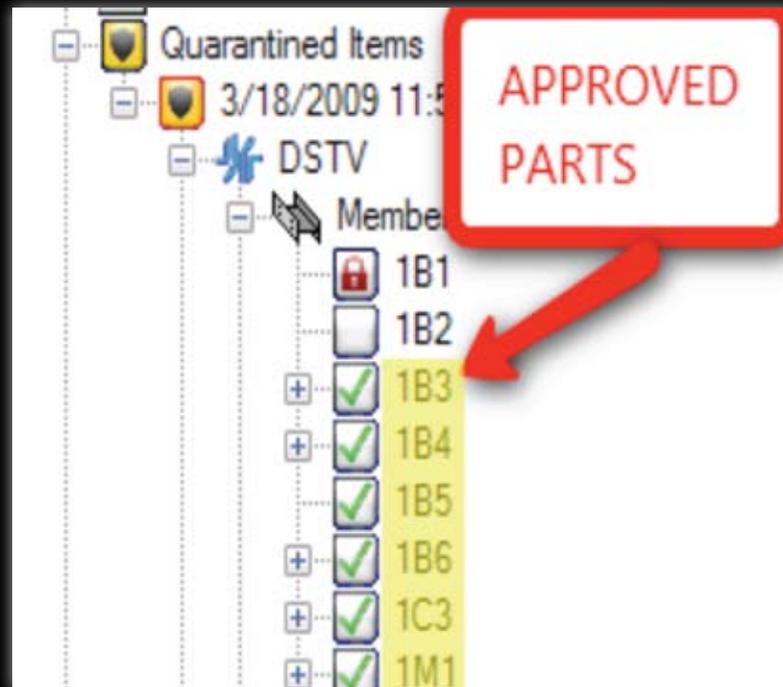
Import Quarantine file types:

FabTrol, DXF, DSTV,

In the Import Quarantine, you can:

Quick Check parts, View parts in 3D, Edit parts, Edit part quantity, Approve parts, Lock parts, Check-in to production, and much more.

One of the most important features in today's automated world is being able to import part information quickly and accurately from a CAD system. When importing into SICAM, the part or parts are placed into quarantine. All aspects of a part can be examined including (but not limited to) correct size, material shape and operation details. With our newly added 3D component, checking copes on imported parts has never been easier. If any part fails inspection, that part can be locked in quarantine and not released to production until approved. With SICAM user roles, the user approving the part is recorded allowing for an additional layer of security. After saving any changes and receiving approval, the part is checked in to production and assigned to the specified job.



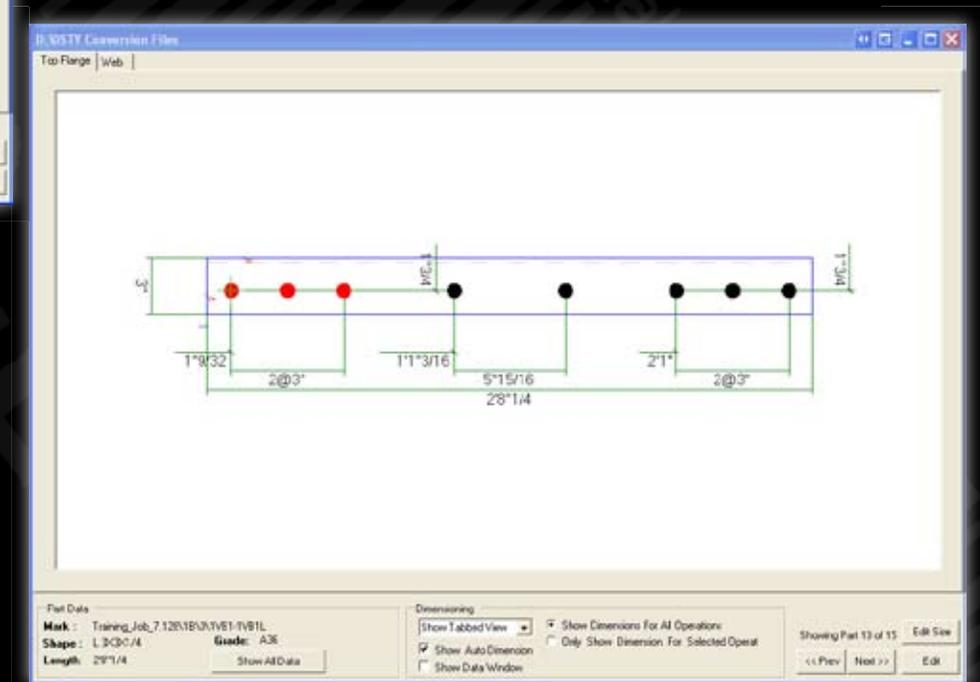
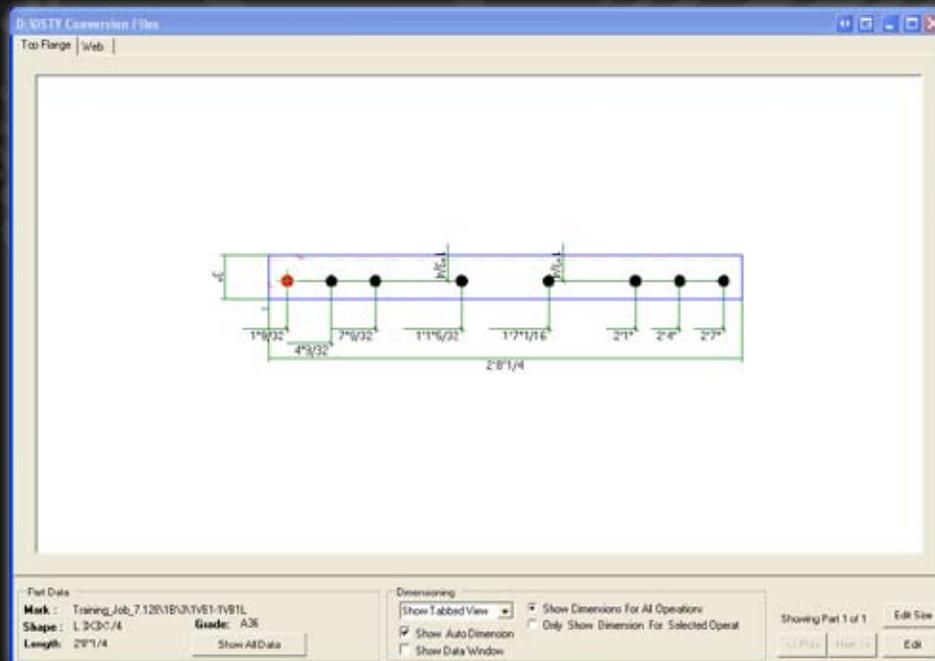
FabTrol MRP
A better way to manage

APPROVAL/CHECK-IN

This same import, approval and check in process is used for DXF, DSTV and FabTrol data. When previously programmed or recorded FabTrol data is imported into SICAM, the data is separated accordingly and quarantined. The data will remain in the FabTrol quarantine section of the job tree until the information has been verified, approved and released for production.

IMPORTED PART PATTERN RECOGNITION

Controlled Automation's SICAM software is provided with pattern recognition features. This allows the software to pick out and recognize specific patterns of operations that have been programmed on parts being imported. For example, the first example below shows a part that was imported without pattern recognition. The software applies a measurement to each individual machine operation because it does not scan the part for any identical operations or increments which can be grouped as a pattern. The second example, of the same part, recognizes the patterns within the operations and automatically groups the measurement data. This allows for more accurate part verification when checked against the detailer provided drawings.



USER MEASUREMENT INCREMENT PREFERENCE

The SICAM software allows users to choose which fractional units of measure they would like to program or import part information with. This feature gives users three options of measure to choose from, they may choose to measure in increments of 16ths, 32nds or 64ths. Depending on the desired preference of each individual user, this is just another value added feature of the software which will speed the programming, verification and production processes.

The screenshot shows the 'Sicam Settings' dialog box with the 'Conversion' tab selected. The 'Pattern' section has 'Generate Pattern' checked and 'Max X distance' set to '10" /'. The 'Source Units' dropdown is set to 'Metric', 'Dest Units' and 'Dest Tool Units' are set to 'Rt. Inch Frac.', 'Max Denominator' is '64', 'Create Tool Max Denominator' is '16', and 'Rounding Value' is '0.05'. On the right, there are four unchecked checkboxes: 'Channel Legs Down', 'Reverse arc direction on top flange', 'Turn Off Bevel Cut', and 'Ignore Plate DSTV Conversion'. The 'Dimensioning' section has 'Show Dimensions For All Operations' selected, and all 'Show ... Dimensions From' dropdowns are set to 'Operation's Critical Point'. 'Dimension Units' is set to 'Rt. Inch Frac.'. The 'View' section has 'Show part using tabbed viewing' unchecked. An 'OK' button is at the bottom right.

Section	Property	Value
Conversion	Generate Pattern	<input checked="" type="checkbox"/>
	Max X distance	10" /
	Source Units	Metric
	Dest Units	Rt. Inch Frac.
	Dest Tool Units	Rt. Inch Frac.
	Max Denominator	64
	Create Tool Max Denominator	16
	Rounding Value	0.05
	Channel Legs Down	<input type="checkbox"/>
	Reverse arc direction on top flange	<input type="checkbox"/>
Turn Off Bevel Cut	<input type="checkbox"/>	
Ignore Plate DSTV Conversion	<input type="checkbox"/>	
Dimensioning	Show Dimensions For All Operations	<input checked="" type="radio"/>
	Only Show Dimensions For Selected Operation	<input type="radio"/>
	Show TF Dimensions From	Operation's Critical Point
	Show BF Dimensions From	Operation's Critical Point
	Show Web Dimensions From	Operation's Critical Point
	Show Back Web Dimensions From	Operation's Critical Point
Dimension Units	Rt. Inch Frac.	
View	Show part using tabbed viewing	<input type="checkbox"/>

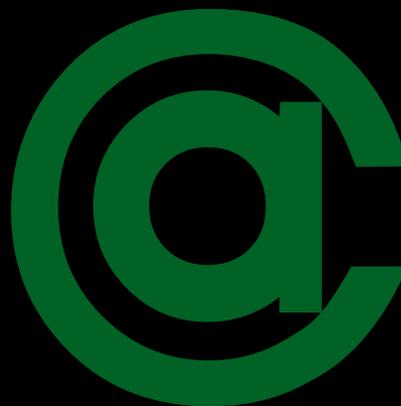
SICAM (*Structural Information for Controlled Automation Machinery*) software is the base model operating software offered by Controlled Automation. SICAM now comes standard on all Controlled Automation machinery. Controlled Automation has separated the different features of our SICAM software into individual upgrades and/or additions. This will allow our customers to purchase only the optional features that will benefit their particular needs for individual or multiple production facilities.

The structural steel industry is very diverse in the fact that there are many different types of fabrication shops out there. Controlled Automation has broken down the most common needs of fabricators in the industry based on customer feedback as well as years of research and development. Once SICAM has been installed, four optional additions can be purchased for the expansion of the software's capabilities.



- 1. Importing** - (*base version with basic file import capabilities*)
- 2. Advanced Importing** - (*base version with full version file import capabilities*)
- 3. Nesting** - (*base version with the ability to automatically or manually produce nests for structural plate*)
- 4. 3D-Viewing** (*base machine operation version with part programming capabilities and 3 dimensional viewing for programmed part verification*)

By offering the software with such programming/production process specific modules, the customer is given the ability to purchase only the module/modules that apply to their individual shop or office requirements. This makes our software one of the most competitively priced structural programming and production management packages in the industry.



Controlled Automation specializes in the manufacture of automated structural steel drilling, punching, and shape cutting machinery. Material handling systems are also available to complement each type of machine we offer. As well as new machinery, we are the industry leader in retrofitting control systems and remanufacturing existing structural steel fabricating machinery. All machines and controls are designed and manufactured entirely in the United States of America. All software is developed in and supported from the United States of America.

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