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CCI

CAD/CAM Integration, Inc.

SuiteFactory™ Operator's Guide

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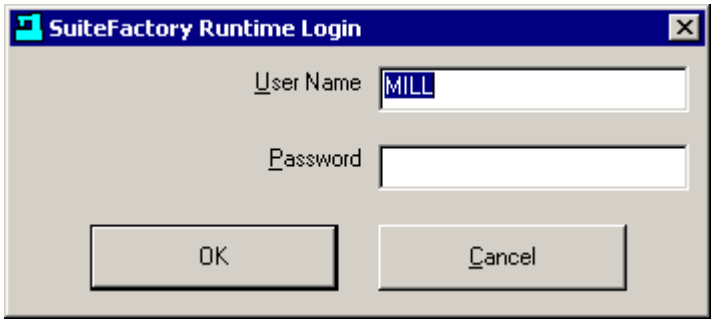
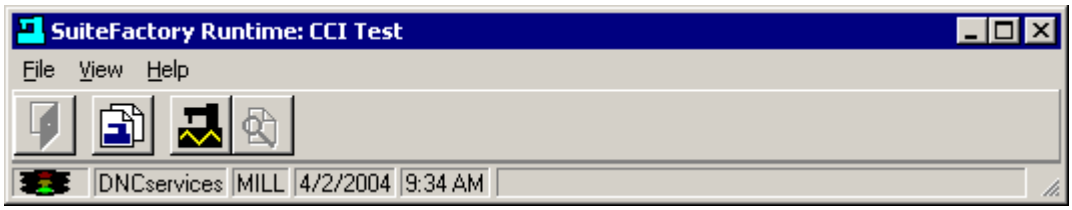
Starting SuiteFactory – DNC Session only

Start SuiteFactory by **Clicking on this icon** on you desktop!

Login by entering your assigned **User Name** and **Password**, if any.



Click OK!



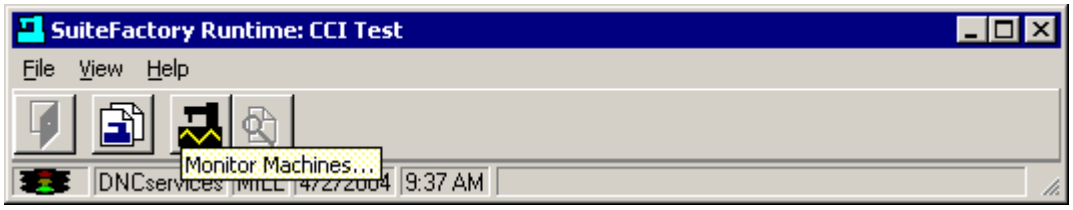
The main SuiteFactory screen appears.

Selecting a file to send to a CNC controller

There are at least three ways to select the file you need depending upon whether or not you know what the file name is or whether you have to search for it based on other information.

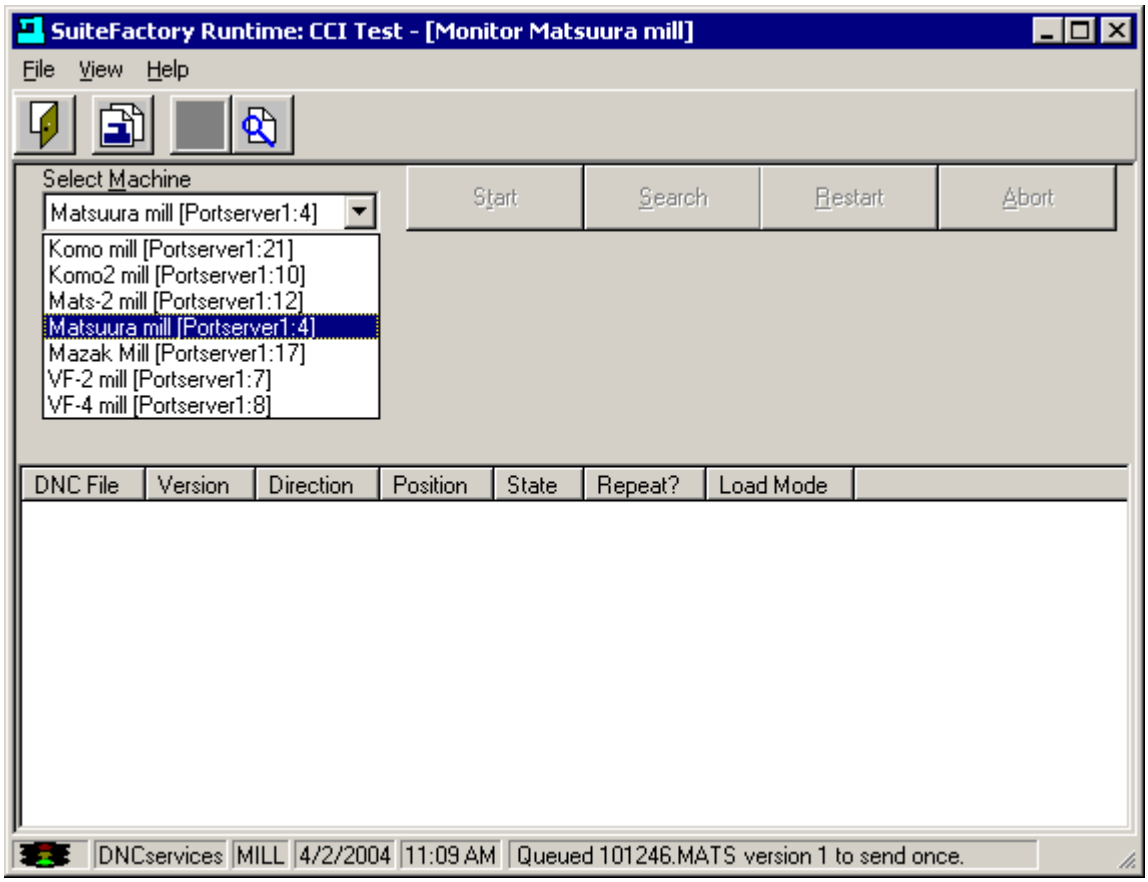
1. You know the name of the DNC file to send to the CNC and you want to monitor the process.

Note! When moving the mouse arrow over a button its function is described in a small yellow box on your screen. Look at the figure below. The mouse was moved over the 2nd button from the right and the description, Monitor Machines… appeared. Also the various pull-down menus, File, View, Configure and Help contain the same functions as the button as well as other less used selections.



Click on the Monitor Machines button !

The Machine Monitor screen appears. **Click** on the **Select Machine** pull-down list to choose the machine to which you are sending the file such as the Matsuura mill in this example.

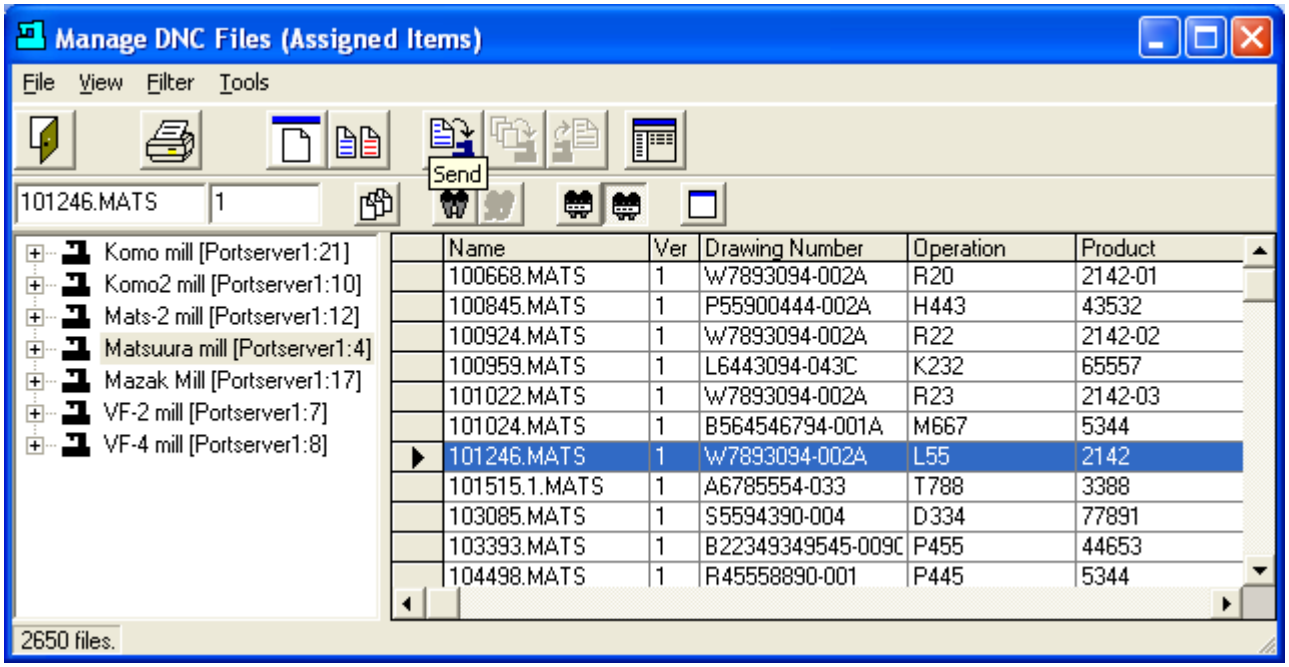


Monitoring turns on. Any files queued up previously will appear in the white field.
In this example nothing is on the queue.

Click on the Manage DNC Files **button** **.**

The following screen appears. This view shows your list of authorized machines on the left side of the screen and the DNC files assigned to that machine on the right. If this is not similar to what you see, read Appendix D below for a discussion on Views.

Above the list of files are various headings. See Appendix A for detailed descriptions.



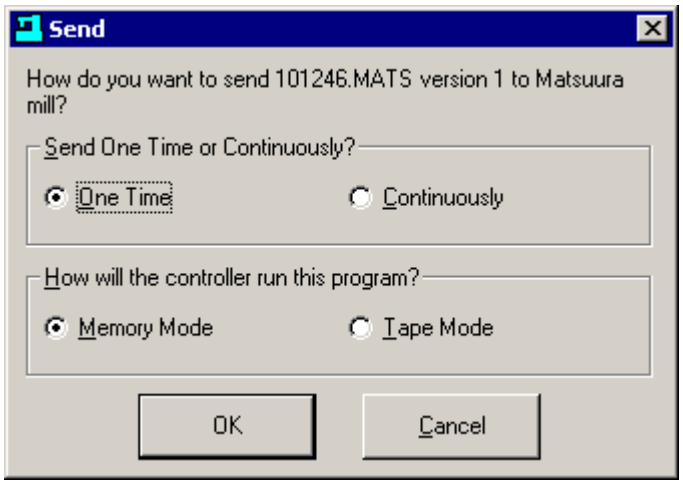
At this point, if you see the name of the file in the list you can just select it by a click of the mouse, or you can scroll down until you find your file. The files are listed in alpha-numeric order. You can change the ordering by clicking on the heading above the column. If you click on the name heading it will sort your files in reverse alpha-numeric order. If you click on a date heading once it will sort by the date/time in ascending order. If you click again it will sort in descending order. This is true of most but not all of the columns. You cannot sort by version, for example.

OR

You can start typing the name in the white field above the machine list. As you type the pointer will quick-search down the list for the closest match. When you see your file you can select it by clicking on it or just keeping typing the entire name.

Before you send the file to the CNC, you can click on other buttons to print it, view it or compare it side-by-side to another file. To send the selected file to the selected machine, **click on** Send.

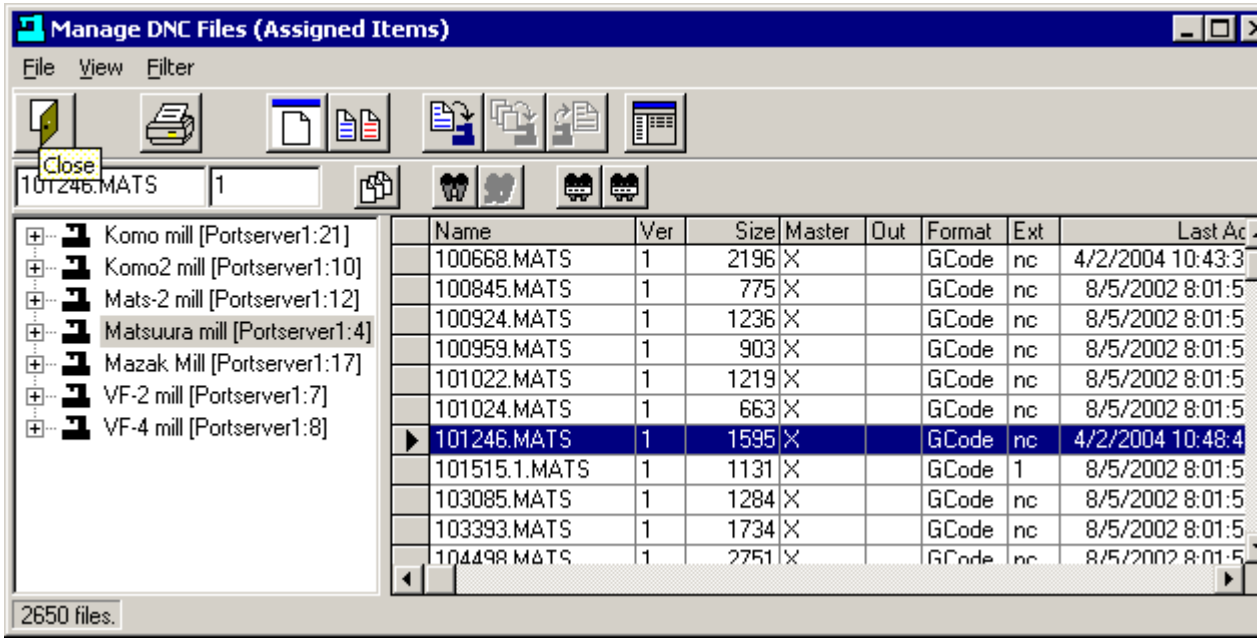
The following screen appears:



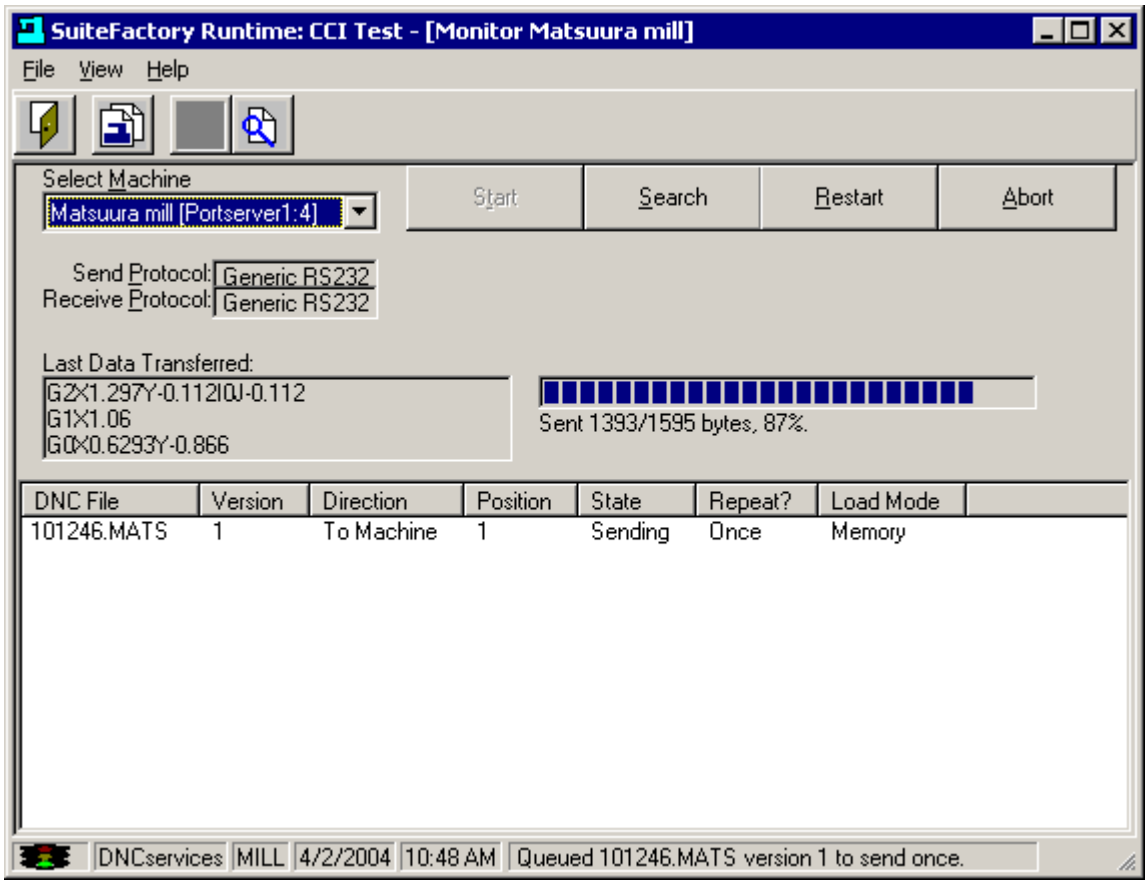
Click OK unless you are drip-feeding to the CNC in real time (Tape Mode). In Memory Mode a timeout is active which clears the file from the machine queue if the data transfer is stopped by the CNC for the set amount of time. (A SuiteFactory parameter). In Tape Mode this timeout is ignored so that the file stays on the queue during long cutting of arcs for example. Selecting "Continuously" causes the file to be re-queued each time it's sent for doing production jobs in Tape Mode.

Click OK

You return to this screen.

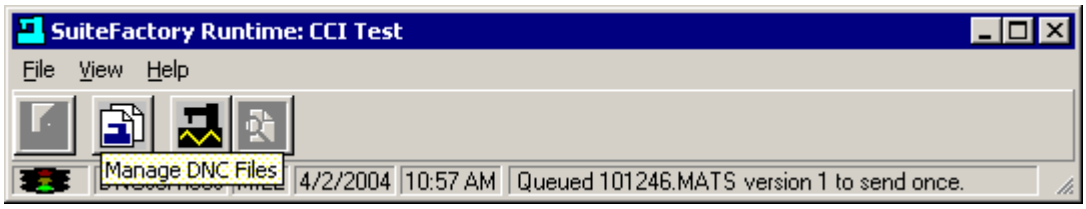


Click Close and you return to the Monitor Screen. But now the DNC File you selected in shown. You now go to your Machine Controller and select the Read function. Last Data Transferred will show the program data being sent and a progress bar keeps track of how much data was transmitted. If most of the time you know the name of the file you need, then leave this window on your computer screen ready to select the next machine and/or DNC file you need.

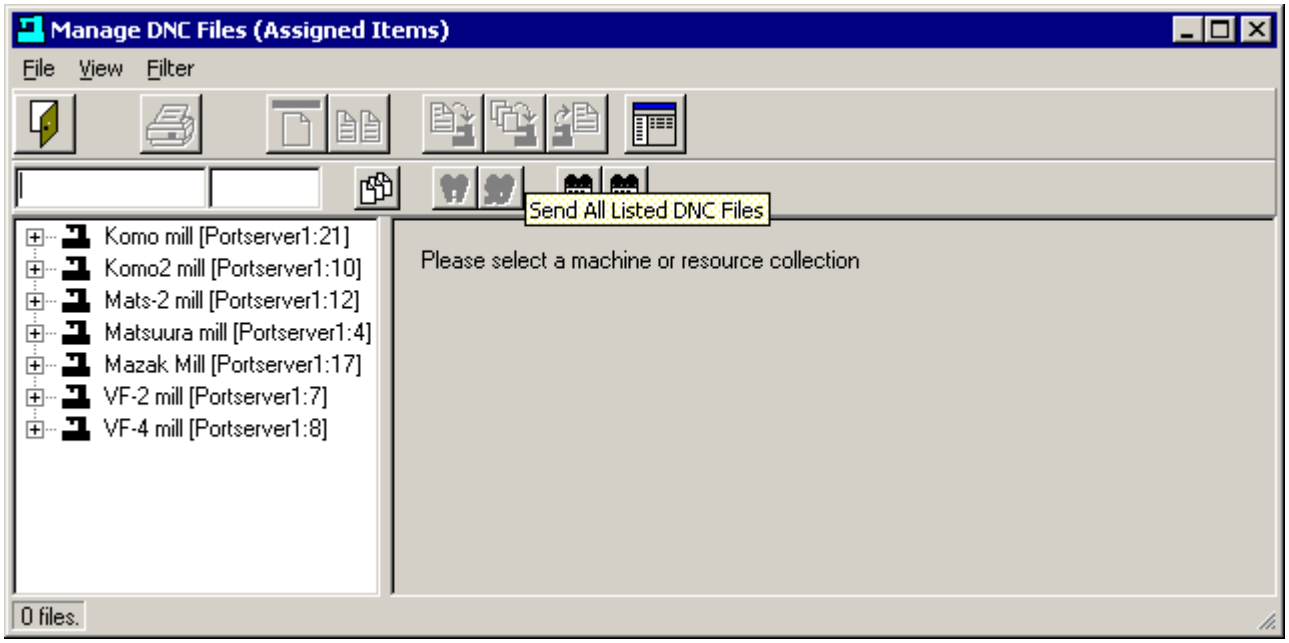


2. You know the name of the DNC file to send to the CNC and do not need to monitor the process.

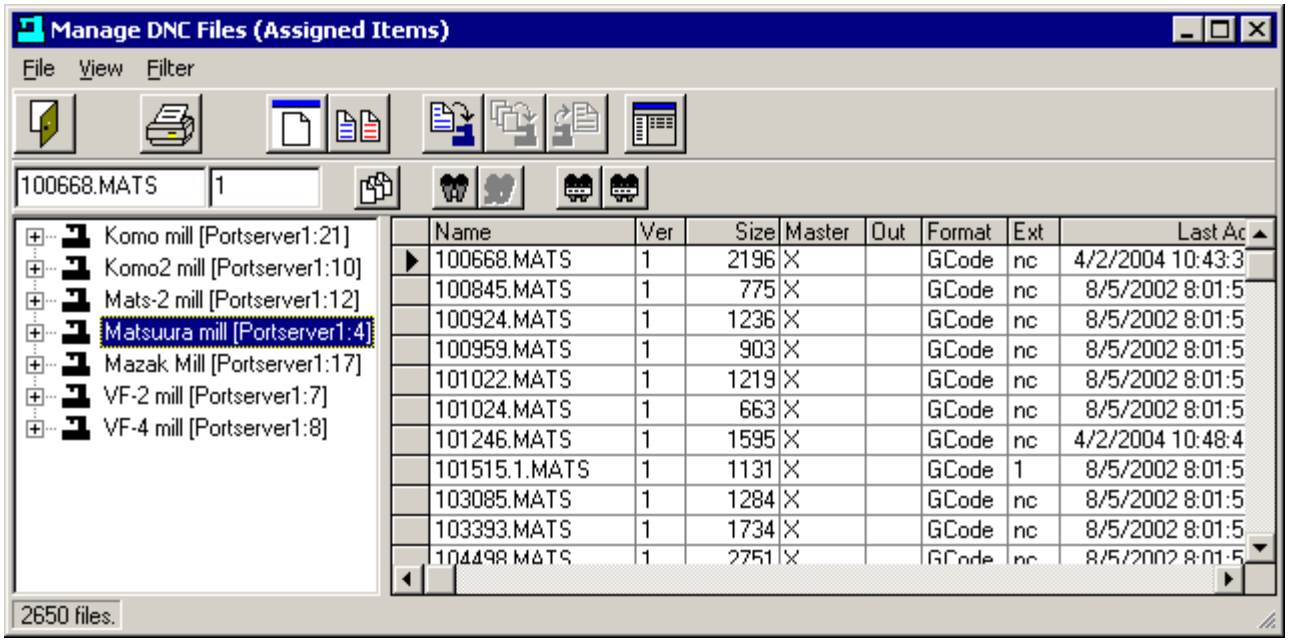
Starting at the main SuiteFactory Screen



Click on Manage DNC Files and this screen appears.



Select a machine

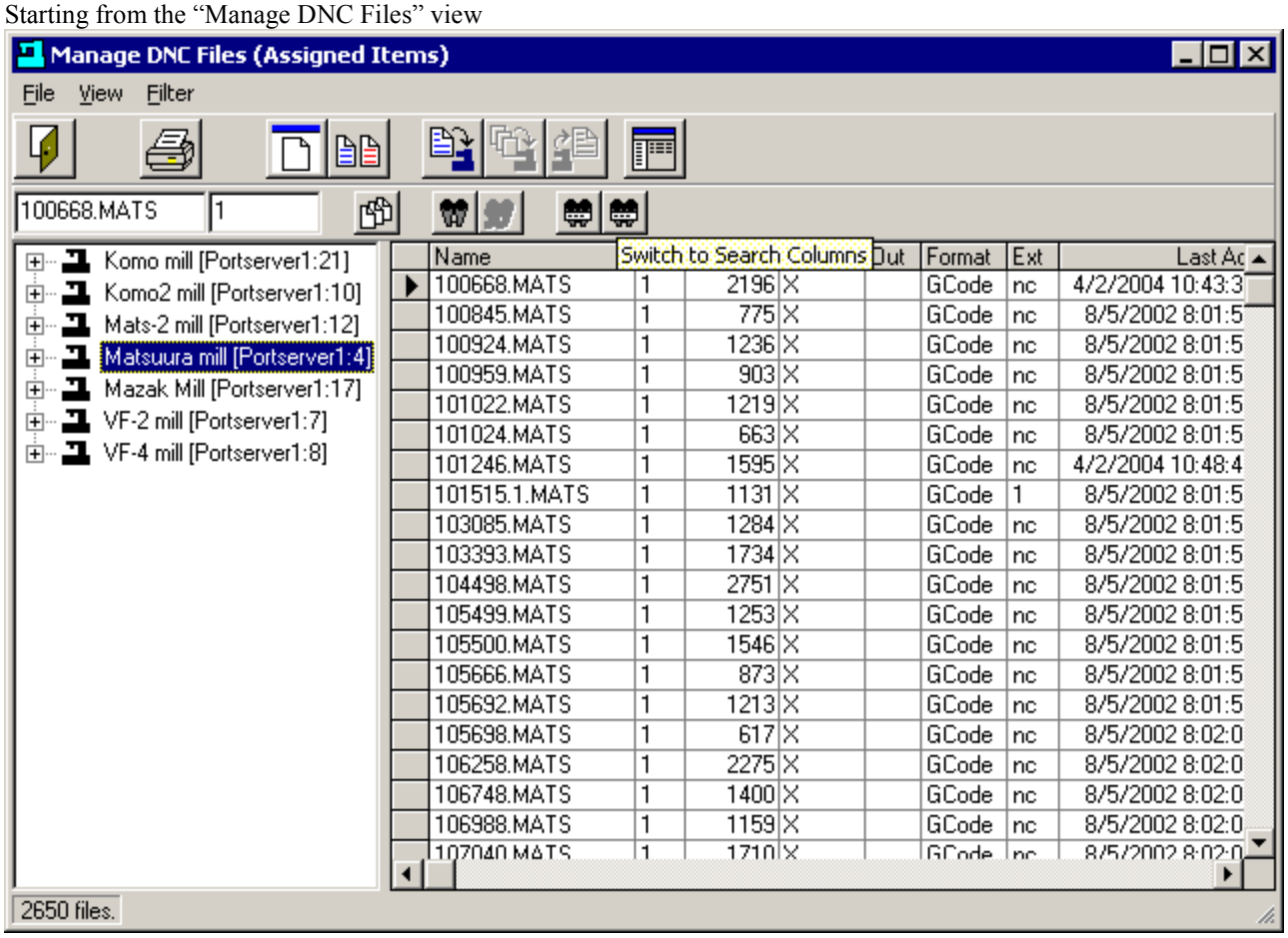


The list of DNC files assigned to that machine appears.
The rest of the procedure to select and send a DNC file to a machine controller is the same as above, starting on Page 4.
Leave this window on your computer screen. If you must monitor progress or Abort, Search, or Restart, close this screen and select Monitor Machines as described above.

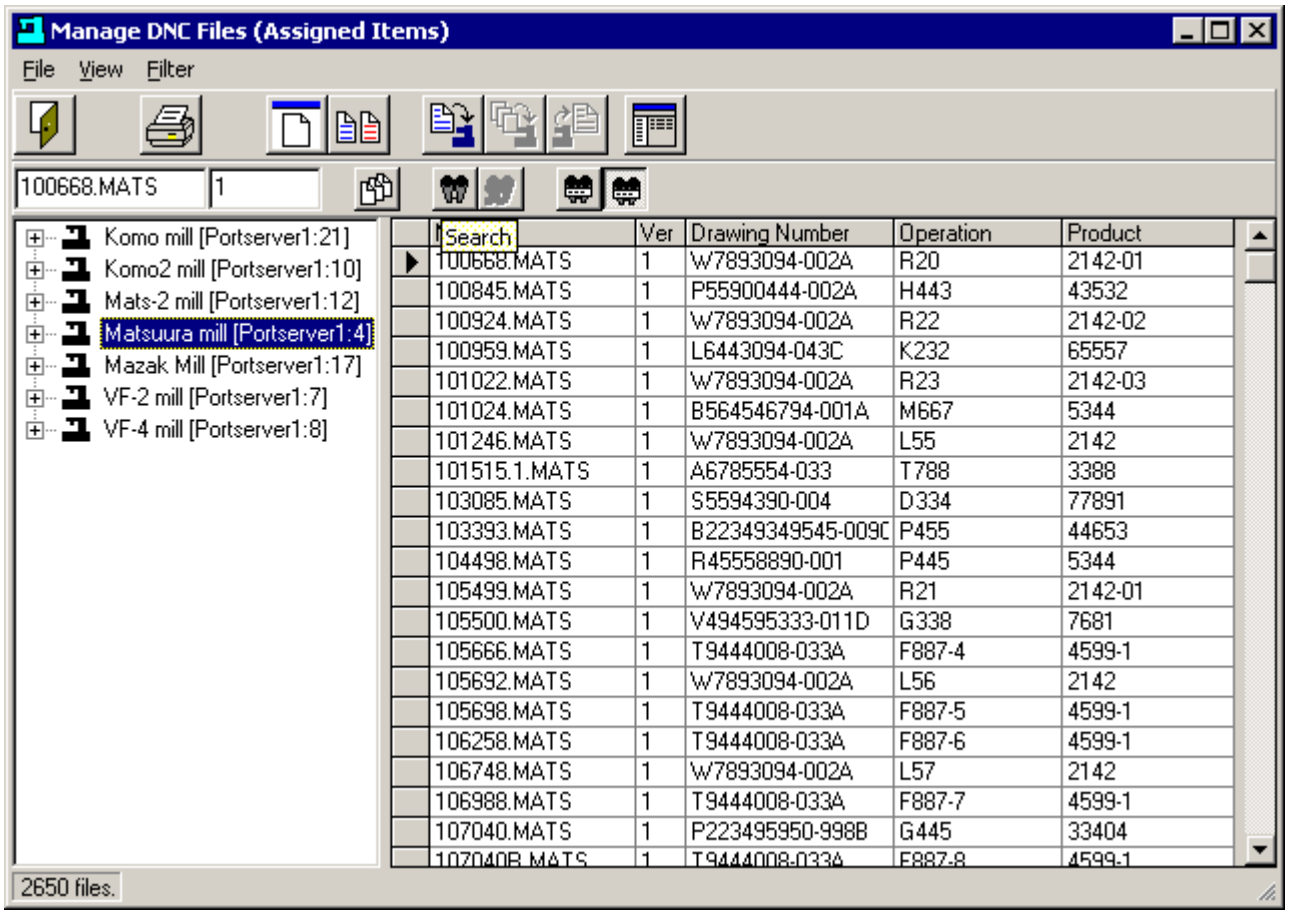
3. You have to search for the file based on other information – using the Search Criteria Fields and the Search Engine

If your DNC administrator has implemented this feature, the two small buttons will be available.

Starting from the “Manage DNC Files” view



Click on "Switch to Search Columns" (The small button on the right) and this screen appears:

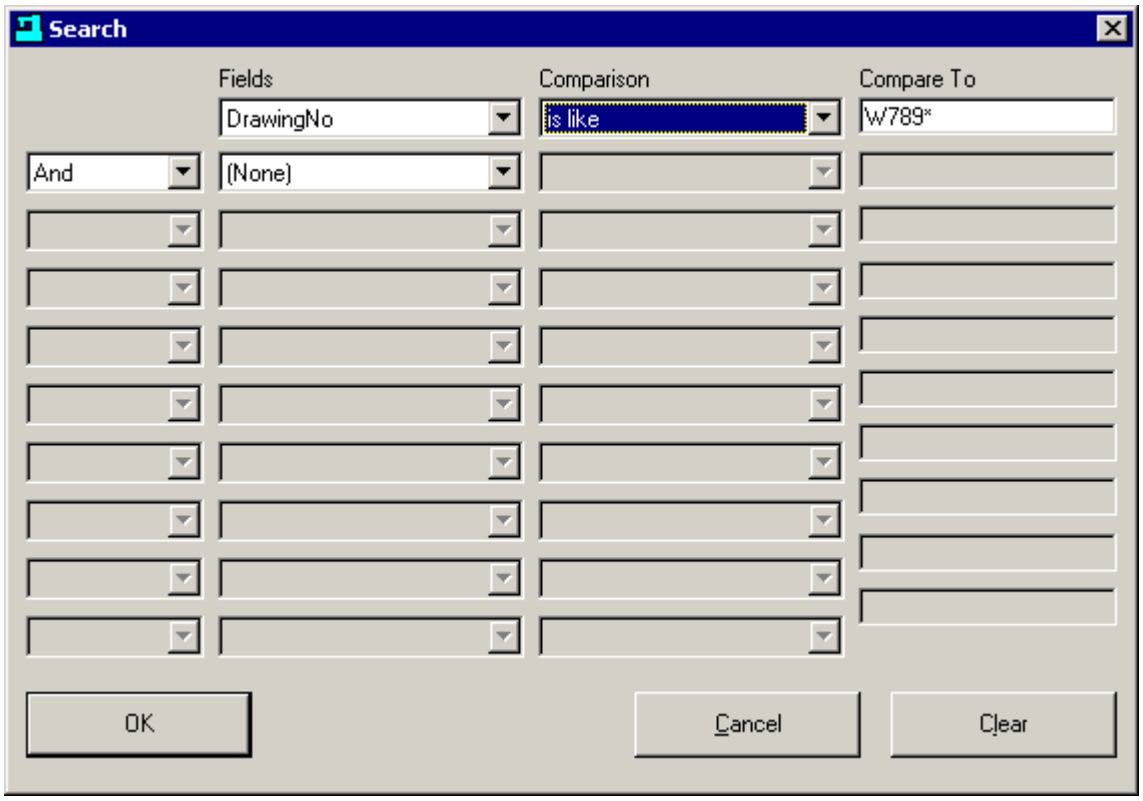


Notice that the standard column headings, such as, size, master, out, format, extension and the various dates have been replaced with the headings, "Drawing Number", "Operation", and "Product." These are called "Search Criteria." These search criteria shown here are only examples of what can be implemented. The DNC administrator can create any criteria that make sense in your shop.

Using the search engine

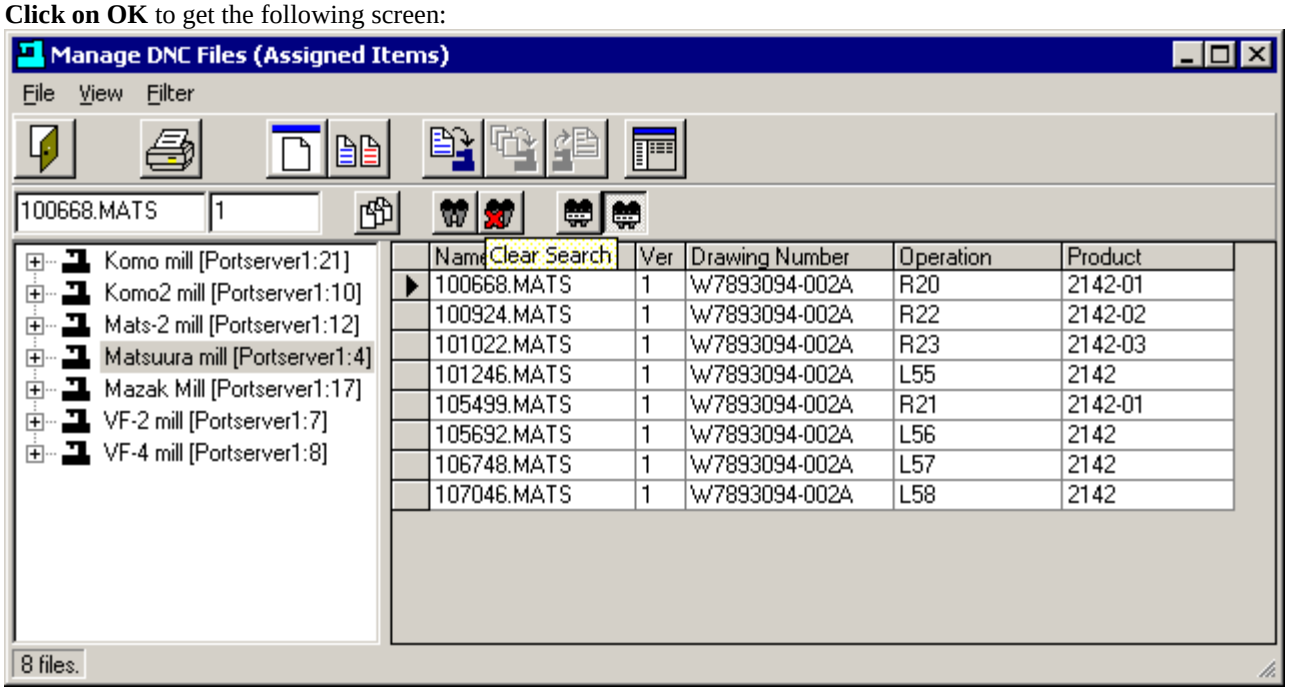
Say you are looking for a file that is associated with drawing number W789…

Click on the "Search" button and you will get the following screen:



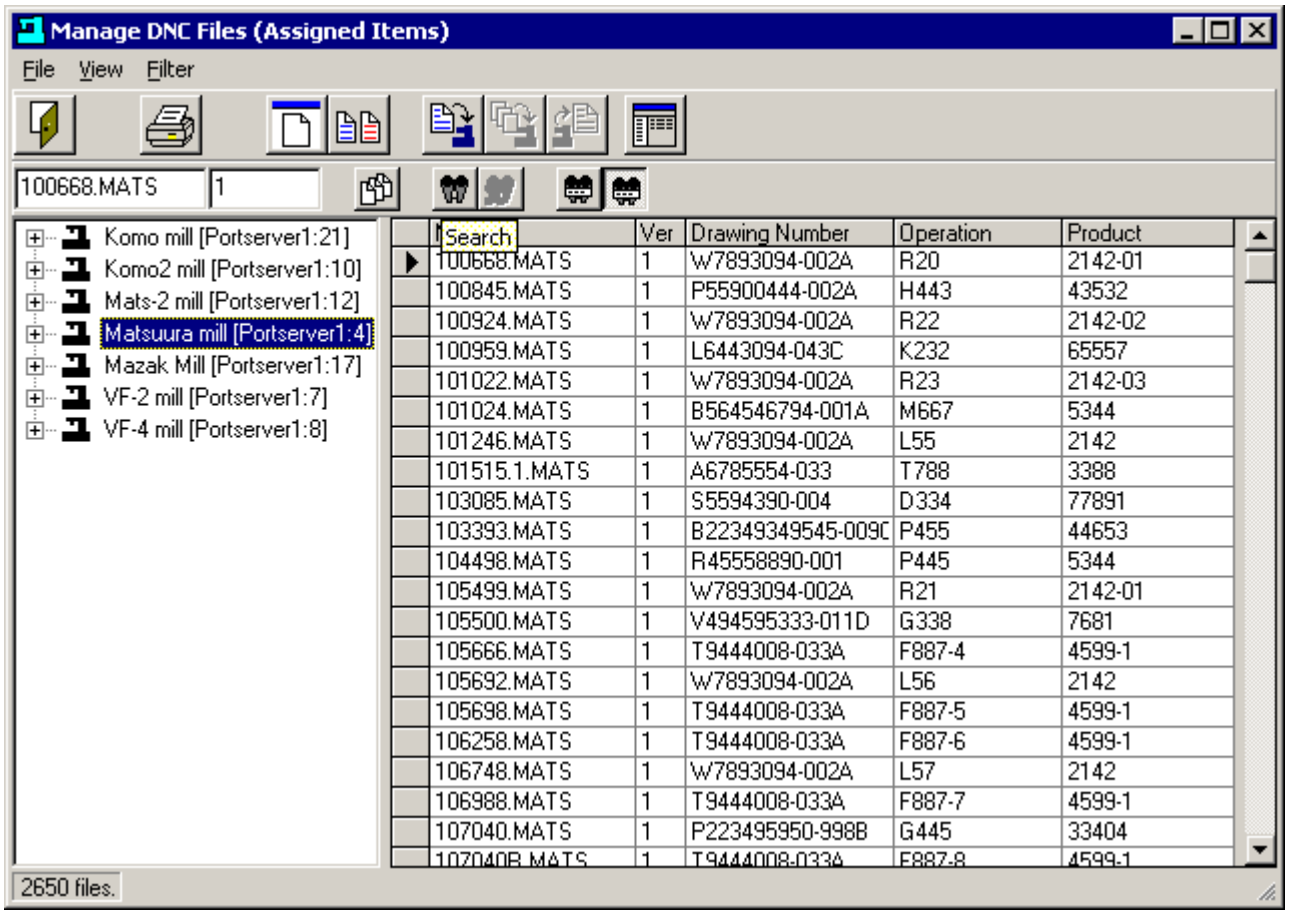
Using the drop down lists select the field, DrawingNo, the comparison, is like, and type in W789* in the Compare To filed. The "is like" operator allows you to use wild cards to find something, for example, the W789 followed by the wild card character *.

Click on OK to get the following screen:



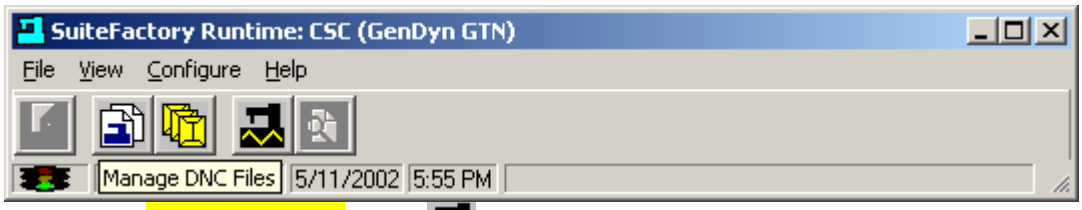
Listed you see all the files associated with drawing number W7893094-002A. So if you know the operation number, for example, L56, then choose that file and queue it to send to the CNC by clicking on the Send button Refer to page 6, above, for details on sending a file to a CNC.

To restore your file list to the unfiltered state, **click on the "Clear Search" button** **.**

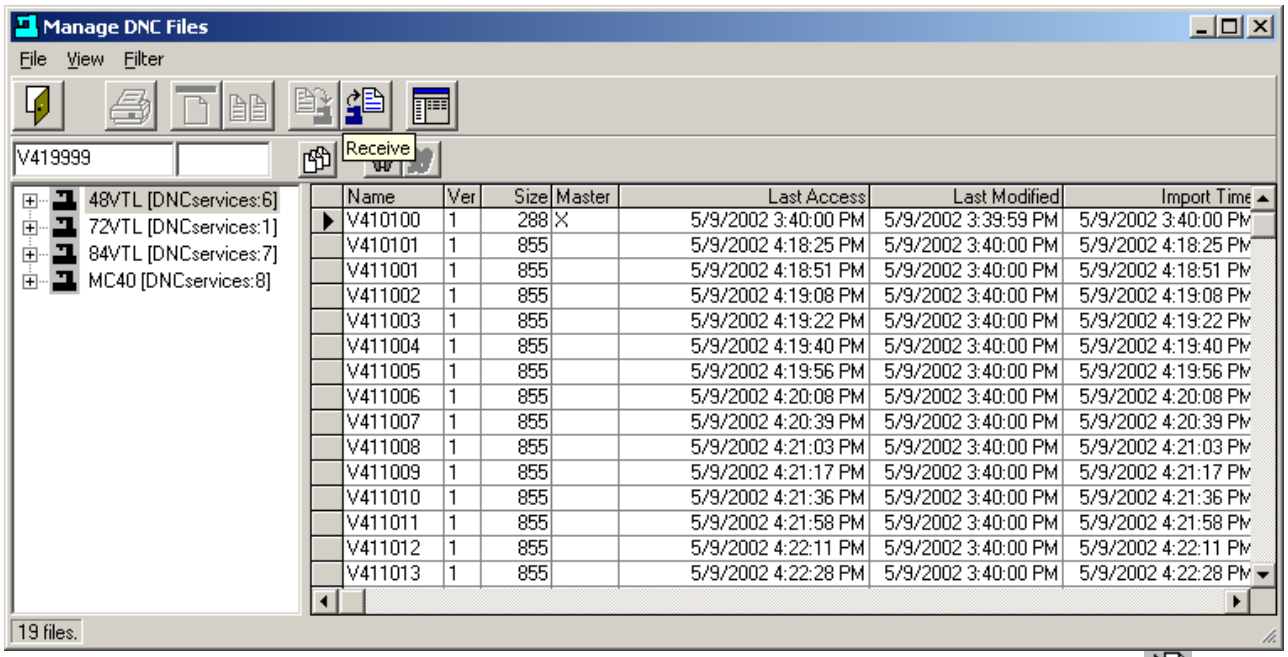


Receiving a DNC file from a CNC Controller

From the main SuiteDNC tool bar.

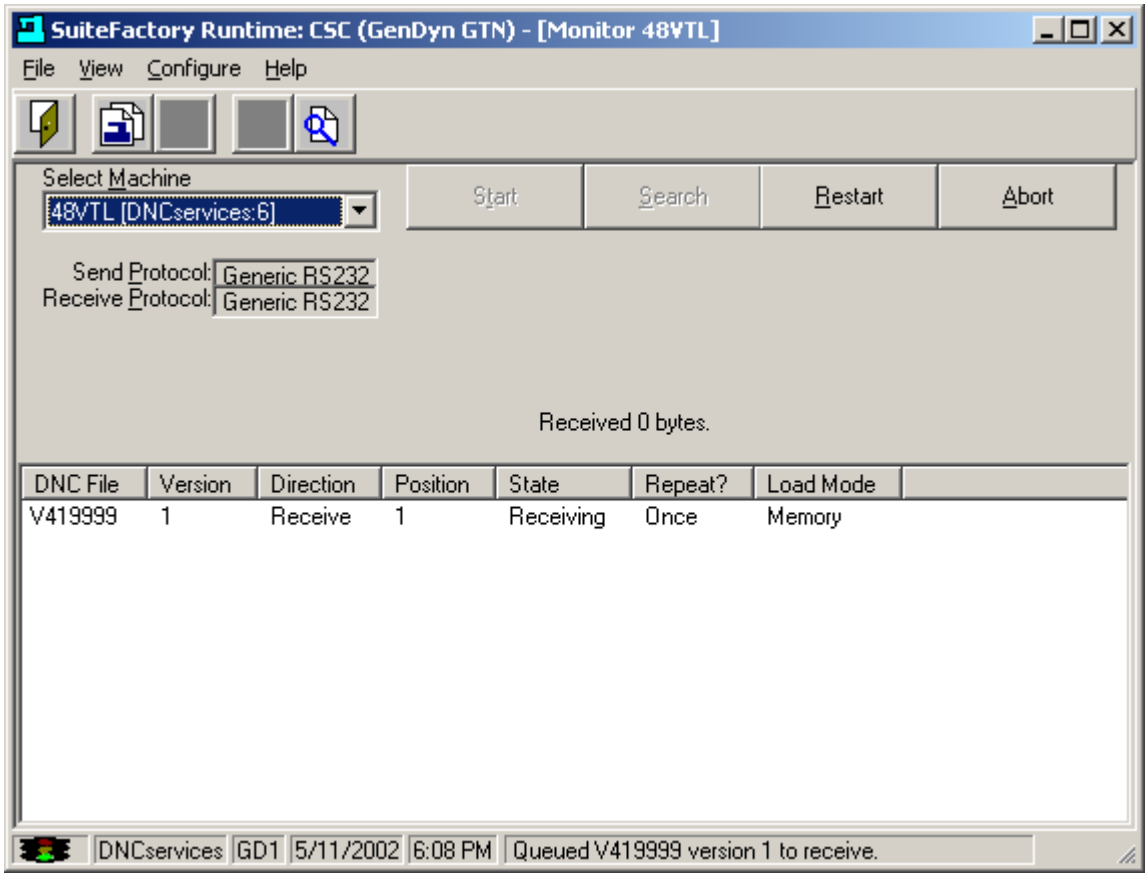


Click on the Monitor Machines button, select the machine from the drop down list and then click on the Manage DNC Files button on the Monitor Screen.



The machine 48VTL is selected. Enter a new file name, V41999, in this example, and the Receive button is enabled.

Click on Receive. The file V41999 is then queued up. To verify this click on Close to return to the Monitor screen.



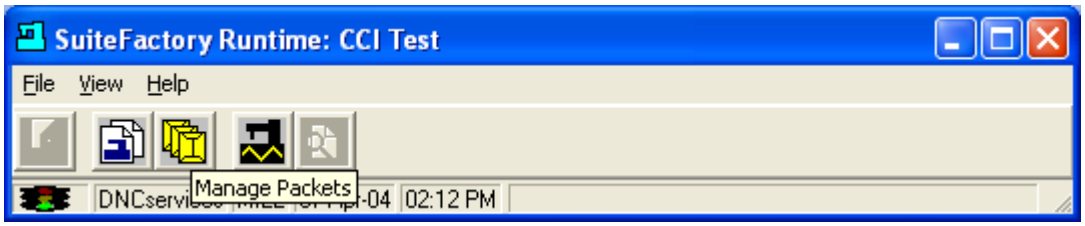
At the CNC, V48VTL output (punch, send . . .) the file. As the data is received the Received 0 bytes field will be updated. When done the file will be removed from the queue automatically after about 5 seconds.

Using SuitePacs on the shop floor

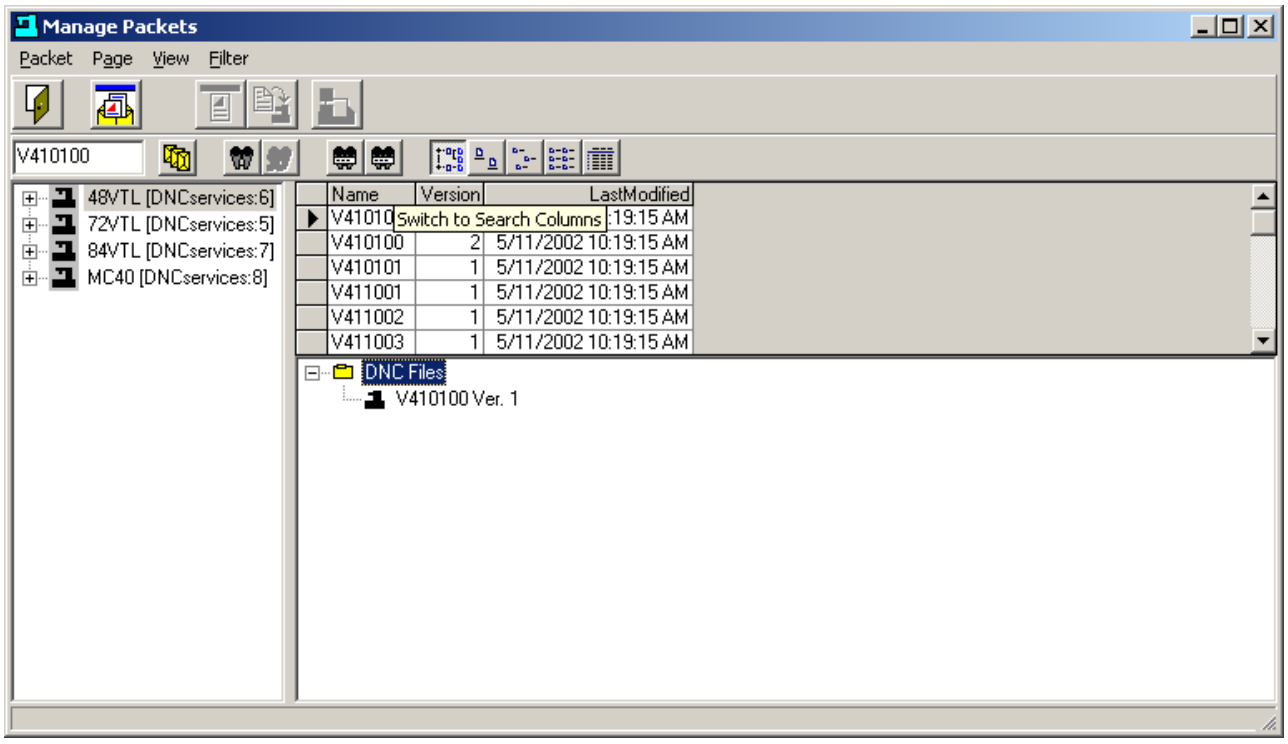
A SuiteFactory packet is a electronic version of the paper job packet or folder you use on the shop floor that has all the documents you need to perform the job to which you are assigned. The first example shown here has just DNC part program files in them, but in general packets have all the drawings, tooling sheets, QC instructions, part program print outs, etc. that you need to perform an operation.

Transferring files to your CNC's from a packet

If your shop is licensed to use the SuitePacs feature of SuiteFactory then your main tool bar might look like this:



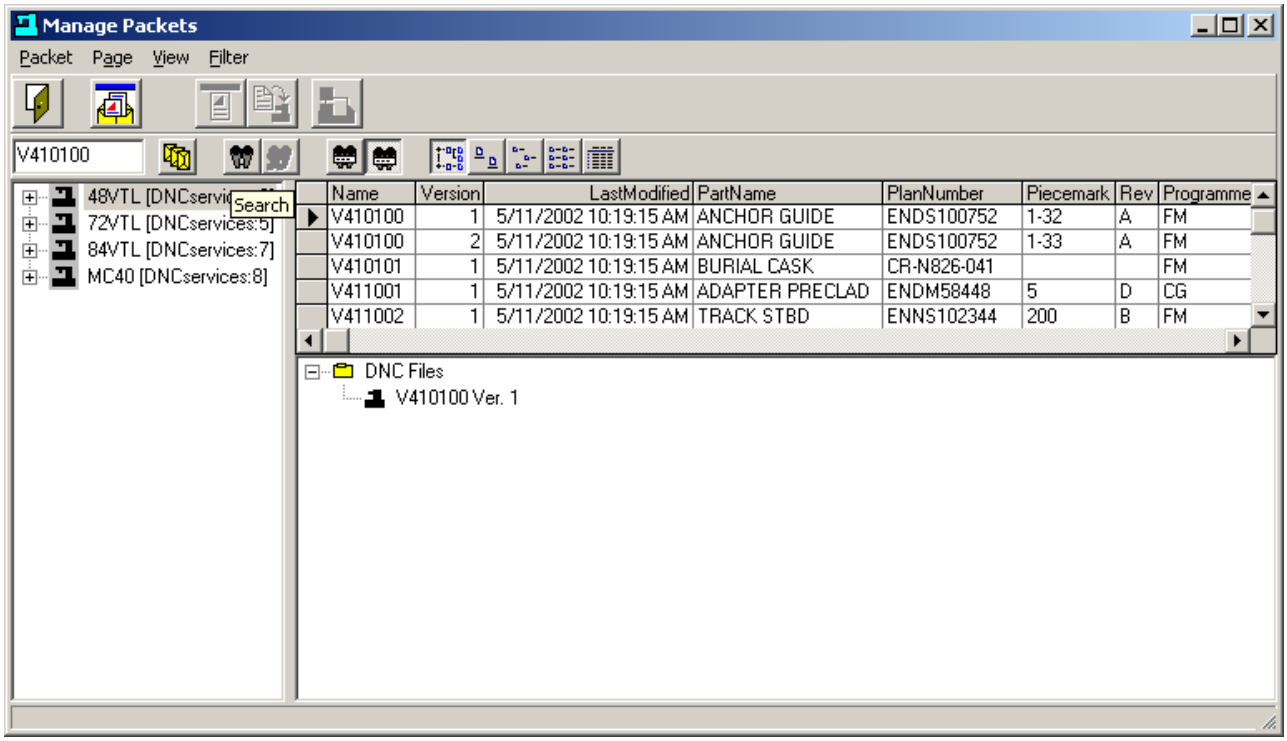
Click on Manage Packets**.**



Finding the needed packet

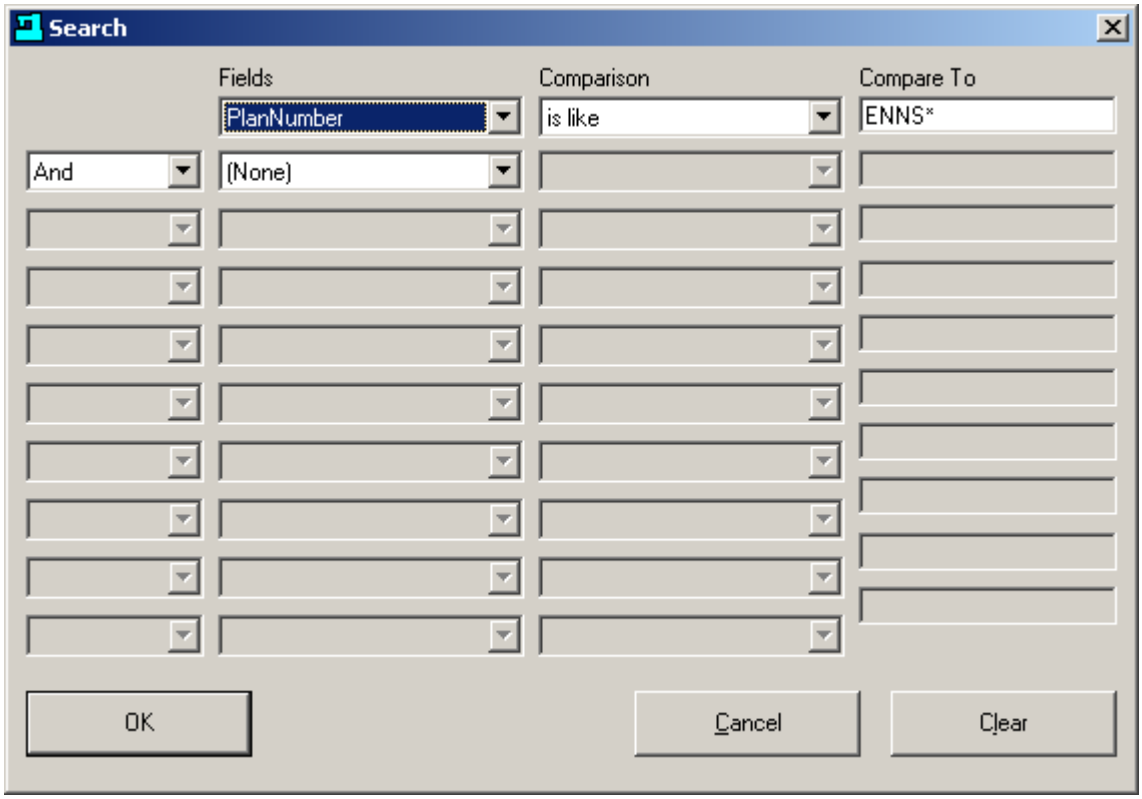
From the machine list on the left **click to select the machine for which you need the DNC file.**
The list on the top right is a list of Job Packets available for the machine you selected. The first one on the list happens to be selected. The packet pages are show in the bottom right window. This particular packet, V410100 Version 1, has only one page; a DNC file called V410100 ver.1.
Note! The packet name and the DNC file name do not have to be the same. In this case it is the procedure used in this example to have them the same. In general there can be more than one DNC file in a packet and there can be many other pages, such as, drawings, tooling instructions, inspection procedures, etc. There is a example of that following this section.

The list of packets, above, shows just three columns, Name, Version and the Last Modified Date/Time. If you click on the small "Switch to Search Columns" button, many more fields appear. (Remember that if you move the mouse arrow onto a button the yellow box with its function will pop up. We call these fields Search Criteria Fields because you can use them to find a particular packet or group of related packets.



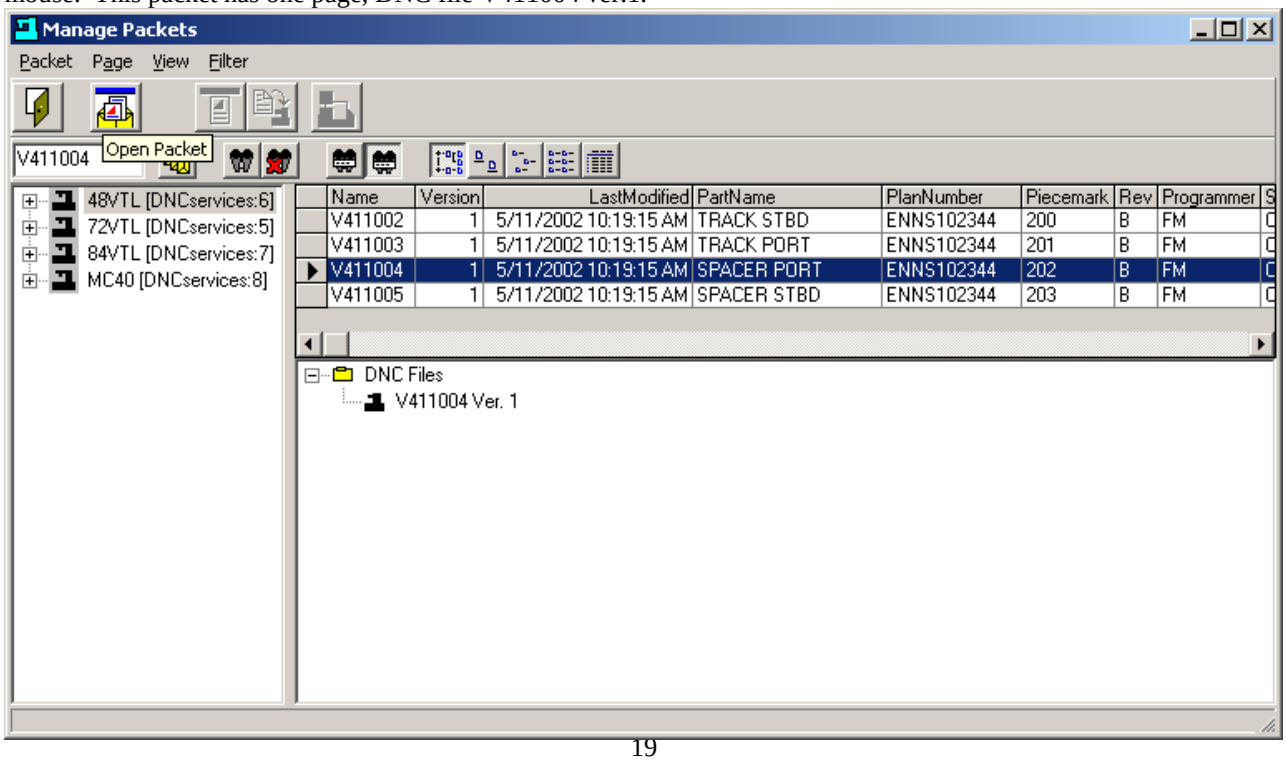
For example, say you wanted to find all the packets related to the PlanNumber ENNS102344. **Click on the small Search button**.

In this screen you can setup a simple or very complex search. This is an example of a simple search. You can select any of the packet columns from the Fields pull-down list. PlanNumber is selected below. Next you choose the type of comparison. "Is like" is selected here. "Is like" is a very handy tool because it allows you to use wild cards for searching. See the "Compare To" field, below. Instead of having to type the entire ENNS102344 had we used the Equals Comparison, we only have to enter ENNS*. (We could add an "And' PieceMark equals 202, for example.)



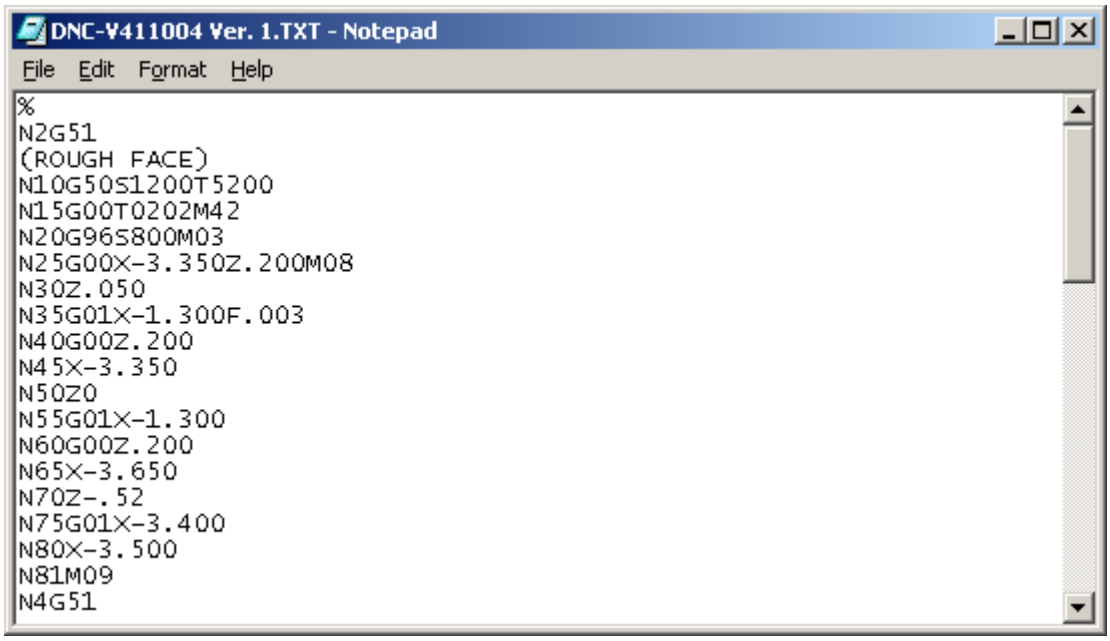
Click OK

Now only four packets are listed. If V411004, which is Piecemark 202 is what you are looking for select it with your mouse. This packet has one page, DNC file V411004 ver.1.

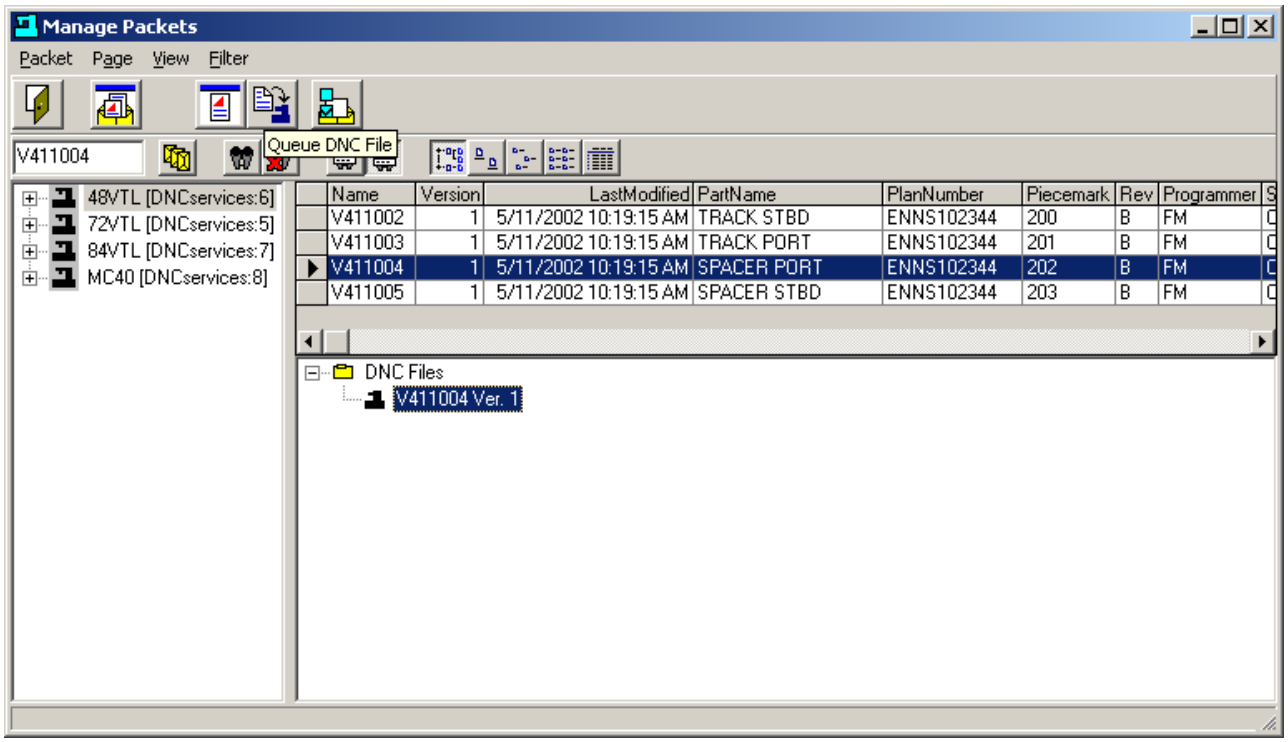


If you want to view the contents of the packet (in this case the one DNC file page),

click on the Open Packet button



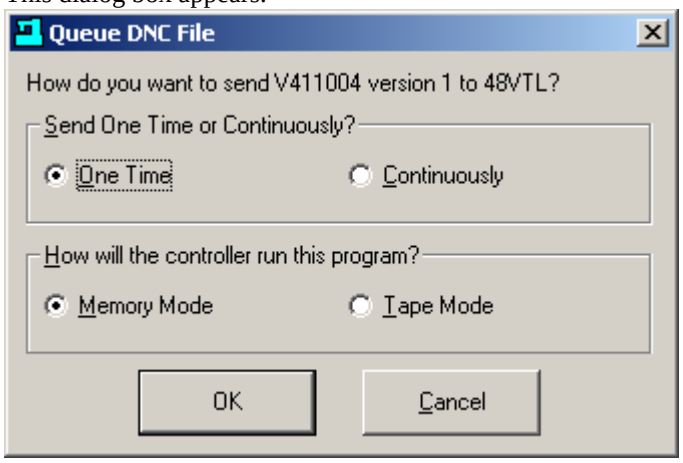
Close the Notepad view of the DNC file by clicking on the X on the upper right. **(Note! You cannot edit the file using Notepad. If you try none of your changes will be saved. All editing must be done with the NC file editor supplied with SuiteFactory or other means authorized.)**



Click on the DNC file listed in the packet page tree. Notice that the three large buttons on top to the right are now enabled. To send this file to the CNC click on the Queue DNC File button .

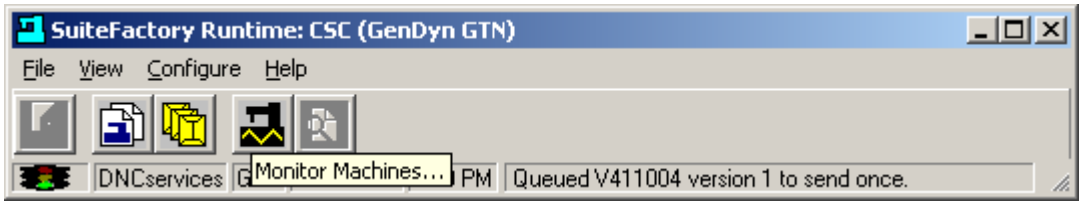
Click on the correct machine in the resulting list.

This dialog box appears.

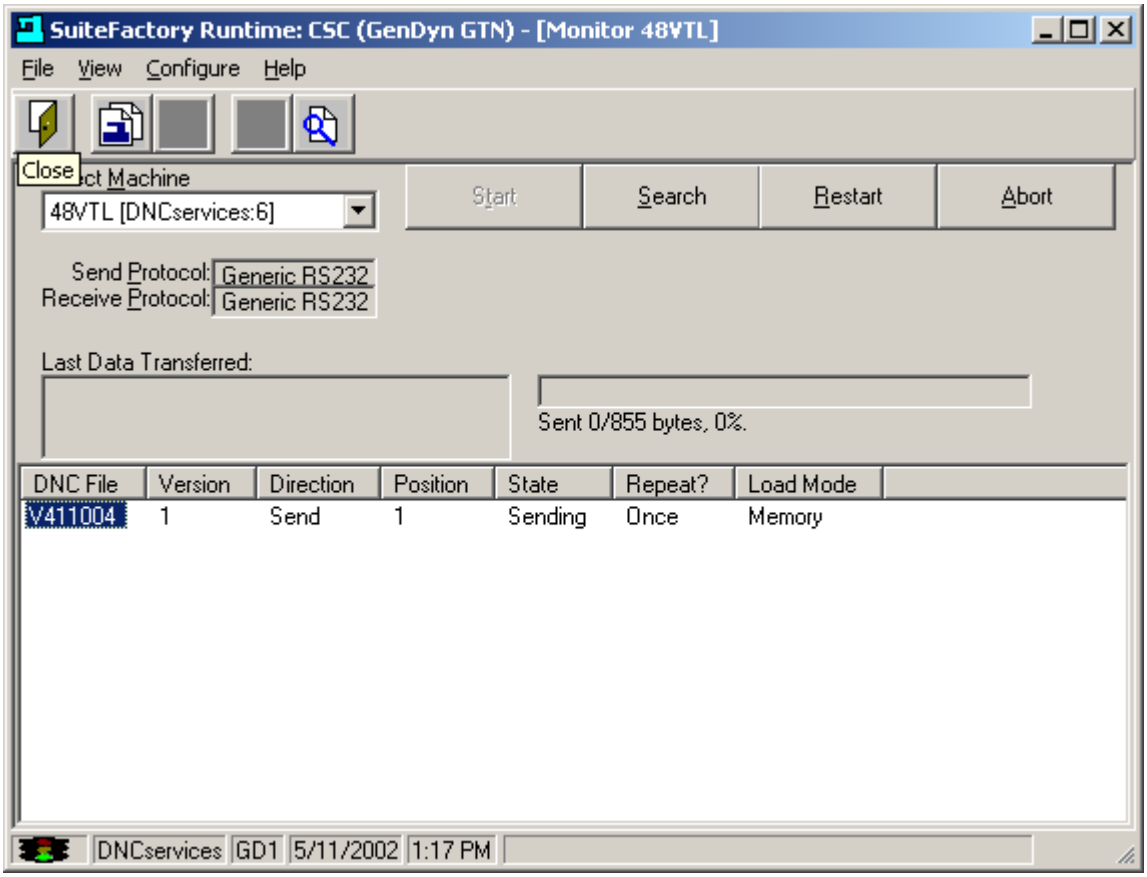


Click OK unless you are drip-feeding in Tape Mode.

Click OK.
Go to the CNC and read in the file.
If you want to monitor the transmission progress, close the Manage Packets window by clicking on the large Close button on the top left (the door) and return to the main SuiteFactory screen.

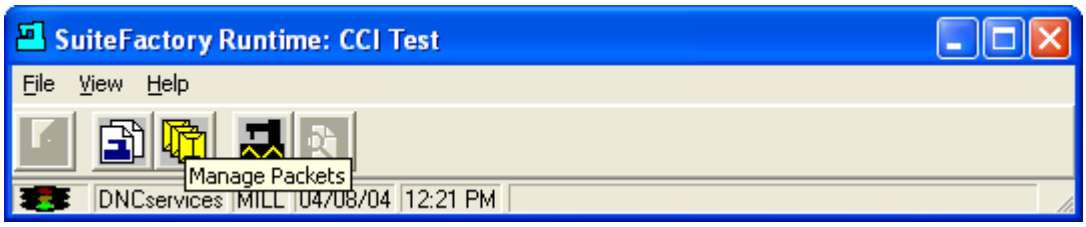


Click the Monitor Machines **button**.

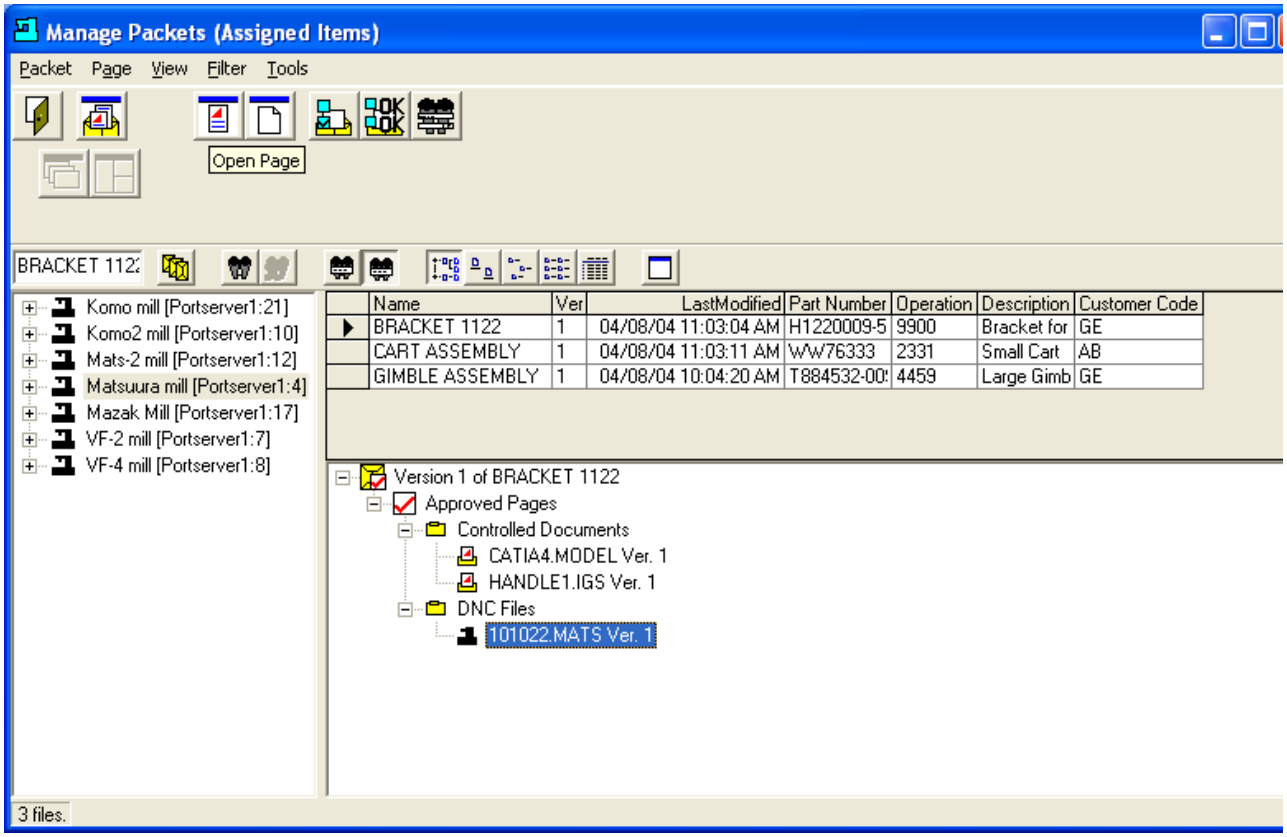


This shows file V411004 queued up to be sent to machine 48VTL. See Appendix B for monitor screen details.
Click on Close to return to the SuiteFactory main window.

Packets with controlled document pages



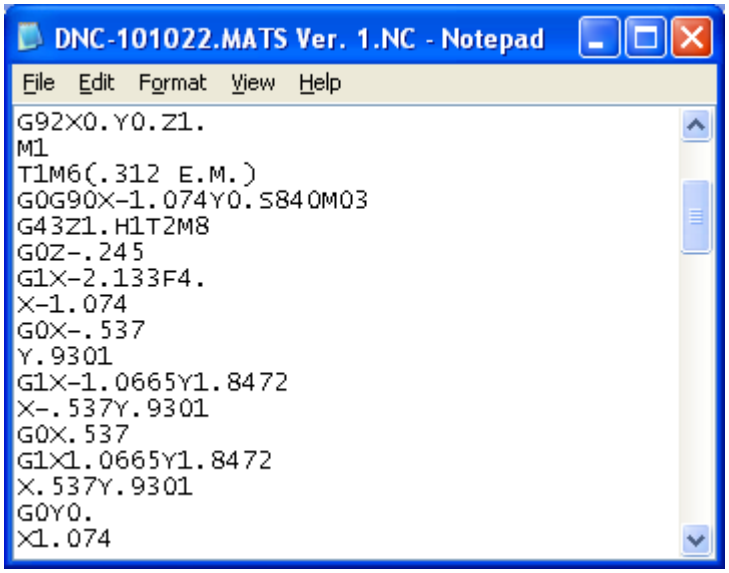
From the SuiteFactory main tool bar, click on Manage Packets to get the following screen: ‘
Highlight the machine for which you need a packet, Matsuura mill in this example, to get a list of assigned packets. The packet, Bracket 1122 is selected.



The view in the window on the right is a tree view of the selected packet. It shows that there are two approved controlled documents and one approved DNC file. Controlled Documents are files that are stored and controlled by the SuiteFactory database system. They are often graphical files (drawings) of the part you are making. They can be any kind of file, such as, Autocad .dwg, CATIA, .dxf, IGES, text, Microsoft Word or Excel or almost any other format containing the information you need to make a part.

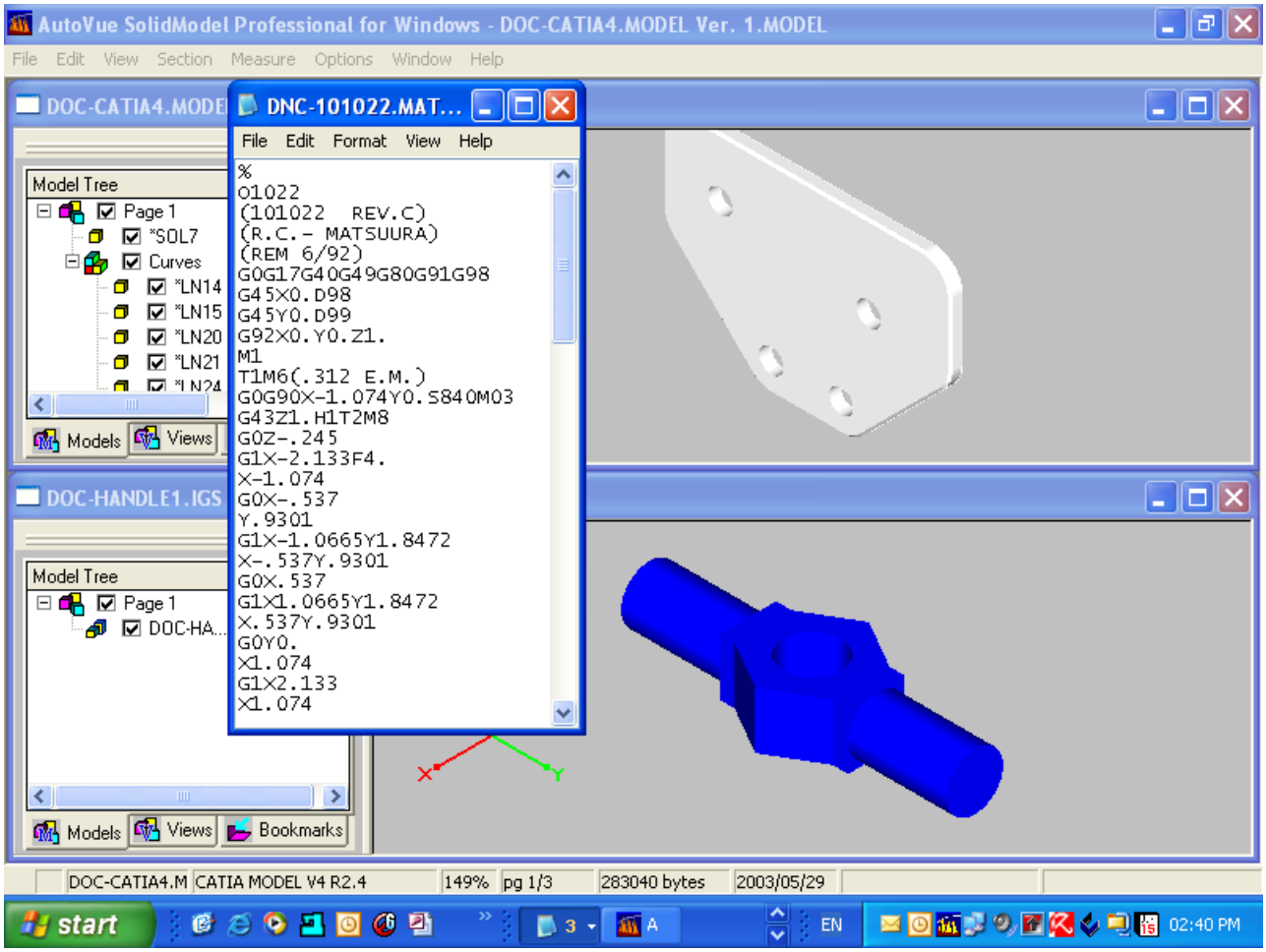
Viewing a Single Page

You can view the contents of these pages one at a time by double-clicking on them individually or selecting the page and clicking on the Open Page button. . For example, if you double click on the DNC file, 101033MATS Ver. 1 you get the following screen. It opened with Notepad because the SuiteFactory administrator set it up to do so.



Viewing all of the Pages in a Packet

If you select a packet and them click on the Open Packet button all pages will open with the applications selected by the SuiteFactory administrator as shown below:

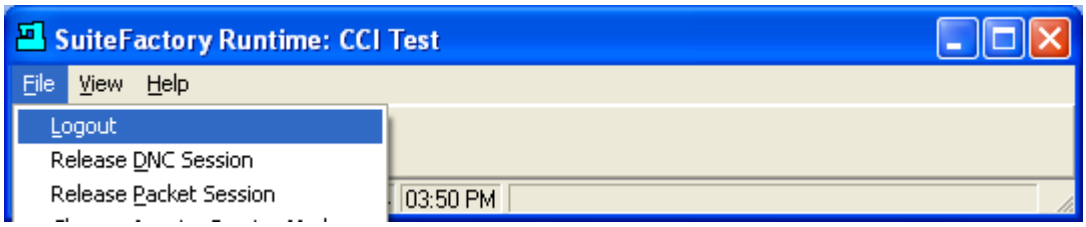


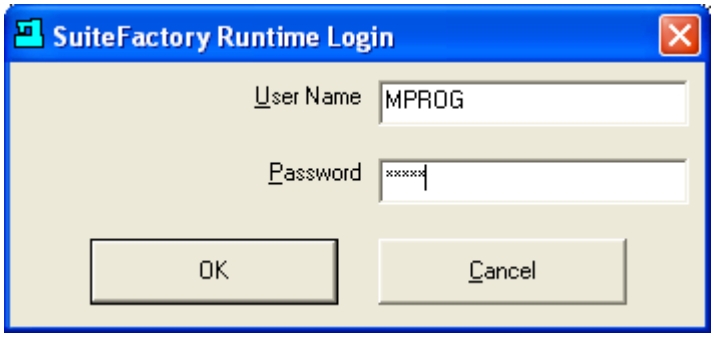
.

Receiving a DNC file from a CNC as a new Packet Page

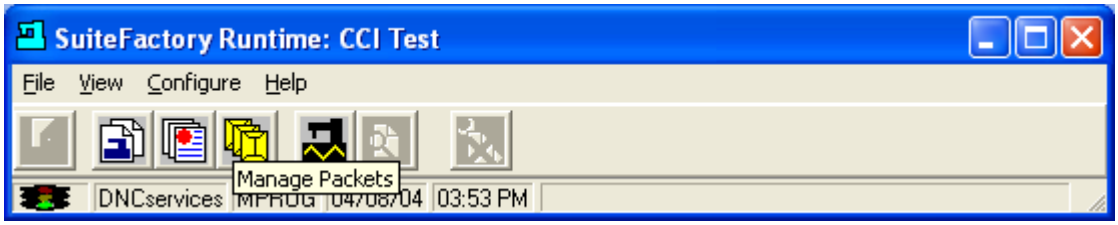
Users with the rights to do so can queue up a DNC file to get from a CNC and add to an ***unapproved*** packet. In our examples, above, the user called Mill does not have the rights to see unapproved packets. However, the user, MPROG, a programmer has the necessary rights.

From the main toolbar, Logout of Suitefactory by clicking File/Logout to return to the SuiteFactory Runtime Login screen.



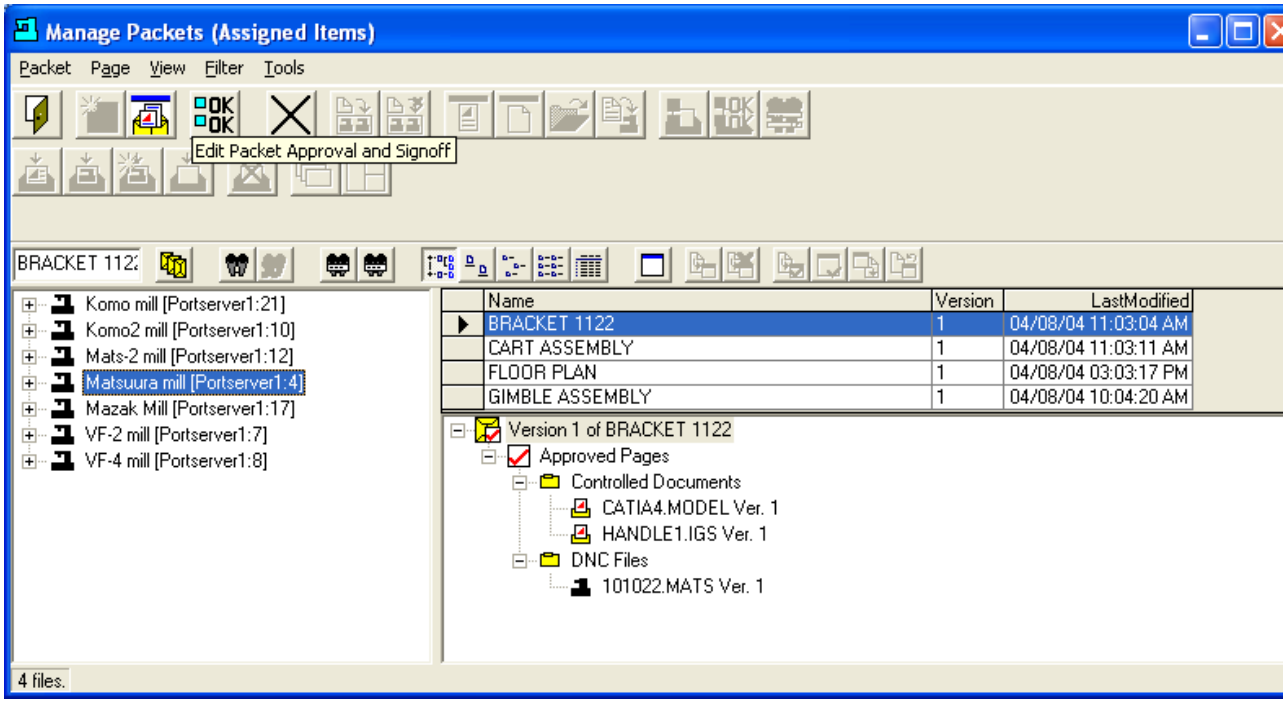


Click OK

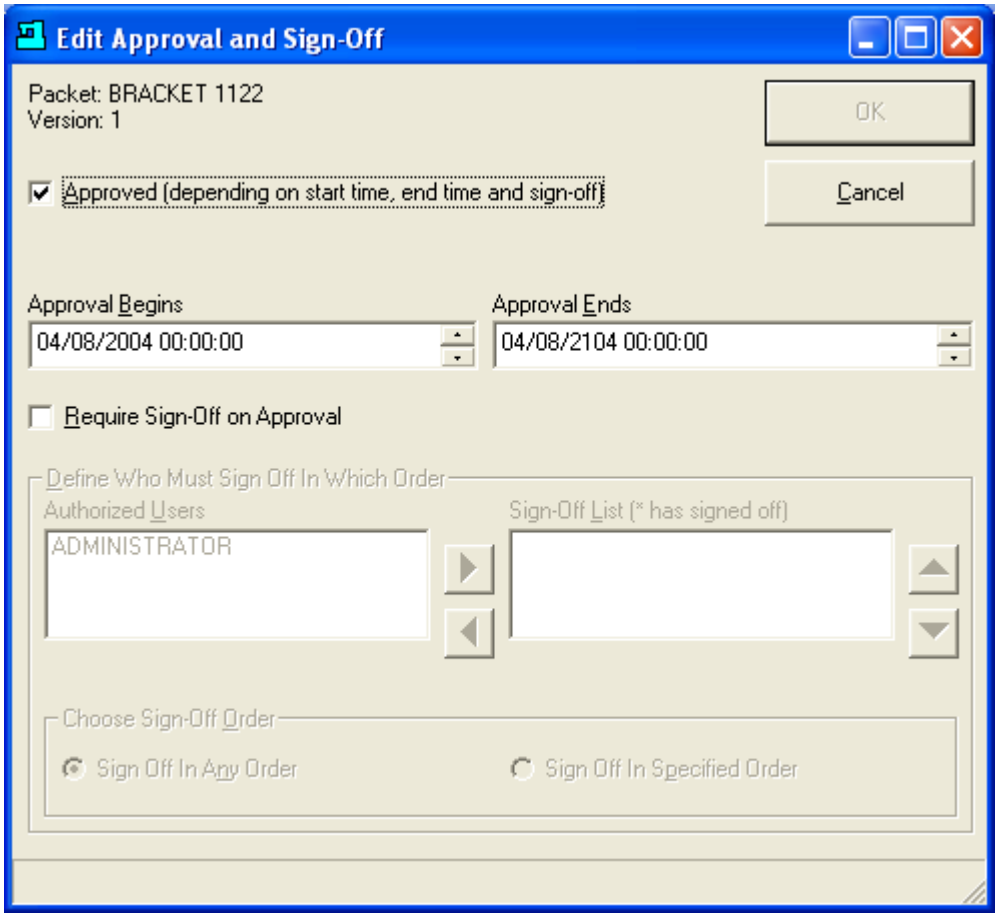


Click on the Manage Packets **button.** **.**

The view you get might be different than the one below. See Appendix D for a description on changing the view. The view selected in this example shows it from the perspective of Machines > Resource Collections > Packets. It shows the Packet/Resource Collections assignments (see Appendix C for a description of Resource Collections). It also shows both Approved and Un-approved packets. Also note that here are many more buttons shown here then on user Mill's screens. That is a function of the rights given to each user by the SuiteFactory administrator. Grayed out buttons imply that they are not available for use in the present context. Note, for example, the second line of buttons is all grayed out. One of those buttons is needed to start the upload process.

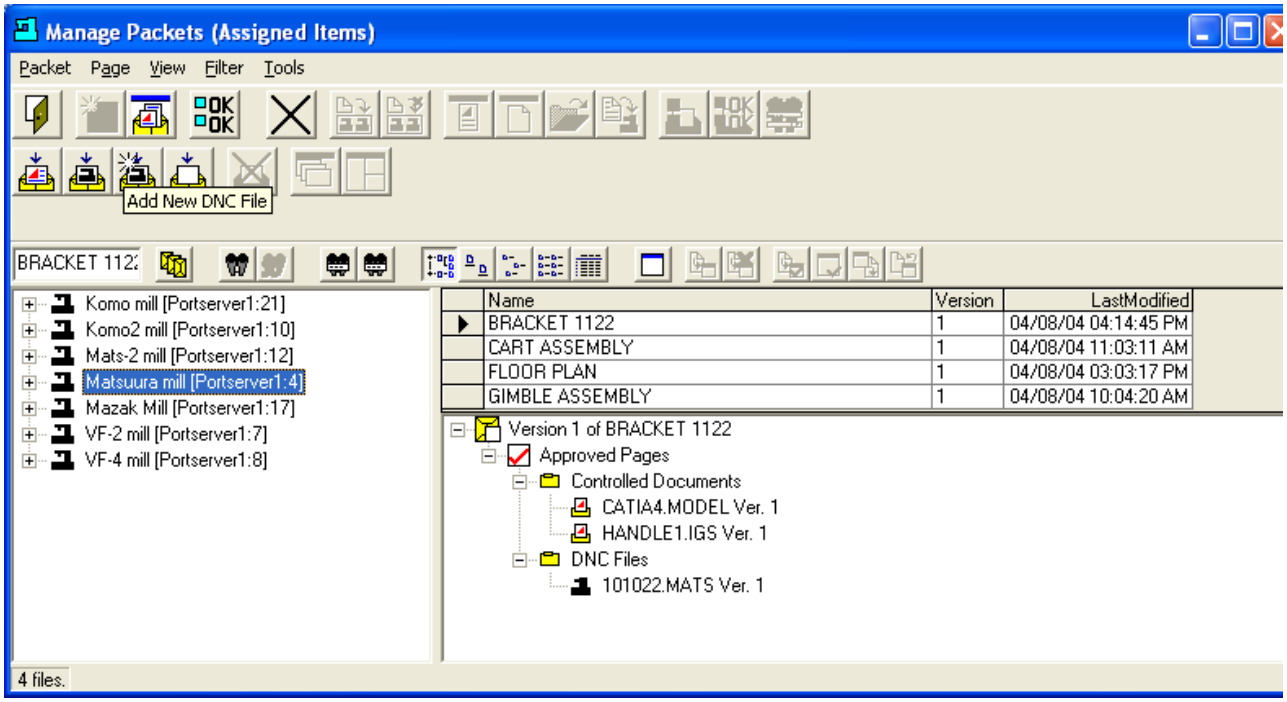


Select the machine from which the DNC files is to be uploaded. Select the packet into which you want to add the file. Since that packet is approved, adding a new page is prohibited. Therefore, it must be made un-approved to accomplish our goal. **Click on the** Edit Packet Approval and Signoff **button** .

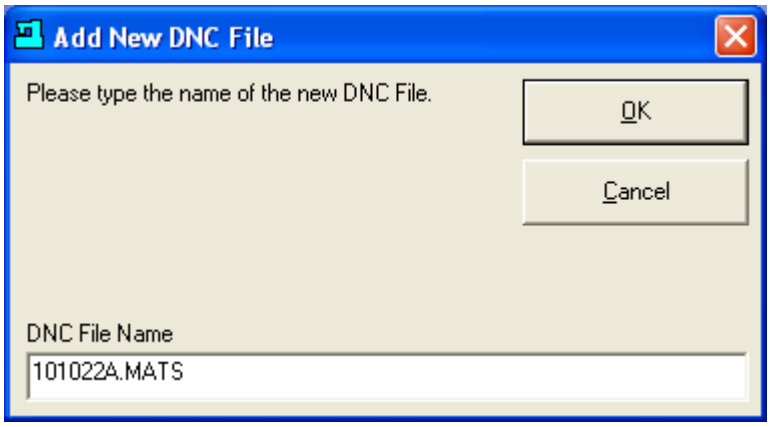


Uncheck the Approval Box and Click OK.

See that the checkmark is gone from the top box of the packet tree indicating that it is no longer approved. Also see that the first four buttons in the second row are now available.



Click on the Add New DNC File **button** .

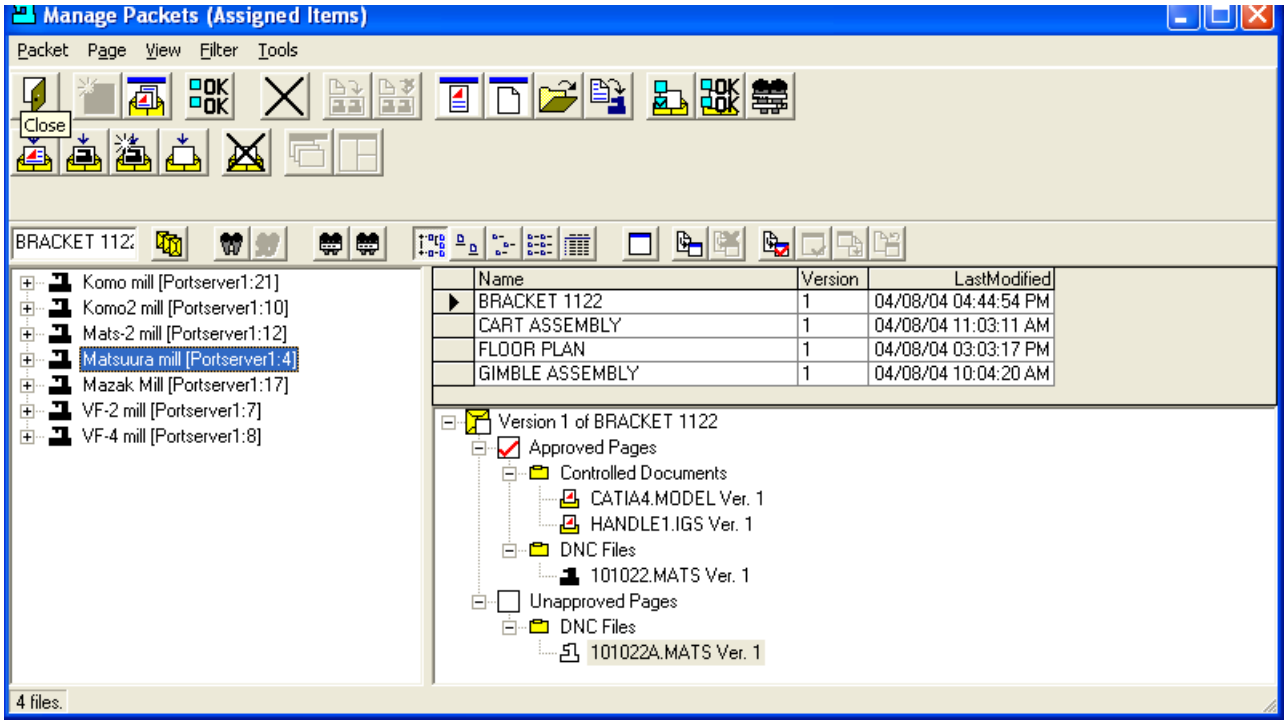


Enter the name of the file to be received. 101022A.MATS in this example. **Note! You cannot enter the same name as an existing file.**

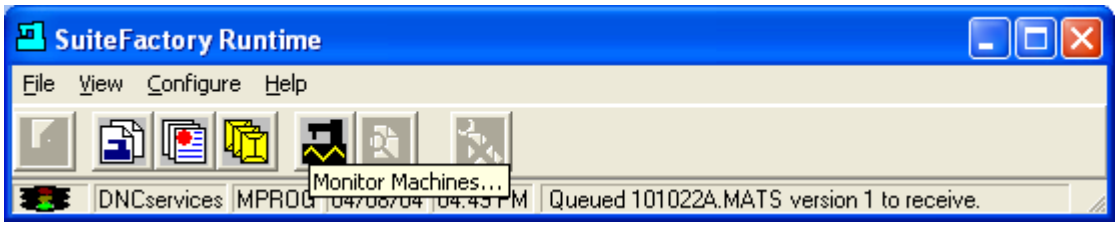
Click OK.

Click Yes.

Notice that the new file is added as an Unapproved Page on the bottom of the tree.

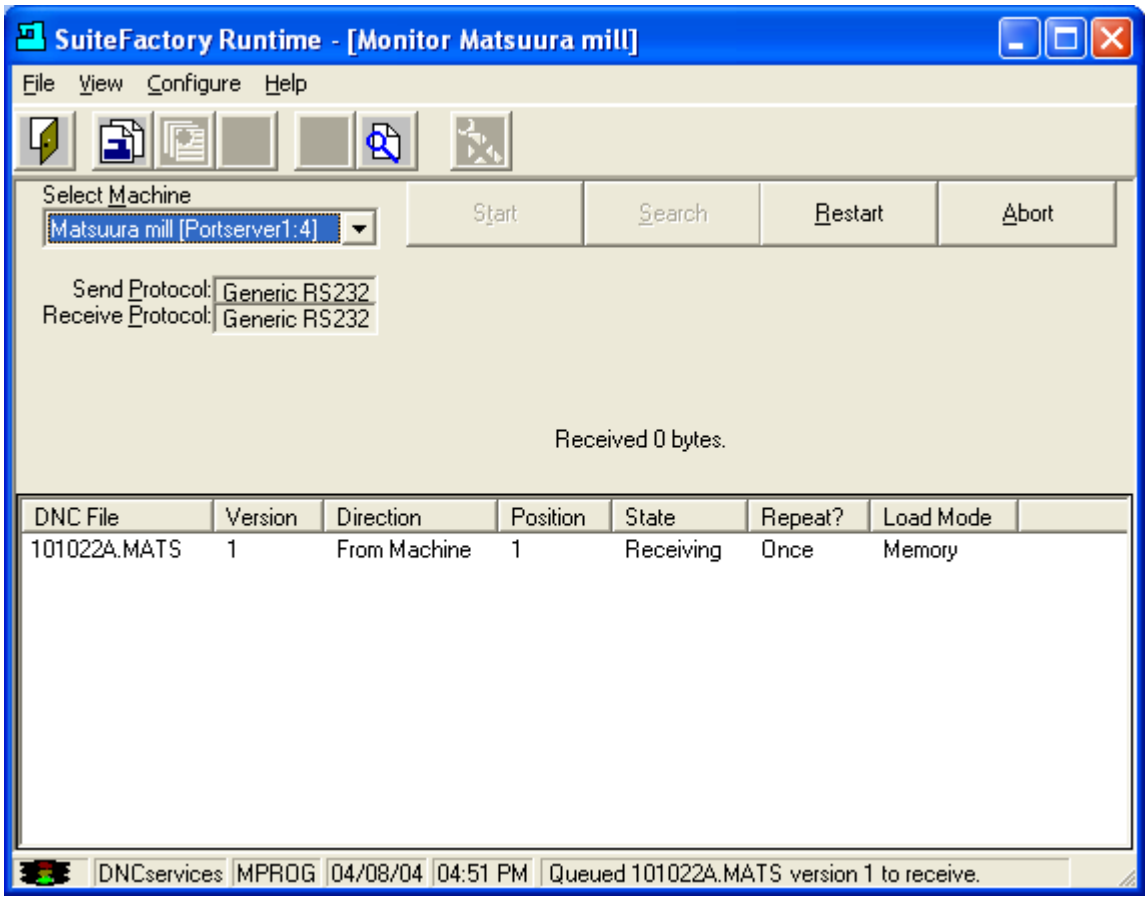


Click the Close button **.**



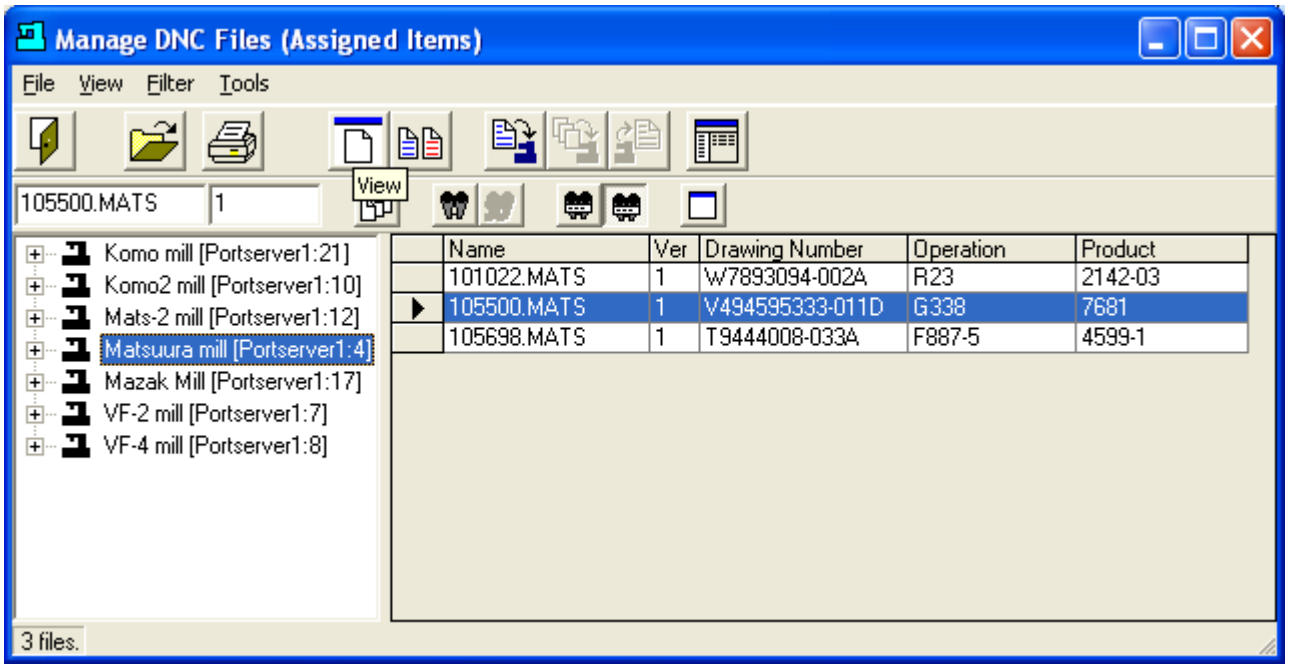
Click the Monitor Machines button **and select the machine, "Matsuura Mill" from the drop down list.**

The file you entered on the Packet screen is now queued up for receiving. Just send the file from the CNC and the procedure will be complete.

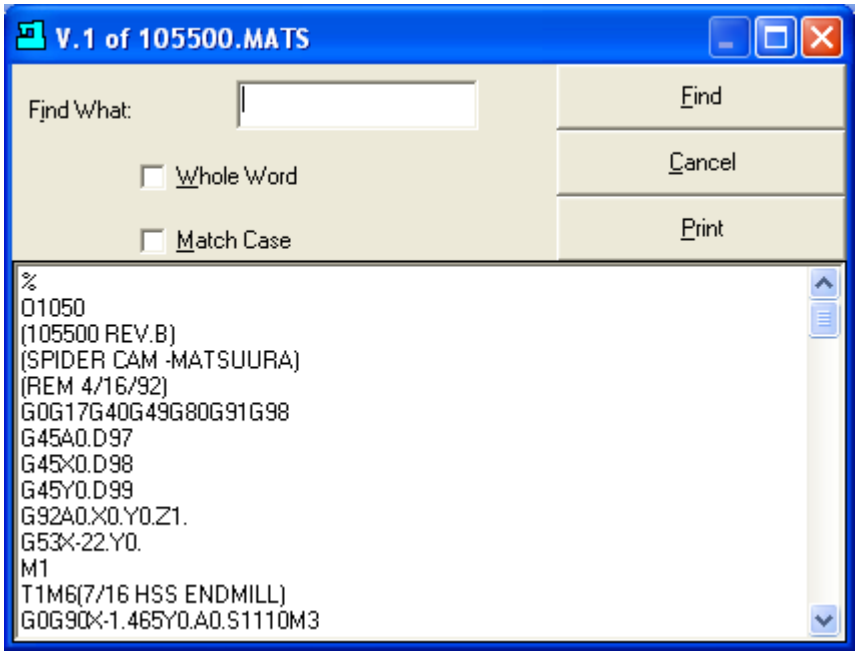


Viewing and Printing

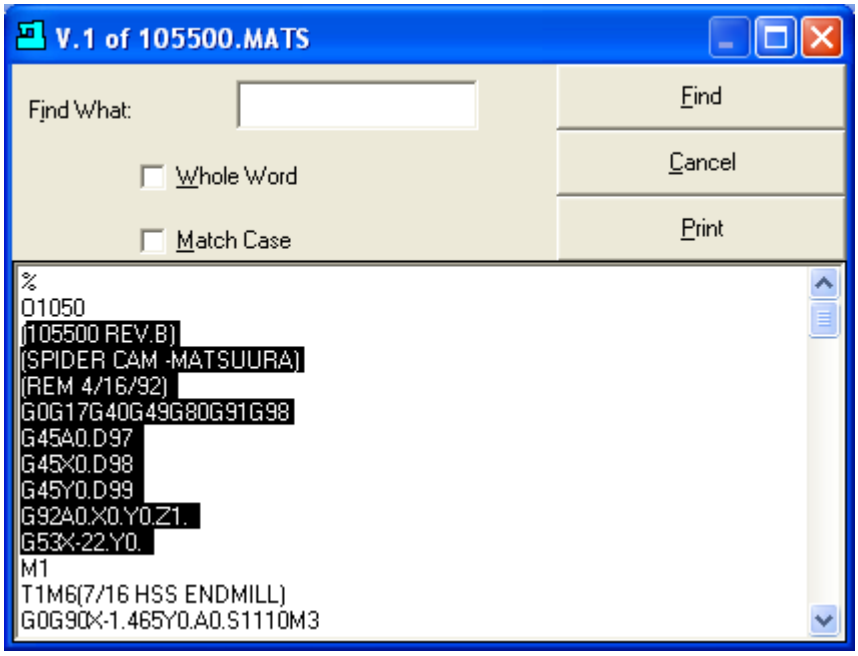
Return to the Manage DNC Files screen. Select a machine and select the file to view.



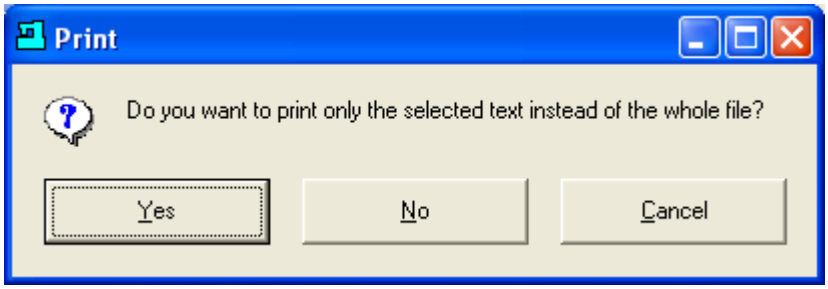
Click on the View button .



From this screen you can search for something, scroll up and down and print the file. You can also select just a part of the file to print. Some shops put notes and tooling information as a file header and want to print out only that part. To do that, use the mouse to highlight the text to be printed:



Click Print.

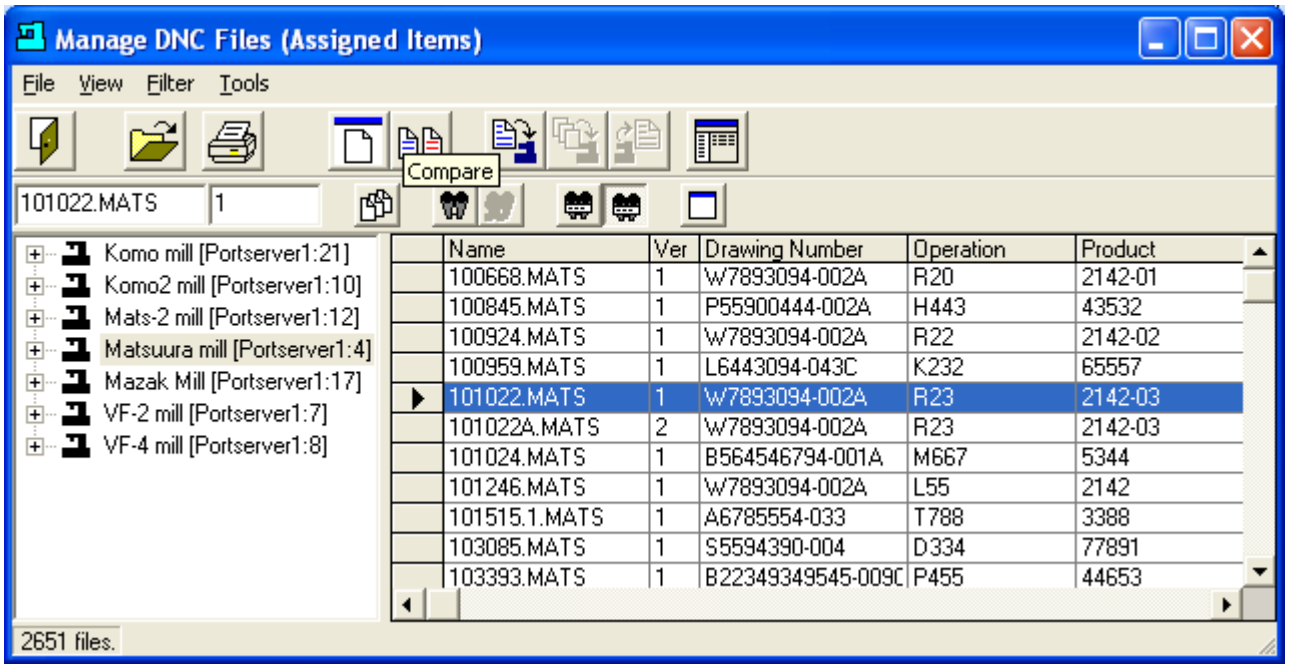


If you click Yes then the only the highlighted text will be printed. If you click No then the entire file will be printed.

You can also print a file by simply clicking on the Print button .

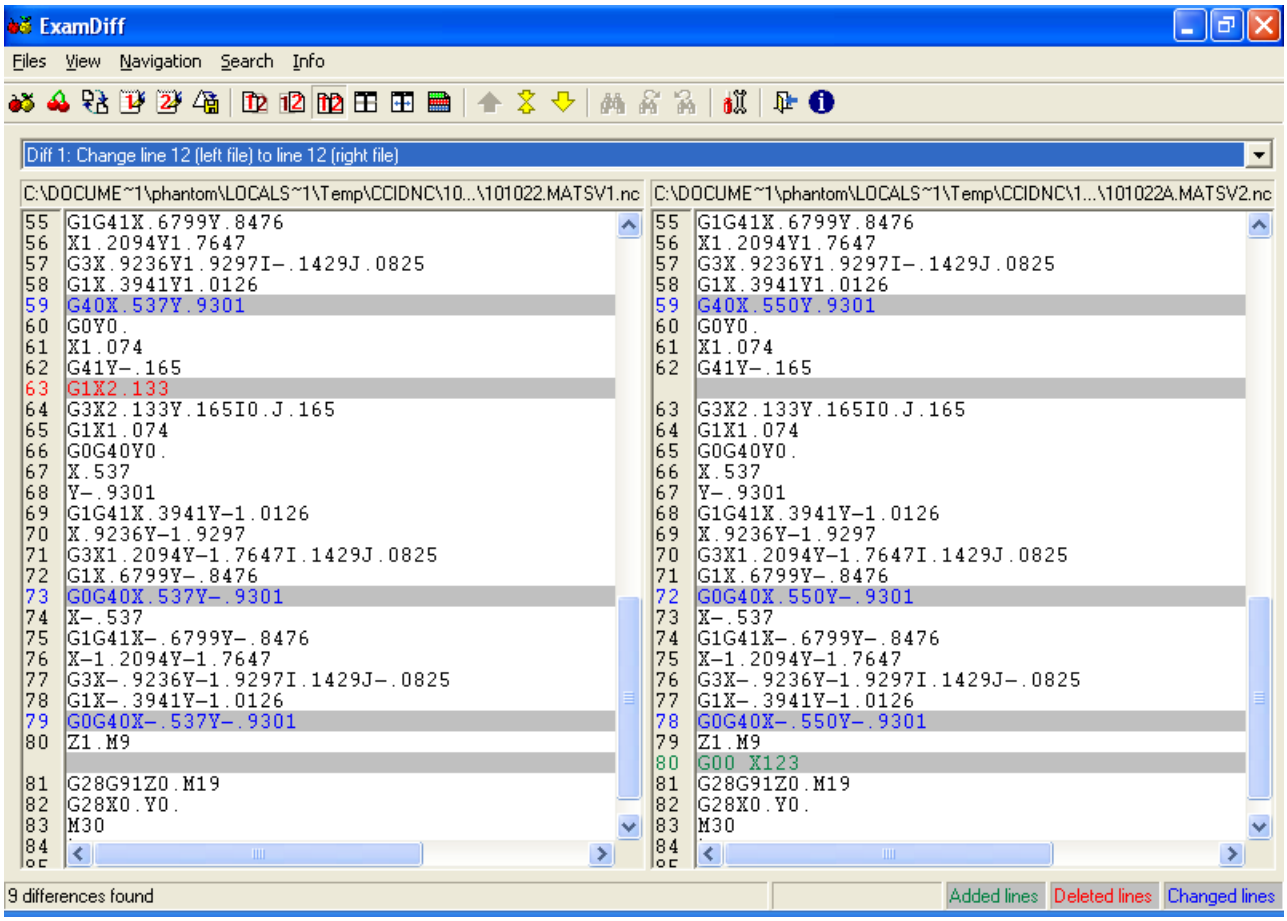
Comparing Two Files

Go to the Manage DNC Files Screen. Select a machine. For example, say you want to see what the differences are between the original file, 101022.MAT and the one uploaded from the CNC named, 101022A.MATS. Highlight the original file, 101022.MAT.

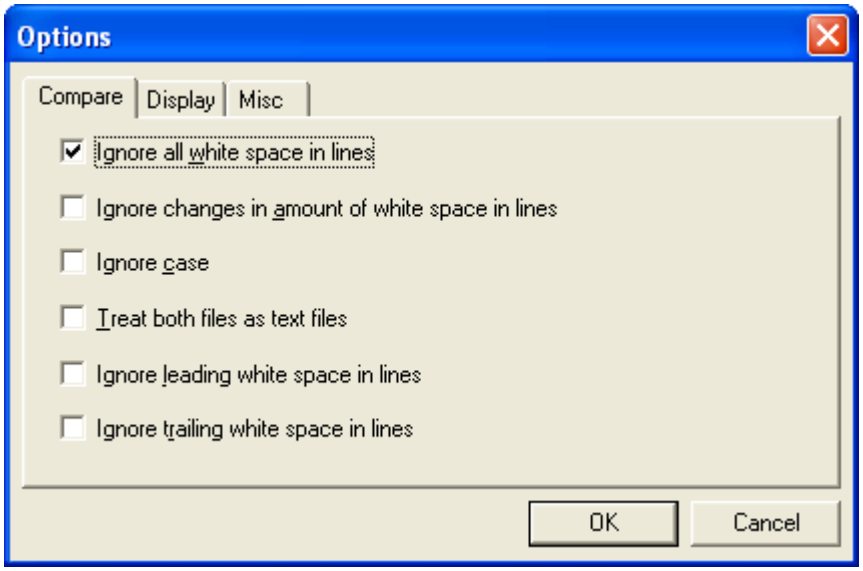


Click on the Compare button . Next, highlight the second file, 101022A.MATS and click on the Compare button again.

The lines that are different are shown in blue. Lines missing are red. Added lines are green.



This works quite well with files that are alike as in the example, above. However, sometimes files sent to a CNC and the received back appear to be very different when using the compare feature. Often this is due to the fact that the CNC either deletes “white space” that it gets or it might add “white space” for printing purposes. If you see this happen then click on View/Options on the Compare Tool Bar and select the items that make sense.



Sending and Receiving from your CNC console – using CCL

If your machine controller can store multiple part programs and has a part program editor then you can request programs to be sent from SuiteDNC or to be saved to the SuiteFactory database. This is done by using SuiteFactory's CCI Command Language (CCL). The SuiteFactory administrator must set up the system to enable this feature.

Request a DNC file to be sent from the SuiteFactory Database

With your CNC editor create a "dummy" program, for example on a FANUC CNC, O1111. Open this program with the CNC editor. You must insert only one line: The letter X followed by the name of the part program as stored in the SuiteFactory database. Make sure you end the line with the EOB character.

If you need to get program 15998ST3 your one line in the "dummy" program is:

(X15998ST3) EOB
Make it a comment line if your CNC supports comments.

If the CNC is an older model that does not support comments then just enter X15998ST3 EOB. Depending on the brand or age of the CNC it might look like: X15889 S T3 EOB. That's ok. In some circumstances with older CNC's your shop might have to come up with a file naming scheme that the CNC editor will allow.

To request that program simply send (punch, output . . .) the "dummy" file out the RS-232 port to the DNC server. Now wait about 10 seconds, and the read in (input, get . . .) the file you requested.

Note! If there is a problem with your request you will receive what we call a "response" file. The DNC administrator sets up and names this file, for example, O2222. Inside this program you will find a line with an N followed by a number. That number is a code to tell you what is wrong. If the program does not exist you will get an N6. If it exists but it is not assigned to your machine you will get an N12. A full list of these codes can be found in Appendix E.

Request a DNC file to be received by and saved in the SuiteFactory Database

On the CNC edit the "dummy" program, using your CNC editor as above for sending. However, instead of using the letter X use Y or Z instead. So, if you want to save a file in you CNC memory and call it 67992A edit the one line in your "dummy" file, O1111 to say (Y67992A) EOB. Send (punch, output . . .) the "dummy" file out the RS-232 port to the DNC server. Now wait about 10 seconds and execute a READ command. (The time to wait depends upon the DNC computer's speed and network traffic.) **The file name you choose must be a unique name**. The SuiteDNC software does not allow duplicate file names, nor does it allow files in the database to be overwritten by files sent using this CCL feature.

Note! For saving a file, we have implemented a method for you to get feedback from the DNC system using a "response" file. Rather than blindly sending over the program you want to save, SuiteDNC will tell you when it is ready to receive a file and afterwards tells you it received it ok.

Upon executing the READ command you will receive "response" file O2222. Its code line will be N1 that tells you the DNC is ready to receive your program. Delete that program, O2222.

Now send the program to be named 67992A out of the RS-232 port to the DNC server. After the entire program has been sent wait about 20 seconds and then execute a READ once more. If all is well, you will get O2222 again with the code line N2 that indicates that the DNC system successfully received the file. (The time to wait depends upon the DNC computer's speed , network traffic and the size of the program being saved.)

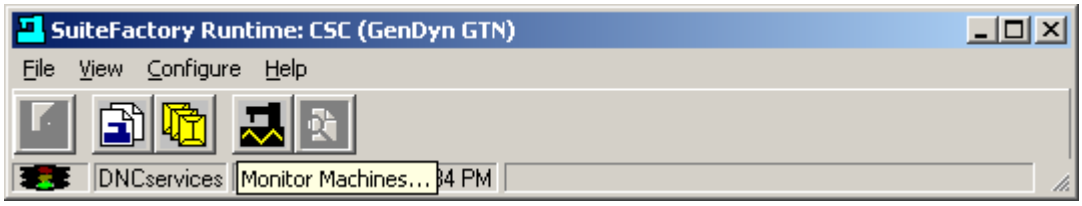
Appendix A

Descriptions of DNC file list headings.

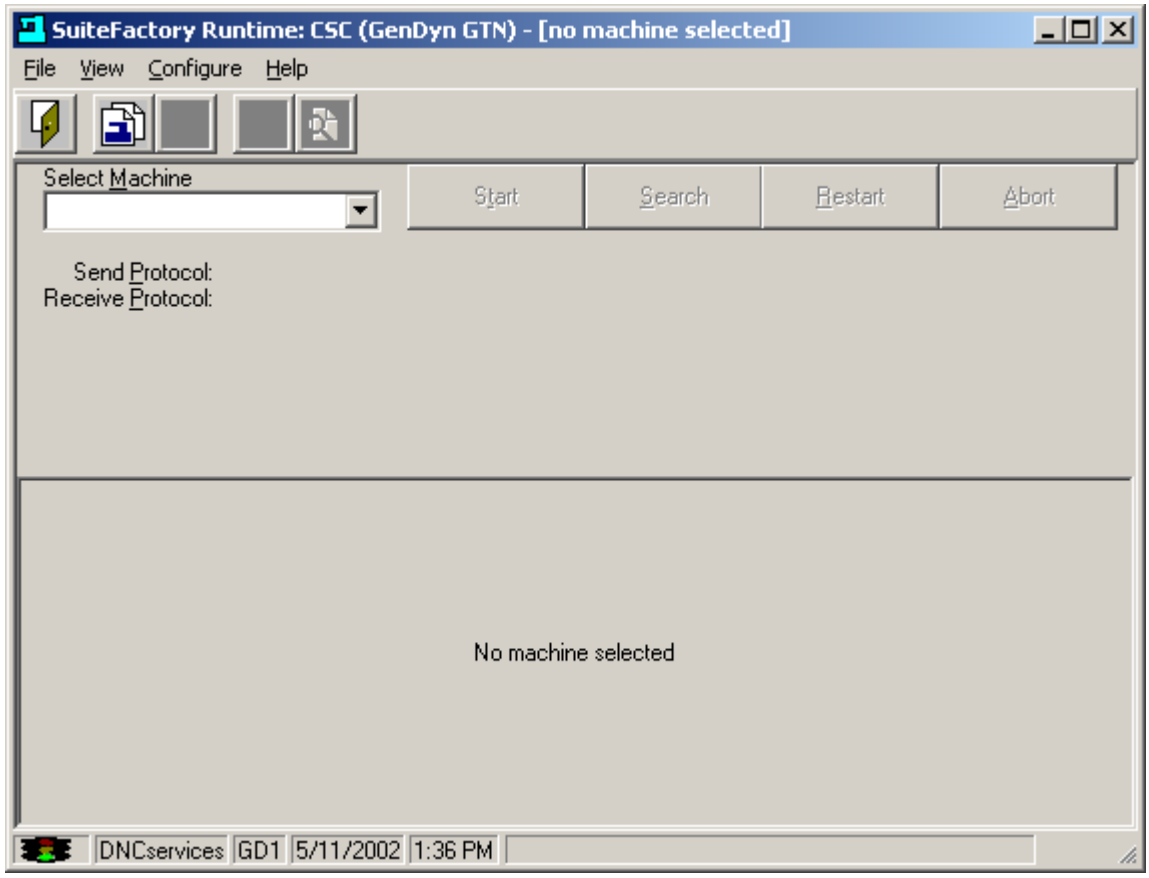
HEADING	DESCRIPTION
Name	**Self-explanatory**
Version	**If allowed, it is possible to have more than one version of a DNC file.**
Size	**The number of characters (or bytes) in the file.**
Master	**If there is an X in this field the file is a Master File, meaning that it was either manually or automatically imported into the database from the programming or engineering department. Files uploaded from CNC controllers or created by copying or a new file created by the editor is not a Master File and it has no X.**
Out	**An X in this field indicates the file was "checked out" for editing and cannot be used by anyone else until it is checked back in.**
Last Access Time	**The last Date and Time this file was downloaded to a CNC controller.**
Last Modified Time	**The Date and Time this file was created or the last time it was edited.**
Import Time	**The Date and Time this file was either imported into the database (which would make it a Master file) or the Date and Time this file was created by upload or the editor.**
Extension	**The original .ext that windows based files use to determine which application will start when you "Open" the files. For example, .txt causes Notepad to open and .doc causes Word for Windows to open. Some non-text DNC files like those from a Mazatrol CNC have a .bin extension.**
Format	**Shows what kind of a DNC it is. Most DNC files are "GCODE" text files. Mazatrol CNC files show the format for the particular CNC model, for example, Mazak M32 or Mazak T-Plus, etc.**

Appendix B

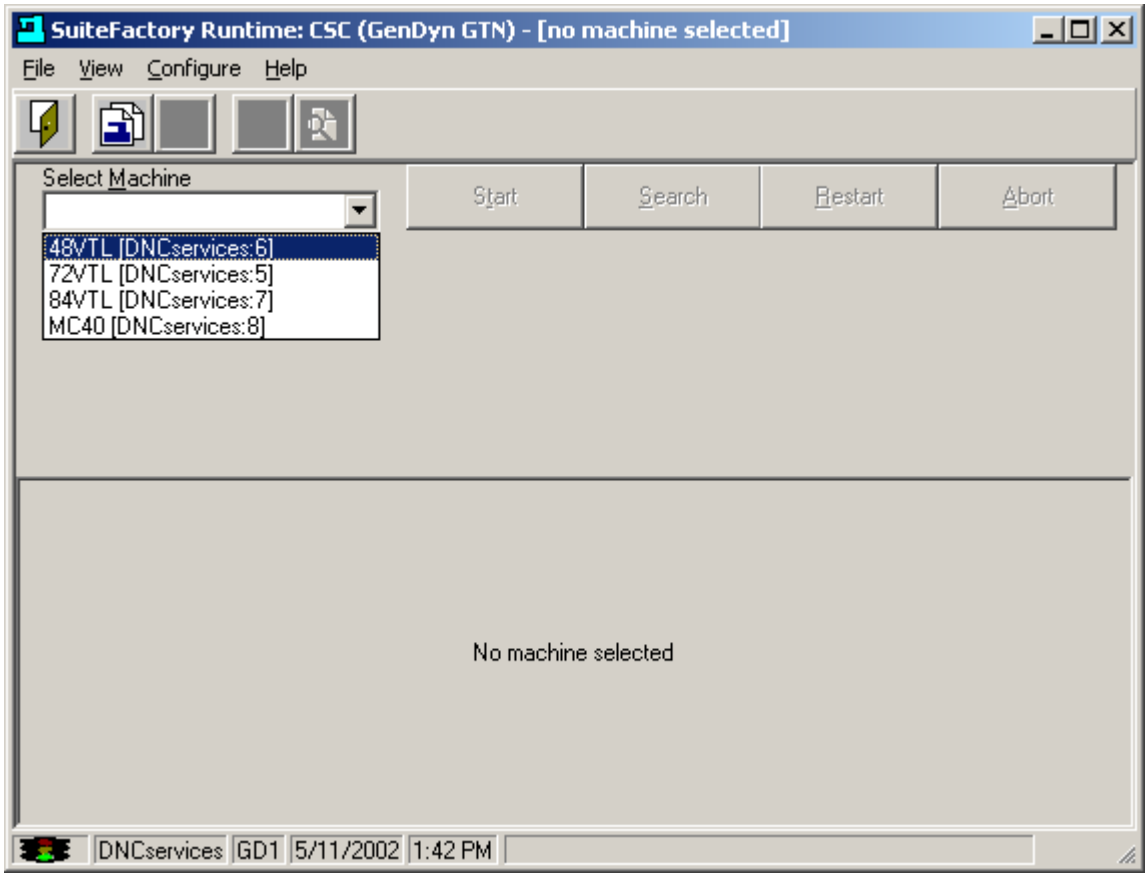
Machine Monitor Screen Functions



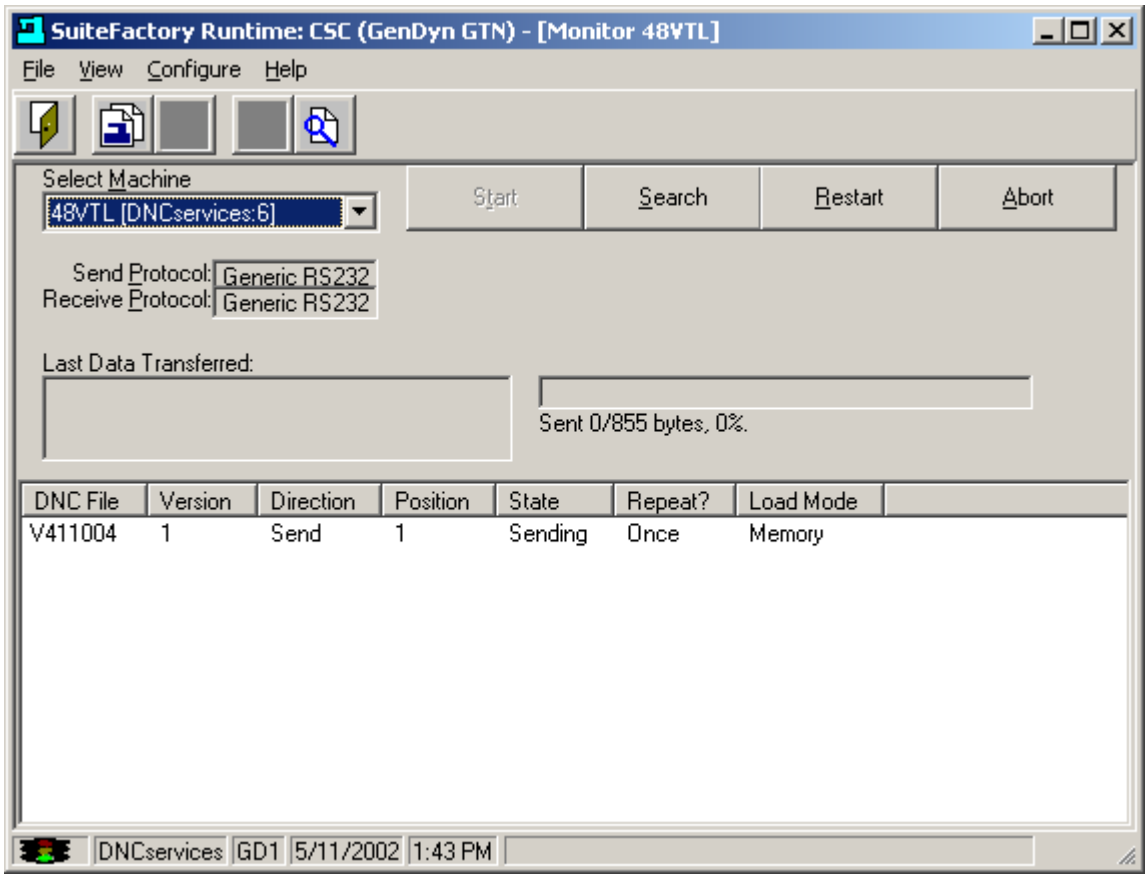
From the SuiteFactory Main window click on Monitor Machines.



Click on the Select Machine pull-down arrow.



Click to select a machine. This shows machine, 48VTL, with a DNC file, V411004, queued to be sent once.



Monitor Screen Functional Description

The Queue

The white window in the Monitor Screen displays the Job Queue. The Job Queue is simply the list of DNC files to be sent to or to be received from the selected machine controller. The queue displays the DNC file name; its version; direction of transmission: Send or Receive; its position in the queue; the state of the transmission: Sending, Receiving or Pending; whether or not it is to be repeatedly sent: Once or Loop; and its Load Mode: Memory or Tape.

The Queue Editor
Clicking on the last big button on the right brings you to the Queue Editor. If more than one inactive file is queued for any one machine, the queue editor enables you to re-arrange the order of files on the queue or to delete them from the queue.

The Function Buttons

These buttons enable you to control the data transmission in various ways:

Start
- This button is available when a DNC file is queued up if the "User Must Start" feature was selected on the Machine Properties Identification tab at installation. It is prevents data transmission until it is clicked.
- Used with some older CNC's that had no handshaking.

Search
- This button is available when a DNC file is queued to send. When clicked it aborts any current data transmission and opens a window with a view of the contents of the queued up DNC file. You can search to any line in the file and start transmission from that point on.
- Used when drip-feeding long part programs in tape mode to re-start at some safe-start point after some incident such as a tool break.

Restart
- This button is available whenever a DNC file is queued up. When clicked it aborts any current data transmission and then restarts the DNC file transmission from the beginning.

Abort
- This button is available whenever a DNC file is queued up. When clicked it aborts any current data transmission. The DNC file is removed from the queue.

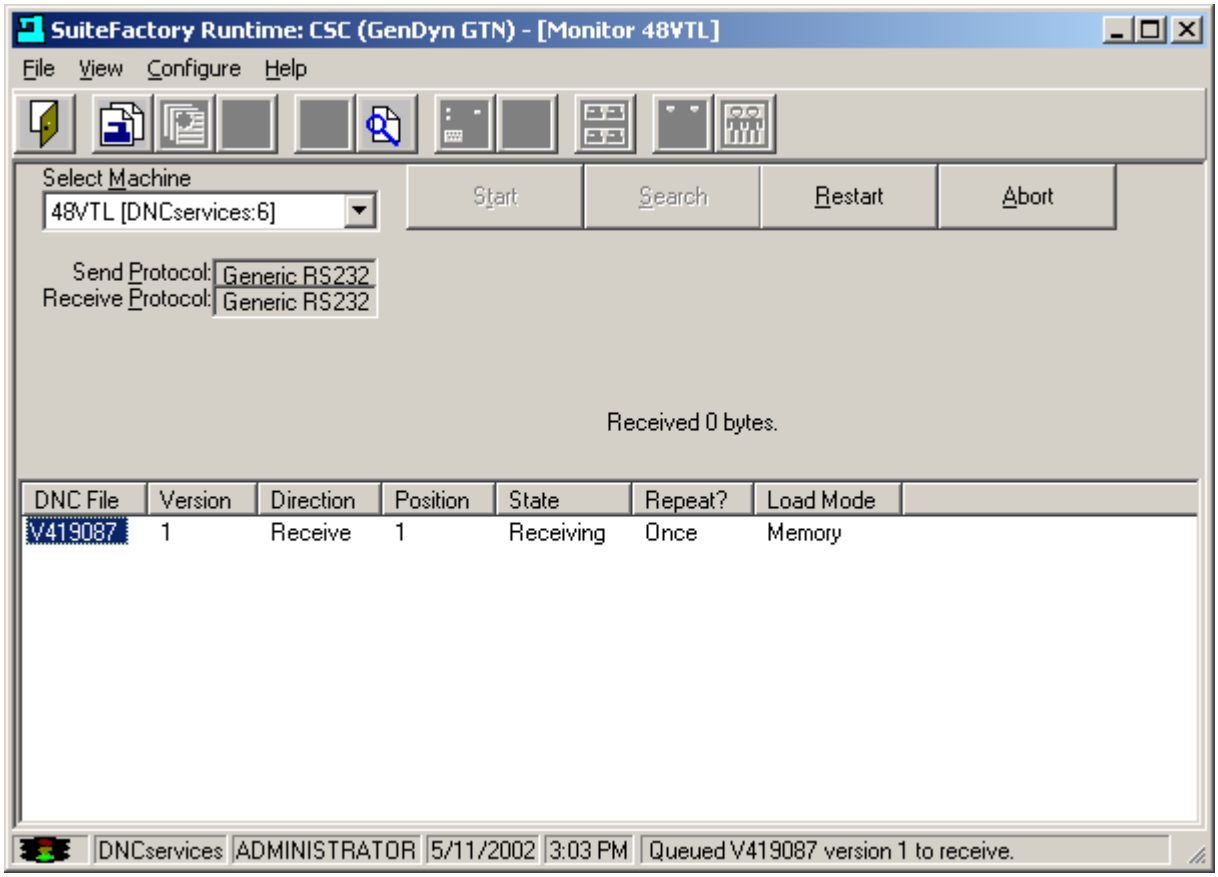
Other features

Send and Receive Protocol fields
Displays what protocols were selected during machine properties setup at installation.

Last Data Transferred
Displays the last three full lines of data sent to a machine controller.

Sent
A progress bar showing the percentage of data sent to a machine controller.

This is a view of the Monitor Screen with DNC file, V419087, queued to be received. Instead of a progress bar showing percent receive, the Received xxx bytes field appears which will be updated as date is transmitted from a machine controller.



Appendix C

The SuiteFactory Database and Resource Collections

SuiteFactory is a **database driven** system.

Database driven refers to the fact that instead of using the Windows Operating System's folders, and depending upon someone's knowledge of how to implement Windows security to protect and keep track of all the files, documents, setup and other information, SuiteFactory uses a database. This puts all the information in a centralized place, making file control, maintenance, backup and restore much easier. All DNC files and other controlled documents are stored in special folders inside the folder containing the database files. Each in encoded with a special ID so that it can be tracked from inception by import, upload from a CNC or created by the NC editor to the end of its useful life and sent to the archive.

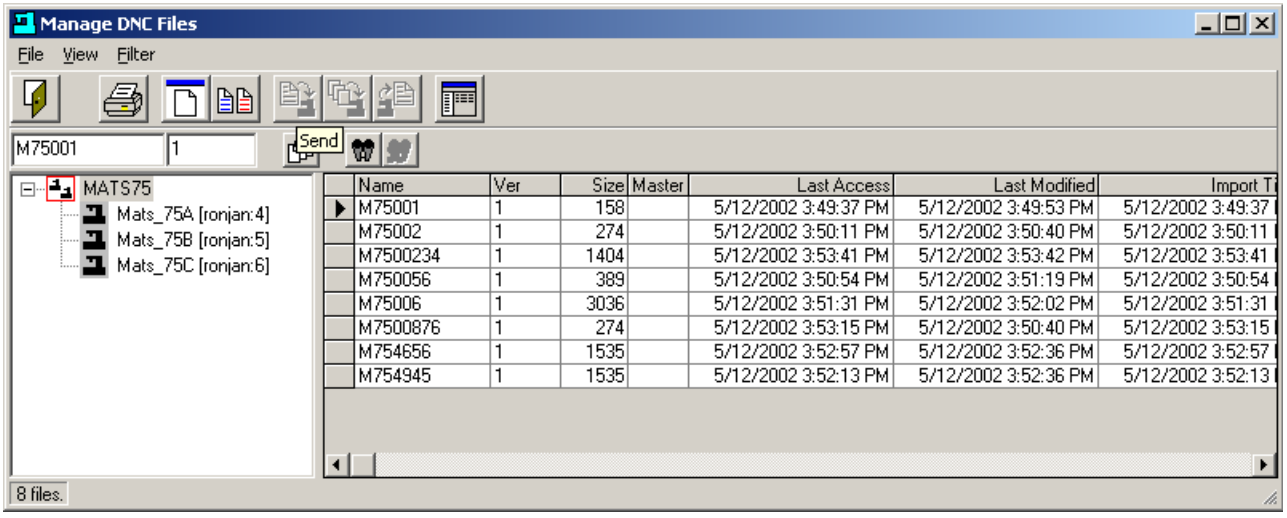
Resource Collections tie everything together

There are machines. There are part program DNC files for those machines. There might be packets (optional) containing documents, DNC files or other kinds of text files that can be use to contain all the information needed to perform a machine tool operation. There are people, whom we call users, who need to send these files to machines or view these files or perhaps edit them or something else. Users are members of groups with special rights assigned to establish what the group members can or cannot do while using SuiteFactory.

Think of SuiteFactory's Resource Collections as boxes; containers where we put all the machines that can run the same DNC files, the DNC files for those machines and the user groups that have permission to run those machines. If you have the Job Packet option, packets for operations for those machines are also put in the correct Resource Collection.

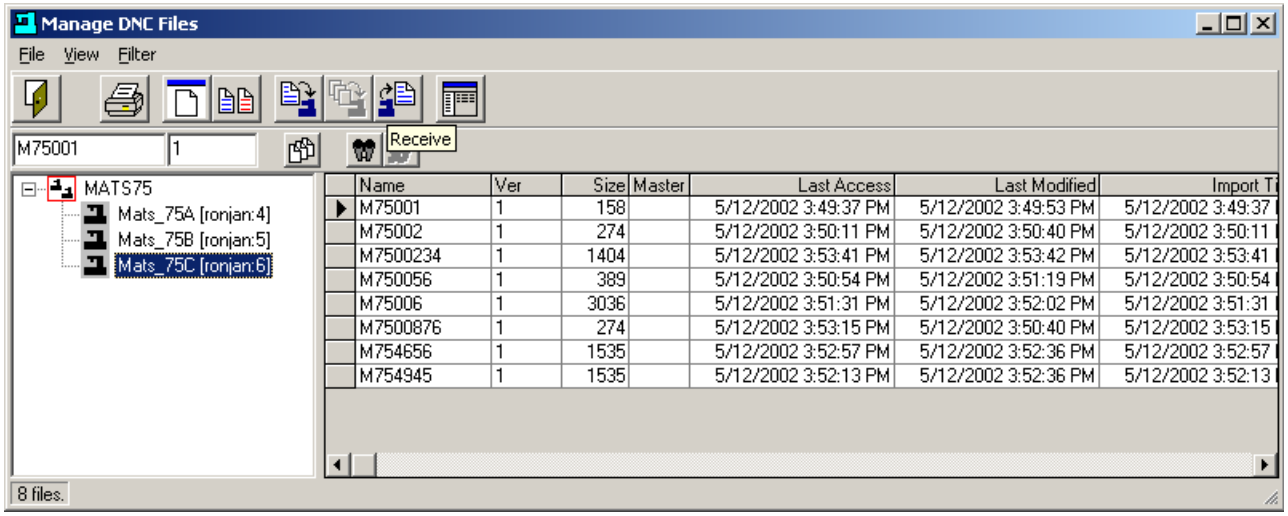
Since Resource Collections are not actually physical containers, the word we use is "assign." For example, say you have three Matsuura 75 mills with Fanuc 15M CNC's. We create a Resource Collection called MATS75 and "assign" to it all three Mastuura mills, all the DNC files that can be run by those machines, the user groups that have the need to operate these machine, and any packets with operational data for those machines.

The screen below shows the Resource Collections > Machines > Files view of the Manage DNC Files screen. The small red box with the two black machines represents the Resource Collection, MATS75. Assigned to that MATS75 are three machines, Mats_75A, B and C. The assigned files are shown on the right. Notice that the Send button is greyed out and therefore not available.



This is because the focus in on the Resource Collection, MATS75. In order to send a file to a machine you have to select it.
Click on Mats_75C.

Now both the Send and Receive buttons are enabled.

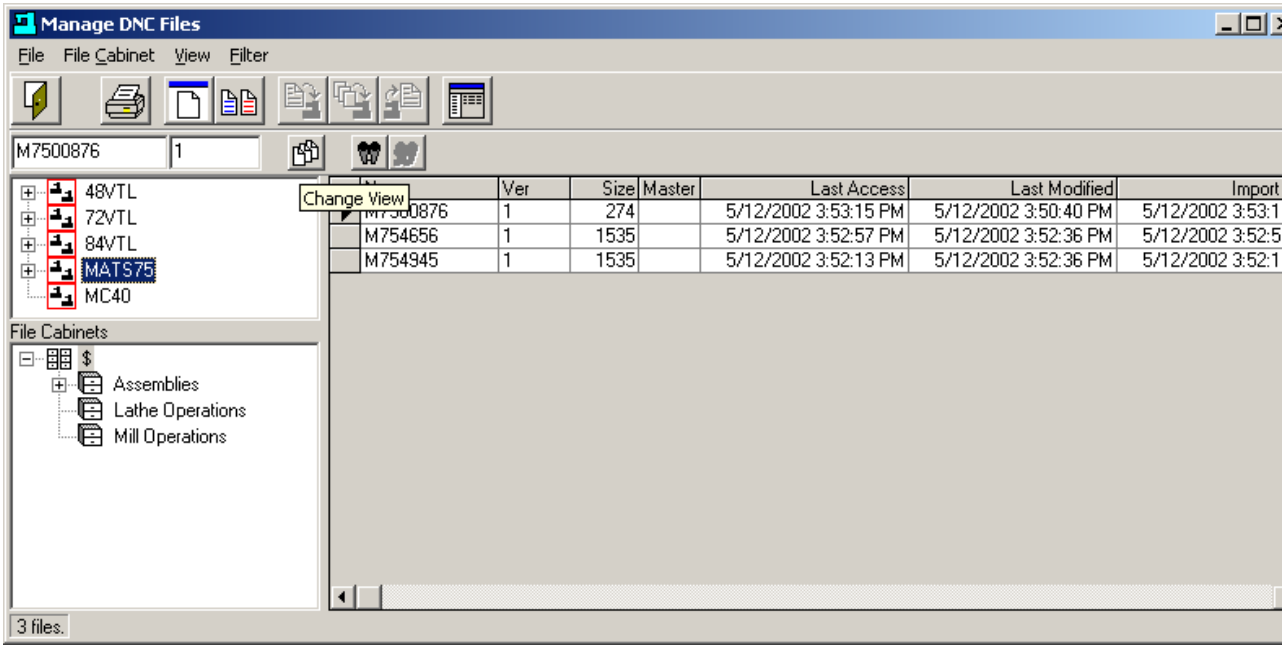


See Appendix D for discussion on Views.

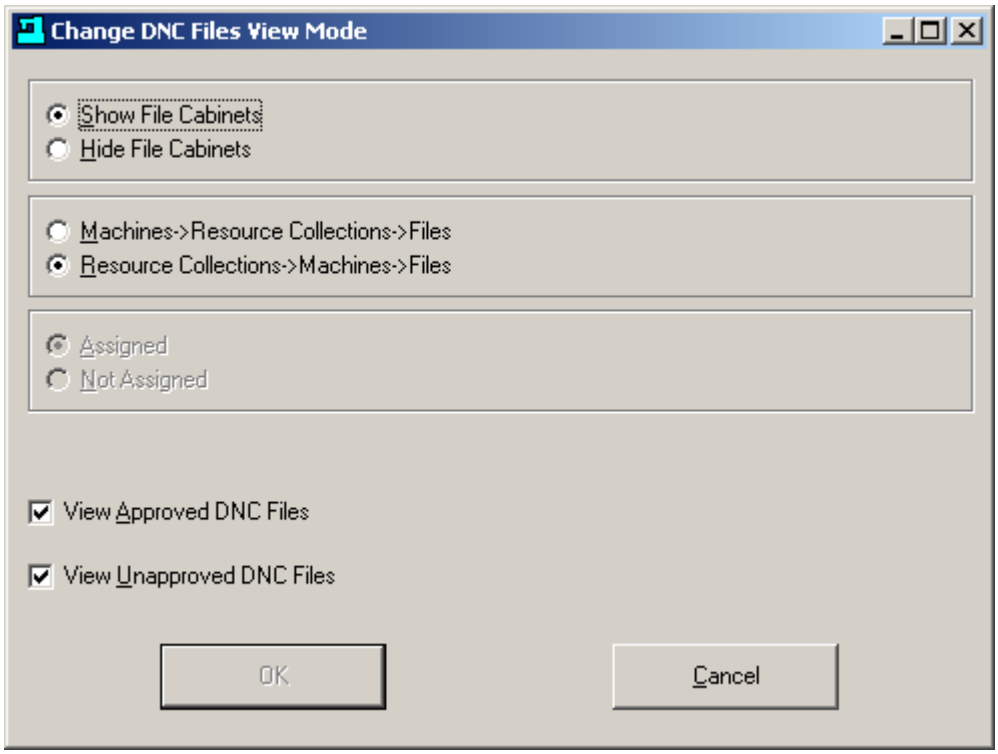
Appendix D

Views

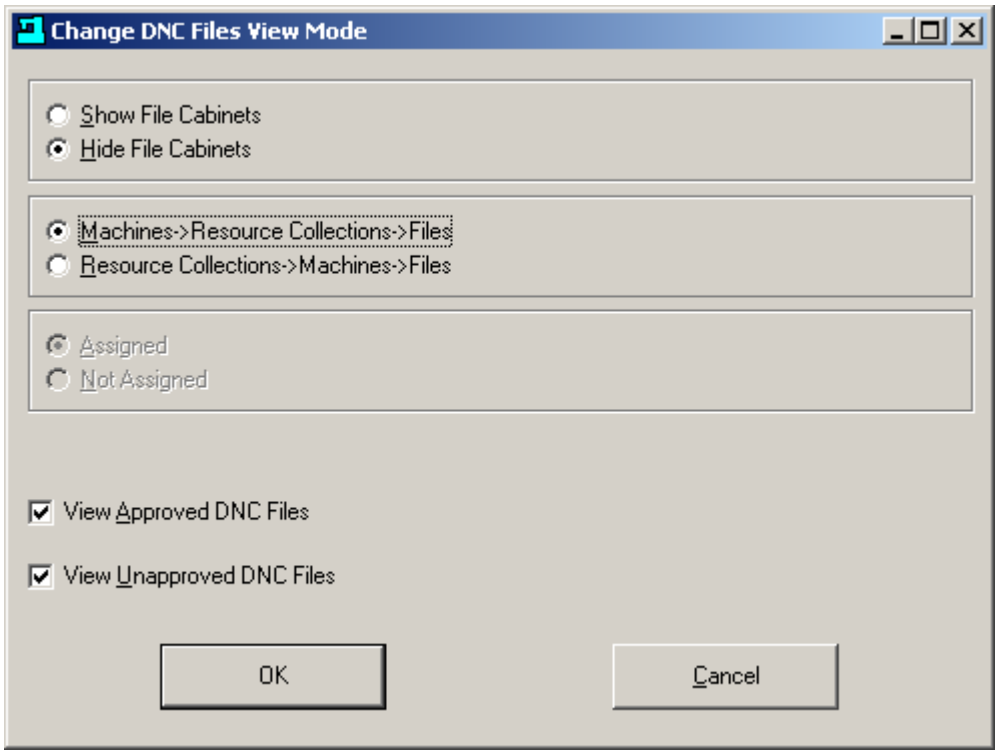
When you first login to SuiteFactory and select Manage DNC files, you might get a screen that look like this:
This view is Resource Collections > Machines > Files. In addition, File Cabinets are shown.



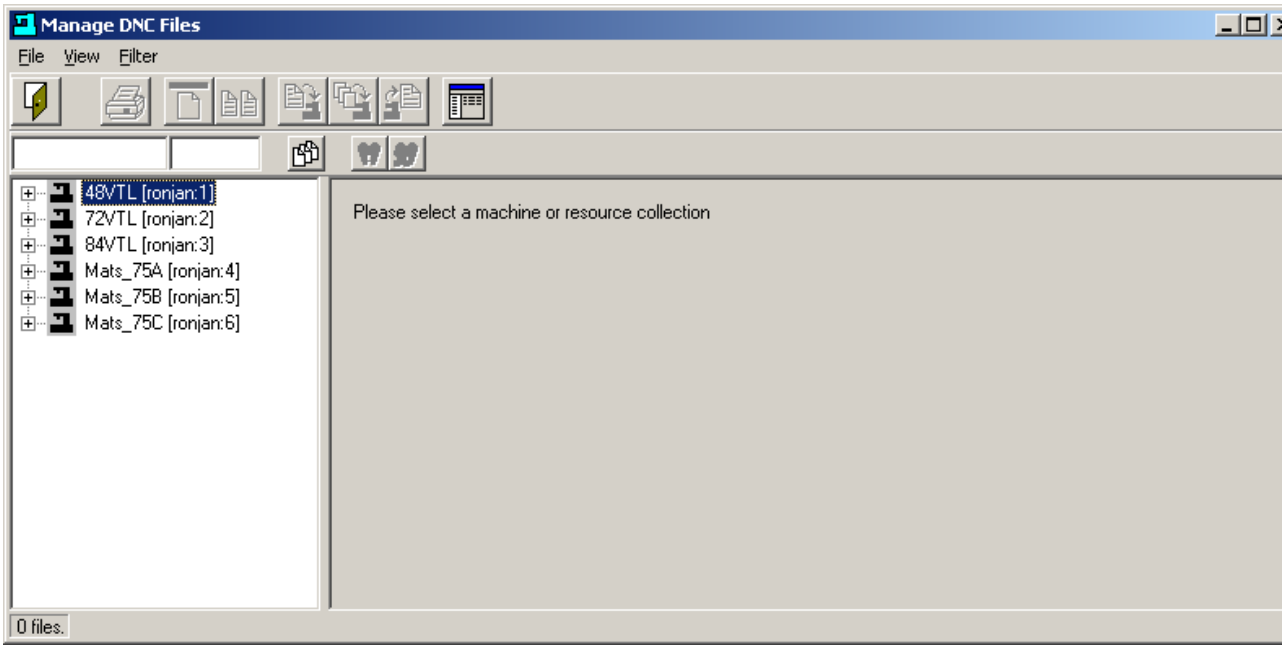
Click on the small Change View button (1st small button on left.)
This screen shows the current view.



For everyday shop operations we recommend the view without file cabinets showing and Machine > Resource Collections > Files. Unless your shop is using the DNC file approval feature, make sure that both View Approved and View Unapproved DNC files are checked.

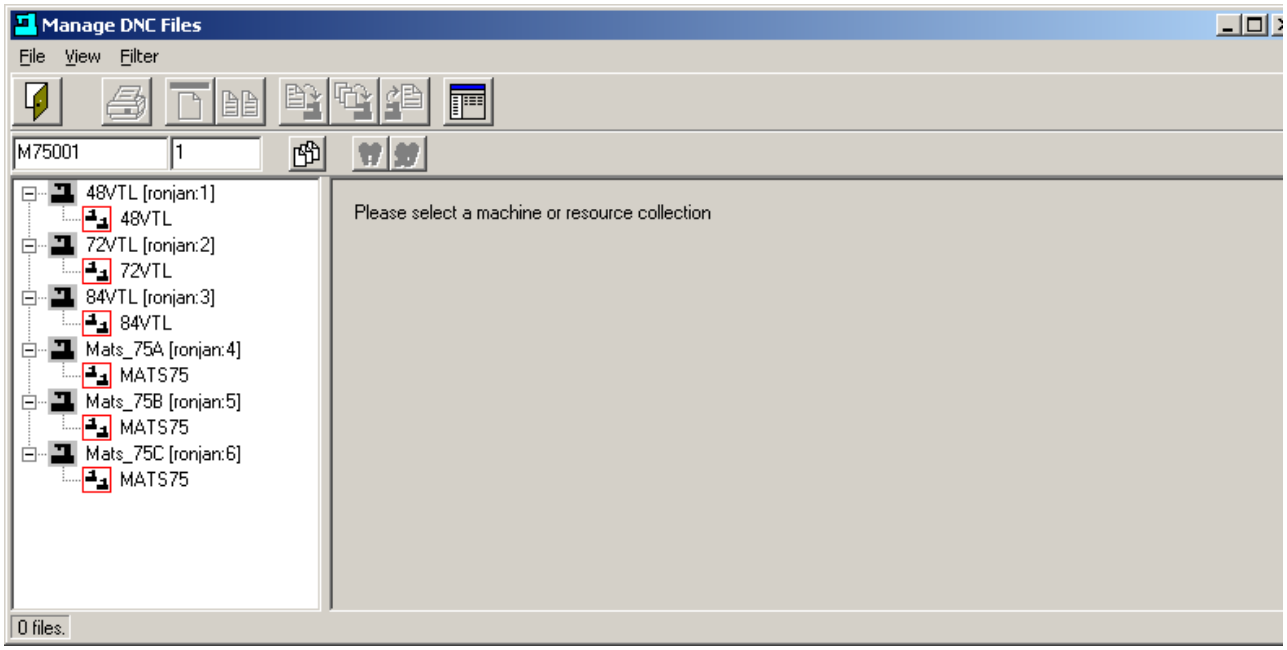


Click OK. The resulting view is



If you click on the small + signs next to the machine symbols you get to see the Resource Collection or Collections to which the machines are assigned. You have to select a machine or Resource Collection to see the assigned files.

Experiment yourself with the various views.


Manage DNC Files
File View Filter
M75001
1
48VTL [ronjan:1]
48VTL
72VTL [ronjan:2]
72VTL
84VTL [ronjan:3]
84VTL
Mats_75A [ronjan:4]
MATS75
Mats_75B [ronjan:5]
MATS75
Mats_75C [ronjan:6]
MATS75
Please select a machine or resource collection
0 files.

Appendix E

CCL Response Codes for G code CNC's

- N1 = The DNC system successfully queued the specified file for receiving. The shop floor operator can now output (punch) the file to the DNC database.
- N2 = The DNC system successfully received the file.
- N3 = After a CCL command to queue a file to be received, the file sent from the CNC file contained an Abort command sequence (N1M30). The DNC file has been deleted from the DNC database.
- N4 = The DNC system did not successfully receive the file.
- N5 = The CCL command file was not valid because there was no command (no X, Y or Z line.)
- N6 = The requested DNC file does not exist.
- N7 = The file name you specified already exists and you are not allowed to overwrite an exiting file.
- N8 = The CCL command file was not valid because there was no file name following the X, Y or Z command.
- N9 = The CCL command file contained an optional version command (Xversion_number) but the version_number text was not a number.
- *****N10 = The CCL command file was empty (contained no data.)
- N11 = A CCL command was found but the file_name contains illegal characters.
- N12 = The specified DNC file exists but it is not assigned to this machine.
- N13 = The file requested was found, but local copy or leader/trailer stripping is required but failed. (Local copy and leader/trailer stripping which forces local copying of files are set up via machine parameters.)
- N14 = The CCL Command file is a valid Mazak CMT file but the format is not supported. (Such as T1 and M1.)
- *****N15 = The CCL command file appears to be a Mazak CMT file but is not valid. (Points to a software problem: CMT signature is listed as supported but the embedded CCL command cannot be located.)
- N16 = The specified DNC file exists but it is empty. (It might be queued up for receiving data from a CNC.)
- N17 = The requested file is Checked Out.
- N18 = The requested file is currently being used exclusively (being uploaded or edited.)

***** These response codes should never occur. Getting them indicates a software problem. Please contact CAD/CAM Integration, Inc.

CCL Response Codes for Mazatrol CNC's

Certain functions of the CCI Command Language feature of SuiteFactory generate "Response Files" that are sent to the CNC with a short message that appears in the Program Name column of the response file's work number.

Response Message in "Program Name" Column	Description
1 = "Receiving"	The DNC system is ready to receive your program. Send it now.
2 = "Received"	The DNC system received your program successfully.
3 = "Aborted"	Your command to abort the last receive request has been executed.
4 = "Recv Fail"	The file you sent was not received correctly. Try again.
5 = "No Command"	Your command file did not contain a recognized command.
6 = "No File"	The DNC file you requested does not exist
7 = "Name Used"	Unable to create new file probably because your file name is not unique.
8 = "Bad Command"	Command not valid: missing expected argument?
9 = "Bad Version"	Your command specifies sending specific version, but that version does not exist.
*10 = "Empty File"	Your command file is empty [0 bytes])
11 = "What is *?"	Your command file contains an illegal character.
12 = "Unassigned"	The file you requested is not assigned to your machine.
13 = "Prep Fail"	Some preparation operation for the requested file failed
14 = (no text)	The CCL command file is a valid CMT file, but its format is not supported (such as T1 or M1)
*15 = (no text)	The CCL command file appears to be a Mazak CMT file but is not valid. (Points to a software problem: CMT signature is listed as supported but the embedded CCL command cannot be located.)
16 = "Zero Length"	The specified DNC file exists but it is empty. (It might be queued up for receiving data from a CNC.)
17 = "Checked out"	The requested file is Checked Out.
18 = "In use"	The requested file is currently being used exclusively by someone else (being uploaded or edited.)

***** These response codes should never occur. Getting them indicates a software problem. Please contact CAD/CAM Integration, Inc.

Appendix F

Using CCL to Upload and Download from your CNC Console
Typical G-Code CNC

The concept of CCL (CCI's Command Language), is to create a "dummy" program at your CNC console with the CNC's editor into which you enter the command to either get a file from the SuiteFactory database or save one to that database. Response files are sent to the CNC at appropriate times with codes describing an action or problem. See code list on last page of this document.

The SuiteFactory system administrator must set up the CCL leader and trailer format of this response file so that it is compatible with the specific CNC. For example, the CCL leader for a Fanuc CNC is % <CR><LF> O2222 <CR><LF> and the trailer is %. To do this, select the CCL tab in the machine properties dialog. First click on Enable CCL Command Language. Set the timeout to at least 60 seconds. Setup the CCL Leader and Trailer. For a Fanuc CNC the leader is typically: 1,% 1,CR 1,LF 1,O 4,2 1,CR 1, LF. The trailer typically is 1,%. If M02 or M30 is required to mark the end of a program then the trailer is 1,M 1,0 1,2 1,CR 1,LF 1,%.

To Get a File from the DNC System

One time – memory mode

You are storing the program in CNC memory.

1. Edit the 'dummy' program, O1111, for example, (or whatever it is called on your CNC):
   - Alter the Xvalue where 'value' is the name of the file exactly as it is stored in the SuiteFactory database.
   - If you have multiple versions of the file create a second line with Xvalue where 'value' is the version you want.

2. Send (Punch, Output) program O1111 to the DNC system:
   - When sending is complete wait at least 10 seconds.

3. Get the file you requested:
   - Select the Read (Input, In) function on the CNC. If required by the CNC, type the CNC file name before executing the Read.

4. When reading is complete, check your program and make sure there were no problems. If the DNC system had a problem locating the requested file or if that file was not assigned to your machine, instead of the program you requested, you will get a response file, O2222, for example, (or whatever it is called on your CNC), with a coded error message rather than the file you requested. For example, an N6 response means that the program could not be found in the DNC database. Make sure that you spelled it correctly in 'dummy' program O1111. An N12 response means that the program exists in the database but it is not assigned to your machine.

5. If you got a response file delete it now. Correct the problem then try again.

To Get a File from the DNC System

Loop mode – Drip Feed

You are running the program in drip mode via the RS-232 port

1. Edit the 'dummy' program, O1111, for example, (or whatever it is called on your CNC):
   - Alter the Xvalue where 'value' is the name of the file exactly as it is stored in the SuiteFactory database.
   - If you have multiple versions of the file create a second line with Xvalue where 'value' is the version you want.
   - Add a third line with M0 *(that's the number zero)* or M02 alone on that line.

2. Send (Punch, Output) program O1111 to the DNC system:
   - When sending is complete wait at least 10 seconds.

3. Start running the program you requested:
   - Put the CNC in "Tape mode" or select program source as an RS-232 port. This depends upon how the CNC works. Consult the manual. Not all CNC's allow drip feed mode.
   - Press Cycle Start on the CNC to begin executing the program. ***Please note! In this mode you cannot backup in the program. If you have to start over from some previous line then you will have to go to the DNC computer console to Search for that "safe start" line in the Monitor Machines window.***

4. If the DNC system had a problem locating the requested file or if that file was not assigned to your machine, instead of the program you requested, you will get a response file, O2222, for example, (or whatever it is called on your CNC), with a coded error message rather than the file you requested. For example, an N6 response means that the program could not be found in the DNC database. Make sure that you spelled it correctly in 'dummy' program O1111. An N12 response means that the program exists in the database but it is not assigned to your machine.

5. If you got a response file. Correct the problem then try again.

6. After the program is completed, it re-queues itself so that you can make another part.

7. When you are done you have to go to the DNC console and Abort the job via the Monitor Machines window.

To Send a File to the DNC System

Save a program in the DNC database

1. Edit the 'dummy' program, O1111, for example, (or whatever it is called on your CNC):
   - Alter the Yvalue or Zvalue, where 'value' is the name of the file exactly as you want it named on the DNC system.
     - If your system is configured for single version only then "value" must be a new and unique name.
     - If your system is configured to use the automatic naming function for new files then make 'value' = 0. For example, Y0 or Z0.

2. Send (Punch, Output) program O1111 to the DNC system:
   - When sending is complete wait at least 10 seconds.

3. Get the response file which tells you the DNC system is ready to save your program:
   - Select the Read (Input, In) function on the CNC. If required by the CNC, type the CNC file name, (for example, O2222) before executing the Read.

   - The contents of O2222 should have the code, N1, in the first line. This means that SuiteFactory is ready to receive the DNC file you want to save.
   - If there was a problem with your request to save the file, instead of the N1 code you will get a different code. For example, N7 means that SuiteFactory could not use the name, "value", you specified probably because your system is configured for single version only and the DNC file name you specified was already used. Delete the response file, change the value to something unique and try again.

4. **Delete the response file** (for example, O2222) from CNC memory.

5. Send (Punch, Output) the tape file you want to save:
   - When the sending is complete, wait at least 10 seconds.

8. Get the response file (for example, O2222) which tells you that SuiteFactory successfully saved your program:

   - The contents of O2222 should have the code, N2, in the first line. This means the DNC system successfully received the tape file that you wanted to save.

6. **Delete the response file** (for example, O2222) from CNC memory.

Using CCL to Upload and Download from your CNC Console

Mazatrol Plus and Fusion CNC's – Mazatrol type Program

The concept

When SuiteFactory is setup for CCL for a Mazatrol CNC, the administrator must specify a work number that will be used as a response file with coded information for the machine operator. (For example, 2222.) This work number must never be used as a real program work number.

At the CNC console, the operator creates a "dummy" work number, such as, 1111 to be used to communicate with SuiteFactory. Work number 1111 must never be used as a real program work number. (1111 and 2222 are only suggestions. The administrator can choose any pair of work numbers he or she wants.

The "dummy" file is used to command SuiteFactory to either retrieve a file from the database and queue up to send to the CNC, or to queue a file as specified in the "dummy" file to be received from the CNC.

Requesting a DNC file from SuiteFactory

1. If you do not already have a "dummy" program, create a new (empty) program whose work number is one that your are unlikely to use for a program such as 1111:
   Press: Program → Work No. → Mazatrol Program
   Enter the Work Program number (1111 for example) and press Input → Program → Program File.
   You should see the program directory on the CNC screen.
2. Cursor to the "dummy" work number (1111, for example).
   Press: Name Input.
   Enter: Xname_of_DNC_file → Input.
   For example, if the file in the SuiteFactory database is named M68423 enter XM68423 in the Program Name field.

3. Send this file to the DNC computer.
   Press: DATA I/O → CMT I/O → NC >CMT.
   Enter the number of this program. **Press** START. This program is now sent to the DNC computer.
4. **Wait** for about 15 seconds.
5. **Press** DATA I/O → CMT I/O → CMT > NC → CMT CONTENTS. **Press** START.
   The work number of the program you requested should appear on your CNC screen. **Press** CMT > NC → START. Your work number should now appear on the received screen on you CNC.
6. If your request was successful, then the program name you expected should appear in the *Program Name* field of the Program File listing.
   If there was a problem, instead of the expected work number, you will receive a response file instead, for example, work number 2222. A code number followed by a brief explanation appears in the *Program Name* field instead. See list of Response Codes below. For example, if you entered the file name incorrectly you will see 6 – No File meaning that the requested file cannot be found in the SuiteFactory database. Check your spelling. You could get 12 – unassigned meaning that the file that you requested is in the SuiteFactory database but is not assigned to your machine's Resource Collection.
7. If you received a response file **delete** it before proceeding.