

FOCAL*POINT USER'S GUIDE

Release 4.14

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CNC Innovations, LLC
PO Box 327 - Auburn, MA

Table of Contents

INTRODUCTION	1
LICENSE AGREEMENT	2
INSTALLATION CONSIDERATIONS	3
<i>Preparing to Install the Program</i>	3
<i>System Permissions</i>	3
<i>Performance Tweaks</i>	4
WINDOWS 7 SECURITY ISSUES	5
<i>How User Account Control (UAC) Limits Focal*Point Operation</i>	6
LICENSE REQUEST FORM	2
TRANSFERRING AND REMOVING A SOFTWARE LICENSE	3
TECHNICAL SUPPORT	4
SYSTEM LICENSE AND CONFIGURATION	5
<i>Single User Screen</i>	6
<i>Single Port Screen</i>	7
<i>Administrative "Only" Screen</i>	8
PROGRAM OVERVIEW	9
PROGRAM SETUP	10
<i>Installation Instructions</i>	10
<i>Setup Instructions</i>	11
<i>Program Transfers</i>	12
<i>Buffer Overflow Warning</i>	12
PROGRAM NAVIGATION KEYS	13
FILE MENU OPTIONS	14
<i>Open</i>	14
<i>NC File Editor</i>	14
<i>SEND (Browse)</i>	14
<i>Exit Selector</i>	14
SETTINGS MENU OPTIONS	15
PROGRAM CONFIGURATION	15
DEFAULTS	18
<i>Miscellaneous Defaults</i>	19
<i>NC Viewer / RFA Described</i>	20
<i>NC Program Editor</i>	21
<i>Automatic Library Transfer</i>	22
<i>File Archive Mode</i>	24
<i>Resource Types</i>	25
FTP SETUP	26
DNC LIBRARY SETUP	27
NC PROGRAM CATEGORIES	28

COMMUNICATION PARAMETERS.....	29
MACHINE NAME AND CATEGORY	30
BASIC COMMUNICATIONS MODE	30
<i>Serial</i>	30
<i>FTP</i>	31
<i>Timer Folders</i>	31
RS232 FUNCTIONAL DESCRIPTION.....	31
<i>Specific Protocol</i>	31
<i>Baud Rate</i>	31
<i>Comm Port</i>	31
<i>End of Block</i>	31
<i>E.O.B. Nulls</i>	32
<i>Data Type</i>	32
<i>Parity</i>	32
<i>Handshake</i>	32
<i>Data Bits</i>	32
<i>Stop Bits</i>	33
REMOTE REQUEST TAB	33
<i>NC Program Qualifier String</i>	33
<i>Continuous Feed</i>	33
<i>Request Code</i>	33
<i>Redirect Code</i>	33
<i>Key Pad</i>	35
<i>Enable Remote Printing</i>	35
<i>File Not Found Message</i>	35
SAMPLE REMOTE REQUEST	35
OPTIONS TAB	36
<i>Advanced Options</i>	36
START/END VALUES	38
<i>Start & End Constant</i>	38
<i>Start & End Strings</i>	38
RECEIVED FILE CONFIRMATION	39
DATA COLLECTION OVERVIEW	40
FUNCTION BUTTONS.....	41
<i>Print Parameters</i>	41
<i>Save and Cancel</i>	41
<i>Reset</i>	41
<i>Terminal</i>	41
CUSTOM FORM LABELS.....	42
MULTI-USER ADMINISTRATION	44
<i>Enable LAN Connection</i>	45
<i>Shared Files Directory</i>	45
<i>Cell Name</i>	45
<i>Re-Naming the Cell Name</i>	46
<i>ALT Administrator</i>	47
<i>Saving Selections and Unlocking a Locked Database</i>	47
SECURITY OPTIONS.....	48
SECURITY OVERVIEW.....	48
<i>Users List</i>	49
<i>User Rights</i>	49
<i>User Information</i>	49
SECURITY OPTION BUTTONS	50
<i>Add User</i>	50
<i>Modify Users</i>	50
<i>Delete User</i>	50
<i>Return Button</i>	50
<i>Changing Users</i>	50
<i>Password Override</i>	50

DATABASE FUNCTIONS	51
DNC*LIBRARY	51
LIBRARY DETAILS	52
<i>Sort Display (Up/Down Arrow)</i>	52
<i>Search Icon (Binoculars)</i>	52
<i>Resize Field</i>	52
<i>Selection Bar</i>	52
<i>DNC*ID</i>	52
<i>File Name</i>	52
<i>File Date</i>	53
<i>NC Program Category</i>	53
<i>Description Field</i>	53
LIBRARY FUNCTION BUTTONS	53
<i>Add Entry Button</i>	53
<i>Remove Entry</i>	54
<i>Modify</i>	55
<i>Send</i>	55
<i>NC Viewer</i>	55
<i>Close Button</i>	55
DNC*LIBRARY (FILE MENU OPTIONS- ALT F)	55
<i>Edit</i>	55
<i>Import Directory</i>	55
<i>Insert Comments with DNC*ID</i>	56
<i>Remove DNC*ID Comments</i>	57
<i>Verify Library Entries</i>	57
<i>Print Library & Selections</i>	57
<i>Convert End-of-Block (UNIX to DOS)</i>	57
<i>Replace DNC ID's with Description Data</i>	57
PARTS DATABASE	58
PARTS AND OPERATIONS DESCRIBED	59
<i>Sort Icon (Up/Down Arrow)</i>	59
<i>Search Icon (Binoculars)</i>	59
<i>Part Information</i>	59
<i>Customer Field</i>	59
<i>Description Field</i>	59
PART RESOURCES.....	59
MENU ITEMS	60
<i>Print Parts (File Menu)</i>	60
<i>Close</i>	60
PART FUNCTION BUTTONS	60
<i>Add Part Button</i>	60
<i>Rename Part</i>	60
<i>Operations Button</i>	60
<i>Notes Button</i>	60
<i>Close</i>	60
(OPERATIONS SUB-WINDOW).....	61
<i>Resource Details</i>	62
RECEIVE FILE ADMINISTRATOR	63
<i>Refresh Listing Button</i>	63
<i>Cell</i>	64
<i>Received Files Display</i>	64
<i>Delete File</i>	64
<i>New Lib File</i>	64
<i>Compare Library File</i>	64
<i>Overwrite Library File</i>	65
<i>Send</i>	65
<i>File Viewer</i>	65
<i>File Display Mode</i>	65

<i>NC Library Mode</i>	65
<i>Last Sent Display Mode</i>	66
<i>Scroll Bar</i>	66
<i>Close</i>	66
SEND FILE AND ARCHIVE HISTORY	67
AUTOMATIC LIBRARY TRANSFER OVERVIEW	68
<i>NC FILE Format</i>	68
<i>Logic</i>	69
<i>Error Processing</i>	69
REMOTE REQUEST PROCEDURES	70
<i>QTerm Keypad</i>	71
FTP FILE TRANSFERS	72
<i>Initial FTP Setup</i>	72
<i>Managed FTP</i>	73
<i>Restricted FTP</i>	76
<i>Unrestricted FTP</i>	77
<i>Advanced FTP Options</i>	78
TIMER FOLDERS	80
<i>Functional Description</i>	80
<i>Timer Remote File Requests</i>	81
<i>Timer Folder REC Confirmation</i>	83
DATA COLLECTION	84
<i>Data Collection Processing Notes</i>	84
<i>Continuous Data</i>	84
<i>Segmented Data</i>	85
PROGRAM MAINTENANCE	87
<i>Purge Send File History</i>	87
<i>Archive File History</i>	87
<i>DB Optimizer</i>	87
DATABASE OPTIMIZER AND REPAIR UTILITY	88
COMMUNICATIONS TROUBLESHOOTING GUIDELINES	89
CABLE AND WIRING	91
WIRING DIAGRAMS	93
FREQUENTLY ASKED QUESTIONS	95
LEGACY SECURITY KEYS	98
BACKUP STRATEGIES	99
CONFIGURING A BACKUP DNC SERVER	100
ASCII CHART	102
TECHNICAL SUPPORT REQUEST FORM	103
ABOUT CNC INNOVATIONS, LLC	104

Introduction

CNC Innovations- A team of men and women dedicating their careers to the development of easy to use, shop-hardened software for the machine tool industry.

From our basic NC file editors and single point-to-point data communications software, to expansive and powerful DNC networking planners, CNC Innovations is sure to have the best and most affordable products to save you time, money and, ultimately, headaches in today's quick paced, market environment.

To help us in our endeavor to perfect the industry's best shop automation software tools, feel free to call us at (508) 523-1763. We are always happy to hear from you--our valued customer.

Sincerely,
The Staff of CNC Innovations

Important Information

Focal*Point™ is a highly versatile DNC communications program with a host of features ranging from simple point-and-click file transfer to complex network integrated file maintenance. One such feature is Multi-User Administration with its shared data capabilities. This feature, plus the inherent security of a well-maintained LAN network, requires a complete understanding of the setup and configuration of this software.

For this reason, it is recommended that both the installer and the LAN Administrator review the LAN Connectivity, Defaults, and Automatic Library Transfer sections of this manual before activating these features.

About Focal*Point Help

The Focal*Point help program contains a section for all of the program features and functions. Each topic can be reviewed in whole or by printing the section to a connected printer. Additionally, clicking on any words that are green and underlined will immediately jump to additional help for the highlighted keyword. If the highlighted word is underlined by a broken line, the information will be in the form of a pop-up box.

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License Agreement

Disclaimer of Warranty and Limited Liability

CNC Innovations makes no warranties, either expressed or implied, with respect to this document or with respect to the Focal*Point DNC™ or Focal*Point Remote software products, including any related user information published by CNC Innovations. Focal*Point DNC and Focal*Point Remote are sold "as is." The user of the product assumes all risks with regards to the suitability, quality, and performance of the products.

CNC Innovations, its dealers, distributors, agents, or employees shall not be held responsible for any consequential or incidental damages resulting from use of the products, even if CNC Innovations has been advised of the possibility of such damages.

Neither CNC Innovations nor anyone else associated with the creation or delivery of the Focal*Point products shall be held liable for any loss of business revenue, interruption of business activity, or loss of business information as a direct or indirect result of use of the Focal*Point products.

Some states do not allow for the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply.

Installation Considerations

Preparing to Install the Program

In most cases, the installation and setup of Focal*Point is quite simple. Usually the only consideration is that the installation and first-run of the program be performed with local Administrative rights. This will ensure proper installation, configuration and licensing. Also note that day-to-day users may also need read/write privileges for LAN drives (shares) to ensure that the Focal*Point program has proper access to the NC program files. This is especially true when configuring Focal*Point in a Multi-User environment that uses a "shared" database, which is generally located on a LAN drive.

Depending upon your network and related Group Policies, as well as the local PC operating system, it is not always easy to confirm full administrative read/write permissions. Consult your IT manager for assistance if corporate Group Policies prevent successful installation and licensing.

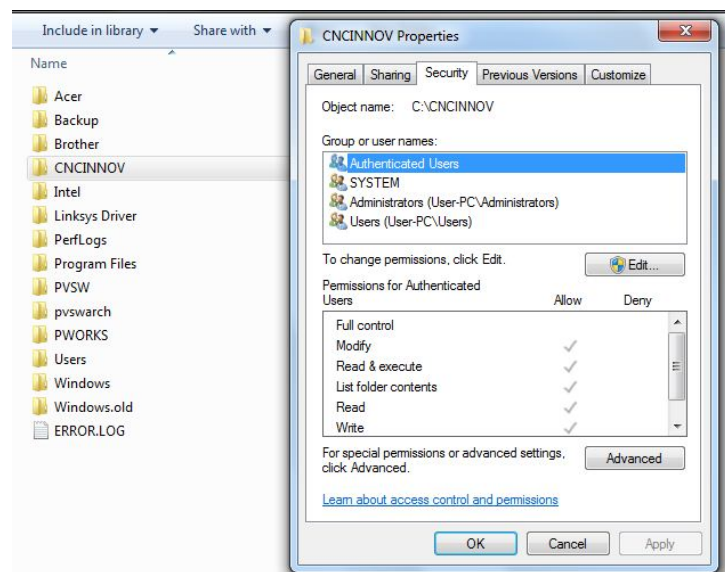
Installations targeted for Windows Vista and Windows 7 may have additional concerns. These operating systems do not provide full privileges even when running as an administrative user. As such, before starting the installation process, it is best to right-click the setup program and select the "Run as Administrator" option. After completing the installation program you should have a program launch icon located on your desktop and also in the Focal*Point program group located in the Start>Programs list. Right-click either (or both) of these icons and again select the "Run as Administrator" option to run the program for the first time. This is an important first-step as the program is still in the configuration and licensing stage. Complete the initial configuration and licensing as directed.

If multiple users will have login and startup rights for Focal*Point, it is best to provide on-going Administrative privileges to all users. This is done by right-clicking the shortcut and selecting the Properties option. From the Properties page, view the Shortcut tab and click the Advanced button. Ensure that the Run as Administrator option is checked. Next click to view the Compatibility tab and if available select the option "Change settings for all users." Verify that compatibility mode is set to run as Windows XP (Service Pack 3) and that all users will run with administrative privileges.

System Permissions

This section provides information for advanced operating system considerations. Please consult your IT manager when attempting to modify these settings.

In the event that several Standard Users (PC users with limited rights) will have login ability, it is easier to grant read/write access to such users with Windows Security options as shown below.



As seen in this "Windows 7" example, all Authenticated Users (Users with a login name and password) have been given full read/write permissions for the Focal*Point installation folder and all sub-folders. Note that this setting may also solve the problem displayed as "Error Updating Local Database / Error Number = 1" when Standard Users start Focal*Point. To access these settings open the Windows Explorer, right-click the CNCINNOV folder and select the Properties option. Note that permissions can only be changed by an administrative user.

It should also be noted that Focal*Point records setup and user configuration information in the system registry. By default these registry locations usually allow proper access rights, but the location keys are provided here for informational purposes only. **NOTE THAT CNC INNOVATIONS TAKES NO RESPONSIBILITY FOR CHANGES MADE TO THE SYSTEM REGISTRY.**

Although changes are not likely required, the two area of interest are:

HKEY_CURRENT_USER\Software\CNCInnovations
and
HKEY_LOCAL_MACHINE\Software\CNCInnovations

These two keys and all sub-keys should have the permissions discussed above.

Performance Tweaks

- When several RS232 communications hubs are connected to the DNC computer, Focal*Point may start before all the hubs have fully initialized. This is evident when some connections report a status of Not Loaded. To remedy the situation the following VB script code can be used to delay the start of Focal*Point when the workstation is still booting.

```
'VBScript to delay starting Focal Point
'Change WaitTime seconds to meet your needs
'Also verify the execution path in the last line
Const WaitTime = 120 'Change number of seconds
Dim WshShell, btnVar
Set WshShell = WScript.CreateObject("WScript.Shell")
btnVar = WshShell.Popup("Focal Point will start in " & WaitTime & " seconds." & VbCrLf _
& "Or click OK to continue", WaitTime, "Starting DNC")
'Make certain the following execution path is correct for your installation of Focal Point
WshShell.Run "c:\cncinnov\fpdnc\focalpt"
```

- Be sure to check Power Saving settings for local harddrives and monitors, as well as, screen savers before attempting Drip-Feed operations.
- Avoid Buffer Over-flow errors during Drip-Feed operations by setting COMM Port hardware properties to disable FIFO buffers. See your hardware manufacturer for specific instructions. To change the native COMM port settings (COM 1) follow these general procedures

```
Right-Click the My Computer icon and select Manage
Select Device Manager from the Computer Management page
Expand the Ports (COM & LPT) section
Double-click COM 1 to display its Properties
Click Advanced on the Port Settings tab
Set the Buffer sliders to their lowest setting or Disable the Buffers .
Reboot the PC
```

Windows 7 Security Issues

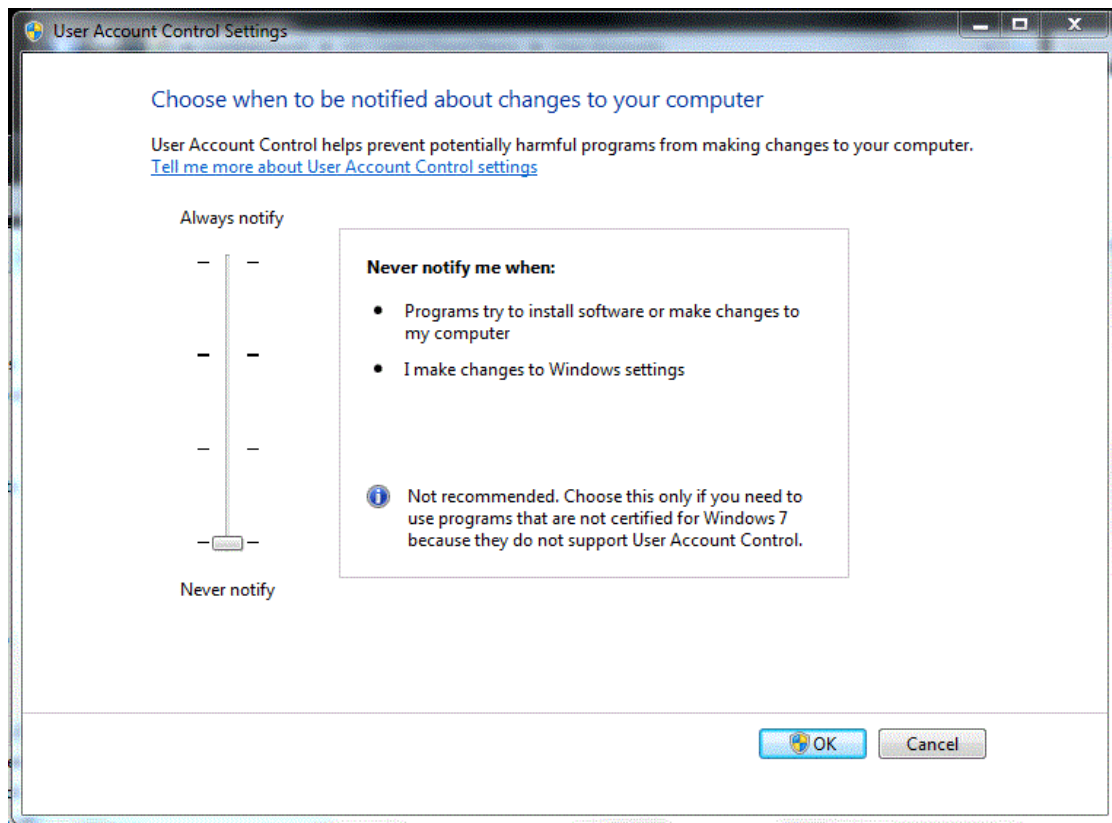
Important

Windows 7, as well as Vista, contains several new security enhancements that impact the way programs interact with the user and the operating system. To avoid complications while configuring and testing Focal*Point, CNC Innovations highly recommends that first-time users run Focal*Point with an Administrator account and that User Account Control (UAC) be set for the Never Notify option. By default, the first account created on Windows 7 will be an Administrator account. You can either use this account for setup and testing or create a new Administrator account. Do not attempt initial testing with a Standard User account.

Please keep in mind that Windows security features are an on-going project and are subject to change. The information discussed below is relative to the first release of Windows 7 and may very well change as the operating system matures.

Before proceeding, make certain that system permissions have been changed to allow the logged in user (Authenticated Users or specific user accounts) complete read and write permissions as shown in the previous Installation Considerations section. Warning: do not assume that the Administrator account will provide the necessary permissions because even Administrators operate with Standard User permissions when running most applications. In fact, that is the purpose of the new security enhancements--to restrict full access to files and the operating system.

The User Account Control settings are located in the Control Panel > User Accounts section. At the User Accounts home screen click the option to Change User Account Control Settings and set the option for Never Notify as shown below.



How User Account Control (UAC) Limits Focal*Point Operation

- When UAC is active it will prompt the user for an acknowledgement each time Focal*Point is started. If Standard Users start Focal*Point it may also require an Administrator's password in order to proceed.
- Unlike earlier versions of Windows, UAC will stop Focal*Point from running automatically when placed in the system Startup menu. Only by setting UAC to Never Notify will this important function be possible. Search Windows help for instructions to add Focal*Point to the Startup menu.
- As of this writing Windows 7 support to run Focal*Point as a service is restricted to background operation only. Since it will not allow interaction with the desktop, running as service is not recommended.
- Access to file server mapped drives must be configured with Administrator rights. This is true even when changing an existing drive's UNC path location.
- Mapped network drives will not be available without some form of user intervention. This problem may not be evident to casual observers since mapped drives do appear connected when accessed from the My Computer application. The problem is that these drives remain inaccessible when software applications attempt to use them. Although Focal*Point will warn of connection problems at startup, the situation and solution are none-the-less quite annoying. This is especially true when you consider that Focal*Point's Multi-User Administration, DNC Program Library, the Received File Administrator, Automatic Library Transfer, and File Archiving may all refer to mapped drive locations.

Symptoms and Solutions for Inaccessible Drives due to activated User Account Controls

If Multi-User Administration (Settings menu) is enabled and points to a mapped drive location, Focal*Point may report an error activating the form during startup. Focal*Point's error log will contain the following entries.

```
Error Location 174 Err = 76  
Error Location 172 Err = 3044
```

This error can be resolved in several ways. The first is a quick work-around. During startup when Focal*Point displays the message that you appear to be using the shared location for the first time, simply click the Cancel button to run Focal*Point in local mode. If you then open the File menu and select Send (browse), you will be shown a listing of all drives. Inaccessible drives display with a large red X through them. If you click the shared drive it will open normally and will remain accessible for the remainder of your windows session. If you exit Focal*Point and restart, it will run as expected.

A better and more permanent way to solve this problem is to set the Multi-User shared location with a Universal Naming Convention (UNC) path rather than the usual mapped drive location. The first step is to establish a connection as described above and then use the Multi-User Advanced button to enter the UNC path. UNC paths are specific to your network but typically take the following form, \\ServerName\FolderName. This method works well because network shares are not affected by UAC settings, to date Microsoft only restricts mapped drives.

UNC paths work very well when you simply need to designate a shared folder location for Focal*Point's working database. However, there may still be additional considerations. If your Local Area Network uses mapped drives versus local folders for the storage of NC programs, you will still have a problem accessing these files from within the DNC program library. Note that this restriction impacts Sending, Receiving, Remote Program Requests and Editing. To test this condition, simply double-click the DNC ID for an established library entry. If the editor fails to open the file it is an indication that the drive mapping has failed. Again a simple correction is to click the Send button and attempt to browse the inaccessible drive. The drive will then be accessible for the remainder of your Windows session.

As shown by the discussions above, User Account Control impacts Focal*Point's operation in several ways. It is for this reason that CNC Innovations warns against using UAC during the initial setup and execution of Focal*Point. However, recognizing that some companies will want to take advantage of the increased security that UAC offers, and the possibility of running Standard User accounts, we offer the following for informational purposes only. Note that It is not the intent of CNC Innovations to provide help for Windows operating systems. For additional information please refer to the Windows Help program, newsgroups, blogs, and Microsoft support.

Since the release of Windows Vista, Microsoft has acknowledged and defended the reason for restricting mapped drives as discussed above. To that end Microsoft has issued a knowledge base article discussing the situation. Please refer to <http://support.microsoft.com/kb/937624>

This article briefly describes the drive mapping situation and provides a solution. Albeit Microsoft does not recommend the fix but still they recognize that the condition exists. The fix requires a change to the Windows' registry, which as always, is not recommended by Microsoft. For your convenience the registry entries are listed below. Note that CNC Innovations has successfully tested this workaround using a Windows 7 administrator account.

Extract from Microsoft KB937624

Important: This workaround may make your system unsafe. Microsoft does not support this workaround. Use this workaround at your own risk.

To work around this problem, configure the EnableLinkedConnections registry value. This value enables Windows Vista to share network connections between the filtered access token and the full administrator access token for a member of the Administrators group. After you configure this registry value, LSA checks whether there is another access token that is associated with the current user session if a network resource is mapped to an access token. If LSA determines that there is a linked access token, it adds the network share to the linked location.

To configure the EnableLinkedConnections registry value, follow these steps:

Click Start, type regedit in the Start Search box, and then press ENTER.

Locate and then right-click the following registry subkey:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System

Point to New, and then click DWORD Value.

Type EnableLinkedConnections, and then press ENTER.

Right-click EnableLinkedConnections, and then click Modify.

In the Value data box, type 1, and then click OK.

Exit Registry Editor, and then restart the computer.

LICENSE REQUEST FORM

Focal*Point Software License

To prevent unauthorized use of Focal*Point the software requires a license key in order to function beyond the initial 10-day, free trial period. To obtain the license code (password) it is best to e-mail the unique PC Seed code that is displayed within the Manage License console to info@cncinnov.com. In cases where the end-user does not have access to e-mail, this form may be printed and faxed to CNC Innovations. (The code can also be sent from CNC's web at www.cncinnov.com -Contact us). Be sure to list the PC Seed code for each seat (workstation) where Focal*Point is installed. The completed form should be faxed to CNC Innovations at 508-523-1763. CNC Innovations will provide the required License Password(s) and return the form.

Important - After entering a license password do not delete or un-install Focal*Point without first contacting CNC Innovations for important license deletion instructions and validation.

Contact Name _____ Tel. Number _____

Company Name _____ Fax. Number _____

Total Seats Purchased _____ Total DNC Ports Purchased _____

1. Machine Name/Number _____ **Number of DNC Ports** _____

Seed Code* -- -- -- -- --

Password** -- -- -- -- --

2. Machine Name/Number _____ **Number of DNC Ports** _____

Seed Code* -- -- -- -- --

Password** -- -- -- -- --

* The Seed Code is displayed within the Manage License Console.

** The Password Code is supplied by CNC Innovations and entered License Console.

CNC Innovations, LLC.
P.O. Box 327 - Auburn, MA 01501

Tel: (508) 523-1763

Fax: (508) 892-0378

Transferring and Removing a Software License

Transferring a Software License

The Manage License console provides a method for CNC Innovations to validate the removal of a software license. Performing this action requires special codes and instructions, which will be supplied by calling CNC Innovations at 508-523-1763. After a valid license removal, a new license will be issued.

Do not delete or un-install Focal*Point without first contacting CNC Innovations for important license removal instructions and validation.

When calling CNC Innovations to transfer or remove a license, be prepared to supply the existing Seed and Password codes, which are both displayed in the Manage License console. The console is accessed when starting Focal*Point and is also located in the Help menu.

Technical Support

Eligibility

When you purchase the Focal*Point DNC system from CNC Innovations, LLC. you are eligible for free, product-specific, telephone technical support for a period of 30 days from the date of purchase. Supplemental technical support is available both on a pre-paid hourly basis and through the purchase of our Comprehensive Service Agreement.

Scope

Focal*Point runs on Microsoft Windows operating systems. It is therefore expected that you have a basic understanding of using Windows based software. It is also assumed that you know how to configure and use the communications options on your machine controls.

We will be happy to answer any relevant questions you may have about using our products, but we reserve the right to limit technical support to our applications and functionality only. For example, we will work with you to help you configure Focal*Point's communications parameters to match those of your machine control, but you must know the current settings on the control and/or how to change those settings.

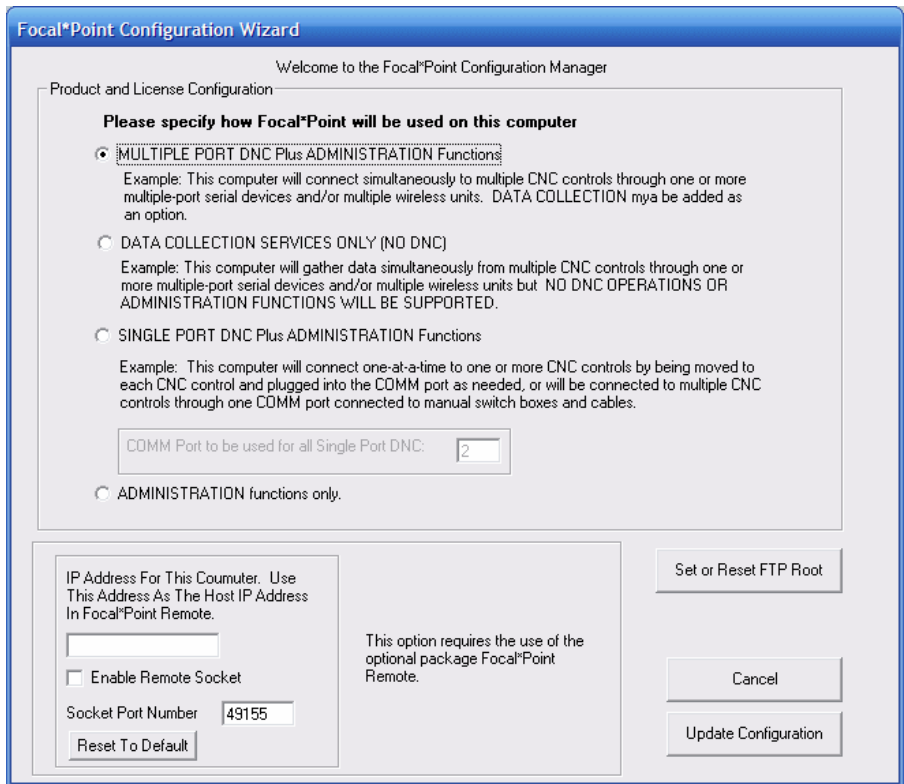
If your problems go beyond the application and functionality of our product, you may contract with us for Supplemental Technical Support.

Before contacting CNC for technical support, please print a copy of the Technical Request Form, located at the end of this document, fill-in the requested information, and fax it to CNC's Tech. Support at 508-523-1763.

Supplemental Technical Support

CNC Innovations, LLC. provides supplemental technical support for most machine communications applications on an hourly basis. This is available by telephone or on-site. To obtain technical support contact CNC Innovations, LLC. Technical Support at 508-523-1763.

System License and Configuration



Product Selection and License

Focal*Point provides several configuration / licensing options. After the initial installation, the mode of operation must be indicated prior to requested a password key. The modes of operation are as follows.

Multiple Port DNC plus Administrative Functions

This is the standard operating mode when Focal*Point is used as a DNC host connected to multiple machines. This mode is used when several activated machine connections have been purchased with the intent of utilizing external RS-232 communications hubs. Administrative functions are defined as having access to the NC program database, Parts and Operations, and the Received File Administrator.

Data Collection Services Only

Provides configuration for licensing Data Collection services only. DNC program transfers will not be supported

Single Port DNC plus Administrative Functions

This mode is popular as a replacement for CNC's Easytalk DOS software and for situations where multiple machines with different communications parameters must be configured for use with a single-port laptop computer or when a single-port PC will connect to multiple machines using an A/B style switchbox. This mode of operation requires that the user select a desired machine prior to performing I/O functions and is therefore not recommended for automated program transfers.

Administrative Functions Only

This mode is generally used in conjunction with Multiple Port DNC installations as it affords NC programmers and system administrators the ability to maintain the NC program database, received program files and numerous other administrative functions. This mode does not provide communications with machines.

Single User Screen



Single User/Single Port Display Screen

The above screen is displayed whenever Focal*Point is licensed and configured for Multi-Port DNC but using only a single COM port. It is designed to accommodate installations that use stand-alone computers for each machine center. The displayed selection buttons will invoke the same modules and functions as their counterparts in the standard Multi-Port configuration.

For situations that require a connection to many machines through a single COM port we recommend the "Single Port DNC with Administrative Functions" license configuration

Single Port Screen



Single Port DNC Mode

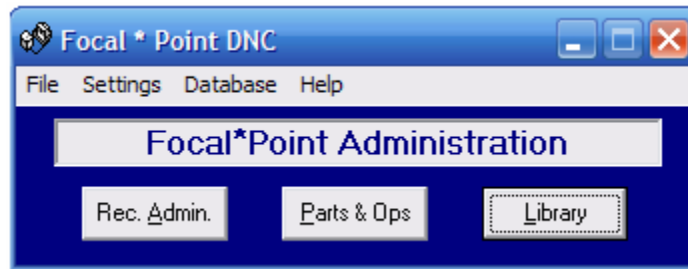
The above screen is a representation of selecting the "Single Port DNC Plus Administrative Functions" mode of operation. This is one of three modes offered in the Settings>Configuration menu. This mode and license configuration is popular for situations where multiple machines with different communications parameters must be configured for use with a single-port laptop computer or when a single-port PC will connect to multiple machines using an A/B style switchbox.

This mode of operation also requires that the user select a desired machine prior to performing I/O functions and is therefore not recommended for automated program transfers. As shown in the depiction above, many machines are listed and each may have its own set of communication parameters as configured in the Settings>Communications section. To select a machine simply highlight the entry and click the "Use Selected Row/Machine for DNC" button. This action will activate the machine communication parameters on the selected COM Port.

To transfer a program to the machine click the "Send" button and select a file from the list of programs released to the machine. Note that a filtered list requires the use NC Program Categories, which are used when importing programs into the DNC program library and as such become associated with and all machines tagged for that category.

The only significant difference with this mode of operation and the standard Multi-Port DNC mode, which connects many machines to dedicated COM Ports, is the restriction of activating only one communications port at any given time. All of the remaining features and functions of Focal*Point are still active. This means that it is still possible to perform remote file requests so long as the machine has been activated previously. This is helpful and eliminates wasted time when multiple programs will be transferred in or out of the machine.

Administrative "Only" Screen



Administrative Screen

The Administration "Only" screen is displayed when Focal*Point is licensed and configured with no communications ability. This mode of operation is used by programmers and floor managers and provides all necessary functions to maintain the DNC program library, Parts and Operation database and the Received File Administrator. This license configuration assumes a role in a larger "shared" DNC network where administration is required amongst several individuals. This configuration cannot be used with Focal*Point Remote software.

Program Overview

Focal*Point™ is a powerful Windows based, shop automation tool. It combines Distributed Numerical Control (DNC) with file management, editing, and the ability to catalog parts and machine operations. By combining these features, as well as those listed below, the sales department can *focus* on part numbers; the CAD department, on drawings; the production manager, on machine operations and job tracking; the CNC operator, on NC programs; and finally, the QA department can *focus* on revision tracking and archiving of certified programs.

In an attempt to merge each of the above interests, CNC Innovations offers Focal*Point as a means to fulfill shop automation needs. And, as the program continues to evolve, you can be sure the focus will always be toward increased productivity and file management utilities that unite the concerns of our customers.

Main Program Display

Port	Machine	Program	ID	Status	Byte Count
1	Okuma	C:\EASYSYALK\et0001.nc	3	Sent	3477
2	Bridgeport			Rec Stby	0

The main screen of Focal*Point is an interactive display of the Port Number, Machine Name, NC Program and DNC*ID, as well as Port Status and Byte Count for the current operation.

These features are combined with our unique Network*Overlay concept. Network*Overlay is essentially a DNC system administrator that can perform important system functions from any workstation on an existing LAN network, and provides easy management of Focal*Point's DNC*Library, Receive File Administrator, and Parts & Operations database. In essence, CNC Innovations's Network*Overlay adds new meaning to the term Distributed Numerical Control.

Another feature termed Automatic Library Transfer allows any LAN workstation (no software required) to automatically add NC programs to the DNC*Library. This feature, while it not only eases file management, will also maintain a history for every auto-transfer operation.

With the addition of these powerful administrative functions, CNC Innovations's Focal*Point DNC provides the tools that transform single computer DNC workstations into network compliant DNC systems. Thus, the often-neglected UNIX programming station has means of control that was previously the domain of only '95, '98 and NT platforms.

Display Buttons



The main display screen also hosts a number of shortcut buttons for opening the DNC*Library and Receive File Administrator, as well as manual Send and Receive file functions. Before transmitting files, first highlight the desired machine connection (if necessary, scroll the machine display using the Up and Down Arrow keys) then select either the "Send" or "Receive" button and follow-through with the file selection or naming process.

Since the majority of machine controls can take advantage of Remote File Requests and upload files automatically through the Receive File Administrator, the "Send" and "Receive" function buttons are generally used for controls with specific communication protocols or for those that cannot output file requests. In the latter case, CNC Innovations offers remote terminal keypads to facilitate the file request procedures.

The "Set Inactive/Active" toggle button will close all communications on the selected port connection. This is a useful tool for resetting the communications port or for preventing unauthorized remote file transfers.

Focal*Point Program Setup

Focal*Point is a highly versatile DNC communications program with a host of features ranging from simple point-and-click file transfer to complex network integrated file maintenance. These features, plus the inherent security of a well-maintained LAN network, require a complete understanding of the setup and configuration of the software.

For this reason, it is recommended that both the installer and a LAN Administrator review the Multi-User Administration, Defaults, and Automatic Library Transfer sections of the Help Topics before proceeding with the software installation.

Setup Overview

The following procedures describe the steps required to install and setup Focal*Point and any additional seats that will be used for DNC administration functions. It should be noted that since Focal*Point can be purchased as a single seat, single port communications package or as an extensive multi-port DNC system with a multiple administrative workstations, there are different setup strategies for each situation.

If you have purchased Focal*Point as a single computer, single port, file manager and editor, you need only install the program by running the setup program from the installation CD and then proceed to the setup instructions below. The only optional point to consider is LAN Connectivity, which is the subject of the next section.

Multi-User Administration (LAN Connectivity)

When Focal*Point is installed as a DNC host with at least one administrative seat, only one workstation should be used to construct the main DNC*Library, the Parts and Operations database, and the NC Program Categories, which are essential to the fundamental operation of the system. This action, plus the setup of the communications section, will satisfy the initial installation of the system and allow for the immediate transfer of NC files.

Keep in mind, to ensure equal access to files in a multi-user environment, always store NC (library) files in a common LAN directory that is mapped with a common drive letter. Furthermore, since the DNC*Library database stores the name and location of imported program files, you should not move files from their location after the DNC*Library is built.

Although the Multi-User Administration feature allows multiple workstations to access the DNC*Library, only one site can have "locked" access to the library at any given time. (Locked access is defined as performing global deletions or modifications.) This is a common but necessary restriction that is used to ensure integrity of the system. This simply means that when a user has finished importing programs into the DNC*Library, he or she should remember to close the library and thereby allow other users have shared access to the library.

Installation Instructions

- Since a common (shared) point of access is required for both the DNC host and a DNC Administrator, you must select an appropriate drive and directory on the LAN network where files will be accessed. It is in this directory that Focal*Point will build and maintain its file library and parts database. Focal*Point DNC hosts (workstations having communication ports) will store received files in this directory and query the library database when processing remote file requests.

After designating the shared LAN directory, make certain that all workcenters, administrators and hosts alike, have sufficient read and write access the targeted LAN directory.

- Install Focal*Point on any workstation by running the install program from the CD's master setup program, or run the setup utility on disk 1 of the installation disks. During the installation process, be sure to select the computer's local hard drive as a destination directory for the Focal*Point program.

For example, selecting drive 'C' will install to C:\CNCINNOV\FPDNC, which is a hard coded destination directory.

- From Focal*Point's main screen select Settings|Multi-User Administration from the menu bar and click the "Enable LAN Connection" check box. Now browse for the Shared Files (LAN) Directory as displayed on the center of the connectivity screen. (The Shared Files Directory is the common LAN directory discussed in the first step.) Finally, enter a unique Cell Name that will identify the seat as a unique entity in the DNC network.

Now repeat the installation for all remaining seats and, again, connect to the Shared Files (LAN) Directory as discussed earlier. Complete the program setup by exiting and re-starting the program.

This concludes the basic installation of Focal*Point with its Network*Overlay administrative capabilities. The next section outlines the preferred setup steps to begin file transfer operations.

Setup Instructions

The following procedure is recommended by CNC Innovations and will provide the quickest route to establishing communications with your machine controls.

Enter your NC Program Categories

Program categories allow Focal*Point to format reports, add security to file transfers, and aid in the creation and sorting of the DNC*Library. Essentially, the NC Category is a tag applied to your machine control(s) communication parameters and NC program files, and serves to unite the files with specific machines. To input these categories, select Settings|NC Program Categories from the main menu and enter all of the categories (file/machine types) that will be used in the DNC system. Note that if the entered categories are highly specific, that is, they apply to only one machine, then only that machine can request programs imported for that category. If, however, the categories are more generalized, then many machines can be configured (tagged) to share the same file type. For example, a category called "Lathe" would be appropriate for sharing files among many machines that share the "Lathe" category. See the Communication Parameters section for applying categories to machines, and the DNC*Library for importing files within a specific program category.

Build your DNC*Library

The DNC*Library is a database listing of every file that is used in the DNC system. It also contains a DNC Identifier (DNC*ID) that will be used for all remote file requests. To build the library, select Database|DNC Library from the main menu and select the "Add Entry" button, or better yet, pull down the Libraries file menu and select "Import Directory" to begin adding NC programs to the main DNC*Library. The "Add Entry" function will add single files to the library while "Import Directory" will add many files. Note: This operation will not duplicate NC program files; it merely builds a list pointing to the location of the files. Furthermore, if additional files are added to your program storage folder, re-running the import function will not duplicate existing library entries. It will only add the new entries.

Note that at this point, you can start file transfer operations if the required RS232 parameters are set.

Enter your Parts and Operations (Optional)

After building the Library, select Database|Parts and Operations from the main menu and enter the part numbers and customer information for each part you manufacture. Include the part revision number and graphic drawing if they are available.

After entering part numbers, highlight the first part number and click the "Operations" button. From the displayed operations entry screen you can add all of the operations used to complete the finished part. As each operation is added, you can specify a DNC Resource file as well as any additional graphics or setup sheets. To add a DNC Resource file simply click the "Add DNC File" button from the Resource Actions section and browse for the appropriate file. To add additional resources click the "Add" button.

Repeat the above steps to add the operations for each part entered in the Parts library.

Hint: Clicking the "Detail" button will display another handy screen that can be used for entering operation details.

Print Reports

That's it! Select Print Ops to generate a hard copy of the Parts database. Printed reports are also a handy reference for the DNC*ID numbers that will be used for remote file requests.

Program Transfers

If you haven't already done so, you must configure each Focal*Point DNC host to communicate with each control. This is readily accomplished at each by opening the Settings|Communication Parameters section and entering the RS232 parameters required for each machine control.

For more information about RS232 parameters, remote file requests and general file transfers, please refer to the Communications Parameters section of the help program and user manual.

Buffer Overflow Warning

When Focal*Point is configured to use the host computer's local serial ports (Comm 1 & 2) or with many USB and PCMCIA serial adaptors, it is important to adjust the "transmit" and "receive" buffers (FIFO) for the serial port hardware. Note that these buffers are not always available and at times may not actually work as described on low-cost hardware. If the default settings are not adjusted you may experience a buffer overflow problem while loading NC programs on older controls.

Resolving The Buffer Problem

To configure your serial port(s) use the following procedures.

- Right-Click the My Computer icon and select Manage
- Select Device Manager from the Computer Management page
- Expand the Ports (COM & LPT) section
- Double-click COM 1 to display its Properties
- Click Advanced on the Port Settings tab
- Set the Buffer sliders to thier lowest setting or Disable the Buffers .
- Reboot the PC

Program Navigation Keys

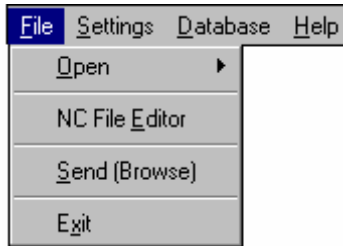
General Navigation Keys

ALT	Displays main menu items such as, File, Settings, Database, Help (F, E, D, H) Use the ALT key in combination with any underlined letter. For example, ALT - F will open the File menu, ALT - E opens Settings, ALT - S the Send dialog. ALT - R the Receive dialog and ALT - L is the DNC Library.
Enter	Selects the currently highlighted item or menu selection.
F1	Opens the Focal*Point help screen
UP Arrow	Move up one item within a display grid or menu item. Also used to sort table items based on the highlighted column. For example, within the Send, Receive, or Library form, highlight DNCID and press ALT - UP Arrow to sort in ascending order.
ESC	Exits the current operation.
ALT-F4	Closes the currently active window. Same clicking the X button
ALT-SPACEBAR	Displays the System menu to select MIn, Max, Close etc.
ALT-TAB	Switch between currently active applications
DOWN Arrow	Same as Up Arrow but sorts in descending order.
LEFT Arrow	Move the cursor left within a table or menu. Will also move left within a tab sequence order.
RIGHT Arrow	Move the cursor right within a table or menu. Will also move right within a tab sequence order.
PAGE UP	Move the cursor up by one page within a table
PAGE DOWN	Move the cursor down by one page within a table.
CTRL - F	Opens the search dialog for items within the currently highlighted column.
TAB	Cycles through all available items
ALT - U	Used by Focal*Point-Single to activate the currently highlighted machine for DNC operations.

Multiple Keys Entries

ALT - F, O	Main Screen Operation - Opens the sample or operating database menu.
CTRL - E	Main Screen Operation - Opens the NC file editor
ALT - F, S	Main Screen Operation - Opens the Send Browse function.
ALT - F, O	Main Screen Operation - Opens the Focal*Point exit menu.
ALT - E, G	Main Screen Operation - Opens the Configuration menu.
ALT - E, D	Main Screen Operation - Opens the Defaults menu.
ALT - E, N	Main Screen Operation - Opens the Program Categories menu.
ALT - E, C	Main Screen Operation - Opens the Communications Parameters menu.
ALT - E, U	Main Screen Operation - Opens the Form Labels menu.
ALT - E, M	Main Screen Operation - Opens the Multi-User Administration menu.
ALT - E, S	Main Screen Operation - Opens the Security menu.
ALT - D, D	Main Screen Operation - Opens the DNC File Library database.
ALT - D, P	Main Screen Operation - Opens the Parts and Operation database.
ALT - D, R	Main Screen Operation - Opens the Receive File Administration
ALT - F, E	DNC Library Operation - Opens a selected entry in the file editor
ALT - F, V	DNC Library Operation - Opens the library file verification operation.
ALT - F, D	DNC Library Operation - Opens the file import menu.
ALT - F, I	DNC Library Operation - Inserts the DNC ID comment line within files for the selected Library category.
ALT - F, R	DNC Library Operation - Removes the DNC ID comment line within files for the selected Library category.
ALT - N, Down	DNC Library Operation - Moves down within the DNC Library "Find" menu.
ALT - N, Right	DNC Library Operation - Moves right to access a sub-menu in the DNC Library "Find" menu.

File Menu Options



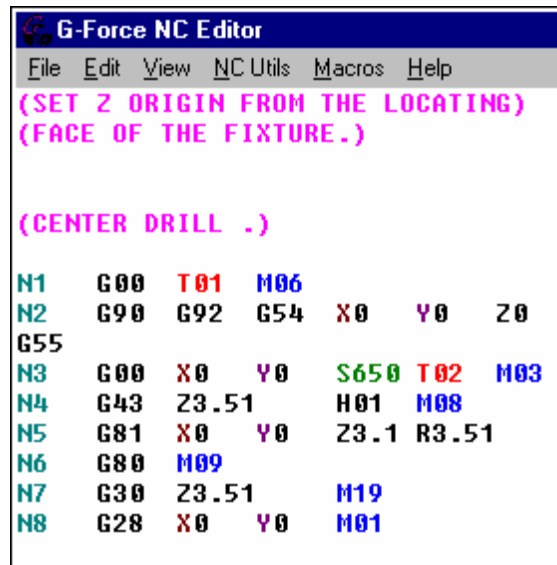
Open

Clicking the "Open" option will allow the user to select a demo database for viewing and training purposes. This is the same database that Focal*Point will use when it can't find an active license on the workstation.

NC File Editor

Focal*Point offers the choice of two internal editors and one external editor, any of which may be activated by a simple selection within the Settings|Defaults menu. By default Focal*Point uses CNC Innovations' standard G-Force Windows editor. This program, which can be purchased as a stand-alone application, provides all the features that experienced programmers and operators have asked for. In addition to regular editing routines, G-Force also includes our unique file compare module, which will quickly find, display, and print all program changes. In practice, the compare module is generally accessed directly through Focal*Point's Receive File Administrator and eliminates the time consuming process of starting G-Force as a separate program module.

As shown above, the NC editor features a tabbed and color-coded program display. The colored display can be permanently configured to highlight specific program elements or program changes that occur during an edit session. For details regarding the programs many features, refer to its on-line help program.



SEND (Browse)

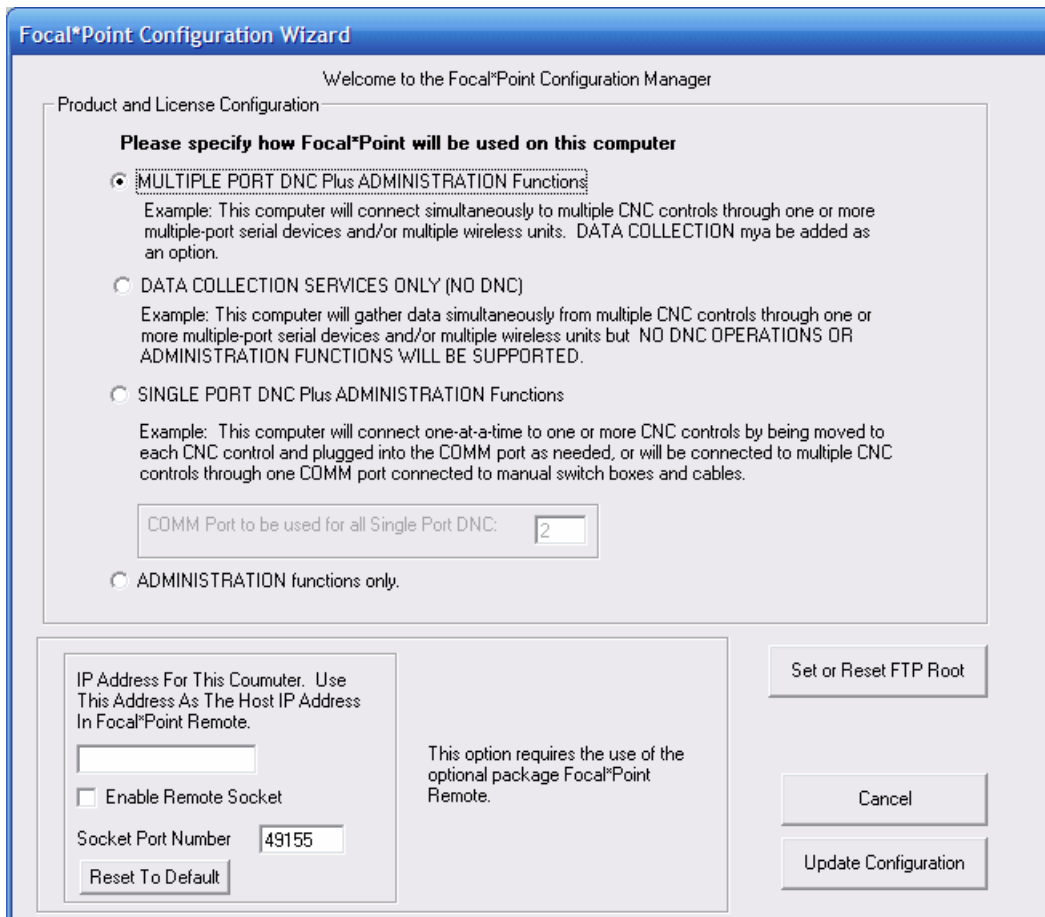
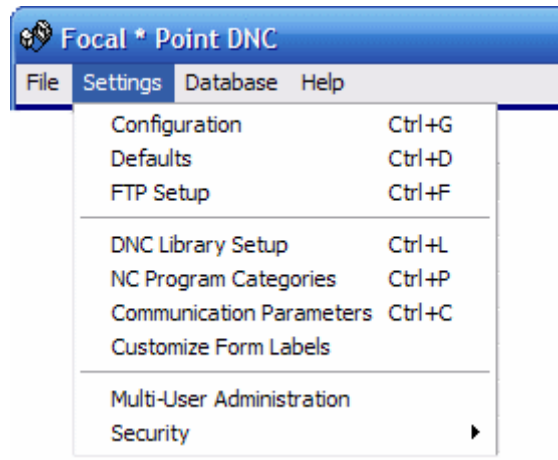
The SEND feature in the File menu will allow a user to select any file from any directory on the computer and queue it for immediate transfer. Unlike the standard "Send" button on the main screen, this feature does not select files from within the DNC*Library. As such, it is especially useful for laptop computers that are temporarily setup for emergency file transfers. For more information, see the section Emergency Backup and Activation Procedures

Exit Selector

As you might expect, clicking the "Exit" selection will immediately close Focal*Point and return control to your operating system.

Settings Menu Options

Program Configuration



Focal*Point Product and License Configuration

Product Selection and License

Focal*Point provides several configuration / licensing options. After the initial installation, the mode of operation must be indicated prior to requested a password key. The modes of operation are as follows.

Multiple Port DNC plus Administrative Functions

This is the standard operating mode when Focal*Point is used as a DNC host connected to multiple machines. This mode is used when several activated machine connections have been purchased with the intent of utilizing external RS-232 communications hubs. Administrative functions are defined as having access to the NC program database, Parts and Operations, and the Received File Administrator.

Data Collection Services Only

Provides configuration for licensiing Data Collection services only. DNC program transfers will not be supported

Single Port DNC plus Administrative Functions

This mode is popular as a replacement for CNC's Easytalk DOS software and for situations where multiple machines with different communications parameters must be configured for use with a single-port laptop computer or when a single-port PC will connect to multiple machines using an A/B style switchbox. This mode of operation requires that the user select a desired machine prior to performing I/O functions and is therefore not recommended for automated program transfers.

Administrative Functions Only

This mode is generally used in conjunction with Multiple Port DNC installations as it affords NC programmers and system administrators the ability to maintain the NC program database, received program files and numerous other administrative functions. This mode does not provide communications with machines.

Remote Socket

By default, this option is not activated, and should only be activated if Focal*Point Remote will be used from a remote location. Focal*Point Remote is a program for viewing communications activity, setting communications parameters and resetting Focal*Point's connection ports. The program is commonly used from the shop floor to re-assign connection parameters when machines are being tested and moved, or for times when it is just necessary to de-activate or reset a communications port.

By enabling this option Focal*Point can link to Focal*Point Remote via the entered socket connection. Note that only one connection is allowed at a given time, and the connection will automatically disconnect after a period of inactivity on the Focal*Point Remote application. If, upon starting Focal*Point, a message is displayed that the connection could not be established, there are two common reasons to explore. The first, and most obvious reason, is that your Firewall is blocking port access. Windows, as well as third-party vendors, will provide a means to allow activity for the given TCP port/socket number. In the example above, verify that TCP port 49155 is an allowed connection.

A second problem may be that the requested port is already in use by another application or service running on your computer. In this case it will be necessary to change Focal*Point's port. Typical TCP port number selections are in the range of 49152 through 65535. Rather than experimenting to find a free port, it is best to first check which ports are currently in use on the computer. This is easily done by running the command-line, netstat program. After opening an instance of the command prompt--usually located in the Programs > Accessories menu--type the following.

```
netstat -ano
```

This will display a list of currently used ports on your computer (Type netstat /? to see a list additional display options). Now simply select an unused port number and replace the default port number used by Focal*Point. After

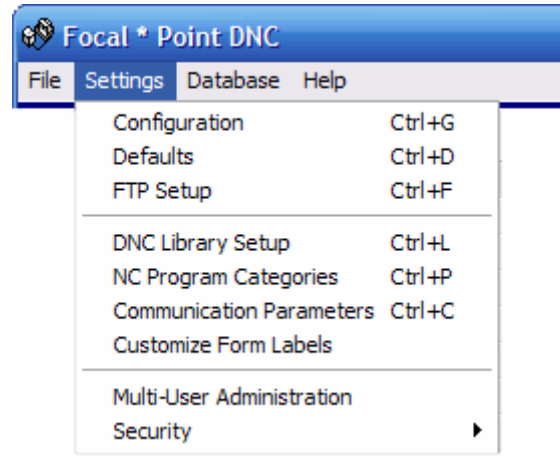
successfully enabling the option, record the displayed IP address and port number, which must be entered in the configuration section of Focal*Point Remote.

As one last possibility, according to Microsoft the following error message may be displayed.

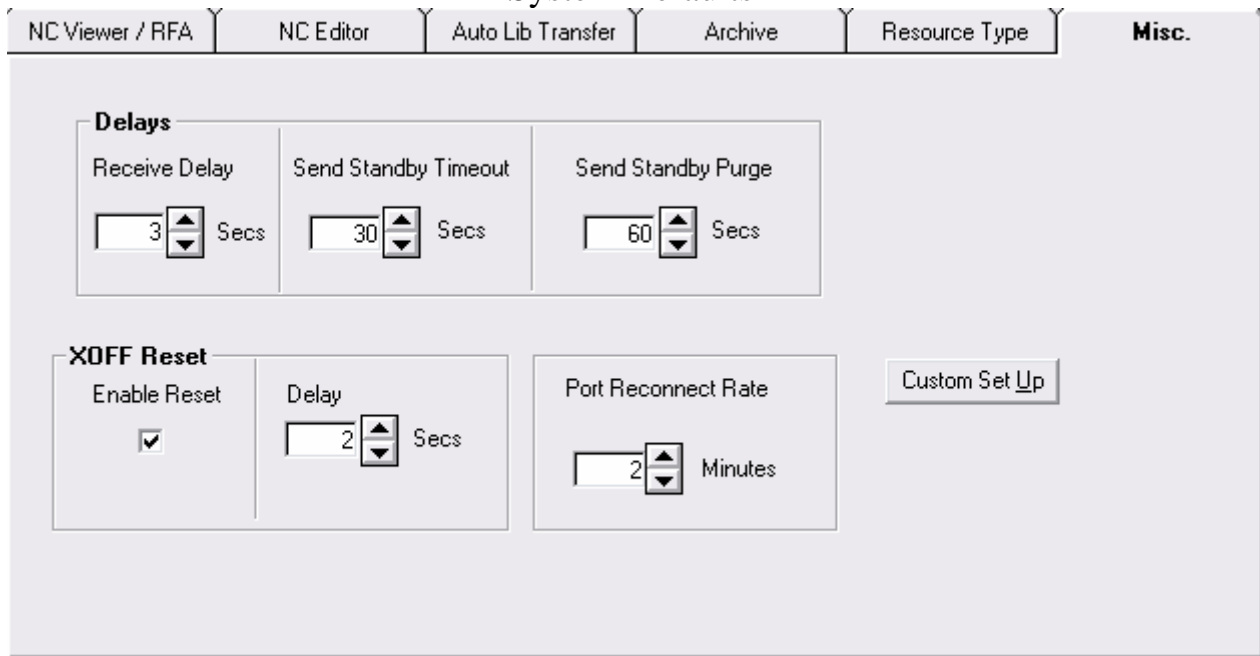
"An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full."

To resolve this problem see Microsoft's article <http://support.microsoft.com/kb/196271>

Defaults



System Defaults



System Defaults is a collection of settings and program paths that are used to configure the mode and operation of Focal*Point. Each category is grouped within a separate tabbed folder. To access individual categories simply click its tab along the top of the Defaults screen.

Miscellaneous Defaults

A configuration panel titled 'Delays' with three columns. The first column is 'Receive Delay' with a spin box set to '3' and the unit 'Secs'. The second column is 'Send Standby Timeout' with a spin box set to '15' and the unit 'Secs'. The third column is 'Send Standby Purge' with a spin box set to '90' and the unit 'Secs'. Each spin box has up and down arrow buttons.

Receive Delay

The Receive Delay instructs Focal*Point to close the current file transfer after a specified time of port inactivity. This time-out, which is usually set to a minimum period, allows Focal*Point to assume that an incoming program has been completely transferred. The active port is then reset and placed in Receive Standby.

Send Standby Time-out

The Send Standby Time-out is an override feature for Remote File Requests. Each machine connection may be individually set to use this timeout by clicking the option in the Advanced Options section of the Communication Parameters. If enabled, a remote file request will commence transfer after the specified time-out period. This feature is required only for controls that Do Not exert an RTS or X-ON signal when initiating a program load.

Send Standby Purge

The purge delay is a global countdown delay used by any connection that has enabled the Use Send Standby Purge option located in the Communications Parameters\Options menu. When activated, Focal Point will clear the communications port if a queued program remains in Send Standby in excess of the specified purge period. Note that this option is especially useful when Receive File Confirmation is enabled (see Communication Parameters). The purge feature is also useful on any system where operators mistakenly send multiple file requests before a program is properly queued. In these situations, the operator is actually buffering the DNC system from receiving the control's Xon start code. This causes many operators to mistakenly believe that Focal Point is hung up. With this option enabled the operator need only wait for the timeout period to expire and then output the remote file request as if for the first time. It must also be remembered, however, that any remote file request must be completed within the purge timeout period.

A configuration panel titled 'XOFF Reset'. It has two sections. The first section is 'Enable Reset' with a checked checkbox. The second section is 'Delay' with a spin box set to '2' and the unit 'Secs'. The spin box has up and down arrow buttons.

XOFF Reset

The XOFF Reset provides compatibility with different port hardware configurations, i.e., RocketPort and DigiBoard hardware on `95 or NT platforms. In general, it will not be necessary to change the default "ON" setting. Although, if you experience port lock-up during remote requests, it may be necessary to change the delay value. Before doing so, however, it is recommended that you contact CNC's Technical Support staff to verify the nature of the problem and the proper use of the XOFF Reset function.

Default Option Buttons

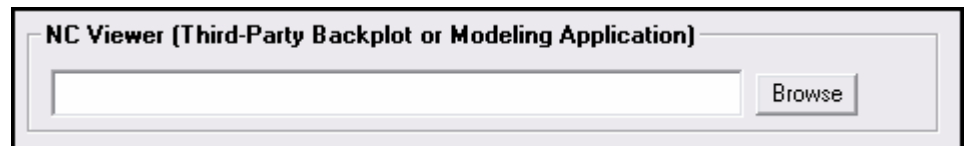


The Default Menu contains an option to print the default values as entered in each of the default fields. In case of computer failure these values should be printed and stored along with the Communication Parameters for each machine on the DNC network. When Focal*Point is supplied with a network HASP, an additional "Config ID" button will be displayed. Although Focal*Point will ask for the initial ID when it is first run with the network security key, the user has the option of changing the ID number. When manually changing the ID number be sure to review the number of active DNC ports allocated for the new ID. These ports are specified using the Customer Update Utility software that is shipped with the network Hasp.

NC Viewer / RFA Described

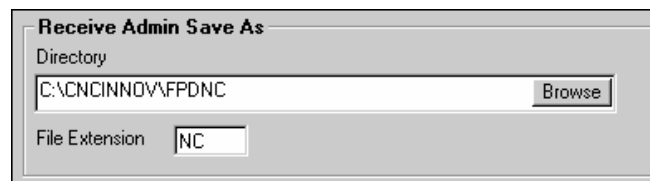


NC Viewer Directory



The NC Viewer application field is used to designate the software used for validating or modeling NC program code. Although you may specify any software, the application must accept DNC*Library path and file names as a command line argument.

RFA Save Directory



The Receive File Administrator acts as a watchdog for incoming program files. As such, it offers two options for saving captured files: save them by overwriting the original program and a 'Save-As' for creating new files. To simplify the organization of programs when using the Save-As feature, Focal*Point allows you to designate a default directory and file extension for all Save-As files.

Note: Focal*Point will not create the Save-As directory; it must be an existing directory.

NC Program Editor

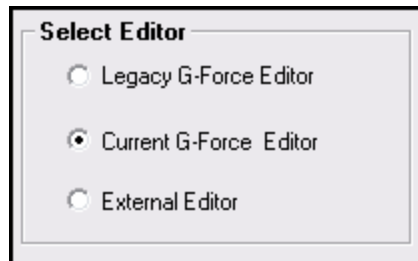


NC Editor Directory



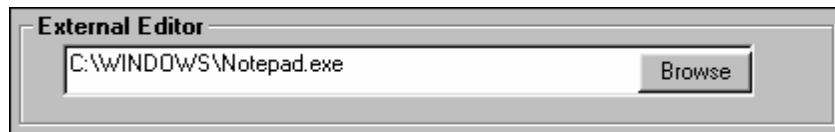
Enter a default directory for use by the NC Editor. This directory does not specify where the editor is located. It only acts as a default directory for many of Focal*Point's file manipulating functions.

Editor Selector



The editor selector option allows you to pick between Focal*Point's legacy G-Force editor, the current G-Force editor, or an external editor of your choice. When selecting an external editor be sure to enter its path and program name in the editor window as shown below.

External Editor



Automatic Library Transfer



Auto Library Transfer Folder	<input type="text" value="C:\CNCINNOV\FPDNC\AUTOLIB"/>	<input type="button" value="Browse"/>
Auto Library Log and Error Folder	<input type="text" value="C:\CNCINNOV\FPDNC\AUTOLIB\ERR"/>	<input type="button" value="Browse"/>
Auto Library Relocation Folder	<input type="text" value="C:\CNCINNOV\FPDNC\AUTOLIB\RELOCATION"/>	<input type="button" value="Browse"/>

Automatic Library Transfer (ALT)

Optional

*Caution: Focal*Point automatically creates the transfer folders Autolib and Autolib\Err in the FPDNC directory. It is important that these two folders be used only for their intended purpose. That is, for the automated transfer and entry of files into the DNC*Library. It is not recommended to use the root folder of any drive since it would be difficult to prevent users from creating additional files and folders. not related to the ALT function. if you alternate folders on a common LAN drive are used, make certain that they empty before clicking the "Enable" button.*

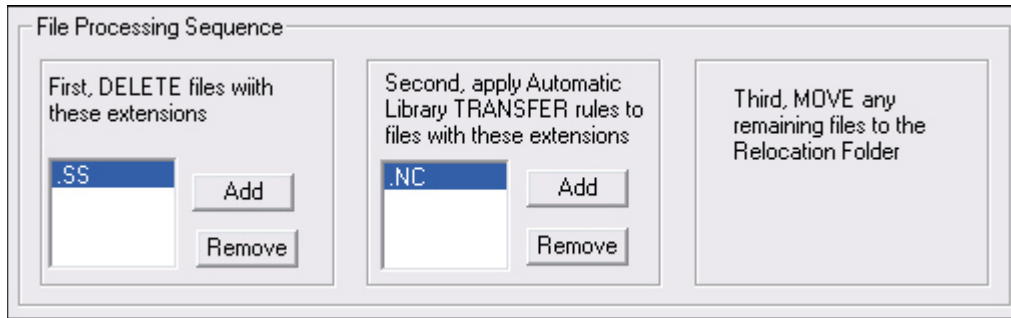
This ALT function allows any remote LAN workstation to add new NC programs to Focal*Point's DNC Library. The Transfer folder (shown above) designates the main folder where programmers will place newly created NC programs. This folder is automatically scanned by Focal*Point and files are processed according these default settings and also by rules of the ALT function. Be sure to read and understand the functional overview of the Auto Library Transfer function before activating the ALT feature.

The Log and Error folder is the location chosen for storage of any programs that fail to transfer correctly. Again there are very specific rules for successful transfer of programs as described in the Auto Library Transfer overview. This folder also contains a log file named, FPAFT.txt, containing information about both successful and failed program transfers.

The Relocation folder provides additional functionality and is described below. Also note that since read and write permissions may be dependant upon user privileges, it is important that this is taken into consideration when setting up the Focal*Point workstation. Furthermore, when configuring DNC networks with multiple Focal*Point seats, only ONE workstation can be assigned the duty of scanning the ALT transfer folder. This function is designated within the Multi-User Administration window of the Settings menu. It will be necessary to enable the LAN connection, specify a shared folder--which can be the default folder--enter a cell name and finally activate the ALT administrator role. If the option is grayed out it is an indication that another workstation has already been assigned the duty.

Additional Notes:

If a machine's communications parameters are configured to use the "Bypass Receive File Administrator" function, the ALT "Error" folder will be the storage location for any programs that do not contain the requisite DNC ID comment line. If you find that operator uploaded program revisions are not overwriting the original files as intended, be sure to check the Error folder and verify that the programs contain the DNC ID comment line according the ALT rules. (A related feature for using Bypass RFA is located in the Archive tab as described below.)



Default Processing Explained

By default the Delete files section will be empty and the Transfer rule will be applied to files using the dot wildcard (.*) designator. Using these settings all files placed in the Transfer folder will be processed according to three comment lines which should be located within each program. If a program transfer fails the file will be moved to the Error folder and a log entry will be created.

If it is known that the program posting process will create additional files such as .SS files, they can be tagged for deletion and Focal*Point will simply delete all files with the .SS extension. Additionally, if your preference is to save added files they can be moved to the Relocation folder by simply specifying what file extensions qualify for normal ALT transfers. That is, in the above example, the main transfer folder is first scanned for .SS files. If found they will be deleted. Next, all files with the .NC extension (notice that the default .* extension has been removed) will be processed according to the ALT rules. Lastly, any files the do not match either the Delete or Transfer qualifier will be moved to the Relocation folder. By simply removing the .SS extension all files other than .NC will be moved to the Relocation folder.

If at any time you wish to revert to Focal*Point's default setup, simply remove all Delete and Transfer file extensions and add the .* extension as the only transfer qualifier.

File Archive Mode

A screenshot of a configuration window titled 'File Archive Mode'. It contains three sections, each with a title and a list of options:

- Manual Receive File Administration**:
 - Enable Archive On Manual Receive File Administration As Specified Below
 - Automatically Archive All Files Before Overwrite
 - Prompt User With Yes/No Choice Each Time A File Overwrite Action Is Selected

- Bypass Receive File Administration**:
- Enable Automatic Archive On Bypass Receive File Administration
- Automatic Library Transfer**:
- Enable Automatic Archive On Automatic Library Transfer

Manual Receive File Administration

This feature works in conjunction with Focal*Point's Receive File Administrator (RFA). When enabled, Focal*Point will automatically save (archive) original DNC*Library files whenever the file is targeted to be overwritten by a new file from within the RFA. Focal*Point will archive the file in the following way. Before overwriting the original file, Focal*Point will search for a directory named FPArchive on the target drive. If it does not exist, Focal*Point will attempt to create the directory. Keep in mind that operating system and network privileges may stop Focal*Point from creating this directory. In such a case it will be necessary for your network administrator to manually create and administer read and write privileges for the FPArchive directory.

If the FPArchive directory exists, Focal*Point will create a sub-directory named in the same fashion as the original file's directory and save the original file with a numerical sequence number attached to its name. For example, if the original file name and its path are represented as F:\ncfiles\lathe\1234.nc, Focal*Point will save the file as F:\FPArchive\ncfiles\lathe\1234(001).nc. Each time the 1234.nc file is archived the sequence number will increment by one, i.e., 1234(002).nc, 1234(003).nc etc.

Note that all new file names will attach a sequence number that begins at (001), and source file directories will be duplicated only one time within the FPArchive directory. This manner of archiving will allow for easy sorting, review and retrieval of archived programs.

Of the two modes of archive depicted in the above graphic, selecting "Automatic" will force all overwritten files to be archived. When the "Let User Choose" option is selected, a prompt will be displayed that allows the user to decide file archiving on an individual basis.

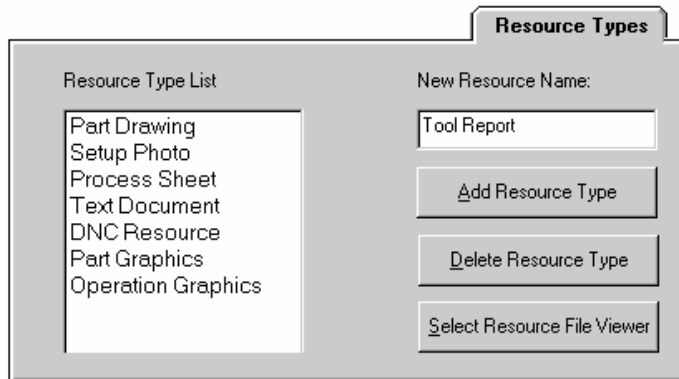
Bypass Receive File Administration

Selecting this option will allow program archive for each machine that is set to "Bypass Receive File Administration" in the Options section of the Communications parameters. This is useful for shops that allow operators to refine programs, upload them, and save them as the accepted master program.

Automatic Library Transfer

This option will enable archiving when programmers use Automatic Library Transfer to add files to the DNC*Library.

Resource Types

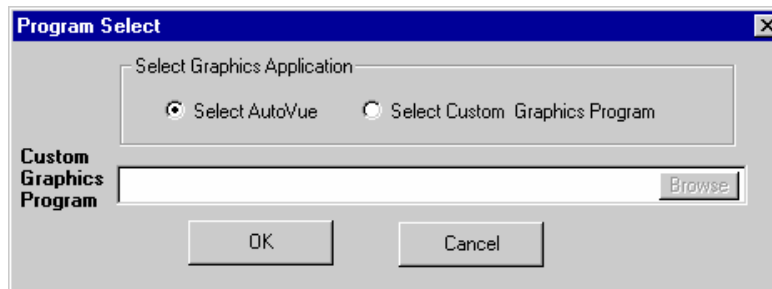


Resource Types

Aside from the cataloging and transfer of NC programs, Focal*Point has the ability to link associated resource files such as, Graphics, Photos, CAD Drawings and Process Sheets to individual machine operations. The "Resource Type List" is built according to your company's requirements and in-house terminology. After developing this list, Focal*Point's Part and Operations database can be populated with the above mentioned drawings and photos.

Note that in order to view these resources you must specify a Resource File Viewer as shown below. The viewer can be any graphics program capable of displaying files in your resource list. However, for ease of operation CNC Innovations offers a direct link to Cimmetry Systems' AutoVue** program. With AutoVue, you can view documents from well over 150 file formats, including word processor files. For more information contact CNC Innovations' Sales Dept. at 508-523-1763.

Also note that when specifying a third party viewer other than AutoVue, the software must be capable of accepting a command line argument containing the name of the file to be viewed.

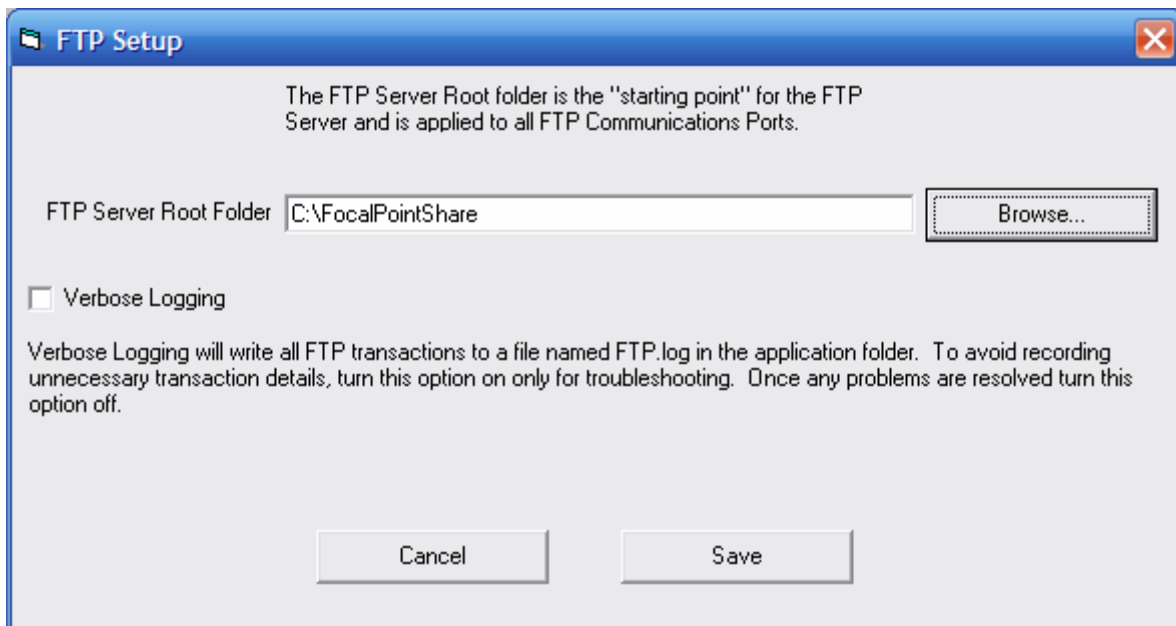
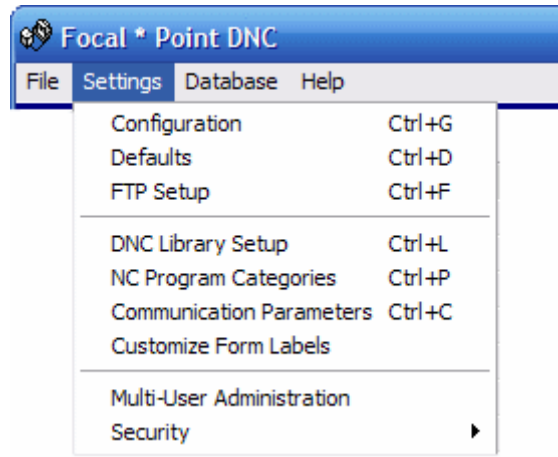


Specifies the location of a Resource File Viewer

In all cases, when specifying a graphics viewer, AutoVue included, use only the "Custom Graphics Option." The AutoVue option will only work in conjunction with a NetHasp security key.

** AutoVue is a registered trademark of Cimmetry Systems, Inc.

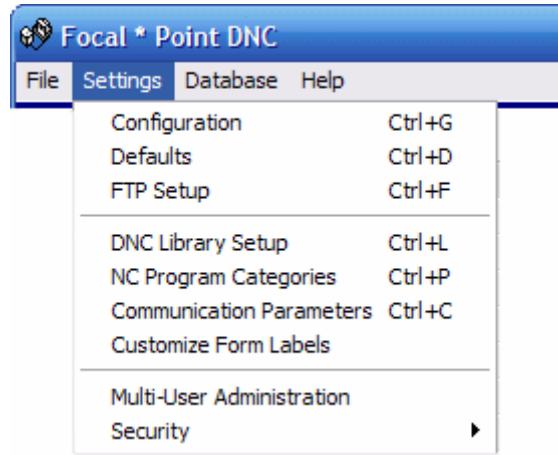
FTP Setup



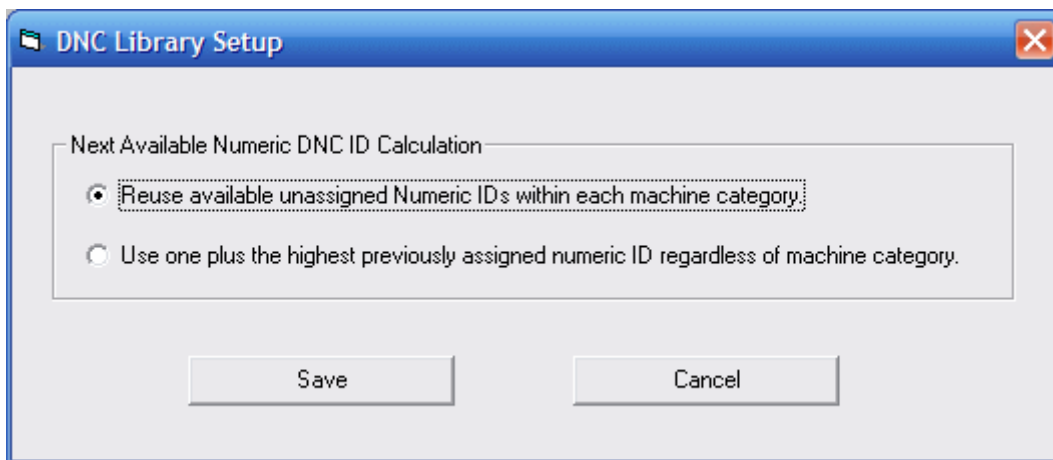
Prior to using FTP for transferring machine programs, it is necessary to specify a Root FTP folder. The Root folder represents the highest level folder that an FTP client may navigate to during an FTP session. Use the Browse button to select the desired folder. Keep in mind that all FTP folders should be located within sub-folders of this location. Once the Root folder has been selected you can then select machines to use the FTP option from within the Settings>Communications Parameters page. Enable the Verbose logging option to capture FTP commands when troubleshooting an FTP connection. When activated Focal*Point will create an FTP.log file located in the \cncinnov\fpdnc folder. Be sure to turn logging off when it is no longer needed

The Root Folder is the "highest" level in the folder "Tree" that you can navigate to. For example, to restrict FTP navigation to "C:\FocalPointShare" and not allow the user to browse into the "C" root folder you can set the Root Folder to "C:\FocalPointShare". Managed folders and Timer Folders restrict you to the specified folder anyhow so you can just set the value to "C:"

DNC Library Setup



Numeric DNC ID Calculation Method



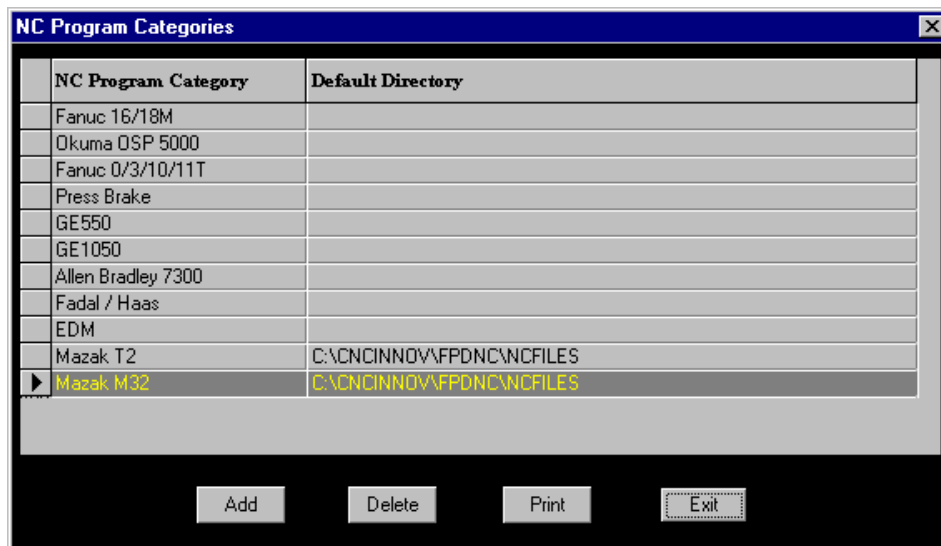
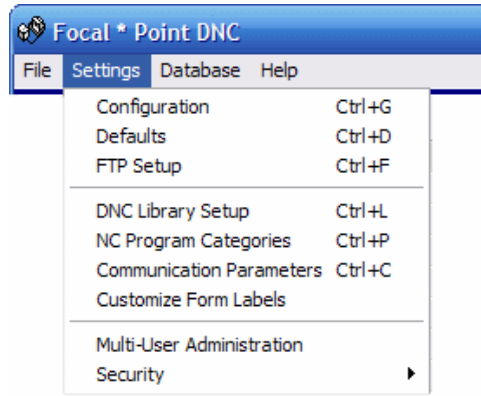
Among the numerous methods provided for creating or manually inputting a DNC Library ID tag when adding entries in the DNC program library, there are two distinct methods for creating what is called the Next Numeric ID. As this setting effects both the Library Entry form and Auto Library Transfer function, only one method can be selected as the system default.

The option to reuse unassigned IDs will parse the DNC program library for unused numeric IDs and offer suggestions based on available numbers. This is useful when library entries have been deleted and expect to be re-assigned or when previous IDs exist in random order.

The second option will parse the library for the highest ID number and then increment by one. This method is useful for compatibility with older versions of Focal*Point.

Note that this setting only affects the numeric ID creation and does not impact extracting a numeric ID from a file name. It is also used as the basis for ID creation when using Auto Library Transfer with the option to use the next available numeric ID.

NC Program Categories



One of the first steps when configuring Focal*Point is to enter the NC Program Category information. By linking each machine to a specific program category, Focal*Point will have a powerful means to control file distribution, sort window displays, and format printed reports.

Before entering categories, first determine the level of file sharing or restriction that you want to employ for each machine in your network (Each machine will be assigned one of these categories). Entering highly specific information for each station, such as "Work Center 1 Lathe," will restrict the operator's remote requests to NC programs tagged with that category. Likewise, a program category of "Lathe" will allow file sharing among all work centers assigned to category "Lathe."

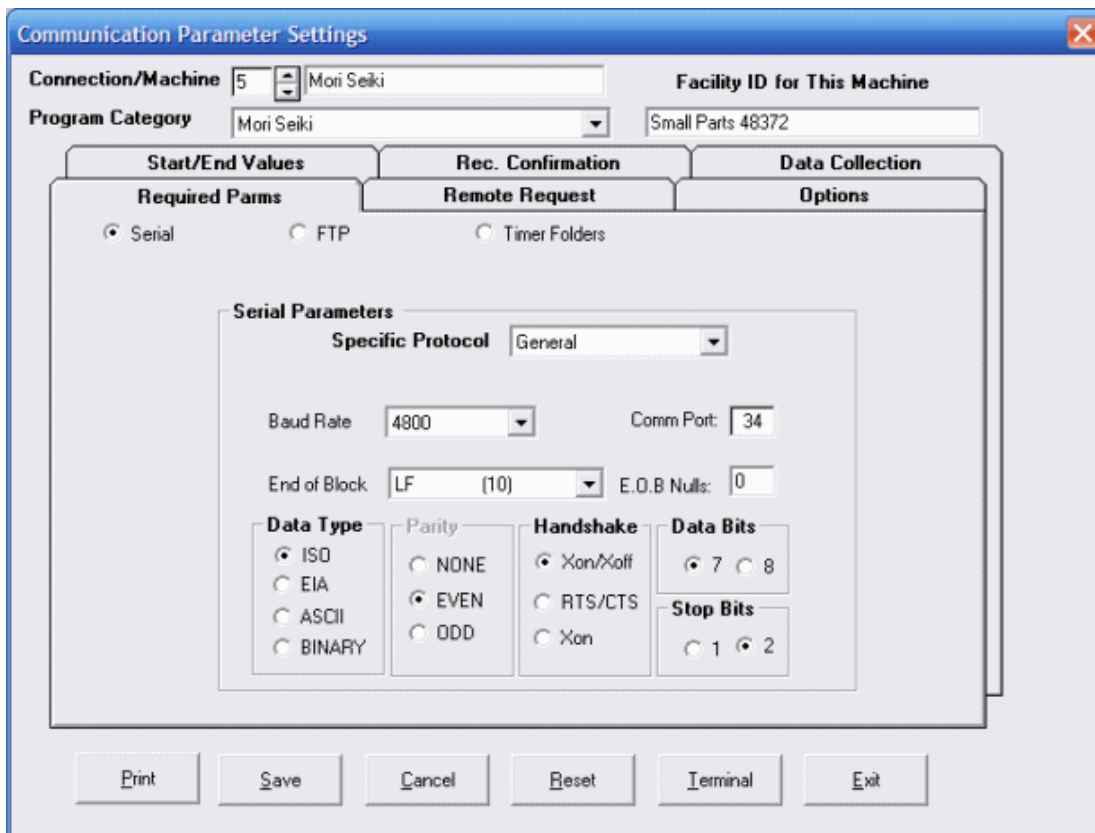
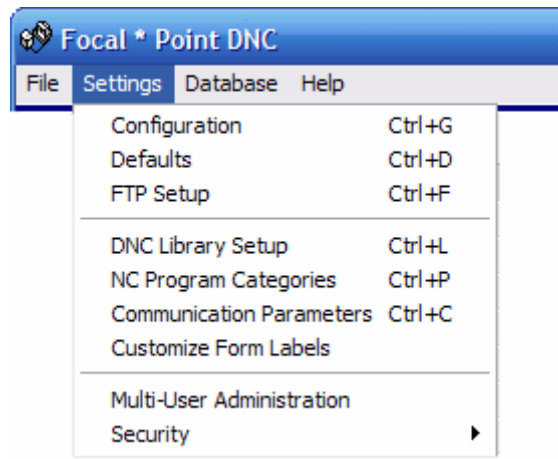
Keep in mind that both the machine communication parameters and the DNC*Library files must contain a NC Program Category definition before this feature can take effect. To enter a NC Program Category simply click on the "Add" button in the windowed display and enter the pre-determined category name. Since Mazak CMT files must bypass the Receive File Administrator, the additional program directory is generally used only for Mazak controls. The specified directory will be used to store new Mazak program files as received by Focal*Point. If a directory is not entered then the default \FPDNC\NCFILES directory will be used.

If a program directory is entered for non-Mazak controls, that is, those that take advantage of the Receive File Administrator, the file "Send" and "Receive" function will default to the associated directory.

Note that if an entry is deleted from NC Program Categories, Focal*Point will also remove all assignments of the category in the DNC*Library and the Communication Parameters section.

Settings Menu

Communication Parameters



Main Communications Setup Page

The main communications page provides for naming and classifying your CNC equipment, as well as the communications method used by the machine control. Listed below is a description of each the parameters and options available when building a robust and effective DNC system.

Machine Name and Category

Connection/Machine	5 <input type="text" value="Mori Seiki"/>	Facility ID for This Machine	
Program Category	<input type="text" value="Mori Seiki"/>		<input type="text" value="Small Parts 48372"/>

Connection/Machine

Each numbered and active machine connection can have a corresponding machine name. For easy identification, the machine name is then displayed on Focal*Point's front page, machine grid. To change the displayed name, simply place the cursor within the Machine label section and type the desired machine name. Please note that when exiting the Communications setup page, it may be necessary to restart Focal*Point in order to refresh the machine display grid.

Facility ID

The Facility ID is simply an identification label. It can be used for corporate identification and Advanced Data Collection.

Program Category

A Program Category may be designated for each machine in order simplify program selections for transfer, to add security to file transfers, sort display windows, and format printed reports. By identifying each machine connection with a specific category, you can apply file transfer restrictions to your DNC network. In the above example, the Mori Seiki machine is restricted to DNC Library files associated the Category of Mori Seiki. Program Categories must be created before they can be applied to a specific machine. See - System Defaults > Program Categories

Basic Communications Mode

Required Parns	Remote Request	Options
<input checked="" type="radio"/> Serial	<input type="radio"/> FTP	<input type="radio"/> Timer Folders

Focal*Point provides three main methods to facilitate NC program transfers to and from each machine control. They are Serial, FTP and Timer Folders. One of these three methods must be selected prior to configuring the remaining communications settings. It is only necessary to configure the settings directly associated with the selected communications mode. The remaining settings may be left in their default state.

Serial

The most often used mode will be Serial. This represents the common RS232 mode for program transfers. It is most often seen as a DB9 or DB25 connector located on the control panel or on third-party BTR devices. Most of this help page describes the serial mode and its many options. See RS232 Functional Description listed below.

FTP

The FTP option stands for File Transfer Protocol. This method of transfer is seen on modern controls and utilizes the Local Area Network (LAN) for program transfers. Since this method is inherently different from serial, it is described within its own section. For more information see the section labeled FTP File Transfers

Timer Folders

Timer Folders is a variation of the FTP file transfers method. This option works in combination with proprietary third-party, FTP servers by monitoring the server's transfer folders. By using the Timer Folders option, Focal *Point has the ability to manage programs and remote file requests in much the same manner as the Serial and FTP Managed folder options. For more information see the sections labeled Timer Folders.

RS232 Functional Description

Specific Protocol



Specific Protocol is an option for the RS232 serial parameters only. It is a drop-down window that offers alternate communication protocols used by certain manufacturers. The default General protocol is used for all standard connections, while Mazak CMT is used for communicating directly with a Mazak CMT port. When communicating with CMT be sure to use the main screen "Send" and "Receive" buttons to initiate file transfers or use a remote hand terminal as supplied by CNC Innovations. When receiving a file from a Mazak control, be sure to name the file with an MZP extension. By doing so, the software will recognize the program as "Mazak CMT" when displaying the received file's attributes. Additional protocols include Heidenhain Blockwise, Bridgeport DNC Link, GE2000, Moog S-24, and Kearney & Trecker (K&T).

Baud Rate



The Baud Rate refers to the speed at which two RS232 serial devices are communicating. It is important that both devices are set for the same speed before attempting any communication.

Comm Port

The Comm Port selector will assign an active communications port for the displayed machine connection. Active Comm ports can either be resident serial ports (Com. 1 & 2) or add-on ports such as RocketPort or DigiBoard hardware. When using add-on ports, be sure to designate the first machine connection as Com 5 or higher. Add-on ports should never start at Com. 1 since there would be an obvious conflict with the existing PC hardware. Furthermore, each machine connection must have a dedicated port. That is, it must not be used by any other device such as a modem or mouse. Refer to your Windows help documentation and the System Device Manager for details about Com Ports available to your PC.

End of Block

End-of-Block conversion is a drop down window offering a list of line terminators that are used to match each control's program block terminator. For example, if the control outputs line feed as its end-of-line character, select

Line Feed (10) as the End-of-Block. With this selection Focal*Point will automatically add a Carriage Return to incoming data which will result in a useful and readable format in the program editor. On program output, the dual End-of-Block will be converted to line feed only.

E.O.B. Nulls

The E.O.B. (End of Block) Nulls parameter will generally be set to 0 (zero). It is supplied for compatibility with Bridgeport 3 & 4 controls that may require an end-of-block delay. The E.O.B. value can be set between zero and sixty-four (0-64). Generally, a value of 50 will act a good starting number, and, if necessary, the value can be lowered in accordance with simple experimentation.

Data Type

Select the language Data Type to match each control's setup. Most controls utilize ISO, a sub-set of the ASCII language. Also included are EIA, 7-bit ASCII and Binary. The Binary protocol is generally reserved for the transfer of Executive programs, this is especially true when communicating with a BTR interface.

Data Type	Parity	Handshake	Data Bits
<input checked="" type="radio"/> ISO	<input type="radio"/> NONE	<input checked="" type="radio"/> Xon/Xoff	<input checked="" type="radio"/> 7 <input type="radio"/> 8
<input type="radio"/> EIA	<input checked="" type="radio"/> EVEN	<input type="radio"/> RTS/CTS	Stop Bits
<input type="radio"/> ASCII	<input type="radio"/> ODD	<input type="radio"/> Xon	<input type="radio"/> 1 <input checked="" type="radio"/> 2
<input type="radio"/> BINARY			

Parity

Select None, Odd or Even parity to match the parity selected on the machine control. The data parity is automatically selected and is an integral part of the ISO and EIA Data Types. In contrast to the control parity, the parity bit common to most RS232 data streams (computer to computer) is appended to each data byte and is then stripped off by the device's UART (port hardware). In both cases, the data parity is used as a simple error-checking device

Handshake

Select Software (X-on/X-off) or Hardware (RTS/CTS), pins 4 and 5 of the Db25 connectors, for the communication flow control used by each machine tool. During remote file requests the requested file is held in queue until the receiving device asserts either of these two signals. For machine controls that do not assert these signals, refer to the Send Standby Time-out option.

If your machine control reports a data overrun or buffer overflow alarm, it is probably the result of an incorrect handshake or end-of-block line terminator. In some cases it may be the result of the Com. Port's FIFO buffer. In the latter case, refer to the instructions listed in the section entitled, Program Setup.

The third option, Xon, is for compatibility with Mazak CMT and controls that transmit a Xoff character after receiving an MO2 or percent sign. This unique combination can manifest a problem of ignoring the next remote file request. Due to the nature of this handshake, however, it can not be used for controls that are drip-feeding or those that require flow control during the load procedure. Before using this option, first enable the "Strip Trailing End of Blocks" option as described below. In most cases this will resolve the problem.

Data Bits

The Data Bit selection is automatically selected for both ISO and EIA data types. Select either 7 or 8 data bits for ASCII and always use 8 for Binary transfer.

Stop Bits

The Stop Bit selection offers either 1 or 2 bits and is usually set according to the machine control's settings. In most cases, if the sending device is set for 2 stop bits and the receiver is set for 1 bit, normal communication will result. However, reversing this situation will almost always cause framing errors during the data transfer. For this reason, it is best to confirm the stop bit selection for both devices, especially when errors occur in one direction only.

Remote Request Tab

Required Parm	Remote Request	Options	Start/End Values
NC Program Qualifier String:	:	1111	
Continuous Feed String:		LOOP	
Request Code:		T	
Redirect Code:		*	
Key Pad:			
<input checked="" type="checkbox"/> Enable Remote Printing To:			HP LaserJet 5P (LPT1:)
<input checked="" type="checkbox"/> File Not Found Message:			<input type="button" value="Edit Message"/>

Configures the operation of remote file requests

NC Program Qualifier String

The Qualifier String (usually a short program identifier on the first line of the remote request program) acts to signal the DNC software that the incoming data is a request for a specific program file. Users of CNC's Multi-Task program will recognize that Focal*Point combines the previous Qualifier and Remote Number into one Qualifier String. This change will not affect previous calling conventions. In rare cases, it is possible to leave this field empty, and trigger a file request directly from the "Request Code" as described below.

Continuous Feed

The Continuous Feed variable, which may be used within a remote request file, allows you to designate a word or combination of characters that cause the requested file to run from beginning to end in an endless loop. In the above example, the word "LOOP" is designated as the trigger variable for running a file continuously. Keep in mind that when looping through a file it is important that rewind/stop codes such as M30 are not used in the file. Finally, this variable must be placed after the program request line as shown in the example below.

Request Code

The Request Code, usually the ASCII character "P," precedes the program file's DNC*ID number, which acts as pointer to the file as referenced in the DNC*Library. Note that both the Request Code and Qualifier String can be changed for each machine in accordance with the machine control's ability to output the default control codes

Redirect Code

Remote file requests can be performed for controls that do not have the ability to output a request file. By entering a

unique character as a redirect code, a remote request containing the code and a target port connection will automatically have the requested file queued for the alternate machine. The only restrictions are that the code must be on the line following the program request, and the requested file must be a member of the target machine's designated program category. See the example below for more information.

Key Pad

The Key Pad parameter is only used when an Easytalk, RTE-1000, QTerm (QSI) or Burr-Brown terminal is added to the system. By selecting the appropriate keypad, Focal*Point will recognize remote requests that are issued by these devices. In the case of the QTerm Keypad, remote requests can be issued for alternate machine connections. For example, a typical request on the QTerm Keypad would take the form of, IN*1234, where 1234 represents the file's DNC*ID. To redirect the file to a different machine simply add a Pound Sign (#) plus the machine connection number. Therefore, IN*1234#17 would queue 1234 on port connection 17. Note this technique can also be used for file uploads.

When using Easytalk on a remote computer terminal, be sure to set Focal*Point for a hardware handshake (RTS/CTS) or use the Send Standby Timeout feature and set the Keypad entry to QSI. Also, the RTE-1000 BTR will require a Request Code of "T" and a blank Program Qualifier String.

Enable Remote Printing

This feature specifies the printer used for printing associated Part and Operation resource files when a remote file request is received. Note that only files that have been tagged for Remote Printing will be routed to the specified printer. For more information about tagging resource files see Parts and Operation resource attachments.

File Not Found Message

Highlight this entry and click the "Edit Message" button to create a custom message for a failed remote request. This message will be transmitted in place of the missing file and will serve as a warning to the operator that the request cannot be honored.

Sample Remote Request

The following sample program assumes that the user is requesting the program 4532672.NC, which is in the DNC*Library and has a DNC*ID # of 35.

Program Output From The Machine Control

```
O1111      - Qualifier String
P35        - Program Request (DNC*ID # 35 preceded by the request code 'P') **
LOOP      - Continuous Feed Variable
#13       - Optional Redirection Code to Port 13
M30       - Program Stop
%
```

** The program may contain two consecutive request lines. Focal*Point will concatenate them into one request. For example, P35 followed by P6789 will result in a request for P356789.

In the above example, Focal*Point will first verify the program as a file request by confirming the presence of the Qualifier String. Next it will extract the DNC*ID number 35 and prepare its associated program for transfer on the redirected port #13. The NC file will commence transfer when Focal*Point receives either a software or hardware handshake, or after a specified Send Standby Timeout period as defined in the Defaults section. Furthermore, by the inclusion of a continuous feed variable, the program will transmit (loop) continuously as though it is a program on loop tape. For more information be sure to review the Remote Request Procedures in Focal*Point's help program.

Options Tab

Required Parm's	Remote Request	Options	Start/End Values	Rec. Confirmation
Advanced Options <input type="checkbox"/> Strip Header on Incoming Data <input type="checkbox"/> Bypass Receive File Admin. <input type="checkbox"/> Use Send Standby Timeout <input type="checkbox"/> Ignore Incoming Data while Sending <input checked="" type="checkbox"/> Strip Trailing End of Blocks <input type="checkbox"/> Handle Framing or Parity Errors <input type="checkbox"/> Use Send Standby Purge <input checked="" type="checkbox"/> Purge If Sending and Inactive For <input type="text" value="10"/> Seconds DO NOT use this option for machines running in Drip-Feed Mode. <input checked="" type="checkbox"/> Enable No-Wait Read		Compression Options <input type="checkbox"/> Comments <input checked="" type="checkbox"/> Spaces <input type="checkbox"/> Line Numbers <input checked="" type="checkbox"/> Tabs <input type="checkbox"/> Character (ASCII Value): <input type="text"/> <input checked="" type="checkbox"/> Strip Header on Outgoing Data End of Outgoing Header (ASCII Values): <input type="checkbox"/> EOB <input type="text" value="37"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		

Advanced Setup Options

Advanced Options

The Options section of the Communication Parameters has the following features as described below.

Strip Header on Incoming Data

As its title suggests, this option will strip program header information from incoming programs. That is, it will skip all data up to the first end-of-line character.

Bypass Receive File Admin.

When this option is enabled for a machine connection, it allows incoming files from the designated machine to bypass the Receive File Administrator and overwrite an existing program file. The rules for a successful bypass are similar to those of the Auto Library Transfer function. That is, the incoming program must already contain the DNCID comment line that identifies the original program and its location as specified in the DNC library. If the incoming program does not contain a valid DNCID for the machine and its specified Program Category the new program will be transferred directly to the Auto Library Transfer "Error" folder. For more information about using this feature, see the section Automatic Library Transfer.

Use Send Standby Time-out

This option is generally used in conjunction with remote program requests. As always, when an operator requests a program it is placed in queue (Send Standby) until Focal*Point receives either an X-on or RTS start command from the machine control. Since some older controls will not output these start commands an automated send method is required. The Send Standby Time-out period is part of the system wide setup; it is accessed in the Settings>Defaults control window. Therefore, if the time-out option is selected, Focal*Point will automatically transmit the queued file after the specified time-out expires.

This is the sequence. The operator outputs the remote program request and immediately initiates the program load sequence on the operator's panel. Focal*Point will interpret the program request, queue the program in Send Standby, and after the specified timeout transmit the requested file. No other operator intervention is necessary. Please note that the timeout period must be longer than the machine's file load timeout.

Ignore Incoming Data While Sending

Enable this setting for controls that echo received data while downloading programs. Controls that do so will continually haunt Focal*Point as it attempts to process the incoming data. In its normal state, allowing incoming data during a Send operation allows the software to re-process a remote request--a technique that is useful to operators who are forced to free program memory in order to load the complete program. Enabling this option will free Focal*Point from processing echoed data, but it also prevents mid stream remote requests.

Strip Trailing End of Blocks

With this feature enabled Focal*Point will strip (compress) end-of-block characters from the end of a NC File. This feature does not literally remove the characters from the master program; it simply prevents their transmission at the end of the file transfer. This feature is useful for machine controls that stop a download after receiving an M30 or percent sign, a situation that will cause Focal*Point to remain in Sending mode even though the control has finished loading.

Handle Framing or Parity Errors

This is a specialized option that will take advantage of controls that display error signals or alarms when receiving data with a framing error. When this option is selected Focal*Point will trigger the controls alarm when Focal*Point receives data with a framing or parity error. That is, if an operator uploads a file to Focal*Point and the file is corrupted during the transfer, Focal*Point will in turn notify the operator by attempting to trigger the control's framing error alarm.

Use Send Standby Purge

This feature clears the communications port if a queued program remains in Send Standby in excess of a specified countdown period. When enabled, it will only allow programs to remain in Send Standby for the global timeout period that is specified in the System Defaults\Miscellaneous tab. After which, the port will be cleared "without" transmitting the program.

The purge feature is useful on systems that do NOT use the No-Wait Read option. It is most useful when operators mistakenly output an Xon start signal before the program has been properly queued and subsequently output an additional program request. In this situation, the operator is actually buffering the RS232 port from seeing the control's Xon start code. Use this option to forcefully clear the communications input buffer in preparation for a new program request. With this option enabled the operator need only wait for the timeout period to expire and then output the remote program request as if for the first time. It must also be remembered, however, that all remote program requests must be completed within the purge period. A similar situation occurs if the system is configured to use Received File Confirmation and the operator forgets to load the confirmation program. As such, the next program request will not be properly queued. Using the purge option solves both of these problems.

As a final note, Focal*Point's No-Wait Read option is not subject to the above described input buffering problem. No-Wait Read was designed to eliminate the prerequisite 10-second Xon input delay when requesting programs and therefore circumvents the situation that causes operators to re-request programs. Be advised, however, that this option is incompatible with some controls when the RTS/CTS handshake lines are connected between the PC hardware and the control. In such cases it may prove helpful to simply jumper RTS/CTS on the control side.

Purge If Sending and Inactive

This option is used to clear the RS232 communications buffers and Focal*Point's I/O status screen. Many machine controls terminate a program load using specific characters such as the percent sign or other specific codes. This can have the effect of halting program transfers before reaching the computer's recognized end-of-file marker. While this situation will not harm program loads, it can be misleading if Focal*Point consistently displays an I/O status of Sending after the NC program load is complete.

It is important to remember that this option must not be used in Drip-Feed applications since any halt in program transfers that exceeds the specified timeout period will force the communication port to reset itself back to the Receive Standby state. Under normal conditions the default timeout should be appropriate for most machines and RS-232 hardware combinations. In rare cases, especially when using low-cost communications hardware, it may be necessary to increase the timeout delay. This situation will be evident if the machine fails to load an entire program.

Hint - This option is especially useful when using the Send and Receive buttons located on Focal*Point's main screen because it will eliminate the need to reset the communications port manually.

Enable No-Wait Read

No-Wait Read is a remote request option that will capture a machine control's Load command (X-on character) when operators fail to wait the prescribed wait time -- typically 10 to 15 seconds -- after punching a remote file request. No-Wait Read provides the best and most reliable method for all standard machine operations. Using No-Wait Read also eliminates the need to use Send Standby Purge when the Receive File Confirmation feature is activated. Please note, however, that No-Wait Read may not work with all controls and should be tested accordingly.

Compression Options

Compression options will compress (not transmit) comments, spaces, line numbers, tabs and specific character values. This feature is useful to conserve control memory while maintaining easy readability in program code.

Strip Header on Outgoing Data

When this option is selected Focal*Point will strip all information, i.e., code, comments, man readable etc., up to the first end-of-block or the first of six specified characters listed in the "Outgoing Header String" variables.

Start/End Values

Required Parm	Remote Request	Options	Start/End Values
Start/End Constant			
Start Char (ASCII): <input type="text"/>		End Char (ASCII): <input type="text" value="04"/>	
Occurrence: <input type="text" value="0"/>		Occurrence: <input type="text" value="0"/>	
Start/End String			
Start String (ASCII Value):			
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			
End String (ASCII Value):			
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>			

Start & End Constant

The Start and End character constant allows the transfer of specific leader and trailer codes for all program files. For example, suppose your control requires 20 NULLS at the beginning of the program file--this represents the leader portion of a punched tape--you would simply enter the ASCII value of "0" with an occurrence of 20. If your control requires the "SPACE" code you would enter the ASCII value of "32".

Start & End Strings

The ability to include Start and End Strings during program transfer gives Focal*Point the power to communicate with third party BTRs or tape punches. For example, to include punch control codes, enter the decimal number '18', punch-on, in the Start String and '20', punch-off, in the End String.

All program transfers will begin with the Start character followed by the Start String and end with End String followed by the End character.

Received File Confirmation

The screenshot shows a software configuration window titled "Received File Confirmation". It has five tabs: "Required Parms", "Remote Request", "Options", "Start/End Values", and "Rec. Confirmation". The "Rec. Confirmation" tab is selected. Inside the window, there is a checked checkbox labeled "Send Confirmation File After Receive". Below this, there are two text input fields. The first is labeled "Header" and contains the text: "%", "O2222", and "(FILE RECEIVED)". The second is labeled "Footer" and contains the text: "M30" and "%".

Note that this feature is not available when requesting from a QSI or Burr Brown keypad

RECEive Confirmation is a feature that, if enabled, will provide the machine operator with a confirmation message when programs are uploaded to the DNC system. The confirmation message will contain the first and last 5 lines—excluding the percent sign--of the received program plus a line indicating the number of bytes received. These lines will appear as comments between the Header and Footer sections, which should be coded to conform to the machine's standard program structure.

Upon receipt of an uploaded program, Focal Point will place the formatted confirmation message in Send Standby and await the operators input command or begin transfer after an elapsed Send Standby Timeout period. In circumstances where the operator is likely to forget to input the queued receive message, Focal Point can be configured to terminate the transfer and clear the communications port after a Send Standby Purge time limit has elapsed (See above). Also, see the Settings|Defaults menu for information about the Send Standby Timeout and Send Standby Purge settings.

A typical confirmation message will have the following form.

```
% --- Beginning of header
O2222 --- Fixed program number
(RECEIVED PROGRAM FROM MACHINE) --- End of header section
(First extracted program line) --- Start of extracted program lines
.
(Fifth extracted program line) --- End of first five extracted program lines
--- Blank formatting line
(TOTAL BYTES BYTES RECEIVED NNNN) --- Information tag
--- Blank formatting line
(Beginning of last five extracted lines) --- These lines are taken from the end of the received program
```

- (Last line of the received program) --- This will be the last program line excluding the % character
- M30 --- Start of footer section
- % --- End of footer

It is important to note that it is the duty of the operator to download the confirmation message if Send Standby Purge is not activated. **If the operator fails to download the message, no additional incoming files or file requests will be honored.** Furthermore, because a fixed program number may be written into the body of the header, it is also important for operators to delete the previous message prior to inputting the confirmation message. Failure to do so will likely cause a duplicate program error at the control and terminate loading of the confirmation message. In such a case the operator will need to upload his program a second time and follow the correct procedures.

Lastly, keep in mind that electrical noise may be considered a received program and thus trigger a Received File Confirmation message. In such a case it would not be wise to leave noise generated messages in Send Standby as this would inhibit normal communications. Therefore, it is highly recommended to enable Send Standby Purge (described in the Options menu) whenever Receive Confirmation is enabled.

Data Collection Overview

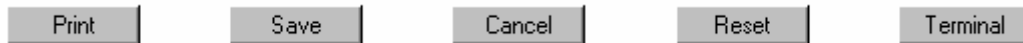
Required Parms	Remote Request	Options
Start/End Values	Rec. Confirmation	Data Collection
<input checked="" type="checkbox"/> Extract Data From Incoming Stream Data Start Identification String: <input type="text" value="DATASTART"/>		
<input type="radio"/> All data will be sent from the machine in a continuous stream		
<input checked="" type="radio"/> Data will arrive in segments. Append data to one file until Data Termination Identification String is received.		
Data Termination Identifier String: <input type="text" value="DATAEND"/> Maximum Segment Length: <input type="text" value="500"/>		
<input checked="" type="checkbox"/> Append date and time to segment		
File Naming Options		Print Options
<input checked="" type="radio"/> Auto name with Cell, Machine Name, Date, Time		<input type="radio"/> Always print
<input type="radio"/> Extract name from data stream		<input type="radio"/> Print on command
File Name Identifier String: <input type="text" value="FILENAME"/>		Print Command String: <input type="text" value="PRINT-TRUE"/>
<input type="checkbox"/> Append date and time to extracted name		<input checked="" type="radio"/> Do not print
Save To Folder: <input type="button" value="Browse"/> <input type="button" value="Zoom"/>		Print To: <input type="text"/>
<input type="text" value="C:\CNCINNOV\FPDNC\Default Data Folder\"/>		<input type="checkbox"/> Use advanced options <input type="button" value="Advanced Options"/>
<input type="checkbox"/> Use advanced options <input type="button" value="Advanced Options"/>		

Data Collection Configuration Menu

*Data Collection is an optional feature that is purchased separately. A 10-Day trial is available by activating the option in Focal*Point's help "Mange License" section. After activating the 10-Day trial you will have the option to activate Data Collection on any single machine connection. During the trial period if you wish to test a different machine connection, first uncheck the "Extract Data From Incoming Stream" check box and then activate the option on the new machine connection.*

Information about this section is contained in the section titled Data Collection

Function Buttons



Print Parameters

The "Print" button is useful for printing each machine connection's setup information. This is highly recommended in the event of computer failure.

Save and Cancel

The "Save" and "Cancel" buttons perform exactly as indicated. Save will save the current setup and "Cancel" will quit without saving.

Reset

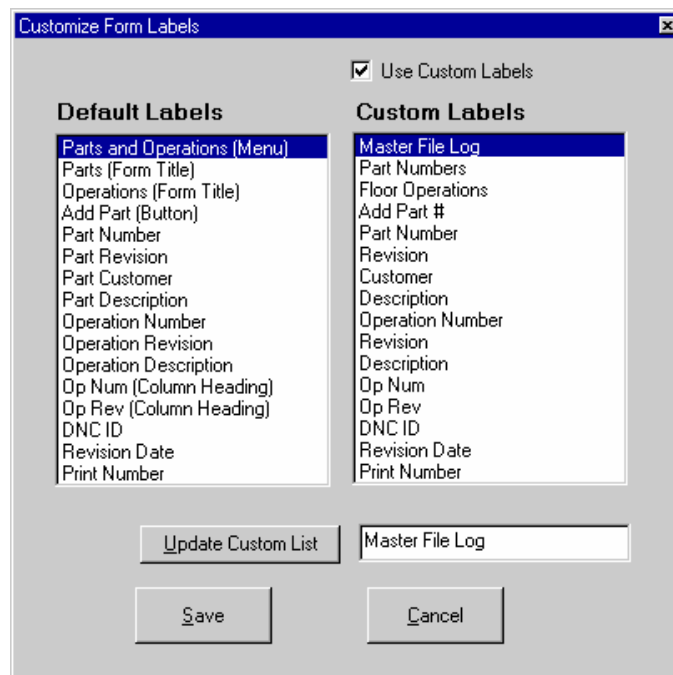
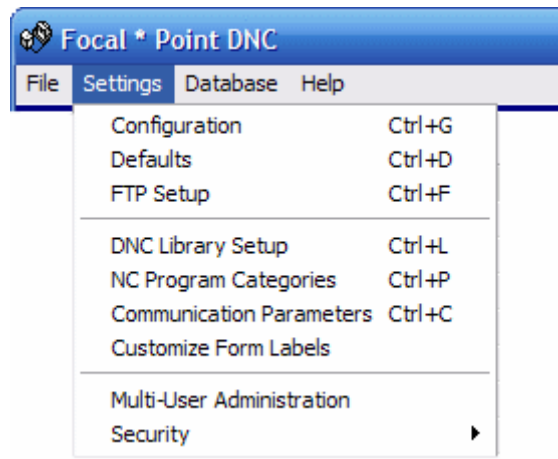
Click the "Reset" button to activate new or changed communications parameters.

Terminal

Use the "Terminal" button to display a terminal emulation screen. This feature can be used as a troubleshooting tool when configuring each connection's communication settings. Upon entering the Terminal function, the background DNC features will be disabled. Therefore, it is important to manually reset the main screen's port activity button after exiting the Terminal function.

Settings Menu

Custom Form Labels



Label Modification Window

With custom form labels, you can change many of Focal*Point's menu and window labels. For instance, you may prefer to name the Parts and Operations selection to Master File Log. The convenience of renaming field items can be helpful to companies that have a long established naming convention.

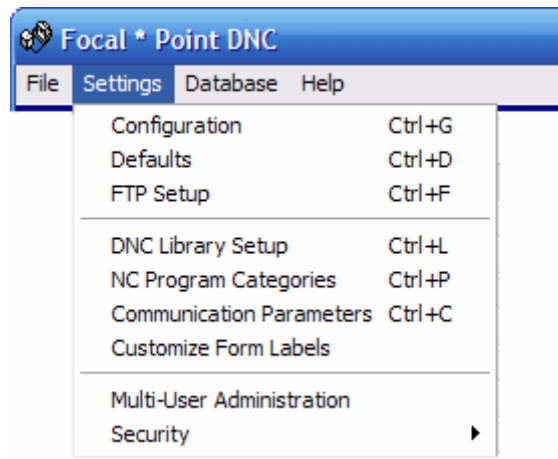
To change a field name simply highlight the item in the default labels section then edit the name as displayed in the input screen. To accept the change, click the "Update Custom List" button. The custom field names will be displayed when the "Use Custom Labels" selector is checked; remove the check to revert to the original names.

Since Focal*Point's help program will not reflect edited field names, it is highly recommended that all system users fully understand Focal*Point's basic operation before changing any field labels.

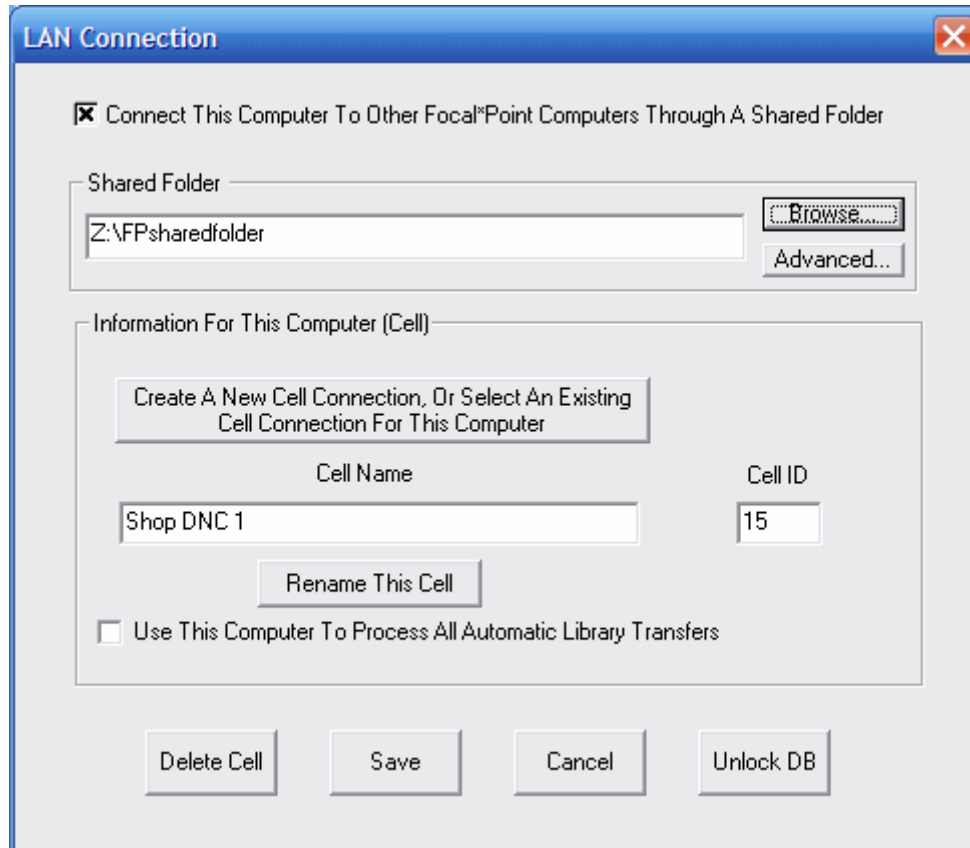
Note that the custom label information is stored in the FPLocal.mdb database. Be sure to make a back up of this file whenever changes are made. For more information regarding which files to include in a back up, see the section regarding Emergency Backup and Activation Procedures.

Setting Menu

Multi-User Administration



Multi-User Administration



Multi-User Administration allows several DNC workstations to share a single NC program database known as Focal*Point's DNC Library. Most often the shared database will be located in a dedicated folder on a shared network drive allowing access by DNC host computers and NC programmer workstations. An added advantage of designating a network drive is that the DNC database and uploaded machine files will be readily available for daily backup procedures.

For proper administration and identification of each workstation, it is necessary for each Focal*Point DNC host PC as well as Administrative workstations to create a unique identity within the shared environment. IT personnel should note that the shared folder will require full read/write permissions for each workstation or user login. To

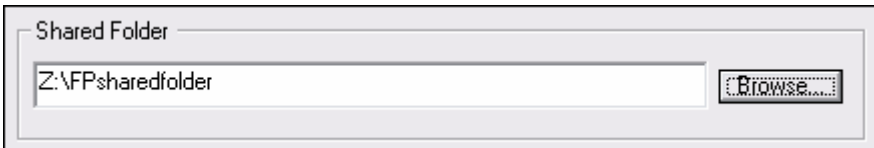
allow for proper management of multiple users in the shared environment, Focal*Point also allows rebuilt workstations to use an existing entry in the shared environment. This option is necessary in order to avoid duplication of workstation entries when a PC is rebuilt or replaced.

BELOW IS DESCRIPTION OF EACH COMPONENT OF THE MULTI-USER SETUP FORM.

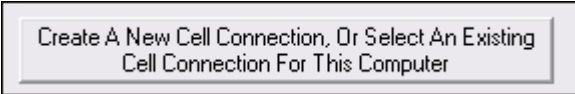
Enable LAN Connection Connect This Computer To Other Focal*Point Computers Through A Shared Folder

The first step is to enable LAN connectivity by checking the option box. This will allow you to browse for and select a desired folder on your local network. By doing this Focal*Point will use a shared FPShare.mdb (DNC Library) database. If the database already exists it will not be overwritten. The new workstation will simply transfer operations to the shared database location.

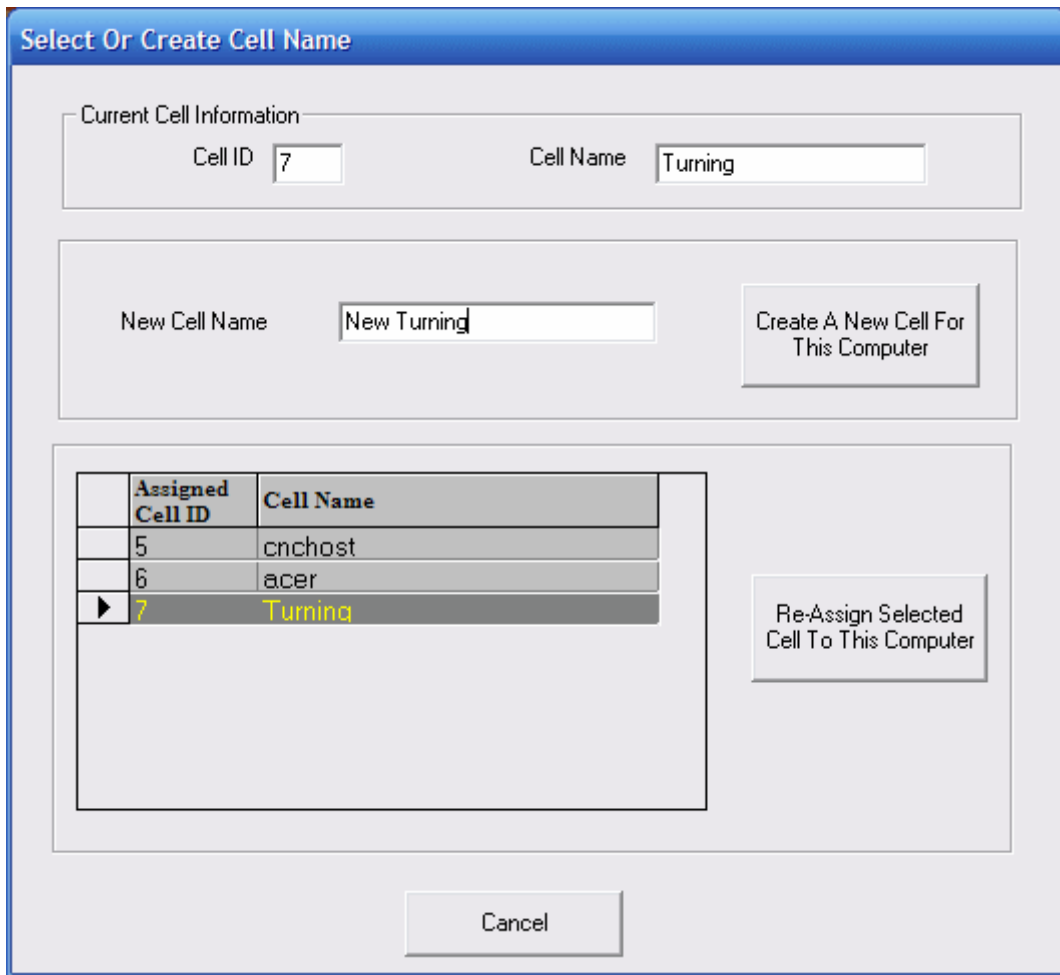
Note - For single-user stations (only one DNC host), a LAN connection may still be desirable. Since most networks are backed-up on a regular basis, the DNC*Library database (Fpshare.mdb), as well as uploaded NC programs, will be available for backup. Keep in mind that the individual machine communication parameters are configured during installation and can be backed-up by copying the file FPLocal.mdb from the cncinnov\fpdnc\init folder to a secure network folder. Of course, whether or not a LAN connection is established, it is always a good idea to back-up the database files that are found in the .cncinnov\fpdnc\init folder.

Shared Files Directory 

The next step is to browse to and select the location for the shared DNC database. The shared folder does not specify where the actual NC programs reside, it refers only to the location of the FPshare.mdb database. Actual NC programs can be located anywhere on the network. The DNC Library simply acts as a pointer to the location of NC programs. It does not store or make a duplicate of the NC programs.

Cell Name 

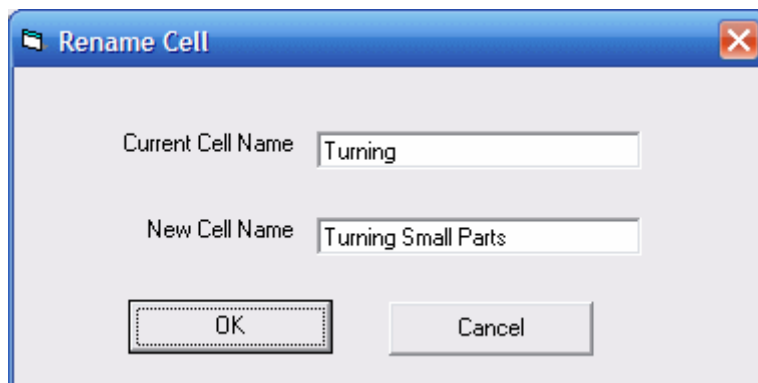
You will next click the button to create a new cell name or select an existing cell name. Creating a New cell name is necessary for first time users that have not already joined the multi-user environment. The option to select an Existing cell name is for workstations that have been rebuilt or replaced and must associate with the existing identity. Take note that when multiple Focal*Point seats are attached in a multi-user configuration, each seat must have a unique Cell Name. No two seats can share the same identity at the same time. If a workstation should crash unexpectedly it remains logged-in within the multi-user environment. In such a case the next time the workstation re-starts Focal*Point, it will first check the log-in status to see if another workstation has taken control of the existing identity. If true, it will be necessary for the workstation to create a new identity.



In the above screen example, if the workstation as already joined the multi-user environment, the current Cell information will be displayed in the section entitled Current Cell Information. In most cases, as when first joining or re-joining the multi-user environment, the user will either enter a new unique cell name followed by clicking the button to Create a New Cell, or they may select to Re-Assign an existing entry for use by the workstation. Please note that you cannot Re-Assign a cell name if it is currently in use.

Re-Naming the Cell Name

If necessary it is possible to re-name the workstation's cell name

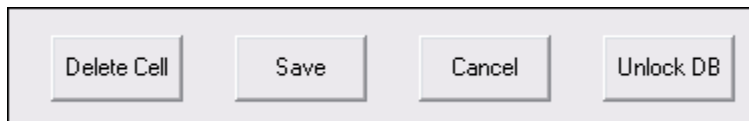


ALT Administrator

Use This Computer To Process All Automatic Library Transfers

When Automatic Library Transfer (ALT) is enabled in the Defaults section of Focal*Point, it is also necessary to designate one workstation to process the ALT functions. Since only one workstation can be assigned this function, it is best to use a workstation that remains active during the better part of the day. If a workstation as already been assigned this function, the check box will be grayed out. For more information see the section related to Auto Library Transfer located in the Defaults section of the Setting menu.

Saving Selections and Unlocking a Locked Database

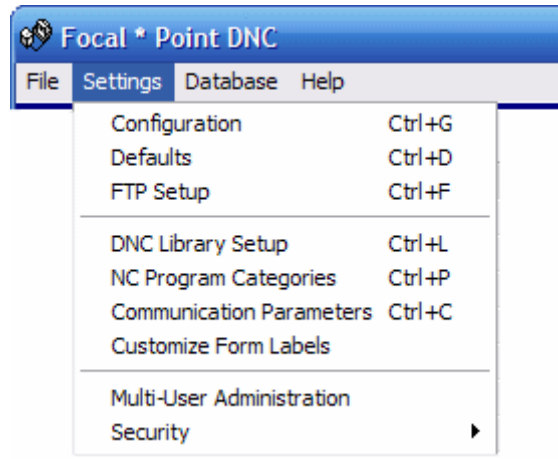


If a new computer workstation is replacing a computer that previously ran an old version Focal*Point, and the cell name will be transferred to the new host, use the Delete function to delete the existing Cell name and station ID before assigning the name to the new computer.

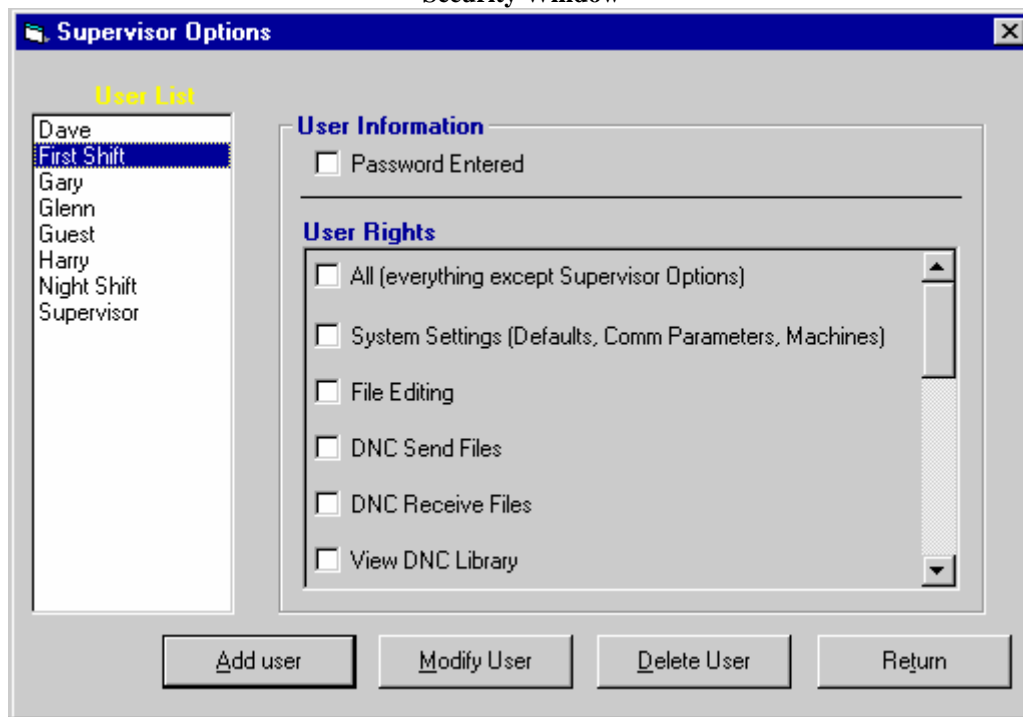
To save selections you must click the Save button or click Cancel to quit. Please note that when creating or re-assigning a cell name Focal*Point will prompt you that it will automatically close and will need to be re-started in order for changes to take effect.

The Unlock DB button is used in rare occasions when the database reports that it is currently in use by another user and prevents access to certain operations. Keep in mind that some DNC Library functions require a locked database to prevent manipulation by other users. If, however, a workstation accidentally shuts-down before properly exiting Focal*Point, it is possible for the database to remain locked. In such a case, clicking the Unlock DB will resolve the problem. Before clicking the UnLock button it is best to verify that no users are currently involved with extensive library additions or deletions.

Security Options



Security Window



Security Overview

Upon installation, Focal*Point defaults to the supervisor security level. As such, the first order of business should be to input the supervisor password plus any additional system administrators. After entering the password, the security options menu will only be enabled when the supervisor is logged on as the user. What this means is, **"Do Not Forget The Password."**

The only way to restore access if the password is lost is to reload the program from the installation disks. However, doing so will destroy all previous entries. Equally dangerous to forgetting the password is not setting one at all. In such a situation, you run the risk that someone could accidentally enter a password and thereby exclude the supervisor from accessing the security options.

If Focal*Point is shutdown and then restarted it will prompt for the last user's password before allowing access to

protected functions.

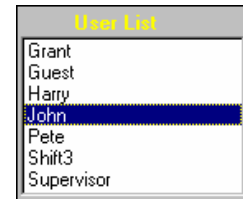
Should a user attempt to execute an option, which he or she is not authorized for, a message will prompt them for an override password. The override is a one-time exception that is invoked when the supervisor or a qualified user enters his or her security code. For example, suppose that John (user 1) attempts to edit a program. Being a new employee, he was not given clearance to perform that operation. If Steve (user 2) enters his password, John will have access to the file editor for that session only.

Another feature of the security module is called the Guest option. It is permanently configured as a minimum access user level--without password protection--that allows a password protected user to switch to a generic setup when he or she leaves the DNC workstation.

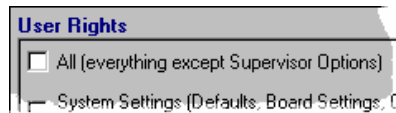
Security Window Items

Users List

The Users List displays the name of each individual entered as a system operator. By highlighting a user name, his or her security rights will be displayed. Of course, setting user rights is only available to the system supervisor.



User Rights



User Rights are separated into the following categories: All, which includes everything except for Supervisor options; System Settings, which include Defaults, Communication Parameters and NC Program Categories; File Editing, and DNC Send and Receive (manual) file transfers. Also included is a section for the view and modification of the DNC*Library as well as the Parts and Operations database and the Receive File Administrator. There is also a section that permits the purging of Send File History and a section dealing with the management of LAN (Multi-User Administration) resources of Focal*Point.

Of particular interest is the **File Editor View And Print Only** permission. When enabled, users are not permitted to edit NC files when accessed via the DNC Library, Parts and Operations database, Receive File Administrator or by opening the editor directly as listed in the main screen's File menu. Note that the File Editing permission takes precedence over this option and should not be used when the View and Print option is selected. This option allows users to view and print NC files using either of the two supplied Gforce editors. Also note that this option will not work if a third party editor is in use.

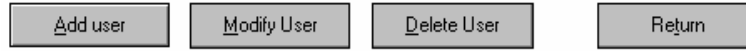
The administration of these security options can only be done by the system supervisor. For general operation, a separate Guest user is supplied; it does not require a system password. This generalized user setting provides minimal functionality without having to memorize an additional password.

User Information



When a user is assigned a password in the Modify User dialog box, which is listed below, the User Information box will be filled. Make note, however, that passwords are never openly displayed, either to users or supervisors of the system.

Security Option Buttons



Add User

Selecting this button will allow the system supervisor to add people to the user database.

Modify Users

After entering new users, click the "Modify User" button to select specific user rights and a password.

Delete User

The "Delete User" button is used to remove names from the User List.

Return Button

The "Return" button will save all changes and return the user to the main program screen.

Changing Users

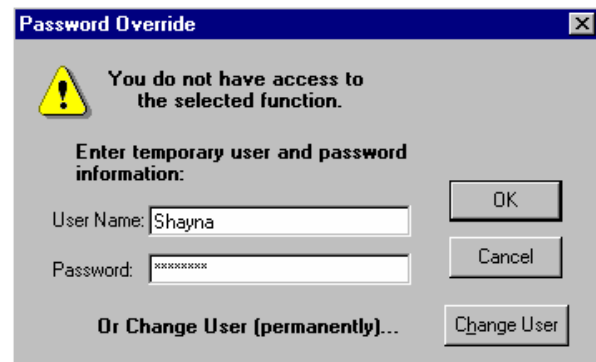
The Change User dialog window is used to change the current user logged into the DNC workstation. The entered information must match existing values in the Supervisor Option window. If a user has not been assigned a password, it will not be required when making the change.

A Guest option is provided to allow any user to switch to a standard configuration. The Guest option cannot be modified and does not have security rights. (See below for a temporary override.)

A dialog box titled "Change User" with a blue header bar. Below the title, it says "Enter User Information below:". There are two input fields: "User Name:" with the text "Glenn" and "Password:" with "*****". At the bottom, there are two buttons: "OK" and "Cancel".

Password Override

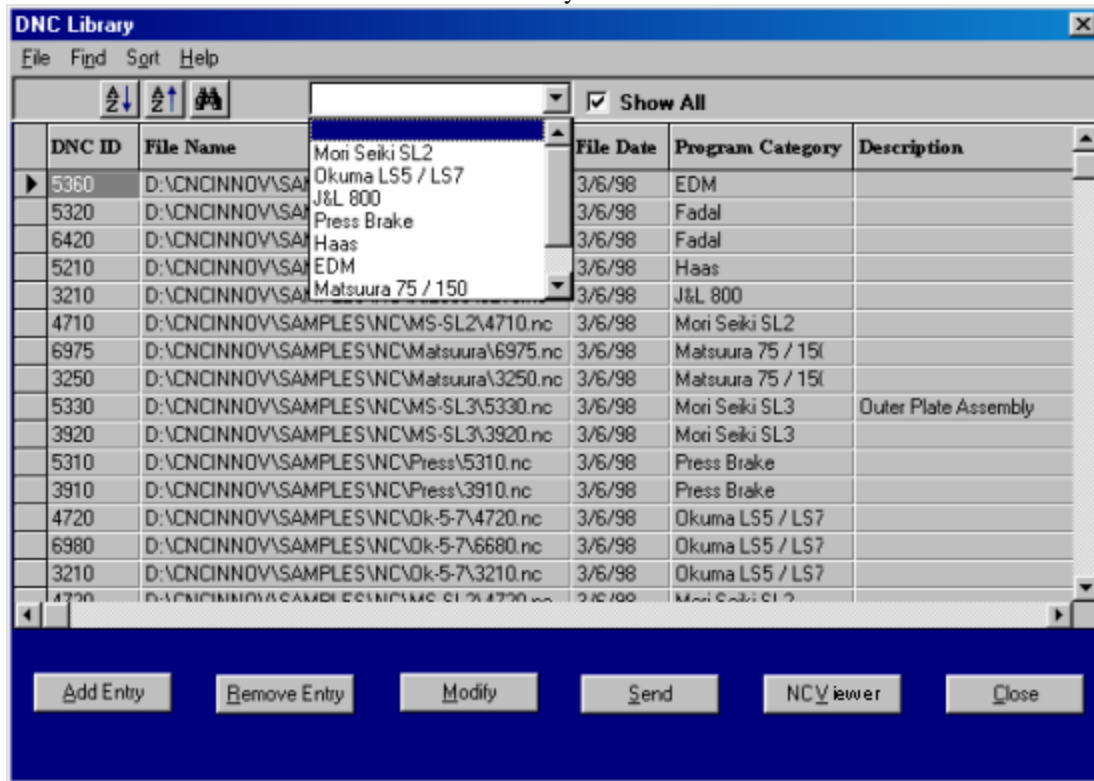
If the current user does not have clearance for a requested function, a temporary override can be issued by inputting the name and password of a user who does have clearance. This is one time exception and does not alter security clearance for other functions.

A dialog box titled "Password Override" with a blue header bar and a close button (X) in the top right corner. It features a yellow warning triangle icon on the left. The main text reads: "You do not have access to the selected function." Below this, it says "Enter temporary user and password information:". There are two input fields: "User Name:" with the text "Shayna" and "Password:" with "*****". To the right of these fields are two buttons: "OK" and "Cancel". At the bottom, there is a link "Or Change User (permanently)..." followed by a "Change User" button.

DATABASE FUNCTIONS

DNC*Library

Main Entry Screen



The DNC*Library is used to build the main NC file database. The library is essentially an address book and contains the name and location of the NC programs that will be accessible to your machine controls. The remaining (optional) fields display information about program descriptions, revision levels, file date and NC Program Category. Included in the library is an automatically assigned DNC*ID number, which is usually derived from the file name. It is with this ID number that a machine operator can issue a simplified remote file request without the need for an extensive and cumbersome path statement. Significantly, this method also removes the restrictions imposed by systems that use hard-coded file directories.

The Library has two display options, both of which are selected from the main menu bar. Click the "Show All" option to view all library entries, or use the adjacent pull-down box to select only files associated with a given NC Program Category (machine). When entering the DNC*Library from Focal*Point's main screen, first highlight the desired machine name and then click the DNC*Library button. This procedure will automatically filter the library to show only files for that particular machine. If the "Show All" option is selected, all library files will be displayed, and it will remain the preferred view for subsequent library operations.

Building the DNC*Library is a simple point-and-click procedure, and takes only moments to accomplish. Additionally, after importing your NC programs into the library, they can be attached as specific operations in Focal*Point's "Parts and Operations" database. These files, along with additional--and viewable--drawings and documents, allow you to create what is essentially a "Master Catalog" of your manufacturing process.

The following three-step process will help you create your own "Master Catalog."

1. Import your NC program files into the DNC*Library.
2. At your leisure, document your part numbers in the Parts database.
3. Finally, attach all related documents for each part and its subsequent operations.

Library Details

Sort Display (Up/Down Arrow)



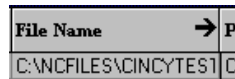
For easier viewing, Focal*Point will sort library entries in ascending and descending order. To sort by a field column, simply click on the field's heading and then click the appropriate Sort Icon.

Search Icon (Binoculars)



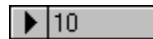
To search for specific items such as descriptions, NC files, DNC*IDs, etc., highlight the desired data field by clicking on its field name and then click the "Search" icon.

Resize Field



By simply positioning the mouse cursor over a field's divider, click and hold the left mouse button to move and re-position the field width divider.

Selection Bar



Some of Focal*Point's operations require the selection of single or multiple database records. For instance, you may select several DNC*Library files for printed reports, yet a single file would be highlighted for use with the Send function. To select a record, click the Selection Bar tab to the left of the record. To select multiple records, hold the CTRL key while clicking each record selection bar.

DNC*ID



The DNC*ID number is used for remote file requests and is automatically assigned as the library is built. To change the ID number simply click on the field and type the new ID. Only unique numbers within a NC Program Category are allowed. As entries are deleted the DNC*ID can be re-assigned to new programs, but only after Focal*Point's DB Optimizer has been used.

The ID field can be manually edited to include alpha characters, i.e., an ID number of 3456 can be edited as Job3456. Do not, however, add alpha characters to any file that will be requested by CNC's RTE-1000 BTR. For a detailed discussion refer to the Import Directory feature of the DNC*Library.

Hint – Double-click the displayed DNC*ID to open the associated NC file within Focal*Point's designated NC editor.

File Name



NC program files are added to the DNC*Library by clicking the "Add Entry" button on the main screen. To change the assigned NC file for a library record, simply double-click the file name field and select a new NC program from the file dialog box. Clicking any other portion of the record field will open the assigned NC file in the program editor.

File Date

File Date
6/9/99

The "File Date" display reflects the NC file's date stamp when the file was added to the DNC*Library. This entry is also updated when the associated NC file is overwritten via the Received File Administrator and when performing library verification as described below. This is not a modifiable field as it is intended to represent the file's actual date stamp. If the file is modified by a program other than Focal*Point, the date stamp will not automatically update.

NC Program Category

Program Category
MORI SEIKI SLANT

This field displays the NC Program Category for the file. Keep in mind, that categories are first created during the initial setup of Focal*Point. Once created, the categories are used during the file import module of the DNC*Library. Using categories in this manner will assign files to specific machine controls, control display options, act as a filter for reports, and add a level of security to remote file requests.

Description Field

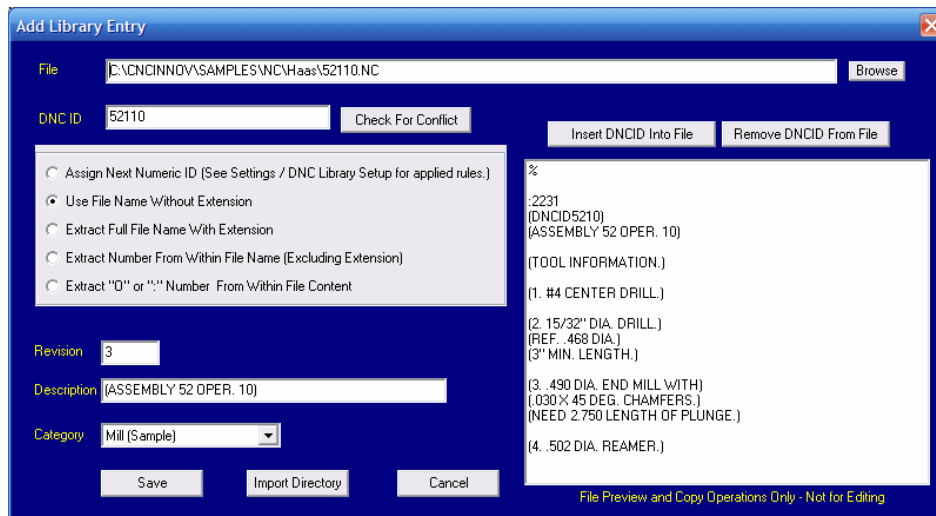
Description
CINCY TEST FILE

This field in the DNC*Library is a general description of the NC program file. Click within the field to enter a file description. If you are upgrading from CNC's earlier Easytalk™ program, the file description field will be populated with data from Easytalk's 32-character part name.

Library Function Buttons



Add Entry Button



The screenshot shows the 'Add Library Entry' dialog box with the following details:

- File:** C:\CNCINNOV\SAMPLES\NC\Haas\52110.NC
- DNC ID:** 52110
- Revision:** 3
- Description:** ASSEMBLY 52 OPER. 10
- Category:** Mill (Sample)
- Options:** 'Use File Name Without Extension' is selected.
- Preview:** Shows G-code starting with '%', ':2231 (DNCID5210) (ASSEMBLY 52 OPER. 10) (TOOL INFORMATION) (1. #4 CENTER DRILL) (2. 15/32" DIA. DRILL) (REF. 468 DIA.) (3" MIN. LENGTH.) (3. 490 DIA. END MILL WITH (.030 X 45 DEG. CHAMFERS.) (NEED 2.750 LENGTH OF PLUNGE.) (4. 502 DIA. REAMER.)'

Add Library Entry Screen

Clicking the "Add Entry" button will open the above Add Library Entry screen. This form will likely be the most often used tool for adding individual NC programs to the DNC program library. (Note that the same method and options are provided when saving files from within the Received File Administrator.) To begin, simply click the File Browse icon to select any existing NC program located on your computer or on a LAN drive. When selecting files, make certain that the file location will be accessible to all potential, PC authenticated, Users. This is important since

Focal*Point operates according to the inherited permissions of the currently logged-in user. If the intended User (machine operator) does not have sufficient Read/Write access, then neither will Focal*Point.

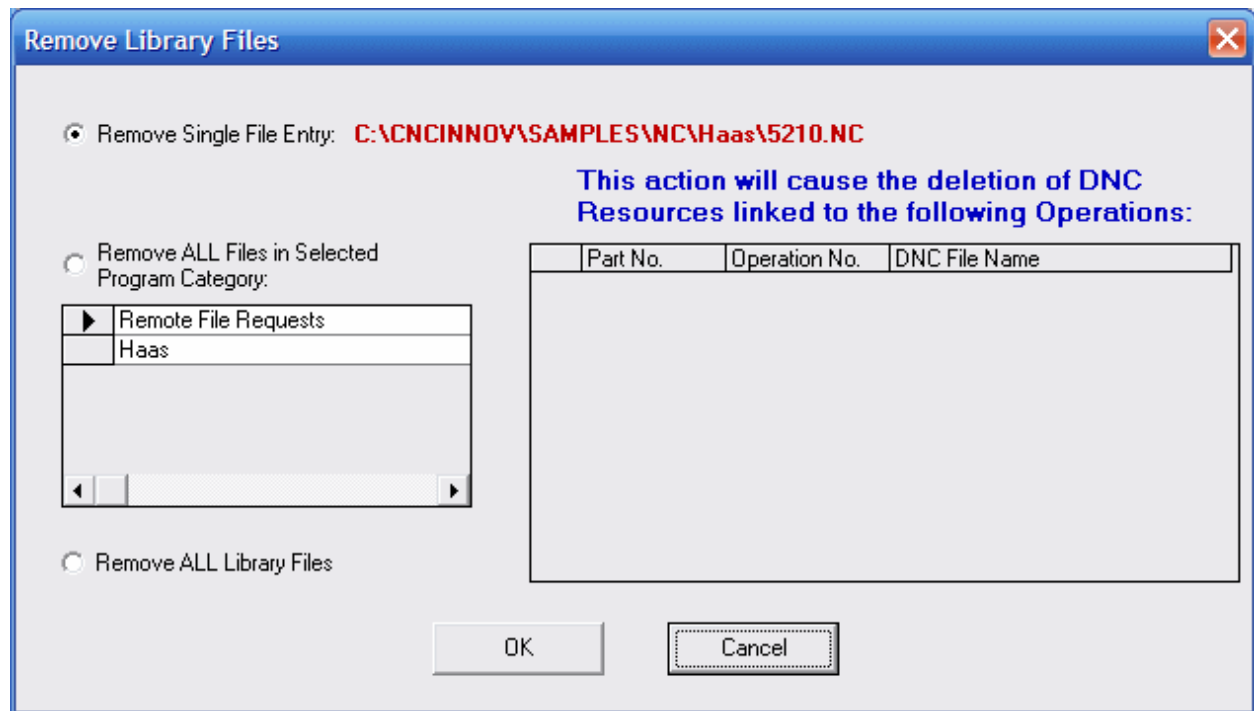
After selecting a program, a DNC ID will be displayed based on the "last used" selection type. That is to say, the default DNC ID field will display an ID based upon the previously selected method. If a new preferred method is selected it will become the default selection for the next Add Library function. Please note that when using the "Assign Next Numeric ID" option is selected, the rules for generating the numeric option are specified in the Settings > DNC Library Setup menu. In addition to the displayed options, the DNC ID can be directly modified by manually typing and overwriting the displayed DNC ID field. Lastly, another useful method for generating IDs--especially for newly uploaded programs--is the Extract Program Number method that copies the program number as displayed in the file preview window.

Note that the Import Directory function described below contains additional information regarding the ID creation options.

The file preview window, as you will see, displays the first 100 lines of the selected program. This is not only convenient as a means of program verification, but it also serves as a method to Copy and Paste embedded program comments for use in the library's Revision and Description data fields. Additionally, although direct editing of the program is not allowed, you can, however, insert a DNC ID comment line into your program. By inserting the comment line you enable a very important program identification function used by the Received File Administrator.

Finally, this form also provides an easy command button to navigate directly to the Import Directory (Folder) function, which is used when adding multiple programs to the DNC Library--see below.

Remove Entry



Remove Library Entry Screen

Click the "Remove Entry" button to display the Remove Library Files dialog box. Selecting the first option, "Remove File Entry," will remove the previously highlighted entry from the the DNC Library. Selecting the second option, "NC Program Category," will remove all entries within an associated Category. Lastly, "Remove All Files" will remove every entry in the DNC*Library.

It is important to understand that removing library entries does NOT delete the actual program file. It merely removes it from the DNC*Library's database.

Modify

Clicking the "Modify" button will open a full data entry screen that can be used for entering or modifying a complete record.

Send

The "Send" button is used to immediately transfer a highlighted NC file to any active DNC port.

NC Viewer (Optional)

This button, if it has been assigned to an NC program verification or modeling software application within the Defaults menu, will open the highlighted library entry within the application. The software application must accept the library entry as a command line argument. For more information contact CNC Innovations at 508-523-1763.

To implement this feature you must specify the program path in the Settings>Defaults section of Focal*Point.

Close Button

The "Close" button will exit the DNC Library and return the user to the main program screen.

DNC*Library (File Menu Options- ALT F)

<u>E</u> dit
I <u>m</u> port Directory
I <u>n</u> sert Comment w/DNC ID Into Lib Programs R <u>e</u> move DNC ID Comments
<u>V</u> erify Library Entries
Print <u>C</u> omplete Library Print by <u>N</u> C Program Type Print <u>S</u> elections
Convert EOB's from LF to CR/LF
Replace DNC ID's with Description Data
<u>C</u> lose

Edit

When a line item in the DNC*Library is highlighted, selecting "Edit" will immediately load the associated NC program into the program file editor.

Import Directory

Use the Import Directory feature to add an entire folder and sub-folders of NC programs into the DNC*Library. The import function can automatically assign DNC*IDs, based several creation methods for each imported NC program. All associated information such as, descriptions, and program revisions can be entered at your leisure. Please note that any DNC*ID creation method that will result in duplicate IDs will be skipped.

(To record skipped files the User is provided the opportunity to create a log file.) The rules for DNC*IDs is simple. For each Program Category every NC Program must have a unique DNC*ID, i.e., DNC*IDs can be duplicated as long as they are associated with different categories.

Again, the Import Directory screen has two important features; it will import program and assign them to a particular NC Program Category, and it will create a DNC*ID based on the selected creation method. To assign a program category to the files, simply select the category from the available entries. This, of course, presumes that the categories have been previously assigned in the Settings|NC Program Categories window located on the main menu screen.

The create DNC*ID feature has several options, most of which are self-explanatory. Two methods of interest are the Next Numeric and the Extract Number From Within File Name options. The function of the Assign Next Numeric ID option is determined by the selection within the Settings > DNC Library Setup menu. Note that this setting applies to individual seats of Focal*Point, which means that in a shared network each programmer can set this option according to his or her own preference.

Two creation methods are available for Assign Next Numeric ID. Reuse Available Unassigned Numeric IDs Within

Each Category, and Use One Plus the Highest Previously Assigned Numeric ID Regardless of Category. The first selection parses the DNC library by Program Category and uses any open and available DNC ID number. This is true even for library entries that have been deleted. The second option determines the highest numeric number within the entire library and then adds one to create the next ID. Note that the highest number is saved in the shared portion of Focal*Point to ensure that multiple programmers will always generate numbers based on the last highest number used.

The Extract Number From Within File Name extracts an ID "Number Only" from any contiguous number pattern, reading from right to left and starting from the first "dot" file extension or name separator.

For Example:

File Name	Extracted ID
1234AB.56	1234
AB1234.NC	1234
NC2345A.67N	2345

Finally, the Extract File Name (with or without extension) extracts the first *twenty-five* characters, reading from right to left and starting from the first 'dot' file extension or name separator.

For Example:

File Name	Extracted DNC ID
1234job.56	1234job (without extension)
NC2345job.67	NC2345job.67 (with extension)

Insert Comments with DNC*ID

When you click this option in the DNC*Library, you will enable an important feature for the Receive File Administrator (RFA). Ordinarily files that are received will be compared to their original program by highlighting target files in the RFA's "Last Sent" list. This process of program identification can be slow and cumbersome if the Last Sent list has several programs listed.

Fortunately Focal*Point offers an easier way. The Insert DNC*ID option will place the DNC*ID string as the first or second comment field within every NC program file. As such, when a program is received in the RFA, the imbedded DNC*ID will be used as an index for directly matching to the original program in the DNC*Library. This feature eliminates the need to match files against the Last Sent list in the RFA.

This simple comment will take the form of (DNCID52346) for a DNC*ID of 52346. Note that, if necessary, these comment lines are easily removed by an additional feature within the DNC*Library menu. For machines that will not accept comments, you can simply enable the "Strip Comments" option located within Focal*Point's communications parameters or alternatively Insert IDs based on a pre-selected Machine Category as displayed at the top of the DNC *Library screen. .

Procedural Notes

Before using this feature, keep in mind that some programmers may put comments on the same line as the program number. In that situation Focal*Point may put a comment prior to the first program line which will cause some controls such as Fanucs to refuse to load the program. In this case it is advisable to use the "Insert DNC*ID as the Second Comment" option.

Furthermore, do not forget that this feature will automatically write the comment in every NC program. The procedure can not only be time consuming, but it may also change the file's original creation date/ time stamp. If you

do not wish to change the file's date stamp, be sure to indicate your choice before executing the function.

Lastly, Focal*Point offers this feature for the entire DNC*Library or for a pre-selected Program Category. It is only the Add Library Entry form that allows updating single file entries. For this reason it is easiest to perform the "Insert DNC*ID" function after building the bulk of the DNC*Library. After which, all new entries can be modified with the Add Library Entry screen. It is important to note, that if library entries are performed using Automatic Library Transfer, it is possible to rerun the "Insert DNC*ID" function a second time. This action will not create a second comment line; it will only add the comment to files without an existing "ID" comment line. In this particular case it is usually best to insert the comment only for the intended machine category.

Remove DNC*ID Comments

As its name implies, this function will remove previously inserted DNC*ID comment lines.

Verify Library Entries

Use the Verify Library function to authenticate the existence of each program in the DNC*Library. This function is useful to re-establish the path and location for orphaned files and for regular maintenance of the library when programs have been deleted from their storage location. Files are displayed in a pop-up window with a browse feature to locate missing files, and a delete key for removing the library entry. This function will also update the NC file's date stamp as displayed in the library. Another important feature is the ability to change the drive designation for the orphaned program files. This is useful when the entire DNC system is migrated to different servers and mapped drives. To make the process simple you need only copy the program files to their new drive and make certain to duplicate the original path.

Print Library & Selections

The Print Library feature will print a report of the files in the DNC*Library to the default printer. To print only certain selections, select the records by holding down the CTRL key while clicking the record selection field on the left side of the display.

To print by NC Program Category, click the appropriate selection and indicate the desired category.

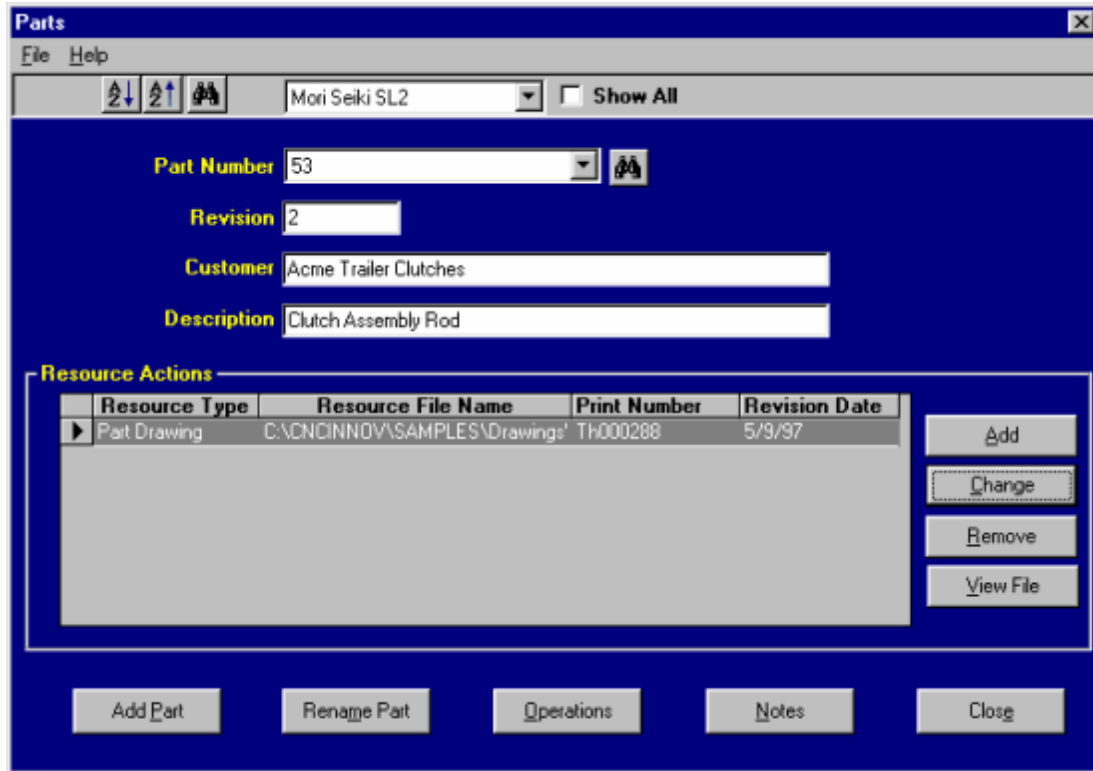
Convert End-of-Block (UNIX to DOS)

The convert EOB function is provided for file compatibility with UNIX based workstations that do not have the ability to save files in using the DOS end-of-line format (Cr/Lf). By selecting this feature, Focal*Point will systematically open the selected files and convert all line feed characters to carriage return and line feed. Note that this is a permanent file modification and will modify the file's time and date stamp.

Replace DNC ID's with Description Data

This unique feature provides backward compatibility with CNC's Multi-Task customers who are accustomed to issuing remote file requests based on Multi-Task's 32-character part name. When a customer upgrades from Multi-Task to Focal*Point, their 32 character part names can be automatically added to the DNC*Library's description field. By selecting this feature, Focal*Point will extract the first twenty-five characters of the description field and replace the DNC*ID with the resulting data. Focal*Point will not, however, create duplicate ID strings during the conversion process; rather, it will skip entries that would create such a conflict.

Parts Database



Aside from the DNC*Library database, the Parts and Operations module could become your main organizational tool. Once you have setup the System Defaults and NC Program Categories, and have imported NC files into the DNC*Library, the next step is to build the Parts and Operations database. Focal*Point allows you to record part and operation numbers as the basis for streamlining your manufacturing process. In this manner your NC files and related drawings, photos, and setup information are all readily available at the touch of a button.

For example, the Acme Tractor Clutches Company contracts you to build their part number 53, which involves five NC operations. First, you would enter the customer's name, description, part number, and revision level. At this point, you may wish to attach notes and resource documents to the part number. By attaching "resources," such as CAD drawings, graphics, pictures, or text documents, the information can be easily viewed at any point in the manufacturing process. Once the basic information is compiled, click the "Operations" button to record the five operations required in the manufacture of the finished part. Again, for each operation entered, you can attach any number of resource documents.

After completing the above operations, you will have achieved a completely paperless manufacturing process. But Focal*Point does not stop there. You will also have the tools to verify and track revision levels, maintain a catalog of old revisions, restrict program edits and distribution, track program transfers, and lastly, with aid of two program add-ons, you can test the integrity of program code and provide red lining options for program drawings.

Functional Description

As in the case of the DNC*Library, the Parts database also has two display options, "Show All" and "View by NC Program Category." Click the "Show All" option to view all Parts entries, or use the adjacent pull-down box to select only files associated with a given NC Program Category (machine). When opening the Parts database from Focal*Point's main screen, first highlight a machine control and then click the "Parts & Ops" button. Using this procedure will automatically filter the database to display parts for the selected machine.

For convenience, a special feature in Focal*Point allows you to rename many of the Parts and Operations field labels in order to conform with existing company terminology. For more information refer to Customize Field Labels within the Settings menu.

Note that the above methodology depicts the recommended procedure for building the Parts and Operations database. For those who are in a hurry, however, or if you are upgrading from a previous Multi-Task version, Focal*Point allows you to start DNC transfer operations as soon as you have imported NC files into the DNC*Library.

Parts and Operations Described

Sort Icon (Up/Down Arrow)



For easier viewing, Focal*Point will sort entries in ascending and descending order. To sort by a field column, simply click on the field's heading and then click the appropriate Sort Icon.

Search Icon (Binoculars)



To search for specific items such as graphics or part numbers, highlight the desired data field by clicking on its field name and then click the Search icon.

Part Information

Part Number	<input type="text" value="DS-56789-01"/>	Revision	<input type="text" value="C"/>
--------------------	--	-----------------	--------------------------------

The Parts database maintains information about each entered Part Number. This includes a part revision, and any associated resource files. After entering your customer's part numbers, you will have the basis for all subsequent machine operations. To add new parts click the "Add Part" button at the bottom of the screen. To select a particular part, click the arrow in the Part Number field. This will display a drop-down box containing all relevant part numbers. To help locate a part quickly, you may type the first character of the part name, which will automatically scroll the selection window. Otherwise, you may click the search binocular icon to locate a desired part.

Customer Field

Customer	<input type="text" value="General Power"/>
-----------------	--

This field allows you to reference a customer name for each entry in the parts database

Description Field

Description	<input type="text" value="Turbine Blade"/>
--------------------	--

You may enter a description for each part. This will help you to easily identify a particular job or product.

Part Resources

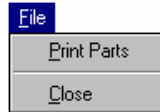
Resource Actions		
Part Resource Type	Part Resource File Name	
▶ Part Drawing	C:\CNCINNOV\SAMPLES\Drawings\TH00288.dwg	<input type="button" value="Add"/> <input type="button" value="Change"/> <input type="button" value="Remove"/> <input type="button" value="View File"/>
Setup Photo	C:\CNCINNOV\SAMPLES\Drawings\Link8.dxf	

Part Resources is a list of attached documents relating to each Part. Within the Resource Actions display screen you can Add, Change, Remove and View resource attachments. Within the resource grid you will find a label depicting the Resource Type--which is defined within the Defaults menu—plus the location and name of the resource file, and finally, an optional print number and revision date for the file.

Note - Before viewing a resource file you must designate a resource viewing program as specified in Focal*Point's Setting/Defaults menu. Although any graphics viewer can be specified, CNC Innovations recommends the program AutoVue™ by Cimmetry Systems, Inc. With AutoVue you can view well over 180 different file formats including text and CAD documents. For more information, or to purchase AutoVue, contact CNC Innovations' Sales Dept. at 508-523-1763.

Menu Items

Print Parts (File Menu)

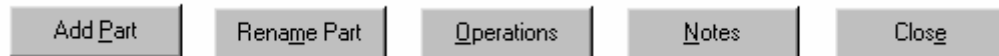


The Print Parts option will print a listing of all the part numbers that have been entered in the parts database.

Close

The "Close" button will exit and return to the Main menu screen.

Part Function Buttons



Add Part Button

Click the "Add Part" button to add entries to the parts database. Afterwards you can attach machine operations by clicking the "Operations" Button.

Rename Part

Use the "Rename Part" button to modify obsolete or existing entries.

Operations Button

By clicking the "Operations" button, the Operations Entry screen will be displayed. In this module you add all of the manufacturing steps (operations) needed to produce a finished part. Keep in mind that the Operations window will only display the operations associated with the previously selected part number, and each operation may be associated with any number of file resource attachments.

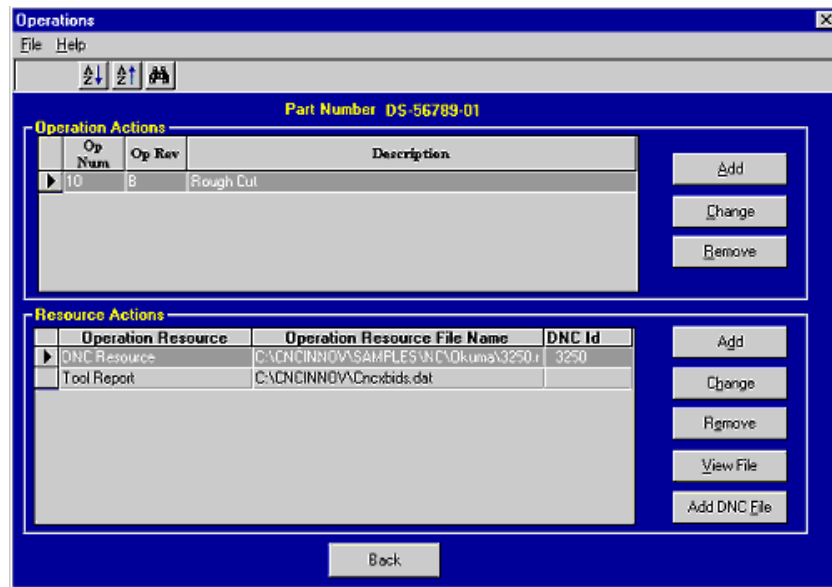
Notes Button

By clicking on the "Note" button, you can add manufacturing notes, dates, reminders and customer details to each part in the Parts database.

Close

The "Close" button will exit the Parts display screen and return to the main menu.

(Operations Sub-Window)



The Operations display screen is divided into two sections, Operation Actions and Resource Actions. Operation Actions is the list of machining operations used to manufacture a part. Again, as in Parts, each operation can be assigned any number of Resource Actions. By highlighting an operation and clicking the "Details" button, all information for the operation will be displayed in one handy screen. If a DNC resource is highlighted, the "Send" button will queue the selected file for immediate transfer to a selected machine control.

The Operations Resource screen is identical to the Parts resources except for the addition of the "Add DNC File" button. Click this button to add a NC program to your list of resources. The DNC file has a special significance. First, there can only be one DNC file for a particular operation. Second, as you can see above, only the DNC Resource file has DNC*ID tag.

If you recall from the information about the DNC*Library, Focal*Point uses the DNC*ID, which is usually a duplicate of the original file name, to identify NC programs for a particular operation. If you are not familiar with the DNC*ID, refer to the DNC*Library section of the help program.

You may click the "View File" button after highlighting a Resource Action. If the action is a DNC file, the program will be displayed in your selected editor program. If the resource file is a graphics file, it will be displayed within your selected graphics-viewing program. For more information about editor and graphics viewer options, refer to the Settings|Defaults menu.

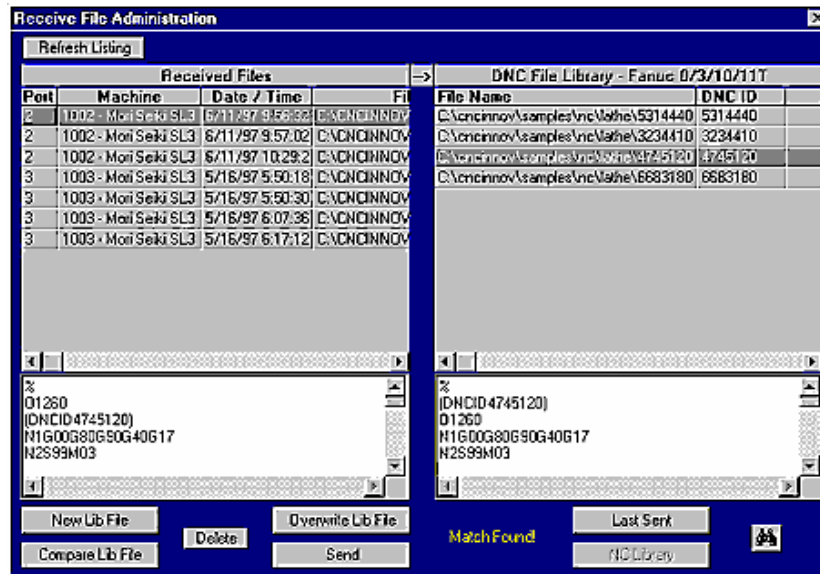
Resource Details

Operation Resource			
File Name	C:\CNCINNOV\SAMPLES\NC\MS-SL3\5330.nc		
Print Number	<input type="text" value="Nc-1200-5330"/>	<input checked="" type="checkbox"/> Remote Printing	Revision Date <input type="text" value="8/22/97"/>
Resource Type	DNC Resource		DNC ID 5330

The above graphic depicts only a portion of the Resource Details screen. Of particular interest is the Remote Printing check box. This option may be activated individually for each operation resource. When selected, it will enable Focal*Point to automatically print the resource file to the printer specified in the remote request section of the Communication Parameters. The automatic printing will be performed when an operator makes a remote request for the DNC file listed in the operation's "Resource Actions" group. In other words, if an operator requests the above file with DNC*ID 5330, Focal*Point will print the Drawing P1200-5330 to the control's specified printer.

Note that it is not only necessary to specify a target printer, but it is also important to activate remote printing within the communication parameters of each machine. Furthermore, since remote printing is accomplished using the AutoVue™ graphics viewer, it is necessary to run the demo version or purchase the AutoVue program. For more information, contact CNC's at 508-523-1763

Receive File Administrator



The Receive File Administrator (RFA) acts as a sentinel that intercepts, directs, and categorizes incoming files for easy viewing, comparison and file maintenance. As part of its operation it maintains a list of received files for each machine connection in the DNC network and coordinates with the DNC*Library when programs are overwritten with new revisions. For maintenance free service, an additional feature will allow selected controls to by-pass the administrator and automatically overwrite existing NC files with their latest revision. Note that to enable this feature, be sure to review Focal*Point's Auto Library Transfer function and the Advanced Options section of the Communication Parameters.

The Received File Administrator has two basic view modes that affect the way received files are matched to their parent file. These modes are labeled "Last Sent" and "NC Library," and are accessed by their respective buttons located along the bottom portion of the RFA display screen.

In NC Library mode the right side of the display window represents actual DNC*Library files--filtered by NC Program Category--while the left pane will show all received files for the selected Cell. In the above representation the highlighted file was received on connection 2 and, therefore, matches its parent file having a program ID of 4745120. Note that in NC Library mode, Focal*Point will automatically find and highlight the parent DNC*Library file so long as the DNC*ID comment line has been added to the file. For more information about adding the comment line, see the section entitled "Insert Comment line w/DNC ID into Lib Programs" located in the File menu of the DNC*Library.

Clicking the "Last Sent" button accesses the second file-matching mode of the RFA. Unlike the "NC Library" mode, the "Last Sent" mode does not have automatic file matching capabilities; it simply displays the files that have been transmitted to the machine control. This is a valuable display mode since it provides a method for matching revised NC files to their parent file when the attached machine control is incapable of outputting comments lines containing a DNC*ID tag.

The following information will detail the individual components of the RFA module.

Refresh Listing Button



An activity list for received files is maintained for each machine connection within each DNC cell. Clicking the "Refresh Listing" button will immediately refresh the display's activity listing.

Cell

Cell

The Cell selector—required in multiple seat configurations of Focal*Point--displays the name of each licensed seat connected to the DNC system. To view received file activity for a particular DNC cell, simply highlight its name from the selector's pull-down menu. To view activity specific to the local (current) DNC host, click the "Local Cell" button.

Auto Received File Section

Received Files			
Port	Machine	Date / Time	
2	1002 - Mori Seiki SL3	6/11/97 9:56:32	C:\NC\INNC
2	1002 - Mori Seiki SL3	6/11/97 9:57:02	C:\NC\INNC
2	1002 - Mori Seiki SL3	6/11/97 10:29:2	C:\NC\INNC
3	1003 - Mori Seiki SL3	5/16/97 5:50:18	C:\NC\INNC

Received Files Display

This area records and displays all incoming file activity. When files are uploaded from a machine control to the host DNC system, each line will provide important file information; such as, the connection number the file was received on, the machine name as it is listed in the communications section, the date and time the file was received, and finally, the path and temporary file name given to the received file. The temporary file name is actually a representation of the port connection and the receive order of the captured file. For example, mtr1.3 refers to the first file received on connection three. If Multi-User Administration is enabled the received file will be stored in the common LAN directory and have a naming convention similar to "1X6.2", which refers to sixth file received on port two of DNC cell number one. To review files received on another DNC cell, simply make your selection using the "Cell" selector as described above.

If the received file contains a DNC*ID comment line as described in the DNC*Library, the file will be automatically matched to the original program as listed in the Library. This will facilitate easy file comparison when searching for program revisions and when overwriting existing Library entries. Also, double-clicking an entry will immediately open the file in the NC program editor.

In general, the majority of file maintenance will be performed within the RFA module. However, in the case of Mazatrol CMT programs, which by-pass the RFA and cannot be edited, the received file will be stored in the directory specified for the control's NC Program Category.

Delete File

The "Delete" button will delete the highlighted file in the RFA's receive file display. This operation will not delete files that are listed in the DNC*Library; it only deletes the temporary program file held in the RFA's storage area.

New Lib File

The "New Lib File" button will save the highlighted received file as a new entry in the DNC*Library. A default directory and file extension can be specified in the Defaults section of the Settings menu. After selecting a suitable file name, the Add Library Entry form as described in the DNC Program Library section will be displayed. The Add Library form is used to select an appropriate DNC ID, insert ID comments, as well as copy and paste operations for the program Descriptions and Revision information.

Compare Library File

Clicking this button will compare the highlighted "Received" file with the highlighted "NC Library" file. Use this feature to locate, display, and print all program revisions prior to overwriting an original program file.

Note that files can also be compared within the NC File Editor, which may be opened from the File menu on the main display screen.

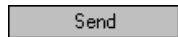
Overwrite Library File



This option will use the information from the currently highlighted "Received" file and overwrite the information in the currently highlighted "Library" file. Before selecting this option it is advisable to compare the two files and verify all program changes before making them permanent.

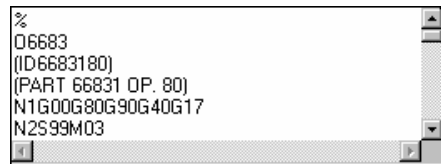
Note that when a program is overwritten with new data, the original contents will be lost and the file's revision number will be incremented. To archive the original program, see File Archiving in the Defaults menu.

Send



Click the "Send" button to redirect a received file to another communication port. This is a useful technique if you want a quick method of sharing a machine operator's program. This will not save the highlighted file or make a library entry. If you wish to save the program you should perform that step after the file transfer is complete.

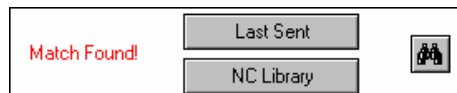
File Viewer



These view windows--one for existing and one for received files--display the contents of a highlighted file. Click on any received file or library file to update the viewer screen for that entry. This display enables you to quickly identify "Sent" and "Received" files before comparing them for program revisions. Additionally, if the DNC*Library's "Insert DNC*ID" option is enabled, any highlighted, received program will be matched automatically to its original program file. When a program match is visually verified in the viewer screen, click the "Compare" button to display a complete list of changes and revisions.

Note that although automatic file matching is the preferred method, program files can be manually matched by first highlighting an entry in the Received File list and then sequentially selecting entries using the "NC Library" or "Last Sent" display list.

File Display Mode



These buttons toggled the RFA's file display mode. By clicking either the "NC Library" or the "Last Sent" button the display will switch between the two file matching modes as previously explained.

NC Library Mode

DNC File Library - Fanuc 0/3/10/11T	
File Name	DNC ID
C:\cncinnov\samples\nc\lathe\5314440	5314440
C:\cncinnov\samples\nc\lathe\3234410	3234410

When the display is set to NC Library mode the heading for the file list will contain the NC Category name assigned to the selected communications port. This information is quite useful since the file list will be filtered to display only files of the same category. In the above display, the list is filtered to display files for the category Fanuc 0/3/10/11T. If the auto-matching feature is enabled (by inserting the DNC*ID comment line in the NC file), clicking and highlighting files in the Received File display will automatically display the original program as listed in the DNC*Library.

Last Sent List - Port 2	
File Name	Date Sent
c:\ncinnov\samples\nc\lg_mill\392852	5/15/97
c:\ncinnov\samples\nc\lathe\3234410	5/15/97

Last Sent Display Mode

The "Last Sent" display mode will show files that were transferred from the DNC host to each machine control. This activity list is updated by remote file requests and manual uploads. For convenience, purging records in "Last Sent History" to within a particular date will regulate the number of entries displayed in the "Last Sent" list. Note that the Last Sent History is located in the main screen's "Database" menu.

Scroll Bar



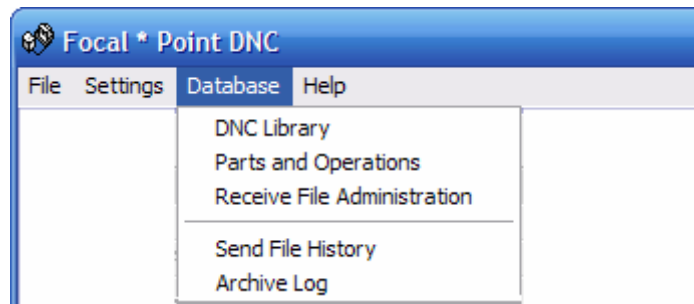
Sliding the Scroll Bar beneath the "Last Sent" or "DNC*Library" list will display associated information about the selected item.

Close



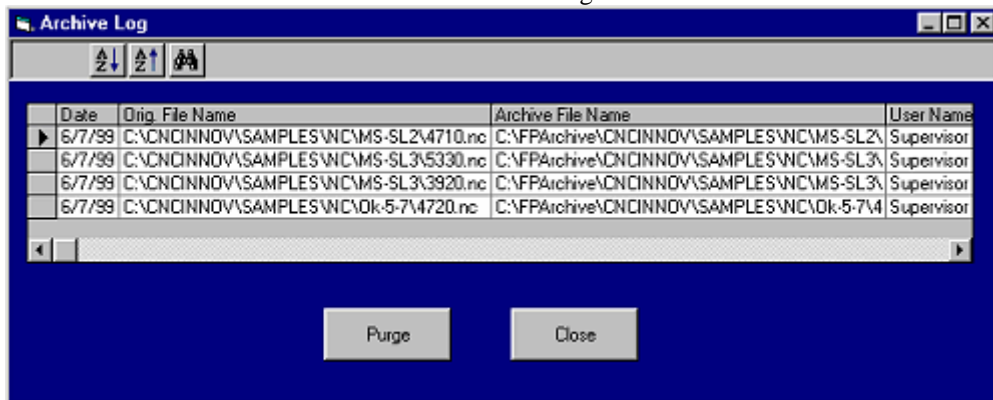
Close will exit the RFA and return to the main menu..

Send File and Archive History



The Database menu contains a selection for reviewing Send File history and File Archive history. Both functions contain a purge feature that should be used on regular basis in order to minimize the size of Focal*Point's operating database.

File Archive Log



File Archive Log Located in the Database Menu

Automatic Library Transfer Overview

Description

The Automatic Library Transfer function provides a mechanism for moving files into Focal*Point's DNC*Library without directly using Focal*Point's database modules. This function is designed primarily for users with CAD/CAM systems running on UNIX workstations where running Focal*Point's administration function is not possible. The Automatic Library Transfer function is also the engine that drives the "Bypass Receive File Administration" option for serial communications links with Focal*Point. To activate the feature you must select a "transfer" and "error" directory in the Settings|Defaults section of Focal*Point and click the "Enable" button. Before doing so, however, take care to select an empty transfer directory before clicking the "Enable" button.

Functional Overview

The Automatic Library Transfer function works by periodically (about once a minute) scanning the "Transfer Directory" to look for new NC programs. Each new NC program is then automatically moved from the Transfer Directory to a user defined target directory for that program, and then assigned an entry in the DNC*Library. The target directory and assigned DNC*ID are determined by scanning the first few comment lines in each new NC program. With this flexibility an operator or programmer can easily add new programs or overwrite existing entries in the DNC*Library.

When an operator wishes to overwrite an existing file with its latest revision, he or she need only enable the "Bypass Receive File Administrator" option in the communications section and add a DNC*ID and Program Category comment line at the beginning of the NC file. To further simplify this procedure, the DNC*Library has a feature that will automatically add the DNC*ID comment to every file in the library, thus eliminating the possibility of using an unintended ID number.

Note: If NC Program Categories are not used as part of Focal*Point's setup, then the Program Category comment line is not required. However, because Focal*Point will allow identical DNC*IDs when they are specified for different NC Program Categories, it is important to use the category comment line when Focal*Point contains entries in its NC Program Category section. This distinction will ensure that only the intended file is overwritten when using the Bypass RFA feature.

NC FILE Format

For the Automatic File Transfer option to work, the NC programs must have the following comment lines at the beginning of the program:

```
.  
. (DNCID dddddd NEW)  
(FILENAME f:\fffff\...)  
(PROGCAT ccccc)  
.
```

where

ddddd= Any valid DNC*ID.
NEW = Optional indicator. If not specified, it is assumed that the NC program is a replacement for an existing program.
f:\fffff\... = Any valid file path and name for saving NC files.
cccccc = Any Program Category defined by the user during system set-up.

Capitalized words such as PROGCAT and DNCID are field specifiers and are always required.

Logic

Focal*Point reads each new program and then moves the program and assigns a DNC*ID based on the following rules:

The system first checks the DNCID line. If the optional command NEW is used, the system will extract the path and filename information from the FILENAME comment field, then save the file and create a new entry in the DNC*Library. If the DNCID value (dddddd) is specified, the system uses that value for the DNC*ID in the library. If the DNCID value is left blank, the system will generate a DNC*ID based on the next available number for that Program Category.

Specifications for NEW programs must not be in conflict with either an existing DNC*ID or an existing file path and name. If so, an error will be generated. (See error information below.)

If the optional command NEW is missing the system will REPLACE an existing program with the new or revised NC program. When REPLACE is used, the FILENAME (f:/fffff/...) need not be specified. If the FILENAME value is left blank, the system will use the existing file name as listed in the DNC*Library for the specified DNC*ID.

When REPLACE (NEW not specified), the DNC*ID must already exist and the FILENAME, if specified, must match the one already in the DNC*Library. If these conditions are not met, an error will be generated.

Error Processing

If an error occurs in the Automatic File Transfer the file will be moved from the Transfer Directory to an Error Directory and no changes will be made in the DNC*Library.

Transaction File

Focal*Point will maintain a Transaction File that will have the name FPAFT.TXT and will reside in the Transfer Directory specified by the user. For each NC Program processed in the Transfer Directory a new line will be written to the Transaction File. Each line will contain the following information:

DATE	TIME	NEW?	DNCID	PROG. CAT.	FILENAME	STATUS
------	------	------	-------	------------	----------	--------

This file may be read at any time by the user but the file cannot be opened for modifications. To purge entries the user may simply delete the file FPAFT.TXT. The Focal*Point system will then create a new one on the next transaction.

Default Directories

The system default directories are

C:\CNCINNOV\FPDNC\AUTOLIB for new transactions.

C:\CNCINNOV\FPDNC\AUTOLIB\ERR for error transactions and the transaction files.

These directories may be changed to any drive and path that is visible to the Focal*Point system computer. Before assigning the directories, make certain that they are EMPTY. In other words, due to the automatic processing involved with these directories, it would not be wise to select the root of drive C: when enabling this feature.

Remote Request Procedures

Remote Request Programs allow a machine operator to retrieve a desired NC program from the DNC Host by "punching" or "outputting" a small request program from their CNC machine. A typical Remote Request would be as follows:

This sample program assumes that the operator is requesting the program 4532672.NC, which is in the DNC*Library and has a DNC*ID # of 35.

```
O1111 - Qualifier String
P35   - Program Request (DNC*ID # 35 preceded by the request code 'P')
#13   - Optional Redirection Code to Port 13 – See Communication Parameters for more information
M30   - Program Stop
%
```

Since the DNC*ID number is assigned to its associated NC files when the program is imported into Focal*Point's DNC*Library, the above program request will extract the DNC*ID--in this case the number 35--and prepare the NC program 453272.NC for DNC transfer.

Furthermore, Focal*Point's communication parameters would have been configured to use the program "O1111" as the remote request qualifier, and the letter "P" as the identifier or Request Code for the DNC*ID number.

Before initiating remote file requests, be sure to configure the Qualifier String and Request Code in Focal*Point's communication parameters. The Qualifier String must be configured to match the request that each machine operator will use. The Request Code, usually the ASCII character 'P', will precede the program file's DNC*ID number. Both the Qualifier String and Request Code can be changed for each machine port according to each control's ability to output the default codes. For example, the Request Code could be specified as a 'T' rather than 'P' for those who are familiar with CNC's earlier default code.

Multi-Task users will recognize that Focal*Point combines the previous Qualifier and Remote Request Number into one Qualifier String. This change will not affect previous calling conventions.

If the Remote Request section has not been changed, the default settings will be 'O1111' for the qualifier string and 'P' for the request code. As such the above program, output from the machine control, would, by default, act as a request for a NC file from Focal*Point's DNC*Library.

In short, the Focal*Point DNC software will extract the DNC*ID number "35" and prepare its associated program for DNC transfer. The NC file will commence serial transmission when Focal*Point receives a software or hardware handshake or after a specified default time-out period. For more information be sure to review the Communication Parameters section of Focal*Point's help program.

To facilitate controls that may limit the DNC*ID parameter length by inserting a decimal point within long ID numbers, Focal*Point will allow two consecutive program request lines. These two lines will be concatenated as one program ID. For example, the following program will request a file ID of 123435 from the DNC*Library.

```
O1111 - Qualifier String
P1234 - First Request Line
P35   - Second Request Line
M30   - Program Stop
```

The above request program will act as a request for the file associated with DNC*ID 123435.

QTerm Keypad

Remote Request Procedures

Loading Programs from the DNC Host

- Set the switchbox to the "A" position and depress the "IN" button on the QTerm keypad.
- Enter the desired file's DNC*ID number after the "IN*" display prompt.
- Depress the "Enter" key and set the switch box to position B.
- The file will be queued at the DNC host and will await the control's request to send.

To Upload a Program to the DNC Host

- Set the switchbox to the "A" position and depress the "OUT" button on the QTerm Keypad.
- Enter a program file name after the "OUT*" prompt then press the "Enter" key.
- Set the switchbox to position B and upload the file to the DNC host.
- Focal*Point will save the received file using the selected file name.

Using Port Redirection

The QTerm keypad can instruct Focal*Point to Send or Receive a file on any machine connection attached to the active DNC host. To redirect activity to another port, simply include the pound sign (#) plus the number for the machine's port connection.

- "IN*1234" -- Normal request format.
- "IN*1234#17" -- Request using redirection to port 17.

Restoring QTerm Programming

The QTerm's IN and OUT keys are programmed to work exclusively with Focal*Point software. If for some reason the LCD panel does not display the usual screen prompts, it will be necessary to reload the original programming as follows.

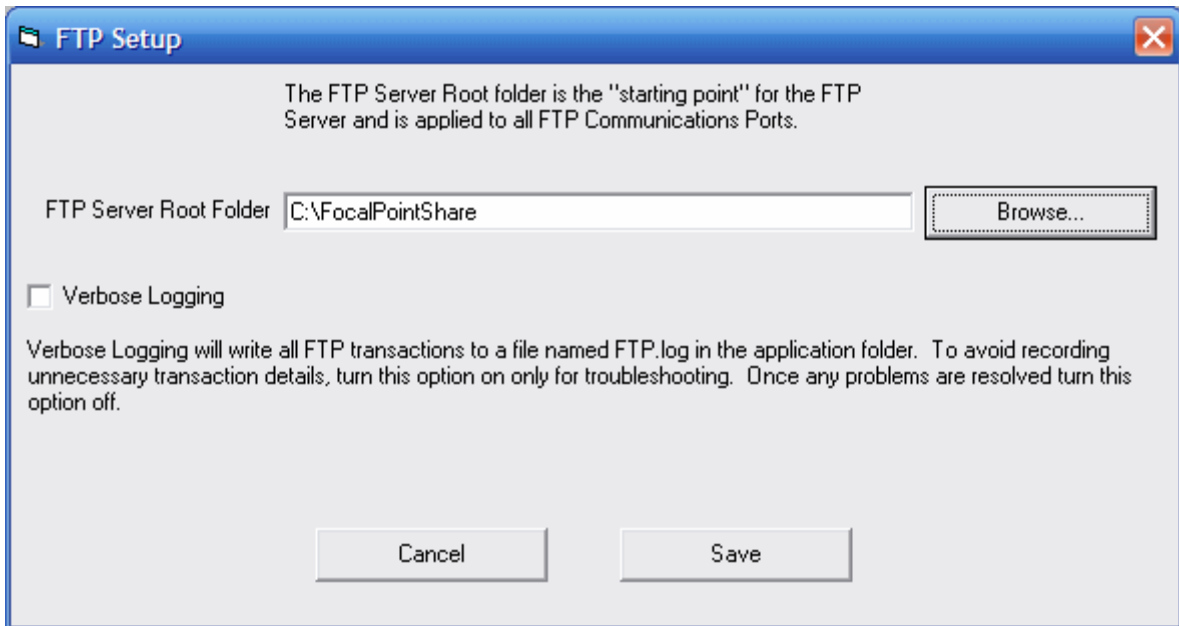
- While holding the CLR key, insert the power cord. The display should show the version number and the word CONTRAST when the key is released.
- Using the CLR (select down) and ENTER (select up) keys, adjust the contrast for easy viewing. When finished press the OUT key to advance to the next menu option.
- Using the CLR or ENTER key select a Baud rate of "9600" then press the OUT key.
- Now set the Data Format (DF) for "8N1" and press the OUT key until you exit from the menu.

At this point connect the QTerm's 9 pin connector to a computer serial port and verify that the operating system is running in MS-DOS mode.

- Run the program "Qsetup4.exe" that located on the supplied QSI utility disk.
- Follow the menu instructions for specifying a n active communications port with a non-multidrop configuration.
- Select the "Load QDATA..." option and enter the name of the default data file for the QTerm keypad. This file is supplied by CNC Innovations and usually has a name that is derived from the customer's name. This completes the programming for the QTerm keypad.

FTP FILE TRANSFERS

Initial FTP Setup



Prior to using FTP for transferring machine programs, it is necessary to specify a Root FTP folder. This represents the highest level folder that an FTP client may navigate to during an FTP session. Setting the Root folder is done within the Settings menu. See FTP Setup.

Managed FTP

The screenshot shows the 'Communication Parameter Settings' dialog box. At the top, there are fields for 'Connection/Machine' (4), 'Facility ID for This Machine' (AL-2 #2), 'Program Category' (AL-2), and 'Small Parts 54732'. Below these are three tabs: 'Start/End Values', 'Rec. Confirmation', and 'Data Collection'. The 'Rec. Confirmation' tab is active, showing 'Required Parms' (Serial, FTP, Timer Folders), 'Remote Request' (Apply automatic EOB conversion, Purge Remote Request files after 0 minutes), and 'Options' (Advanced FTP Options...). Under 'FTP Parameters', there are fields for 'User Name' (Pete) and 'Password' (1234), and radio buttons for 'Access Type' (Managed, Restricted, Unrestricted). A 'Managed Folder' field contains the path 'C:\FocalPointShare\FTP\AL-2 Managed' with a 'Browse' button. At the bottom are buttons for 'Print', 'Save', 'Cancel', 'Reset', 'Terminal', and 'Exit'.

FTP Managed Folder Screen

The FTP Managed folder is for transient files only. The Managed folder works in conjunction with Focal*Point's internal FTP server. When the specified machine client places a file in this folder, Focal*Point will check the file to determine if it is a remote file request matching the parameters entered in the Remote Request tab as described below. Once the file is determined to be a valid request program, a copy of the target program will be placed in the Managed folder where the operator can then download (Get) the program. In the event that a Remote Request fails, a file is created named "FILE ASSOCIATED WITH DNCID NOT FOUND" or "DNCID NOT FOUND".

If the incoming program is not a program request, it will be moved to the Received File Administrator. Also, when the "Apply automatic EOB conversion" option is checked, Focal*Point will convert the incoming program's internal End-Of-Block characters to Carriage Return and Line Feed (CR/LF). This provides for a normal display when viewed with standard file editors. (Do not Use this option when receiving binary or executable files.) Also, to avoid clutter in the managed folder, the "Purge Remote Request files" option will delete requested programs after the specified time period. If left blank, the program will remain in the managed folder indefinitely.

When setting up Managed FTP it is best to designate individual managed folders for each machine. This folder must be a sub-folder of the Root FTP folder. It is also best to provide each Machine/User a unique User Name and Password for FTP login verification.

FTP Managed Remote Request Tab

Required Parm	Remote Request	Options
NC Program Qualifier String:	<input type="text" value=":1111"/>	
Continuous Feed String:	<input type="text"/>	
Request Code:	<input type="text" value="T"/>	
Redirect Code:	<input type="checkbox"/>	
Key Pad:	<input type="text"/>	
<input type="checkbox"/> Enable Remote Printing To:	<input type="text"/>	
<input checked="" type="checkbox"/> File Not Found Message:	<input type="button" value="Edit Message"/>	

Configures the operation of remote file requests

Note that Grayed Items Are Not Available

NC Program Qualifier String

The Qualifier String is a required program identifier on the first line of the remote request program that signals Focal*Point that the incoming program is a program request.

Request Code

The Request Code--usually the ASCII character "P" but may be any acceptable character--precedes the DNC*ID number. This acts as pointer to a specific program as referenced in the DNC*Library. Note that both the Request Code and Qualifier String can be changed for each machine in accordance with the machine's ability to output the default control codes

Enable Remote Printing

This feature specifies the printer used for printing associated Part and Operation resource files when a remote file request is received. Note that only files that have been tagged for Remote Printing will be routed to the specified printer. For more information about tagging resource files see Parts and Operation resource attachments.

Sample Remote Request

The following sample program assumes that the user is requesting DNCID "35" as listed in the DNC*Library.

Program Output From The Machine Control

```
:1111 - Qualifier String  
T35 - Program Request (Request Code "T" followed by the DNC*ID "35" )  
M02 - Program Stop (Not Actually Required)  
%
```

In the above example, Focal*Point will first verify the program as a file request by confirming the presence of the Qualifier String. Next it will extract the DNC*ID number 35 to locate the program within the DNC Library and place the program in the Managed folder.

FTP Managed REC Confirmation

Required Parms Remote Request Options Start/End Values **Rec. Confirmation**

Send Confirmation File After Receive

Header

%
O2222
(FILE RECEIVED)

Footer

M30
%

RECEive Confirmation is a feature that, if enabled, will provide the machine operator with a confirmation message when programs are uploaded via FTP to the DNC system. The confirmation message will contain the first and last 5 lines—excluding the percent sign--of the received program plus a line indicating the number of bytes received. These lines will appear as comments between the Header and Footer sections, which should be coded to conform to the machine's standard program structure.

Upon receipt of an uploaded program, Focal Point will place the formatted confirmation message in Managed FTP folder

A typical confirmation message will have the following form.

```
% --- Beginning of header
O2222 --- Fixed program number
(RECEIVED PROGRAM FROM MACHINE) --- End of header section
(First extracted program line) --- Start of extracted program lines
.
(Fifth extracted program line) --- End of first five extracted program lines
--- Blank formatting line
(TOTAL BYTES BYTES RECEIVED NNNN) --- Information tag
--- Blank formatting line
(Beginning of last five extracted lines) --- These lines are taken from the end of the received program
.
(Last line of the received program) --- This will be the last program line excluding the % character
M30 --- Start of footer section
% --- End of footer
```

It is important to note that it is the duty of the operator to download the confirmation message. If the option to delete requested files is activated, then the confirmation file will also be deleted.

Restricted FTP

The screenshot shows the 'Communication Parameter Settings' dialog box. At the top, 'Connection/Machine' is set to '1' and 'SL-4', and 'Facility ID for This Machine' is 'Small Parts 56789'. Below this, 'Program Category' is 'SL-4'. The dialog is divided into several sections: 'Start/End Values', 'Rec. Confirmation', and 'Data Collection'. The 'Required Parms' section has radio buttons for 'Serial', 'FTP' (selected), and 'Timer Folders', with an 'Advanced FTP Options ...' button. A checkbox 'Apply automatic EOB conversion' is checked, and 'Purge Remote Request files after' is set to '1' minutes. The 'FTP Parameters' section includes 'User Name' (Joe) and 'Password' (1234). 'Access Type' has radio buttons for 'Managed', 'Restricted' (selected), and 'Unrestricted'. The 'GET Folder (Relative to FTP Root Folder)' is 'C:\FocalPointShare\FTP\SL-4 Get' with a 'Browse' button, and 'Allow GET From Sub Folders' is checked. The 'PUT Folder (Relative to FTP Root Folder)' is 'C:\FocalPointShare\FTP\SL-4 Put' with a 'Browse' button, and both 'Allow PUT To Sub Folders' and 'Move Received Files to Receive File Administration' are checked. At the bottom are buttons for 'Print', 'Save', 'Cancel', 'Reset', 'Terminal', and 'Exit'.

FTP Restricted Mode

The Restricted mode option allows the specified Machine/User to "Browse" anywhere within the base "Root" folder and sub-folders but restricts GET and PUT functions to the defined folder or sub-folders, if selected. There are no navigation restrictions applied. This is necessary to allow users to move out of the default GET folder and into the PUT folder. This mode of operation does not act upon Remote File Requests. It simply designates a default GET (download) folder which should contain only files for the specific machine.

The PUT folder is where the operator will PUT (upload) files that must be saved. If the "Move Received File to Receive File Administrator" option is checked, all incoming programs will be moved to the Received File Administrator when uploaded. Also, if checked, the program End-of-Blocks characters will be converted to the standard Carriage Return and Line Feed (CR/LF) combination when the program is received. (Do not Use this option when receiving binary or executable files.)

Aside from the User Name and Password required for FTP validation, no other options are available for this mode of operation.

Unrestricted FTP

The screenshot shows a dialog box titled "Communication Parameter Settings". At the top, there are fields for "Connection/Machine" (value: 3, dropdown: SL-35) and "Facility ID for This Machine" (value: Small Parts 23321). Below this is a "Program Category" dropdown (value: SL-35). The main area is divided into three tabs: "Start/End Values", "Rec. Confirmation", and "Data Collection". The "Data Collection" tab is active, showing "Required Parms" with radio buttons for "Serial", "FTP" (selected), and "Timer Folders", and a button for "Advanced FTP Options ...". There is a checked checkbox for "Apply automatic EOB conversion" and a field for "Purge Remote Request files after" (value: 0) minutes. Below this is a section for "FTP Parameters" with "User Name" (value: Paul) and "Password" (value: 1234) fields. At the bottom of this section are radio buttons for "Access Type": "Managed", "Restricted", and "Unrestricted" (selected). At the very bottom of the dialog are buttons for "Print", "Save", "Cancel", "Reset", "Terminal", and "Exit".

Unrestricted FTP Mode

The FTP Unrestricted mode allows a Machine/User to "Browse" anywhere within the base "Root" folder and sub-folders with "FULL" GET and PUT privileges. If checked, the program End-of-Blocks characters will be converted to the standard Carriage Return and Line Feed (CR/LF) combination when the program is received. (Do not Use this option when receiving binary or executable files.) This mode provides the most freedom to operators and does not manage programs in any way.

Advanced FTP Options

Advanced FTP Options

Connection/Machine 1 SL-4

Requested File Conversion Options

- Modify Windows File Name
Truncate Windows File Name to 5 characters.
- Truncate at first non-numeric character.
- Modify Internal Program Name
Internal Name Identifier 0
Truncate Internal Program Name to 5 characters.
- Truncate at first non-numeric character.

Return To Main Communications Parameters

The Advanced FTP Options are best described by first discussing the operation of standard RS-232 remote program requests.

Typical RS-232 Request Program: (See the Managed Folder, Remote Request section for details)

%

O1111

P2345 (P is the request code for DNCID 2345)

M30

%

When an operator performs an RS-232 request, Focal*Point performs a lookup based on the DNCID code as listed in the DNC Library. In this case P2345 (above) is the DNCID being searched. When the program is located the DNCID code may refer to a program with a completely different Windows' file name. For example, DNCID 2345 may refer to a program named mil5_part56_op2rev3.nc. At this point also consider that the internal program number may be listed as just O2345.

Focal*Point then creates a "temporary" file and queues it for transfer to the machine control. The operator will never see the Windows' program name, and in most cases the machine will record the internal program as number O2345.

Now consider FTP operation. If the same request program is received using the Managed FTP or Timer Folders option, the Windows file, mil5_part56_op2rev3.nc, will be placed in the transfer folder. This situation can cause potential confusion to an operator that has never before seen the actual Windows' file name. Therefore in order to deal with this situation the Advanced Options do the following:

Requested File Conversion Options

Modify Windows File Name - if checked, it will cause the temporary file (a copy of the original) to be named according to the DNCID code. In other words, the file will be named 2345 rather than mil5_part56_op2rev3.nc.

Truncate Windows File Name to X characters - if specified, this will truncate the file name to X amount of

characters. For example, if the DNCID is 2345.nc, the Windows file name truncated to 4 characters will be 2345.

Truncate at first Non-Numeric character - if checked, will cause a DNCID of 2345op3 to be named 2345.

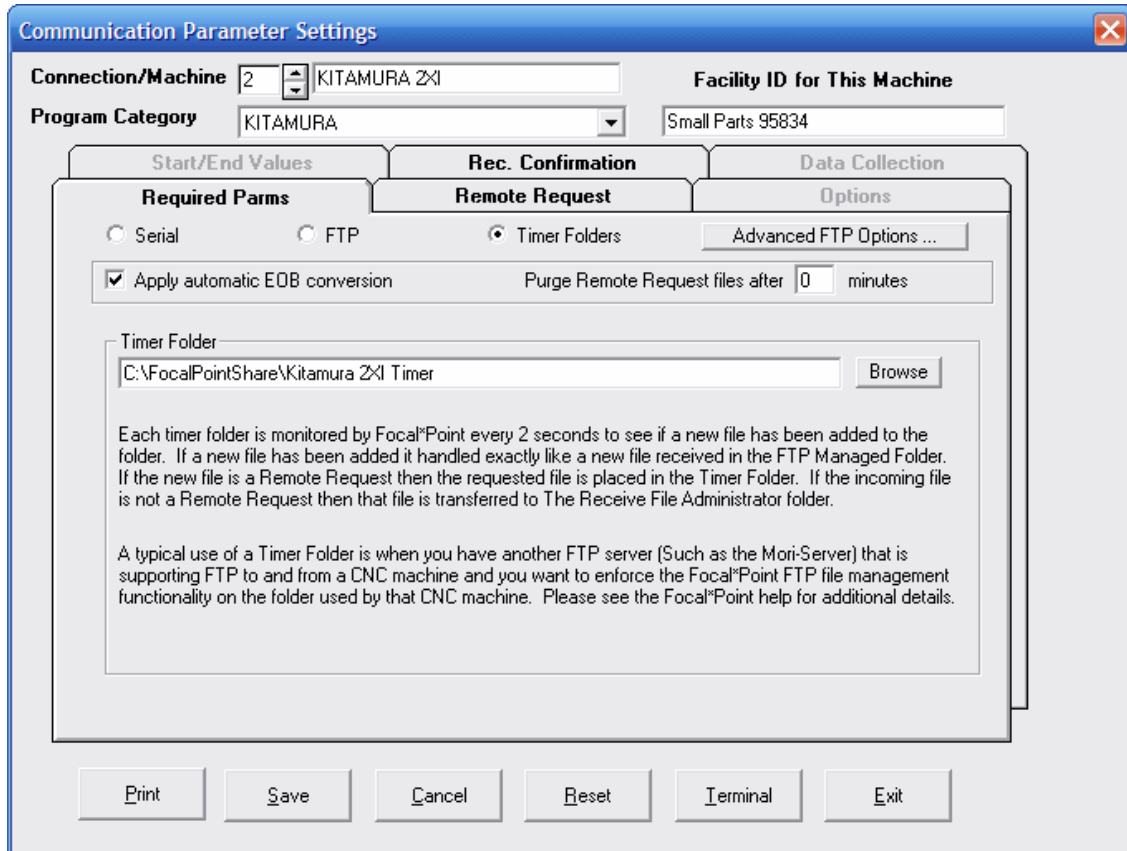
Modify Internal Program Name Options

This function renames the temporary program's internal name. For example, if a program file does not have an internal program number, Focal*Point will add the DNCID preceded by the Internal Name Identifier as the internal program number. This allows the control to register the same program number as reflected by the requested DNCID number .

The remaining options work exactly the same as the file conversion options discussed above.

Note that If Focal*Point displays "Internal_Program_Name_Not_Valid.txt", it simple means that Focal Point could not modify the internal program number per the above rules.

TIMER FOLDERS



Timer Folders

Functional Description

Timer Folders work almost identically to FTP Managed Folders and simply check for the existence of files in the designated timer folder. The difference is that Timer Folders do not use or require Focal*Point's internal FTP server, although they may be used in combination with third-party FTP servers such as the Mori FTP Server. As an example, a client machine used with a Mori Server can place a Remote File Request program into the Mori Server folder. The same folder is designated as a Focal*Point Timer Folder. As such, Focal*Point would then open the program and recognize it as either a file request and act accordingly, or as an uploaded program and move it to the Received File Administrator. If the program is a file request Focal*Point will place the requested file in the Timer Folder (Mori FTP folder) which will then be accessible for download by via the Mori FTP client machine.

Note that a remote program request will fail if the requested program is not listed in the DNC Program Library or if it is not listed according to the machine's Program Category within the Library. In such case a file is created named "FILE ASSOCIATED WITH DNCID NOT FOUND" or "DNCID NOT FOUND".

A more common usage of Timer Folders is for controls utilizing network shares or mapped drive folders. For security reasons a machine may be limited to browsing only a specific network folder/driver. If the folder is designated as the Timer Folder then Focal*Point will provide a managed approach, as discussed above, for all program transfers. In the case of network shares it will be necessary for your IT department to ensure that user Rights and Privileges are restricted to a the designated folder--including appropriate measures for virus and malware protection.

When checked, "Apply automatic EOB conversion" will change received End-of Block characters from line-feed only to the standard carriage-return and line-feed. The "Purge Remote Request Files" will delete files in the Timer Folder after the specified time period. Also note that only one file is allowed in the Timer Folder. For example, if a Rec File Confirmation program is placed in the Timer Folder and a remote program request is immediately copied to the same folder, the Rec Confirmation file will be deleted when processing the remote program request.

Timer Remote File Requests

Required Parm	Remote Request	Options
NC Program Qualifier String:	<input type="text" value="01111"/>	
Continuous Feed String:	<input type="text"/>	
Request Code:	<input type="text" value="P"/>	
Redirect Code:	<input type="text" value="R"/>	
Key Pad:	<input type="text"/>	
<input checked="" type="checkbox"/> Enable Remote Printing To:	<input type="text" value="Lexmark 8300 Series (Ne03:)"/>	
<input type="checkbox"/> File Not Found Message:	<input type="button" value="Edit Message"/>	

Configures the operation of remote file requests

Note that Grayed Items Are Not Available

NC Program Qualifier String

The Qualifier String is a required program identifier on the first line of the remote request program that signals Focal*Point that the incoming program is a program request.

Request Code

The Request Code--usually the ASCII character "P" but may be any acceptable character--precedes the DNC*ID number. This acts as pointer to a specific program as referenced in the DNC*Library. Note that both the Request Code and Qualifier String can be changed for each machine in accordance with the machine's ability to output the default control codes

Redirect Code

If necessary, and as a matter of convenience, a Rediirect code combined with a Focal*Point connection number will queue the requested program for any RS232 connected machine. In many cases this may be a Mazak machine using CMT program transfers. Considering that any shop PC may have the ability to access the shared Timer Folders, remote program requests can be performed for any control that does not have the ability to output a request file on its own. The only restrictions are that the code must be on the line following the program request, and the requested DNC Library program must be listed within the machine's designated Program Category. See the example below for more information.

Enable Remote Printing

This feature specifies the printer used for printing associated Part and Operation resource files when a remote file request is received. Note that only files that have been tagged for Remote Printing will be routed to the specified printer. For more information about tagging resource files see Parts and Operation resource attachments.

Sample Remote Request

The following sample program assumes that the user is requesting DNCID "35" as listed in the DNC*Library.
Program Output From The Machine Control

O1111 - Qualifier String

P35 - Program Request (Request Code "P" followed by the DNC*ID "35")

R13 - Optional Redirection Code to Focal*Point Connection 13 (Must be a Library program listed for the target RS232 machine)

M02 - Program Stop (Not Actually Required)

%

In the above example, Focal*Point will first verify the program as a file request by confirming the presence of the Qualifier String. Next it will extract the DNC*ID number 35 to locate the program within the DNC Library and then prepare the program for transfer on the redirected serial port #13. The NC file transfer will commence when Focal*Point receives either a load command from the control, or it may begin automatically by using the Send Standby Timeout feature as defined in the System Defaults and the machine's communications options.

Timer Folder REC Confirmation

Send Confirmation File After Receive

Header

```
%
O2222
(FILE RECEIVED)
```

Footer

```
M30
%
```

RECEive Confirmation is a feature that, if enabled, will provide the machine operator with a confirmation message when programs are uploaded to the DNC system. The confirmation message will contain the first and last 5 lines—excluding the percent sign--of the received program plus a line indicating the number of bytes received. These lines will appear as comments between the Header and Footer sections, which should be coded to conform to the machine's standard program structure.

Upon receipt of an uploaded program, Focal Point will place the formatted confirmation message in the Timer Folder. A typical confirmation message will have the following form.

```
% --- Beginning of header
O2222 --- Fixed program number
(RECEIVED PROGRAM FROM MACHINE) --- End of header section
(First extracted program line) --- Start of extracted program lines
.
(Fifth extracted program line) --- End of first five extracted program lines
--- Blank formatting line
(TOTAL BYTES BYTES RECEIVED NNNN) --- Information tag
--- Blank formatting line
(Beginning of last five extracted lines) --- These lines are taken from the end of the received program
.
(Last line of the received program) --- This will be the last program line excluding the % character
M30 --- Start of footer section
% --- End of footer
```

It is important to note that it is the duty of the operator to download the confirmation message. If the option to delete requested files is activated, then the confirmation file will also be deleted.

Data Collection

Required Parms	Remote Request	Options		
Start/End Values	Rec. Confirmation	Data Collection		
<input checked="" type="checkbox"/> Extract Data From Incoming Stream	Data Start Identification String	DATASTART		
<input type="checkbox"/> All data will be sent from the machine in a continuous stream				
<input checked="" type="checkbox"/> Data will arrive in segments. Append data to one file until Data Termination Identification String is received.	Data Termination Identifier String	DATAEND		
		Maximum Segment Length	500	
	<input checked="" type="checkbox"/> Append date and time to segments			
File Naming Options		Print Options		
<input checked="" type="radio"/> Auto name with Cell, Machine Name, Date, Time		<input type="radio"/> Always print		
<input type="radio"/> Extract name from data stream		<input type="radio"/> Print on command		
File Name Identifier String		Print Command String		PRINT-TRUE
<input type="checkbox"/> Append date and time to extracted name		<input checked="" type="radio"/> Do not print		
Save To Folder		Print To		
Browse Zoom				
C:\CNCINNOV\FPDNC\Default Data Folder\				
<input type="checkbox"/> Use advanced options		<input type="checkbox"/> Use advanced options		Advanced Options
Advanced Options				

Data Collection Configuration Menu

The Data Collection tab located within the Communications Parameters section contains several areas that define how Focal*Point will extract and save incoming machine data. In general, the output data will represent probe information stored in Macro variables and output with DPRNT statements.

*Data Collection is an optional feature that must be purchased separately. A 10-Day trial is available by activating the option in Focal*Point's help "Manage License" section. After activating the 10-Day trial you will have the option to activate Data Collection on any single machine connection. During the trial period if you wish to test a different machine connection, first uncheck the "Extract Data From Incoming Stream" check-box and then activate the option on the new machine connection.*

Data Collection Processing Notes

If the Extract Data From Incoming Stream option is selected then the incoming data stream is saved temporarily to "ApplicationPath"/Temp Data Collection. The application path is where Focal*Point was launched from and is typically "C:\CNCINNOV\FPDNC".

The temporary file takes the name: DataX, where "X" is the Connection/Machine Number for the CNC Control in the Communications Parameters page. (Note: do not confuse this value with the assigned physical Comm Port number.) The incoming data stream is stored in the temporary file until the user-defined value "Receive Delay" seconds have elapsed since the last character was received. (The "Receive Delay" is set in Settings / Defaults / Misc. The default value is 3 seconds.) At that point the Data Detection and Processing Routine is called. The "Data Detection and Processing Routine" looks at the first 200 characters of the temporary file and applies the following logic based on whether Continuous Data or Segmented Data has been selected.

Continuous Data

If the option "All data will be sent from the machine in a continuous stream" option is selected:

1. If the Data Start Identification String is NOT found in the first 200 characters:

1.1. The file is renamed as a normal Focal*Point receive file and moved to the normal Receive File Administration processing.

2. Otherwise

2.1. The File Naming Options are applied.

2.2. If the file naming is successful the temporary data file is renamed and moved to the "Save To Folder" specified for that specific machine.

2.3. If the file naming is unsuccessful then Data File Name Error Processing is applied. See the separate description below for details.

Example

DATASTART	- Indicates the start of a data segment
FILENAME D307-213.TXT	- The saved file will be named D307-213.TXT
PRINT-TRUE	- The File will be printed upon completion
-----	- Saved Data
1. ITM 62. CHAR 677. SHEET 3 SEC AF-AF	- Saved Data
DIAMETER OF BORE 7.203 TO 7.205 TYP	- Saved Data
VARIABLE NUMBER 860 7.2038	- Saved Data
-----	- Saved Data
FILEEND	- End of Data Collection

Segmented Data

IMPORTANT: A data segment is any continuous data stream that does not pause for more than the "Receive Delay" seconds. (Specified in Focal*Point Settings / Defaults / Misc.) If the option "Data will arrive in segments" is selected, segmented data processing is applied and you have the option to append a Date -Time stamp to each received segment.

The DATE-TIME stamp is appended when we receive any DPRNT statements following the DATASTART. The format is YEAR:MONTH:DAY - HOUR:MINUTE:SECOND. If you want to determine elapsed time of a machine cycle, enable the DATE - TIME stamp and send DPRNT statements after the DATASTART and before the DATAEND. For example, CYCLE-START or CYCLE-END. The elapsed time is the difference between two DATE-TIME stamps.

For Example:

DATASTART	
CYCLE-START	DATE-TIME 2010:01:05-14:07:22
CYCLE-END	DATE-TIME 2010:01:05-14:09:31
DATAEND	DATE-TIME 2010:01:05-14:09:35

In this example the cycle started at 14:07:22 and ended at 14:19:31 for an elapsed time of 12 minutes and 9 seconds.

Segmented processing is considerably more complicated than the Continuous Data processing. Please read and understand the following before using the Segmented Data option.

Segmented processing is expecting a series of data segments with the first segment containing a Data Start Identification String and the final segment containing the Data Termination Identifier String. There are multiple reasons this may not occur. One example: An operator may need to terminate an operation before normal completion of a cycle because of a broken tool. He may then start the cycle over from the beginning. In this case Focal*Point would receive a new Data Start Identification String without receiving a normal Data Termination Identifier String. Thus, a set of rules are built into the Segmented Data processing to deal with potential exceptions.

Segmented Data processing is carried out in the following order:

1. If a data segment exceeds the defined Maximum Segment Length it is assumed to be an incoming file for saving and not a data segment. (Example: An operator terminates a program mid-cycle because of a problem and then sends the program he was working on back to Focal*Point to have engineering look at it.)
 - 1.1. If no prior data has been received the file is treated as a normal receive file and moved to the normal Receive File Administration processing.

1.2. If prior data has been received but not properly terminated, that existing data file is appended with "ABNORMAL TERMINATION: SUBSEQUENT SEGMENT EXCEEDED MAXIMUM SIZE"

1.2.1. The incomplete data file is then moved to an error folder within the specified Save To Folder. If the error folder does not exist it is automatically created.

1.2.2. The incoming segment in excess of the Maximum Segment Length is renamed as a normal Focal*Point receive file and then moved to the normal Receive File Administration processing.

2. If a data segment contains a Data Termination Identification String within the first 200 characters then:

2.1. If no prior data has been received.

2.1.1. If a Data Start Identification String is found in the same segment the incoming segment is then processed identically to Continuous Data stream as above.

2.1.2. If no Data Start Identification String is found in the same segment the segment is appended with "ABNORMAL TERMINATION: TERMINATION FOUND BUT NO PRIOR START" and the segment is then moved to an error folder within the specified "Save To Folder". If the error folder does not exist it is automatically created.

2.1.3. This is normal processing. If prior data has been received and not yet terminated the segment is appended to the data file and the file is processed identically to Continuous Data stream as above.

3. If the data segment contains a Data Start Identification String within the first 200 characters then:

3.1. If no prior data has been received, a new temporary data file is created and Focal*Point waits for additional segments.

3.2. If data has already been received but not properly terminated, that existing data file is appended with "ABNORMAL TERMINATION: NEW DATA START BEFORE END"

3.2.1. The incomplete data file is then moved to an error folder within the specified "Save To Folder". If the error folder does not exist it is automatically created.

3.2.2. A new temporary data file is started with the contents of the recent segment.

4. If the data segment contains a Remote Request Qualifier String within the first 200 characters then:

4.1. If no prior data has been received the segment is moved to the normal Receive File Administration processing.

4.2. If data has already been received but not processed that existing data file is appended with "ABNORMAL TERMINATION: REMOTE REQUEST RECEIVED"

4.2.1. The data file is then moved to an error folder within the specified "Save To Folder". If the error folder does not exist it is created.

4.2.2. The incoming segment with the Remote Request is then moved to the normal Receive File Administration processing.

Additional Options for Data Collection

Although the remaining options are self-explanatory, it is worth mentioning that Focal*Point allows you to specify the location for your saved data files and the naming conventions for the files. The ability to extract a file name and append the date and time to the name is helpful for isolating and sorting collection data based on the program and run date.

In some cases it may be desirable to print the captured data for immediate review--to that end two options are available, "Always Print" and a "Print On Command." The Print on Command, if active, will print the entire file upon completion of the capture sequence.

Program Maintenance

Focal*Point stores all of its setup and operating information within its two operating database files. Therefore, it is important to purge and compress these files whenever possible. This action is necessary not only to maintain the size of the files, but it also allows Focal*Point to run more efficiently.

Purge Send File History

To view the transfer activity, simply click the Send File History selection located in the Database menu. After reviewing the history, it is highly recommended to purge (delete) the records by clicking the Purge button located within the viewer window. By purging records on a periodic basis, you will easily control the size of the fshare.mdb database. To save a hard copy of the history, simply click the print icon along the top menu bar and select "Disk File" as the output device.

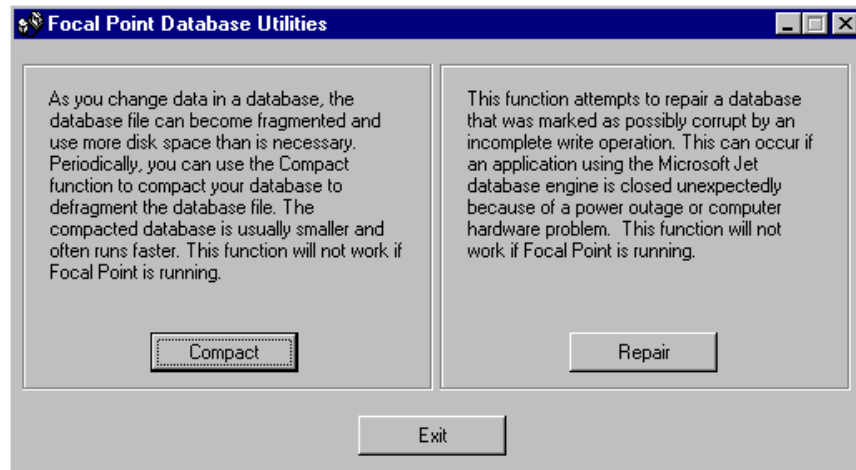
Archive File History

The File Archive feature, when enabled in the Defaults menu, will save and archive DNC*Library files that are targeted to be overwritten from within the Receive File Administrator. Archive transactions are recorded at each Focal*Point workstation, and are maintained within the Fplocal.mdb database. To view and purge these records, simply open the Archive History window located in Focal*Point's Database menu.

DB Optimizer

The DB Optimizer is a separate utility included with Focal*Point. It is accessed from the Windows Start menu within the Focal Point program group. The DB Optimizer will repair and compress Focal*Point's database files. Use the repair function anytime you suspect that the database has been damaged or corrupted. The compress function, which should be performed after purging the "Send File" and "Archive" history, will further reduce the size of the database files and should be performed on a periodic basis.

Database Optimizer and Repair Utility



Included with Focal*Point is a separate utility for maintaining Focal*Point's database structures. The utility specifically maintains the Fplocal.mdb file that resides in Focal*Point's INIT directory and the Fpshare.mdb, which is found in either the INIT directory or the designated common LAN directory. For best results, it is advisable to purge the Send File History from the FpShare.mdb before running the Database optimizer. To purge the history, simply select Send File History from Focal*Point's main Database menu and follow the procedures for purging the current data.

The Database Optimizer should be run on a regular basis, as it will minimize the size of database. This is especially true when frequent additions and deletions are performed to the DNC*Library. Furthermore, since the utility must have complete access to the database structures, it will only run when Focal*Point is not in use.

Communications Troubleshooting Guidelines

NOTE: We will be happy to answer questions about configuring and using Focal*Point, but we can not offer free assistance in configuring the machine control or in using communications on the control. Extended technical support may be purchased for these issues on a pre-paid hourly basis.

For extended troubleshooting it is advisable to run Focal*Point from a laptop computer situated next to the machine control as this will save the time spent walking to and from a remote Focal*Point host! Before doing so, be sure to configure the Communications Parameters to use the laptop's serial port.

Always start troubleshooting by sending from the machine control to Focal*Point. The Focal*Point software is much more flexible in how it receives data and will not issue an "alarm" like machine controls do. Also, the nature of the data received may help you identify the source of the problem.

Follow these steps if you are having a problem communicating with the machine control.

1. Send a program from the machine control to the PC.

If the machine "alarms":

The cable may not be connected to the correct port at the machine control. Check the cable configuration at the machine end, particularly pins 6, 8, and 20.

If the machine acts like it is prepared to send but "sits" continuously in send mode:

A file will not be sent if the CTS line (line 4 or 5 depending on the machine configuration) is not asserted. The cable should have a jumper between pins 4 & 5, or lines 4 and 5 should pass through to their compliment lines on the computer end.

If the machine looks like it is trying to send but you receive nothing in the Receive File Administrator:

Check the cable. Pins 2 and 3 may need to be swapped to match the send/receive lines on the machine control with the receive/send lines on the computer. If hardware handshaking is being used and pins 2 and 3 need to be swapped pins 4 and 5 will also need to be swapped.

Check to see that the correct port has been selected. A quick test is to unplug the cable while trying to send. If an alarm is shown, then the correct port is being addressed.

Check the Focal*Point communications parameters to be sure the correct COM port has been selected.

Try sending to Focal*Point from another machine control or another computer to verify the COM port is not defective.

If "garbage" prints out on the computer screen while receiving:

The communications parameters are probably mismatched. Check to see that the data types (ISO, EIA, or ASCII) match. Many machines have a parameter setting to select between EIA and ISO. Then check the baud rate.

Other possible sources of "garbage" are long cables, cables with weak connections, cables running near EMF sources, or ground faults.

2. Once data has been successfully received, most cable, machine parameters, and COM port configuration problems will be eliminated.

Now send from Focal*Point to the machine control.

If Focal*Point appears to send the file but the machine acts like it is not receiving:

Check the file contents. Perform the initial tests with a file which has been received from the control, not one generated on your CAD/CAM system. Some controls require an end of block at the beginning of the file or require a program qualifier (like O2213) at the beginning of the file. Others require a M30, M02, %, or END at the end of the file.

If a partial program is received (blocks of data appear to be dropped), or the machine issues a data overflow alarm:

Make certain that the computer's RS-232 ports are not configured to utilize their built-in FIFO buffers. This setting is accessed from the Windows Control Panel and is discussed in the Program Setup section.

Check to make sure handshaking has been properly enabled. If the cable uses only lines 2, 3 and 7 select X-ON/X-OFF protocol. (Also referred to as Software Handshaking or DC1/DC3 control codes.) If the machine does not support software handshaking use a cable with pins 4 and 5 connected. This will enable CTS/RTS handshaking.

Cable and Wiring

RS-232 serial data transfer remains the single most popular means for communicating with modern CNC equipment. Although capable of high transfer rates, interference from Ground Loops, Radio Frequency (RFI), and Electro Magnetic Interference (EMI) can greatly impede the reliability and performance of any DNC system.

To minimize the possibility of data corruption, and worse yet, physical damage, review the following guidelines when considering the installation of cable for your DNC system.

Ground Loops

Simply stated, a ground loop occurs when two devices do not share the same source of ground. And, since the ground signal sets a common frame of reference for data signals, a ground loop can inhibit all communication between the devices. Furthermore, if the potential difference between the two devices exceeds 30 volts, circuit damage is likely to occur.

By far, the best way to avoid ground loops is to make certain that all equipment, machines and computers alike, share the same ground source, and the best source is earth ground through the use of grounding rods. As for computer equipment and external port hardware, never eliminate or by-pass the third wire ground lug on the AC line cord.

Interference

Interference with RS232 data can be introduced in many ways. Fortunately, careful selection, routing, and placement of the transmission cable can eliminate the most common factors.

The following list outlines the major considerations for avoiding data corruption from interference:

- Make certain that all equipment is properly grounded.
- Computers and external hardware should be equipped with surge protection devices.
- Individual RS232 lines should be fitted with inexpensive surge filters.
- Select good quality cable that utilizes both a foil and braided shield.
- Follow the appropriate procedures for wiring diagrams, paying special attention to solder, shield, hood, and screw connections.
- Avoid excessively long cable runs.
- Avoid routing cable in the vicinity of EMI generating equipment, such as: wire EDMs, arc welders, plasma cutters, large motors, fluorescent lights, etc.
- Although rare, another potential source of sporadic problems is radio transmitters. This is especially true in the vicinity of Amateur or CB transceivers when cable lengths approach multiples of a quarter wavelength of the operating frequency.

Installation Considerations

- Always label each end of the cables to provide easy identification.
- Cable ends should be routed to provide free and easy access for connector assembly.
- Take special care when routing in the vicinity of overhead cranes or other movable equipment.
- External port hardware, such as Digiboard Concentrators, should have a secure mounting platform (typically 18" x 12") and easy access to an AC power source.
- Keep in mind that 32 port concentrator systems require that the first 16 ports be filled before connecting to the second concentrator.

Resolving Problems

- Independently verify that a CNC will indeed communicate via its RS232 port before assuming the DNC system is defective.
- When confronted with extremely long cable requirements, consider the use of RS422 adapters or short haul modems.
- Extremely problematic environments--especially those with ground loop difficulties arising from building to building communication--will benefit from optical-isolators. These devices serve to protect equipment from surges as high as 2500 volts while maintaining data integrity.
- In areas of high intensity electrical fields, consider enclosing the cable within well-grounded electrical conduit.

Wiring Diagrams

We highly recommend the use of surge suppressers to reduce the potential for lightening and other surge damage to the machine controls. These may be obtained from CNC Innovations, LLC.

It is your responsibility to verify serial cable requirements for the control. If in doubt, refer to a machine control dealer or a qualified service representative.

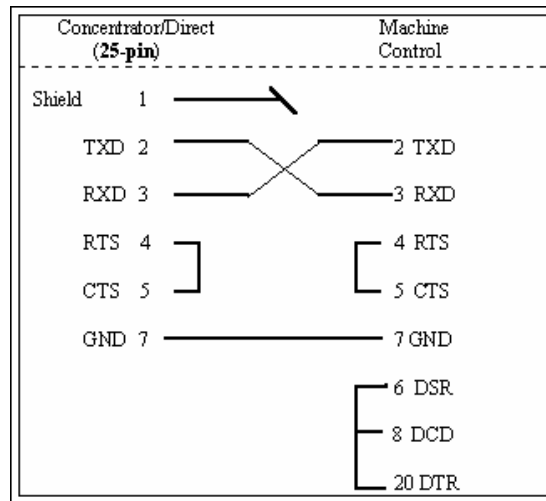
As cabling and machine configuration requirements go beyond the specific range of our product, we can not offer free technical support for either of these configuration problems. Extended technical support may be purchased for these issues on a pre-paid hourly basis.

Following are suggested cable configurations. Two configurations are for Machine to Port Hardware, one is for RTE-1000 installations, and one describes the RS422 wiring for the computer to a Digiboard Concentrator.

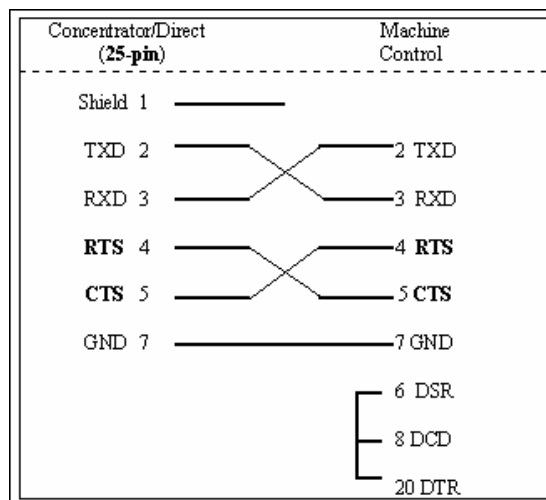
If these configurations do not work refer to your machine control manual for more details.

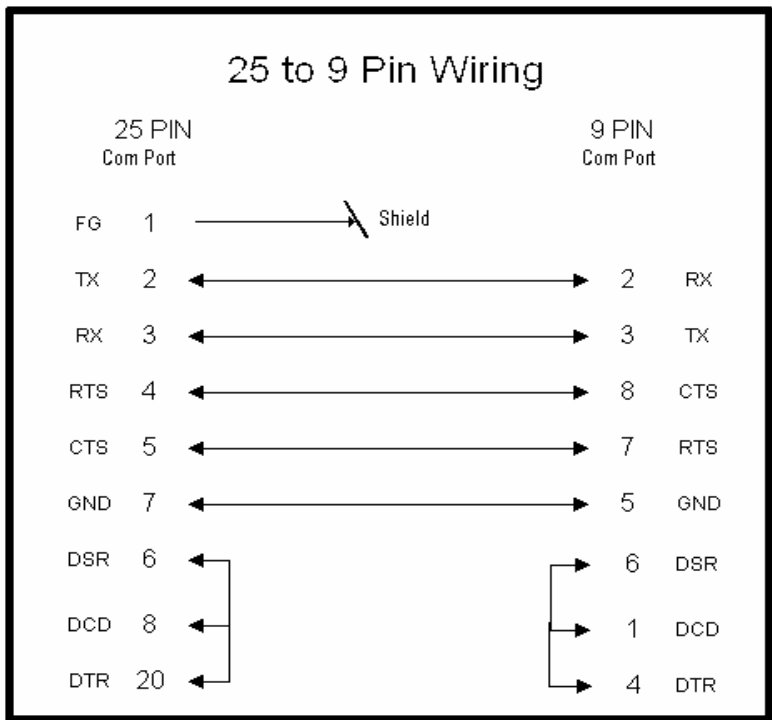
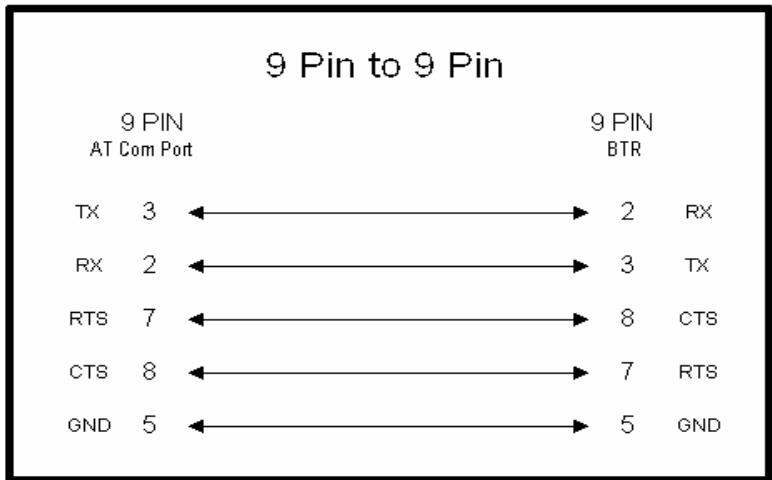
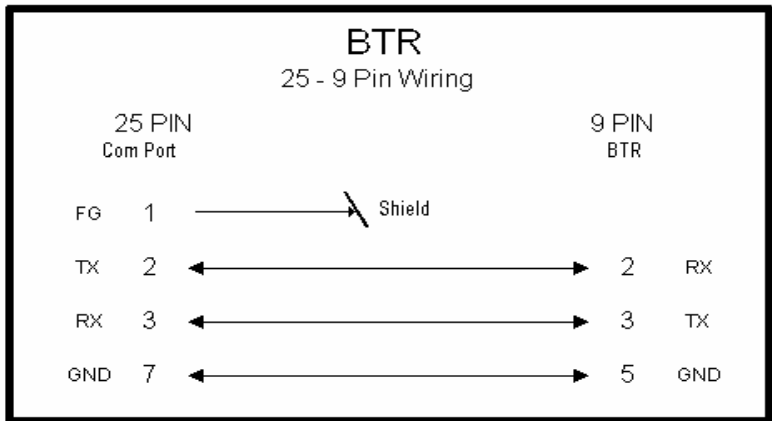
Suggested Cable Configuration for Software Handshaking

(Software may be referred to as Xon/Xoff or DC1/DC3)



Suggested Cable Configuration for Hardware Handshaking





Frequently Asked Questions

Communication Problems

- Q. After a Remote Request or Send operation the main display window continues to indicate "Sending" in the file Status bar.
- A. This situation occurs when NC files contain extra end-of-block characters at the end of the program and your control responds to an M30 or percent sign prior to the EOB characters and responds by terminating the program load. Although the situation is harmless, you can remedy the problem when you create your NC programs by eliminating the extra EOB characters. Alternately, use Focal*Point's strip character--in this case % is decimal 37--to strip the code during file transmission and simply add the % as a Start and End character. This will ensure that there are no stray characters at the end of your program files.
- Q. On our dual concentrator system (greater than 16 ports), one of the units displays "P1" and we cannot establish communications.
- A. In some situations electrical noise can disturb the internal settings of the concentrator units. As such, we always recommend the installation of a U.P.S. system. However, to establish communications it will be necessary to power-down both of the concentrators and then apply power to the first unit before turning on the second unit. In normal operation both units should display "AC".
- Q. I can not read the packet information for my Mazak files.
- A. Be sure to save Mazak files with an MZP extension. The extension tells Focal*Point how to display Mazak files.
- Q. While loading a program in my control, I only receive part of the program and Focal*Point appears to hang-up.
- A. In the communication parameters for Focal*Point, try enabling the "Ignore Incoming Data While Sending" option. Since Focal*Point is capable of re-queuing a file (via remote request) that is currently being transferred, if a control echoes received data it may cause Focal*Point to process the data as an invalid remote request. Meanwhile your control may timeout and terminate the load sequence.
- Q. Bridgeport series 3 & 4 controls do not load properly; they appear to lose data.
- A. Bridgeport controls may require end-of-line Null characters. This parameter is located in the communications section.

Remote Request Problems

- Q. I issue a remote request but the software does not respond.
- A. It may be necessary to enable the XOFF delay found in the Defaults menu. The delay is supplied in order to provide support for different hardware and software configurations.
- Q. Focal*Point will not recognize a remote request from an RTE-1000.
- A. Make certain that the NC Program Qualifier String--located in the Communication Parameters--is empty; and that the Request Code is "T".

Furthermore, after inputting a numeric only DNC*ID number and pressing the RTE's "Enter" key you must wait a few seconds before pressing the "Start" key. Otherwise Focal*Point will queue the file but it will miss the X-on (Start) code. You can by-pass the wait period by utilizing the Send Standby Time-out feature, which will automatically initiate the file transfer.

- Q. Does Focal*Point support the Burr-Brown keypad?
- A. For customers using the Burr-Brown keypad, simply select Burr-Brown from the Key Pad menu in the Remote Request section of the Communication Parameters.
- Q. Does Focal*Point support the QSI Terminal?
- A. For customers using the QSI Terminal, simply select QSI from the Key Pad menu in the Remote Request section of the Communication Parameters.
- Q. How do I use Easytalk to issue a remote file request?
- A. Easytalk Version 7.0 will issue a remote file request if Focal*Point is configured for a hardware handshake and the Keypad Type is set for QSI Terminal.

General Considerations

- Q. Can our NC programmers add files to the DNC*Library?
- A. There are two methods to add files to the Library. First, they can load Focal*Point as a DNC Administrator, or secondly, they can utilize the Automatic Library Transfer feature.
- Q. For proper operation of Focal*Point on a peer-to-peer network, how can I specify a common drive letter when Windows 95 automatically assigns its own drive letters?
- A. The Subst command found in the Windows\Command folder can be used to associate a network path with a required drive letter. For example, the command "c:\windows\command\subst g: f:\FocalPt\NCfiles" will create a virtual drive G that will map to f:\FocalPt\NCfiles.
- Q. I know that Focal*Point's RFA has received files from certain controls, but when I click on the Cell name for those controls I don't see the received files.
- A. In rare cases Focal*Point's connect.mdb database file may be damaged. Either replace the file (located in the shared file directory as specified in Multi-User Administration) with a backup copy or perform the following procedures to create a database file.
1. Save any data files located in the Multi-User Administration directory.
 2. At each seat of Focal*Point, disable (un-click) LAN Connectivity in the Multi-User Administration window. Follow the on screen instructions and shut down each seat of Focal*Point; do not restart Focal*Point at this time.
 3. Access the Focal*Point shared file directory, this is usually x:\fpshare (where x is your network drive). In this directory delete the file Connect.mdb.
 4. Re-start each seat of Focal*Point and re-connect LAN Connectivity by specifying the shared file directory and Cell name.
- Q. I have a network version of Focal*Point, can I start the program if my Local Area Network Fails?
- A. The Focal*Point software will run on any computer that has the network security module attached during startup. The only prerequisite is that the network device driver must be loaded and the License Manager software must be running. Of course, License Manager will require at least one network protocol, which can usually be installed as Dial-Up Adapter. For more information, refer to Windows' help program and the section entitled "Emergency Backup and Activation Procedures."

- Q. I am running Focal*Point with Windows NT and I want to keep my computer in a secure location, how can I bypass the NT Logon window and allow Focal*Point to run when my computer re-boots.
- A. Modify the System Registry with the following values. (Note that only system administrators should perform this function) CNC is not responsible for any consequences resulting from the modification of the system registry.

Locate the registry key:

`\Hkey_local_machine\Software\Microsoft\WindowsNT\CurrentVersion\Winlogon`

Change the following Values

AutoAdminLogon = 1

Enter the account to use in the value: DefaultUserName

Enter your password in: DefaultPassword

Enter your domain in: DefaultDomainName

Reboot your computer

Legacy Security Keys

Focal*Point version 4.9 and greater no longer uses or supports legacy security keys and dongles. All licensing is provided through password keys on each workstation. See the Manage License section accessed in Focal*Point's Help menu or as displayed during the startup splash screen.

Backup Strategies

Focal*Point, like most communication software, is dependant on a number of interrelated components that in their various functions enable Focal*Point to work as a stand-alone program or in unison with multi-port hardware devices. Additionally, each configuration may or may not utilize the resources of an attached LAN network. It is within this multitude of operational characteristics that this section will attempt to prepare the Focal*Point user to re-establish communications when various problems occur.

General Backup Procedure

The first and most important safeguard is to make backup copies of Focal*Point's configuration files. Without these files, Focal*Point will not function as intended. All of Focal*Point's defaults, communications, and LAN connection parameters are stored in Microsoft Access V 7.0 compatible database files. During installation these files are stored in the *fpdnc\init* directory and are recognizable by their MDB file extension. When Focal*Point is configured to utilize LAN resources, additional files will be created and will reside in the shared Multi-User Administration directory specified within Focal*Point's Settings menu.

The following list illustrates each file, its purpose, and its location.

Focal*Point without Multi-User Administration

File Name	Description	Location
FPLocal.mdb	Stores Default parameters and Com. Settings.	\cncinnov\fpdnc\init
FPSHare.mdb	Stores NC Program Categories, DNC Library, Parts and Send History	\cncinnov\fpdnc\init

Focal*Point with Multi-User Administration

File Name	Description	Location
FPLocal.mdb	Stores Default parameters, Com Settings and LAN connection attributes	\cncinnov\fpdnc\init
FPSHare.mdb	Stores NC Program Categories, DNC Library, Parts and Send History	Specified in Multi-User Administration
Connect.mdb	Stores Cell, Workstation And Port Information	Specified in Multi-User Administration
Config.mdb	Used by the Customer Update Utility to save NetHasp SIM data	\cncinnov\hasp_utilities\update utility

Each of the above files should be included in your regular system backup. The most important of which is the FPSHare.mdb because it stores the DNC*Library information. The remaining files need only be saved when the system configuration is changed.

Configuring a Backup DNC Server

Note: With the release of Focal Point version 4.10 it is now easier than ever to configure a backup laptop PC. If a backup roaming laptop will satisfy your requirements, then we highly recommend that you look at the “Single-Port plus Administration” license configuration.

If your requirements call for a backup file server then read on.

For quick recovery of a failed DNC file server it has become increasingly popular to configure an additional PC as a backup Focal*Point host. To that end, it must be stated that a backup PC is easiest to maintain when Focal*Point has been configured for Multi-User Administration, that is, a shared DNC Library database is located on a LAN drive and NC program files are also stored on a network drive. If neither of these ideals is true, it becomes necessary to constantly mirror Focal*Point’s database and the NC program files on the backup PC. For the purpose of this discussion we will assume that all files are located on shared network drives. For more information about a shared database read the section regarding Multi-User Administration in the Focal*Point help program.

Before getting started, one consideration is the use of a laptop PC as a backup server because it can also be used as a portable program loader when there is a problem with existing RS-232 serial hubs. This article will first outline the general requirements for configuring a backup server and conclude with a short discussion regarding laptop configurations.

- Software Licensing

When duplicating a Focal Point server the first point of consideration is the software license. Is a second software license required? Fortunately the answer is no. Focal*Point, when installed on a new PC, will work unlicensed for 10-days. For many people that time frame offers sufficient insurance against a failed DNC server. However, it does not guarantee protection since the 10-day limit is easily exhausted.

Aside from purchasing a full license or gambling with a limited 10-day license, CNC also offers a complimentary annual backup license to all customers enrolled in its Comprehensive Support Program. This license is issued upon request from all enrolled participants and runs concurrent with the support agreement.

- Configuring the Backup PC

The following section outlines the procedures required for successfully configuring a backup PC.

Assuming that the main system utilizes Ethernet based RS232 LAN to serial hubs running on a Windows 2000 or above operating system, the first step is to determine the current configuration for the hubs. This is done by viewing the properties for each hub as displayed in the Windows Device Manager. Locate the section for Multi-port Serial Adapters and record the order of the hubs, their IP and MAC address, and their subsequent COM port numbering sequence. For example, if two 8-port hubs are used, the first hub will likely contain COM 5 through 12 and the second hub will contain COM 13 through 20. Be sure to record both the hub MAC address and port sequence for each hub in your network.

With this information you can proceed to install the hub drivers on the backup PC. However, when doing so, it is best if both operating systems use the identical driver version--the original drivers are usually located on the main PC in a folder named Control. If the identical drivers are not available, you should download the latest drivers to ensure compatibility. See www.comtrol.com for more information and updated drivers.

After installing the drivers it is important to open the device properties located in the Windows Device Manager and designate the MAC or IP address and COMM port sequence in order to match the original installation. After successfully installing the first device repeat the above steps for all remaining devices.

Tip – When using MAC addressing it is best to disable all IP addressing as accounted for in the device properties. Please refer to Comtrol’s driver documentation for more information.

Next you will install Focal*Point on the backup PC and enter a license code or select day 1 of the 10-day trial. You will also want to copy Focal*Point's configuration files as describe in the following paragraph.

At the main Focal*Point computer, use Windows Explorer to navigate to Focal*Point's database folder, usually c:\cncinnov\fpdnc\init. Within this folder you will find two important files, FPLocal.mdb and FPShare.mdb. Copy FPShare.mdb to the same folder in your backup PC. **Important** – In Multi-User, shared configurations, the FPLocal.mdb file requires a small internal change so as not conflict with the existing server. This change is provided free of charge for customers enrolled in our Support program. Please call 508-523-1763 for details.

Upon receipt, put the FPLocal.mdb in the same folder as your FPShare file. Next, make one final check that all drive mappings and privileges have been duplicated on the backup PC. This will ensure proper access for Focal*Point's shared LAN folder and the NC program folder as listed in your DNC program library. Now start Focal*Point and connect to the shared database using Multi-User Administration located in the Settings menu. Browse and select the shared folder as previously set in the original PC and also enter a unique Cell name such as Backup PC.

At this point you must shutdown the main PC and restart the backup PC in order to gain control of the communication hubs. Proper connection can be verified by viewing the Device Adviser tab located within the Control driver properties dialog for each hub. If all is well the Device Adviser will display the message "Device is Active and OK."

After restarting you should see the familiar main screen populated with your machine controls. The Status bar should indicate [Rec Stby] for all active connections. If the status indicates [Not Loaded] you should verify that the main PC is off and double check the installation of the RS232 hardware and COM port designations in the device properties.

This completes the setup and allows you to resume normal communications with all your machine controls. When you are satisfied that the backup PC works as intended, you should then disable the hub drivers to avoid conflicts when, and if, both PCs are running simultaneously. Remember that only one PC can have control of the serial hubs.

The drivers are disabled by right-clicking on the hub(s) in the Device Manager and selecting the Disable option. In the future, should it be necessary to activate the backup PC for communications, you will simply Activate the drivers and start Focal*Point. Until then, the backup PC can be used as any other Administration seat.

This concludes the discussion for configuring a Backup DNC server. The next section will discuss options for using a laptop as a portable program loader in the event that problems extend to the RS232 communication hubs.

- Laptop Options

If a problem should arise with the RS-232 communication hubs, even the backup PC will fail to initialize the COM ports. In this situation you may still have wireless access to your NC program files, or if you have planned ahead, you will have a CD or USB drive that contains copies of your programs.

To communicate with any machine simply change the COM port number to use the laptop's COM 1 port. (This is a temporary measure so be sure to reset the port to its original setting when you are finished.) To change the COM port, highlight the target machine's name on Focal*Point's main menu and then open the Communication Parameters located in the Settings menu. In the Required Parms tab, change the COM PORT number to COM 1 and click the Reset and Save buttons.

At this point if you connect an RS-232 null-modem cable to the machine, you can perform normal program transfers. If, however, you are using a CD image of your NC program files, it will be necessary to use the Send Browse feature, located in the File Menu, to select and transfer programs to the machine.

In conclusion, configuring a backup PC is generally a simple exercise as outlined in this document. Keep in mind however, aside from general questions, CNC Innovations cannot offer unlimited installation support for backup PCs since installation services are generally provided as paid services.

ASCII CHART

CTRL	DEC	HEX	CHAR	CODE	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR			
^@	0	00		NUL	32	20		64	40	@	96	60	`	128	80	ç	160	A0	à	192	CO	Ļ	224	E0	α
^A	1	01	☐	SOH	33	21	!	65	41	A	97	61	a	129	81	ü	161	A1	í	193	C1	↓	225	E1	β
^B	2	02	☐	STX	34	22	"	66	42	B	98	62	b	130	82	é	162	A2	ò	194	C2	⌞	226	E2	Γ
^C	3	03	♥	ETX	35	23	#	67	43	C	99	63	c	131	83	â	163	A3	ú	195	C3	⌟	227	E3	π
^D	4	04	♦	EOT	36	24	\$	68	44	D	100	64	d	132	84	ä	164	A4	ñ	196	C4	-	228	E4	Σ
^E	5	05	♣	ENQ	37	25	%	69	45	E	101	65	e	133	85	å	165	A5	ñ	197	C5	†	229	E5	σ
^F	6	06	♠	ACK	38	26	&	70	46	F	102	66	f	134	86	å	166	A6	º	198	C6	‡	230	E6	μ
^G	7	07	•	BEL	39	27	'	71	47	G	103	67	g	135	87	ç	167	A7	ª	199	C7	§	231	E7	τ
^H	8	08	☐	BS	40	28	(	72	48	H	104	68	h	136	88	è	168	A8	¿	200	C8	¶	232	E8	ξ
^I	9	09	○	HT	41	29	)	73	49	I	105	69	i	137	89	é	169	A9	¸	201	C9	π	233	E9	θ
^J	10	0A	☐	LF	42	2A	*	74	4A	J	106	6A	j	138	8A	è	170	AA	¸	202	CA	µ	234	EA	ϖ
^K	11	0B	♂	VT	43	2B	+	75	4B	K	107	6B	k	139	8B	ÿ	171	AB	½	203	CB	π	235	EB	δ
^L	12	0C	♀	FF	44	2C	,	76	4C	L	108	6C	l	140	8C	ï	172	AC	¼	204	CC	§	236	EC	œ
^M	13	0D	F	CR	45	2D	-	77	4D	M	109	6D	m	141	8D	ì	173	AD	¸	205	CD	-	237	ED	ø
^N	14	0E	⌘	SO	46	2E	.	78	4E	N	110	6E	n	142	8E	ñ	174	AE	«	206	CE	†	238	EE	ε
^O	15	0F	*	SI	47	2F	/	79	4F	O	111	6F	o	143	8F	â	175	AF	»	207	CF	↓	239	EF	η
^P	16	10	▶	DLE	48	30	0	80	50	P	112	70	p	144	90	é	176	BO	§	208	DO	µ	240	FO	≡
^Q	17	11	◀	DC1	49	31	1	81	51	Q	113	71	q	145	91	¸	177	B1	§	209	D1	⌞	241	F1	⌞
^R	18	12	↕	DC2	50	32	2	82	52	R	114	72	r	146	92	¸	178	B2	§	210	D2	⌟	242	F2	⌟
^S	19	13	!!!	DC3	51	33	3	83	53	S	115	73	s	147	93	ó	179	B3	|	211	D3	⌟	243	F3	⌟
^T	20	14	⌘	DC4	52	34	4	84	54	T	116	74	t	148	94	ö	180	B4	|	212	D4	⌞	244	F4	⌞
^U	21	15	§	NAK	53	35	5	85	55	U	117	75	u	149	95	ò	181	B5	|	213	D5	⌞	245	F5	⌞
^V	22	16	-	SYN	54	36	6	86	56	V	118	76	v	150	96	û	182	B6	|	214	D6	⌞	246	F6	÷
^W	23	17	±	ETB	55	37	7	87	57	W	119	77	w	151	97	ù	183	B7	π	215	D7	⌞	247	F7	≈
^X	24	18	†	CAN	56	38	8	88	58	X	120	78	x	152	98	ÿ	184	B8	†	216	D8	†	248	F8	°
^Y	25	19	↓	EM	57	39	9	89	59	Y	121	79	y	153	99	ÿ	185	B9	†	217	D9	†	249	F9	·
^Z	26	1A	→	SUB	58	3A	:	90	5A	Z	122	7A	z	154	9A	U	186	BA	||	218	DA	†	250	FA	·
^[	27	1B	←	ESC	59	3B	;	91	5B	[	123	7B	{	155	9B	φ	187	BB	π	219	DB	■	251	FB	√
^\	28	1C	⌞	FS	60	3C	<	92	5C	\	124	7C	|	156	9C	£	188	BC	µ	220	DC	■	252	FC	³
^]	29	1D	↕	GS	61	3D	=	93	5D	]	125	7D	}	157	9D	¥	189	BD	µ	221	DD	||	253	FD	z
^^	30	1E	▲	RS	62	3E	>	94	5E	^	126	7E	~	158	9E	¸	190	BE	µ	222	DE	||	254	FE	·
^_	31	1F	▼	US	63	3F	?	95	5F	_	127	7F	DEL	159	9F	f	191	BF	µ	223	DF	■	255	FF	

TECHNICAL SUPPORT REQUEST FORM

Fax to 508-523-1763

Contact Information

Date _____

Company _____

Contact _____

Product _____

Version _____

Tel: _____

Fax: _____

Describe the Problem

Steps to Reproduce the Problem

Background Information

Control _____

Model # _____

Computer _____

Operating System _____

Is this a new installation? _____

Has the problem occurred before? _____

Previous contact at CNC _____

About CNC Innovations, LLC

CNC Innovations started in 1988 as a software division of CNC Engineering, Inc. At that time CNC Engineering sold and supported several third-party manufacturing software solutions including DNC communications packages. As CNC Engineering's software division gained experience with the available third-party products it became apparent that customers were looking for more innovative and cost-effective solutions. As a result, in 1991 CNC Engineering decided to spin-off CNC Innovations as separate software company dedicated to developing, marketing, and supporting a totally independent line of manufacturing software.

CNC Innovations' early products focused on using emerging laptop PCs for DNC communications and file management. The goal in using PCs was to provide flexible and cost effective solutions that were no longer dependent on proprietary hardware. As a result, Easytalk, the first PC based DNC product developed. Easytalk was well received by the marketplace and quickly became an industry standard, which set the stage for the development of subsequent product ideas. Coupled with refreshing product innovation and unsurpassed customer support, CNC Innovations quickly evolved to become one of the dominant players in the DNC marketplace.

After ten years as "sister companies" CNC Innovations, and CNC Engineering, Inc. again merged their operations. Under the terms of agreement, the merger took effect January 1, 2000 with the combined company name being CNC Engineering, Inc. As a result of the merger, the companies were able to combine their knowledge of CNC machine controls, retrofits and manufacturing software, thereby enabling CNC Engineering to provide complete integration of the entire line of products and services.

Moving forward, and after nearly six years under the umbrella of CNC Engineering, in 2006 CNC Innovations once again realized that its customer's needs were best fulfilled by the concentrated efforts of a separate company. By branching out, the re-established CNC Innovations is able to provide a much quicker and more dedicated response to customers.

CNC Innovation, LLC is now based in Auburn, MA, and is comprised of the same individuals who made Easytalk, Easytalk MultiTask, Focal*Point DNC, the well-known DOS based Microset ToolSet Manager, Tool*Edge, Doc*Control, Scripted Assembly and Inspection Processing, MCED for MasterCam™ and the Windows™ GForce NC file editors, the CAMpanion communications and editor, In-Process Part Acceptance, and CNC Infrastructure Support Services, all of them, the best shop-floor software available.

We sincerely hope you that will participate in our growth and enjoy our products.

CNC Innovations, LLC